THE ROLE OF GOOD GOVERNANCE AND DEVELOPMENT AID FOR MUNICIPAL SOLID WASTE MANAGEMENT IN IRAN

By
Elena Eisenhofer

Submitted to
Central European University
Department of Public Policy

In partial fulfilment for the degree of Master of Arts

Supervisor: Violetta Zentai (PhD)

Vienna, Austria
2022

Author's Declaration

I, the undersigned Elena Eisenhofer, hereby declare that I am the sole author of this thesis. To the best of my knowledge this thesis contains no material previously published by any other person except where proper acknowledgement has been made. This thesis contains no material which has been accepted as part of the requirements of any other academic degree or non-degree program, in English or in any other language.

This is a true copy of the thesis, including final revisions.

Date: 14th of June 2022
Name (printed): Elena Eisenhofer

Signature: 

Acknowledgements

First of all, I would like to thank my thesis supervisor Violetta Zentai (PhD) for her constant willingness to help me and provide me with feedback throughout the schoolyear. Her in-depth knowledge and competence have guided my writing process. Other academics at CEU whose classes were inspirational for the coming into being of this work are Cristina Corduneanu-Huci (PhD) and Tiziana Centofanti (PhD). Moreover, I would like to thank my friends Amina, Gerardo and Kristina for their support and motivation. Lastly, I would like to thank my parents for enabling me to pursue this part of my education.

Abstract

The following MA thesis investigates the topic of municipal solid waste management in Iran. The municipal solid waste management of the Islamic republic of Iran is outlined by various policies. These policies are issued by the Islamic republic's local governments as well as sub-national settings. Other actors in the field of municipal solid waste management in Iran are international organizations. This thesis identified two international organizations which are active in this field which are the World Bank and the United Nations. A third identified group of actors are countries which address the municipal solid waste management of Iran in their development aid programs. The countries whose polices were screened in the process of this thesis are Germany and Japan. This thesis explains the problem of municipal solid waste (mis) management and in a next step uses the academic method of document analysis in order to look at the polices of the above-mentioned actors. The conceptual framework of this thesis is the interlinkage between good governance and sustainability**.** In order to guide back the work to the public policy field, the policy failures as well as policy recommendations will be discussed.

Table of contents

1. List of abbreviations

Acronym	Meaning
AD	Anaerobic Digestion
GHG	Greenhousegas
IPCC	Intergovernmental Panel on Climate Change
MENA	Middle East and North Africa
MSW	Municipal solid waste
MWMO	Municipal waste management organization
OECD	Organization for Economic Co-operation and Development
PAHO	Pan American Health Organization
PET	Polyethylene terephthalate
UNDP	United Nations Development Program
UNEP	United Nations Environment Program
WB	World Bank

2. Introduction

The following work was written in order to obtain the academic degree of Master of Arts in the Department of Public Policy at Central European University in Vienna. The topic of this work is the role of good governance and development aid for sustainable municipal solid waste management in Iran. The research question thus reads: Do international and domestic policy documents converge on the three Rs reduce, reuse and recycle of sustainable waste management? The underlying hypothesis of this work is that international organizations pursue a top-down agenda in their work in Iran which is not the most efficient approach in order to target the sustainability goals of the country. The hypothesis was formed from a critical postcolonial reading of the matter. This topic stems from my two academic interests: sustainability and development. During my Master's at CEU I pursued the specialization "development". Furthermore, I have an interest and personal connection to Iran.

The Islamic Republic of Iran is labelled by the United Nations as a semi-developed country. Its economy is characterized by its hydrocarbon, agricultural, and service sectors as well as manufacturing and financial services (World Bank, 2021). The International Monetary Fund labels it as a "transition economy" as it is changing from a planned to a market economy. In order to ensure a good life for generations ahead, the climate crisis is a highly relevant issue of our current times. Also, in the academic debate this topic is being picked up continuously. For long-lasting change to happen, waste management policies should be available in every country and region to ensure a clean environment and further create employment opportunities. The underlying topic of this work can be identified as "environment and the middle East" and the concept that guides this work "environmental policy and good governance".

This work is outlined as follows: The first part will give an introduction to the most crucial terms. Firstly, information about the Islamic republic of Iran will be provided. Then, the term solid waste and the problems related to it will be explained. After that, the two main concepts of this work which are good governance and sustainability will be outlined. The next part will describe the applied methodology. The third big part of this work is divided in "the work of international organizations", "foreign aid" and "the government's efforts". All of these sections provide an overview of the work of these stakeholders and an analysis of documents that are outlining the efforts these stakeholders make. What follows is a general discussion of all findings. The fourth and final part brings the discussion back to the policy field: the identified policy failures are explained and accordingly policy recommendations will be given in order to link the discussion back to the field of public policy. Lastly, a general conclusion of this work will be given.

3. The islamic republic of Iran

The Islamic republic of Iran, also sometimes referred to as "Persia", is one of the most interesting countries when dealing with the topics of good governance and sustainability. This is because it is a country which continually has different kind of problems in these areas. Even-tough there exist ambitions to tackle these problems, the intertwine of different stakeholders involved and the complexity of the issue on multiple layers make the examination of these issues in the Islamic republic worthwhile. Also in the social sciences, the diversity of the country has been analyzed in multiple texts (e.g. Rahimi. E. 2014. & Rupani P.F., Delarestaghi R.M., Abbaspour M. et al. 2019).

In the country, three cultures fuse: the old Iranian culture, the Islamic culture and the Western culture. The relationship between these cultures in total can be described as Iranian's national identity. Iranian politics is a matter of significance globally and hard to dismiss. The state can be described as multi-religious and multi-ethnic. S. Holliday argues that this national complexity leads to the fact that Iranian's national identity is contested. Nevertheless, members of almost all ethnic groups have a strong sense of belonging to the idea of an Iranian nation (Holliday, 2016). The Britannica describes the society as very diverse with the Persians being the majority. A further big population is the one of the Armenians who are concentrated in Tehran and Isfahan. With various ethnic groups come along also many languages. Farsi is the official language of Iran, but many other languages and dialects exist. Farsi is the predominant language of literature, journalism and the sciences. Before 1979, English and French and sometimes even German and Russian were used by the educated class. Regarding the religion Islam, the dominant stream in Iran is Shiism. The Shii clerk have been the predominant political and social force in Iran since 1979. Religious minorities in the country include Christians, Jews

and Zoroastrians. N. Keddie (2005) argues that the most recent problems in Iran stem from over-rapid modernization. This rapid modernization led to problems such as uprooting, alienation, corruption, income distribution gaps and opposition to Western policies (p. 10). The Encyclopedia Britannica describes the country as mountainous, arid and ethnically diverse. The most prominent ecological issue in the country is drainage. The climate ranges from subtropical to subpolar. Plant and animal life are quite diverse.

The most popular countries for emigration from Iran are the United States and Canada (Britannica, 2022). Regarding the big cities: Tehran is the capital and largest city. Isfahan is the second most important city and very famous for its architecture. Various sectors of society such as governmental, residential and business are often divided in separate quarters with the bazaar being the business quarter. According to the World Bank Iran is an upper middle-income country and has the second largest economy in the MENA region. The current unemployment rate lies at 11.7%. What is important to add as well to the facts and figures about Iran is that Iran's population is very young, around 40% of Iranians are under the age of 25. The urbanization rate of the country lies at 2% and almost three quarters of the population in Iran live in cities (Eisinger et al., 2021). Taking a further look at the countries' economy, its most prominent feature is the continuing isolation from the international community. Many international restrictions have hampered the countries' access to high technology and impeded foreign investment. Inflation is constantly rising. In the year of 2021 the inflation rate was around 40,13 % in comparison with the previous year. For 2022 experts expect a rise of 32, 34 % in comparison with the previous year (statista, 2022). Its one major industry is the extraction of petroleum and natural gas for export. Further, copper is being produced. The region of Kerman is the center of the country's copper industry. The country's legal system is characterized by the notion of velayat-e faqih. This means leadership is given to the religious

authority, the imam (Chehabi, 1991). Furthermore, the faqih or jurist is given authority. Regarding the policy-making in the Islamic republic of Iran, the clergy is very influential. It can be said that the system of governance of the republic is unique in the world. A dual system exists of spiritual and temporal authorities. The clergy does, however, not depict a church in the sociological sense. Furthermore, there is no strict hierarchy with promotion procedures (Chehabi, 1991). The final say to all things related to the Iranian state is up to the Supreme leader. The holder of Iran's presidency is the second most powerful person in the country. The president can have profound impact on domestic and foreign policies and consults with the Supreme leader (Bruno, 2009). Thaler et al. (2010), after having analyzed Iran's policymaking-system, state: "The opaque nature of decisionmaking in Tehran, the parallel institutions, the bifurcation of the government between elected and appointed officials, the informal networks, the undercurrents of factional maneuvering—all lead the analyst to look for some key to unlock the secrets of regime policymaking. That such a key exists appears doubtful. Iran's political system and domestic politics will continue to be convoluted and often unpredictable. Institutional duplication, informal politics, factional disputes, and resulting stalemate preclude coherent, forward-looking policies. This creates a tendency toward inertia and an absence of initiative." Due to the Islamization of public life, the cooperation of foreign professionals and international organizations is quite limited (Chehabi, 1991). Development aid is nevertheless paid from various countries such as Norway, Denmark, Germany, Austria and institutions such as the European Commission (OECD, 2022). According to the OECD report on "Geographical Distribution of Financial Flows to Developing Countries: Disbursements, Commitments and Country Indicators" of 2022, Norway paid 2.4 millions of USD to Iran in 2020. Denmark provided 3 millions of USD in 2020. Austria provided 11.2 millions of USD in 2020. The EU institutions 32,4 millions of USD in total in 2020 (OECD, 2022). This work will look specifically at Iran's waste management system. After giving

information about the case country of this work, the next part will give a definition and introduction to solid waste.

4. Solid waste

Waste is defined by the United Nations Environment Program as "objects that the owner does not need, want or use them, and they should be recycled or disposed" (UNEP, 2021). Waste can be categorized from several perspectives: the physical state (solid, liquid, and gas), the main applications (packaging, food industries, etc.), the materials (glass, paper, etc.), the physical features (need to be burned, have the potential of sundry reuse or recovery), the origin (household, commercial, agricultural, industrial, etc.), and its safety (safe or dangerous) (Edalatpour et al., 2018).

Municipal solid waste (MSW) is defined by the OECD as being collected and treated by or for municipalities. It covers waste from households, including bulky waste, similar waste from commerce and trade, office buildings, institutions and small businesses, yard and garden, street sweepings, contents of litter containers, and market cleansing. Waste from municipal sewage networks and treatment, as well as municipal construction and demolition is excluded (OECD, 2012). The PAHO (the Pan American Health Organization), which is one of the most respected authorities in the field, defines municipal solid waste as being generated in population centers. Also waste that is produced by small-scale industries and institutions, market street sweeping and waste from public cleansing is counted in (PAHO, 2012). One final definition, the IPCC includes the following into municipal solid waste: food waste, garden and park waste, paper and cardboard waste, wood, textiles, nappies, rubber and leather, plastics, metal, glass, and others (IPCC, 2012). Municipal solid waste is a global problem and expected to keep rising. According to the World Bank in its report "What a Waste: A Global Review of Solid Waste

Management" of 2012, MSW generation levels are expected to double by 2025. It is noted that the higher the income level and the rate of urbanization, the greater is the amount of solid waste produced. This is because of the population density which consumes more and produces more waste. It can be said that MSW generation rates are influenced by economic development, the degree of industrialization, public habits, and the local climate. Urban residents produce twice as much waste as their rural counterparts. Within regions there is often much difference in the amount of waste generated. Seen globally, OECD member countries usually produce the most solid waste (almost half of the world's waste), behind that there is Eastern and Central Asia, then Latin America and the Middle East.

The World Bank lists five ways of waste collection. These are: House-to-house, community bins, curbside pick-up, self -delivered and delegated service (World Bank, 2012, p. 13). In high income countries landfilling and thermal treatment of waste are the common disposal practices. Governments are responsible for providing proper waste management to their citizens. Waste management is often outsourced by the governments which means that the service is not directly provided but contracted out which is an important aspect in order to understand waste management systems. Most often waste management follows a certain hierarchy.

In order to explain this hierarchy, it is important to understand the three Rs. The three Rs are namely reduce, reuse and recycle. Sometimes even a fourth r is added: recovery. Reduce is the concept of reducing what is produced and also what is consumed. If this is given, what is to be recycled and what is reused is also not that much. Reducing starts with examining what we are using and what for. After the examination, we can decide what to reduce. The second concept is reuse. Reusing items instead of consuming something new is another step to act environmentally friendly. The best way to do that is to systematically order items so an

overview of them is available at all times on what can be reused again. The third and mostly last R is recycling. This means it will be transformed into raw material again which can be shaped into a new item. Only a few materials cannot be recycled such as most lids, packing peanuts and Styrofoam. (Rinkesh, 2021). The three Rs have huge benefits for the human and the planet because they prevent pollution, save energy, and reduce greenhouse gases. The sometimes added fourth R, recovery, refers to recovering energy from items that cannot be recycled.

These three or four Rs are central to most waste management programs since they directly target the responsible use of natural resources and ecosystem services (Leslie, Strand et al., 2021). The bottom of the hierarchy depicts the minimum of waste management, namely "controlled dump". Controlled dump is the selection and control of waste. The top of the hierarchy is "reduce": the ultimate goal of waste management, to actually reduce waste in general. The waste itself is most often classified into organic and non-organic waste. Other types of waste include paper, plastic, glass, metal and other. Developing countries usually have the highest amount of organic waste. Further, the frequency of waste collection plays a huge role. Most of the waste in the Islamic republic of Iran is sent to landfills, according to the WB. The issue with these landfills is that they were designed without any ecological considerations (World Bank, 2005). It also has to be mentioned that the World Bank claims that solid waste data is often unreliable and inconsistent. This is a problem on a global scale, but Iran is one of the countries where this is a major issue. In the next subchapter, the problems around solid waste will be explained in detail.

5. The problem

As urbanization and economic development increases, the problem of waste management increases as well. It is predicted that by 2025, 52 percent of Asia's population will reside in urban areas (World Bank, 1999). Waste composition is further influenced by culture, climate and the local energy sources. Maintaining a municipal solid waste system that works efficiently, is important in order to maintain public health across the world. Most waste management programs are based on public health concerns, consequently. But what exactly is the health concern? Solid waste is a huge source of methane, which is a powerful greenhouse gas and impactful in the short term in particular (Sarkodie & Owusu, 2020). Poorly collected waste in cities is also responsible for the spread of serious diseases in cities, which could be observed now with the COVID-19 pandemic. A city that cannot effectively handle its waste is most often also not able to handle complex services such as health, education or transportation. Therefore, the degree and sophistication of waste collection influences the whole quality of living. A further big argument on which municipal solid waste management programs are based on is environmental protection. A dysfunctional MSW system has detrimental negative impacts on the environment and therefore on all flora and fauna. Some major environmental dangers that result from poor MSW management systems include contamination of ground- and surface water and air pollution. The consequence is a further contribution to our current global environmental crisis. The waste management systems vary greatly in their effectiveness and efficiency across the world. Even within cities there can be differences in the effectiveness of waste management systems. For the reasons listed above, improving solid waste management is an urgent priority. This work seeks to contribute to a dialogue that leads to action. It is important that the action includes stakeholders of all levels involved in the problem.

The situation in Iran: Iran generates more than 20 million tons of municipal waste per year. The average amount of municipal waste generated per capita in Iran is 240 kg per year. The highest volume of waste generation per capita is in the capital city Tehran, with 450 kg of municipal waste per person per year (Eisinger, Stock et al., 2021). Smaller urban cities tend to have lower waste collection rates, in rural areas collection rates range from 50 to 60 percent of the most feasible maximum of waste collection (World Bank, 2005). In Iran organic and food wastes make up around 68,42% of the total amount of municipal solid food waste. What follows is plastics with 9,8 %. PET makes up around 0,99%. Paper and cardboard are around 7,31%, followed by metal, rubber, textile, glass and wood (0,97%) (Esmaeilizadeh et al., 2019). Studies have shown that the consumption of plastic and PET is rising (Arias & Thielemans, 2021; Thachnatharen et al., 2019). Nevertheless, in Iran, the amount of plastics, paper and cardboard, glass, and metals in the composition of MSW is lower in comparison with high income countries (ibid.). After having explained the details of the waste management problem in the country, the next chapter will introduce the conceptual framework that guides this text.

6. The two main concepts & conceptual framework

This subchapter should explain the two main concepts, namely good governance and sustainability. These two concepts frame the work in the academic debate. Good governance is defined by Addink (2019) as "a legal concept and a cornerstone of a modern state" (p.5). The Council of Europe (2022) defines it as "the responsible conduct of public affairs and management of public resources". Further, it is closely linked to human rights. The concept of good governance is used mostly by lawyers, politicians, but also by theologians, philosophers and social scientists. The approach to good governance is therefore often interdisciplinary. There are three parts which are integral to good governance: identification, internalization, and

enforcement (Bauhr & Nasiritousi, 2012). Identification is the first step. This step can be either fulfilled top-down or bottom-up wise. The top-down approach is linked to international and regional levels, whereas the bottom-up approach focuses on state level. Concerning the top-down approach, limitations at national level could possibly be a problem. In the context of Iran, this could mean restrictions from the government towards international functioning organs. The bottom-up approach is restricted by limitations to state power. The second part, namely internalization, means the internalization of legal norms in terms of legal commitment. The norms of good governance should, in this step, be internalized in governmental actions. The third step is enforcement. What is meant by that is the enforcement of legally binding norms. Depending on the chosen legal framework, it can be said which level is most appropriate to operate enforcement on (Addink, 2019). The term governance alone concerns the state's ability to serve its citizens. Governance includes rules, processes and behaviors. It also includes the acts of articulating interests, managing resources and exercising power in society. The stability and performance of society is therefore measured by governance.

Now, what is good governance? Considering the previous explanations, good governance is the evolution of governance in a society with a sophisticated political system (Addink, 2019). Good governance, together with the rule of law and democracy are the cornerstones of the modern state. Central elements to good governance are accountability and efficiency of the government. The notion of good governance can therefore be described as a norm for the government and a citizens' right. Good governance can moreover be examined as a process rather than a stable principle. Some of these processes' aspects include properness, transparency, participation, effectiveness and accountability. It can be said that the principles of good governance apply to all powers of the state. Addink (2019) also states that is important to distinguish the legal aspect from the political thought of good governance. Regarding the

interplay between good governance and human rights: the implementation of human rights is depended on good governance to a certain extent. What is interesting in this regard also for this piece of work is the right to good administration. The right to good administration stems from the intertwines between human rights and good governance. It therefore depicts one of the newest fundamental human rights (ibid.). The key authors and key textbooks on good governance that I identified are Nayef Al-Rodhan and the Oxford handbook of Governance (2012). N. Al-Rodhan in 2009 identified eight minimum criteria for good governance in his book *Sustainable History and the Dignity of Man: A Philosophy of History and Civilisational Triumph*. In his article in "The Dialogue" Muhammad Ali has further defined the concept of good governance for the academic community. Other prominent authors on the topic of good governance include Tahir Naveed, Etounge Manguella, Michael Johnston and Dav Raj. Moreover, several international organizations such as the World Bank, the IMF, the OECD and the UNDP have shaped the term good governance.

The second big concept of this piece of work is sustainability. Sustainability can be understood as economic sustainability, social sustainability or environmental sustainability. This work referrers to environmental sustainability. It is defined by the Cambridge Dictionary as "the idea that goods and services should be produced in ways that do not use resources that cannot be replaced and that do not damage the environment" (Cambridge, 2022). Sustainability as a concept has gained importance over the years in all spheres such as public, private, knowledge and society fields. A distinction which is widely made is the one between local and global sustainability. Our current times, in the midst of a climate crisis, call for a global sustainability response considering the reasons mentioned before. The phrase we can often hear reads: "Think global but act local". That means that only small- scale local actions can finally lead to the desired global solution. Globalization has brought to us this urgency for this way of acting

(Werlen, 2015). Sustainability has become to be an important issue in large parts of societies across the globe in the 1970s and early 1980s. The concept of sustainable development was introduced by the United Nations as an organizing principle in the "Our Common Future" report in 1987. It started aspirations from different stakeholders towards this goal. Sustainability has to a large extent become an issue of communities and communities' efforts towards sustainable development are hugely praised. Nevertheless, strategies that guide communities towards these goals are a necessity. Public policies are therefore needed in times of this global crisis in order to make a real impact in terms of sustainability. In order to effectively measure sustainability, there is a need to integrate information and parameters from different sources and various knowledge fields (Batalhao et al., 2019). Various institutes, such as EPA and Eurostat, have developed ways to measure sustainability such as sustainability indicators (SIs). SIs are especially important in the field of public policy. Combined, these Sustainability Indicators serve to support public policy. It is important that these indicators generate a picture that has all dimensions of sustainability taken into account. That way they can efficiently help to achieve and also adjust policies. Further key literature in the field of sustainability apart from the Cambridge dictionary and the UNEP's definition, are Watson et al. (2010), Enkvist et al. (2007), Russo (2003) and the World Commission on Environment and Development (1987). Some of the key textbooks on sustainability include "Sustainability. Principles and Practice" by M. Robertson, "Energy and Sustainable Development" by Q. Warren, "Sustainability: A Bedford Spotlight Reader" by C. Weisser and "Environmental Science" by R. Wright.

The conceptual framework that holds these two concepts together is "the interlinkage between good governance and sustainability". This interlinkage can be either indirect or direct depending on its degree of visibility. The conceptual framework is connected to the main aim

of the research which is to analyze how good governance can help to improve sustainability. This conceptual framework will be used in order to look at the relevant municipal solid waste policies and their implementation. Sustainability and good governance are both characterized by conceptual ambiguities. Neither of these terms are fully matured and further not clearly defined (Ramzy et al., 2019). Moreover, the overlap between the two is yet not studied widely, but the literature which takes these two fields into account is growing. The two terms are both intertwined in the very complex nature of policy-making. A further commonality between the two terms is their character of being a process rather than a fixed notion. These processes can take place on various levels, from the local level to the international level. What is interesting while examining the framework of the interlinkages between good governance and sustainability is the degree of involvement of state and non-state actors. Their amount of participation in the governing process can depict various starting points in the process and achievement of good governance (Lange, Driessen et al., 2013). Another aspect that should be noted when discovering the conceptual framework of "the interlinkage between good governance and sustainability" is the bridge that is formed between two different policy fields. Apart from their origin in diverging policy fields, they also affect different policy fields when being active (Lange, Driessen et al., 2013).

7. Methodology

The methodological approach of this work is a document analysis. This qualitative research method aims at analyzing and interpreting the documents' language in order to give meaning and identify the discourse that surrounds a topic. Language is thus perceived as a social and political system of signs that generate meaning through a simultaneous construction of identity and difference (Hansen, 2006). It will be conducted by first carefully selecting the most

significant documents, acknowledging and addressing existing biases and coding content into themes after reading the whole material rigorously. The emerging codes and themes will serve to connect the analyzed documents with the relevant literature. Since the construction of narratives behind policies is mostly implicit (Hansen, 2006, p. 44) and happens through link and differentiation of signs, carefully assessing the used language will be crucial. Documents depict a very important form of data source. They are socially defined, produced and consumed. Therefore, the act of their production and consumption is important to understand in order to grasp the specific circumstances of this social data, but also naturally their content has to be read. Documents are resources but also artefacts at the same time. These resources have to be "mined" by the researcher and their topics then studied. Documents can be analyzed in many different manners. From quantitative approaches such as counting the documents to various qualitative approaches such as coding and using grounded theory. This work will analyze meaning and codes within the selected documents. It will also look at what these documents look like, what they do and how they are related. The research method of document analysis further examines the social reality that documents construct. The construction of these realities happens through a particular use of a certain language and a form. Language and form often stem from the organizational context as institutions demand particular genres and have certain conventions. The Sage Handbook of qualitative data analysis (2013) notes: "Many documents will display a distinctive register: that is, a distinctive and specialized use of language associated with a particular context or domain. It might be associated with a particular group, occupation, activity or organization, or with a distinctive kind of intellectual field, or an esoteric pursuit. It implies a general feature of language in social life: distinctive uses of language (written and spoken) are associated with, and are constitutive of, specific social contexts. Thus in developing an interpretative understanding of documents as topics to be studied, we are interested in language, words and phrases, and also in the systems of convention

that guide the ordering and structure of the text. Hence, we are interested in the ways in which the messages (the meanings or social realities) are produced and articulated by an author or authors to an audience (or audiences). The look and feel of a document can thus tell us something about the social setting or social practice under consideration“ (p. 7).

Documents can be classified into two big categories: primary and secondary sources. Often the distinction depends on the research question that is asked. For each specific question the distinction between primary and secondary sources can be made again. Stoffers (2019) describes primary sources as constituting the basis of our knowledge of a historical phenomenon. They are the direct product of the historical process one studies. Secondary sources, on the contrary, are themselves based on an analysis of primary sources. Another important classification is the one of private and public documents which also highlights their purpose and function. Through this particular distinction, the publishing authority behind documents can be disclosed. Documents have the function to persuade, and this type and logic of the persuasion has to be identified by the researcher. The mindful analysis of social research data is an important aspect when it comes to securing the quality of research (Coffey, 2013).

After having laid out the usefulness and possibilities of document analysis, the limitations of this kind of research method will be explained. Working with documents requires attention to detail and much reflexivity. One of the limitations of document analysis are the flaws that often are embedded in the examined documents. The documents can, for example, be incomplete or provide false information. Using these flawed documents further leads to a flawed analysis and research outcome. Linked to that is the issue of biases which are problematic in documents. Another aspect is the availability of documents. It can often be the case that the needed documents are not available to the researcher due to privacy or location issues. Keeping these

limitations in mind and actively trying to avoid them in the research process, where possible, leads to better results. This work will analyze policy briefs as they are the essential documents in policymaking and used by all stakeholders involved.

8. The work of international Organizations in facilitating waste management systems in Iran

a) Overview

The most prominent organizations working in this particular field of examination are the World Bank and the United Nations Development Program. Since 2000, the World Bank has committed over $4.7 billion to more than 340 solid waste management programs in all six regions of World Bank engagement (World Bank, 2022). Ever since the government of the Islamic republic of Iran has begun its efforts in the matter of municipal solid waste management in the 1990s, the World Bank has started its program in the country in order to assist the government's aspirations. One of these programs is the Tehran Solid Waste Management Project. This particular project aims at setting up particular investment projects with environmental objectives. The World Bank efforts are in close alignment with Iran's economy which is constantly being assets by World Bank analysists in order to adapt the most appropriate waste management policies (World Bank, 2021). The United Nations Development Program (UNDP), has established the 17 sustainable development goals. Goal number twelve reads: "responsible consumption and production" and goal number thirteen is "climate action". These are therefore linked to the waste management efforts UNDP does in Iran. One big aspect of waste management that the UNDP works on specifically is health care waste management since it makes up a large proportion of global waste. This includes expired, unused, spilt and contaminated pharmaceutical products, drugs and vaccines (WHO, 2014).

b) Summary of the documents of International Organizations

The first one to be examined is the World Bank project information document (PID) concept stage which outlines the Tehran Solid Waste Management Project. This document has a clear outline. First, the Islamic republic's aspirations regarding waste management systems are described. In a second step the World Bank's assistance strategy is explained. The World Bank's assessment of the country's ecological situation regarding waste management has shown that a "new modern controlled environmentally sound landfill" is needed. The World Bank's objective is to support crucial components of the Government's waste management program. Further, the costs and next steps in order to implement the project are explained. The language of the policy brief can be described as very formal and objective as it provides technical advise based on evidence and holds back on value judgments based on opinions. No words or expressions are used that would assume a certain strong position to influence the government's aspirations in a different direction.

The second document that was analyzed is published by the United Nations Development Program. Its title reads: "Improving Waste Management Processes in Tehran City". The report starts by describing the current waste situation in Tehran. In this report the project explained is also conducted by the International Organization in cooperation with the Waste Management Organization of Tehran municipality. The project is under the aim of waste reduction, which is as described above the top of the waste pyramid. The intended results of the waste reduction named by the report are the decentralization of municipal waste treatment, the enhancement of municipal waste reduction processes, the improvement of municipal waste management (also to mitigate the impacts of COVID 19) and the raise of public awareness and public participation towards efficient waste management in Tehran city (UNDP, 2022). The measures aimed to

conduct in order to make these results happen are the review and analysis of options to establish material recovery facilities. The participation of Tehran's citizens in all efforts is stressed multiple times. The rest of the report is written as a legal document. It explains the number of funds UNDP is contributing. It can be said that this UNDP report is similar to the previous document from the World Bank as it primarily aims to assist the Iranian government in its ambitions.

The third selected document is published by the UNDP. Its title reads "Waste Management, UNDP in the Islamic Republic of Iran" and it was published in 2021. It explains the challenges in municipal solid waste management in Iran. Some of the listed challenges include a high consumption and a high generation of waste per capita and a high proportion of non-recyclable containers. Furthermore, there is poor separation of waste at landfills which contaminates the water table. Moreover, the rate of recycling and reusing is low, according to the UNDP's research. A further challenge mentioned is the low level of public awareness and participation of public waste minimization, segregation and recycling activities. Moreover, it describes how the United Nations Development Program is aiming to help. Some of the already accomplished milestones in the matter for UNDP are the conduct of studies on Tehran's waste management and the identification of relevant baselines. Furthermore, the United Nations Development Program customized and procured 52 vending machines with a recycling capacity of 316 000 bottles per day. Another of the UNDP's accomplishments in the matter is the installment of a gamification application on waste management platform in order to increase people's engagement. The United Nations Development Program also lists future plans for the improvement of the municipal solid waste management in Iran. One of them is to prepare a contingency plan for Tehran. Another one is the vocational training of 1700 individuals who work in waste collection sections. These include health-care employees, municipal personnel

and contractors. Furthermore, the UNDP plans to organize public awareness campaigns and webinars on safe waste management practices. These should specifically target women and housewives, students and youth and institutional and commercial employees. The channels aimed to use are radio, broadcasting animation clips through social media, brochures distributed at supermarkets and advertising brochures at metro stations. The UNDP also wants to conduct more solid waste management projects in the Caspian region of Iran. The organization is also planning to purchase 8,850 waste containers of different sizes for promotion of source separation and consequent waste reduction (UNDP, 2021).

9. Foreign development policy

The following chapter will look at how the development aid polices of third countries make an effort to facilitate waste management in the Islamic republic of Iran. Two countries which are quite contrary regarding their location but similar in their political relations to Iran are examined. Iran depicts an important trading partner for both of these countries. Their relationships have been hampered in the last years because of Iran's ambitions in the nuclear energy sectors (Miller, 2016 & German Federal Foreign Office 2021). Both provide significant funds to Iran, according to ODA (2022).

a) Germany

Germany has been a cooperation partner to Iran regarding waste management issues for a long time (UNIDO, 2021). In 2020 Germany has provided 644.3 millions of USD to the Islamic republic. In 2019 it was an amount of 172.1 USD (OECD, 2022). Further, the European country has worked on the previously mentioned Tehran Solid Waste Management project with the World Bank. Together with the World Bank, Germany created a prepatory study for the construction of a new landfill site. This study, conducted by German engineers, compared

different landfill technologies and created a draft of a landfill site. In 2017 the Iran-Germany Waste Management Conference took place. This conference helped to strengthen the cooperation between the two countries regarding this issue. Questionnaires were used at the conference in order to enhance further work (Eisinger et al., 2021). The result of the questionnaires showed that there is a great interest from Iran's side to cooperate with Germany regarding waste management in many different areas. Some of the companies which work in the field of waste management in Iran are Payasyst, Petro Imen Sharif and Blackforest Solutions. Furthermore, the University of Rostock and the University of Tehran have signed a cooperation agreement on the matter of municipal solid waste management (Eisinger et al., 2021).

b) Japan

Japan is another foreign country that helps Iran to improve its waste management system. The Japanese government also collaborates with the United Nations Development program in order to provide funds to Iran. According to the OECD (2022) Japan provided 11.4 million USD in 2020. The Japanese government has sent representatives to events in Iran such as the "International Pastic Bag Free Day". It aims to assist at reaching the objectives set out by the government in the waste reduction plan 2019. One of this plan's points is the recycling of plastic and glass bottles (Tehran Times, 2021).

10. The Country's efforts

This chapter will outline how the Islamic republic of Iran is tackling municipal solid waste management which includes sub-national settings. Sub-national settings are important to consider as they are often the country's main drivers of actual policy implementation and prosecution. A big challenge that still remains in the country is the lack of implementation of primary legislation. This can be linked to the right to good administration which was described

in the chapter on the two main concepts, good governance and sustainability. This subchapter analyses whether the right to good administration is a given and to what extent it represents a challenge in realizing the objectives of efficient waste management. According to the waste management law in Iran (Islamic Parliament, 2004), every municipality is responsible for all of the waste of the city. Industrial and special waste are excluded. There was a national waste management legislation passed in 2004. An organization was established which is called "Municipal Waste Management Organization (MWMO). This organization is responsible for collecting landfilling the municipal solid waste of the concerned city. MWMO further does source separation of the waste for recycling and establishes composing facilities. This organization is also collaborating with the private sector. The private sector is helping the organization to collect separated waste from all the cities (Babazadeh et al., 2018). One of its programs includes to have educators to do face-to-face visits to citizens' houses and providing inhabitants with educational leaflets. Furthermore, educators distribute yellow-colored bags to households of each region in order to help them to separate wet and dry waste. Babzadeh et al. (2018) in their study conducted in the city of Tabriz in the East Azerbaijan province of Iran describe how this process takes place: Citizens have to put the separated solid waste into particular cans that are collected twice a week. The trucks that are collecting the solid waste are designed to professionally take dry as well as wet waste. After the collection process, the solid waste is transferred into recycling stations which are established to separate different types of waste, such as paper, glass, plastic and so on. From the recycling stations, the separated materials were transferred into recycling plants. PET bottles and some other materials are exported overseas. Some other plastic materials are melted and then reused, in order to produce new plastic material appliances. Non-recyclable materials are landfilled (Babazadeh et al., 2018).

In 2000 the parliament approved the third five- year development plan; this plan gives a priority to the environment. It lays out ways to manage air and water pollution and the preservation of natural resources (Rotman, 2005). A report on the situation in Tehran from the World Bank states: "Currently, the Municipality of Tehran has a fully functional waste management system that handles all types of solid wastes. With a daytime population estimated at 10.5 million (2002), and a resident nighttime population estimated at 8.5 million (2002), approximately 2.5 million tonnes/year of solid waste are generated. Several administrative units within the municipality, including the districts, the Motor Pool Department and Organization for Waste Recycling and Composting (OWRC), operate the overall municipal solid waste collection system. The Municipality supports all the basic costs for the overall SWM system from its general revenue base" (Rotman, 2005).

In his article E. Rahimi (2014) is criticizing the Islamic republic of Iran for its poor efforts in the matter of solid waste management. He furthermore stresses that more sustainable methods of waste management are needed to avoid issues related to solid waste management. The current forms of landfilling are, as described above, not created with environmental aspects in their policies. As a consequence, issues such as long-lasting risks and damages to Iran's environment became apparent. The modes of its appearance are for example garbage on the streets of Tehran. As Iran News Wire reports, this problem leads to another problem which is children who look through the garbage left on the street (Iran News Wire, 2018). Newspapers also report on people protesting in front of landfills which are affecting the health of the neighborhood population (Iran International, 2022). What the republic is completely neglecting and where other countries are more on the forefront is the power generation from municipal solid waste. The potential and capability for this sustainable method are very present in Iran. As studies have shown the generation of biogas through an AD process (anaerobic digestion) is the most suitable method since the local municipal solid waste has a high moisture content

and the country's temperature is high. Anaerobic digestion breaks the waste in smaller parts by depriving it from oxygen. The process, as a result, generates biogas (ADBA, 2022).

The reason why landfilling is nevertheless the most prevailing method is the lack of a tax on landfilling. This way, landfilling maintains to be the cheapest and easiest method of getting rid of waste for waste producers. Another reason why no more sustainable waste-based facilities are built is the absence of a gate fee. Therefore, levying landfill tax and putting gate fee are of the first essential steps to make energy generation from MSW feasible, Rahimi assesses. The waste separation at source is the first key step in order to make a sustainable waste management system possible (Rahimi, 2014).

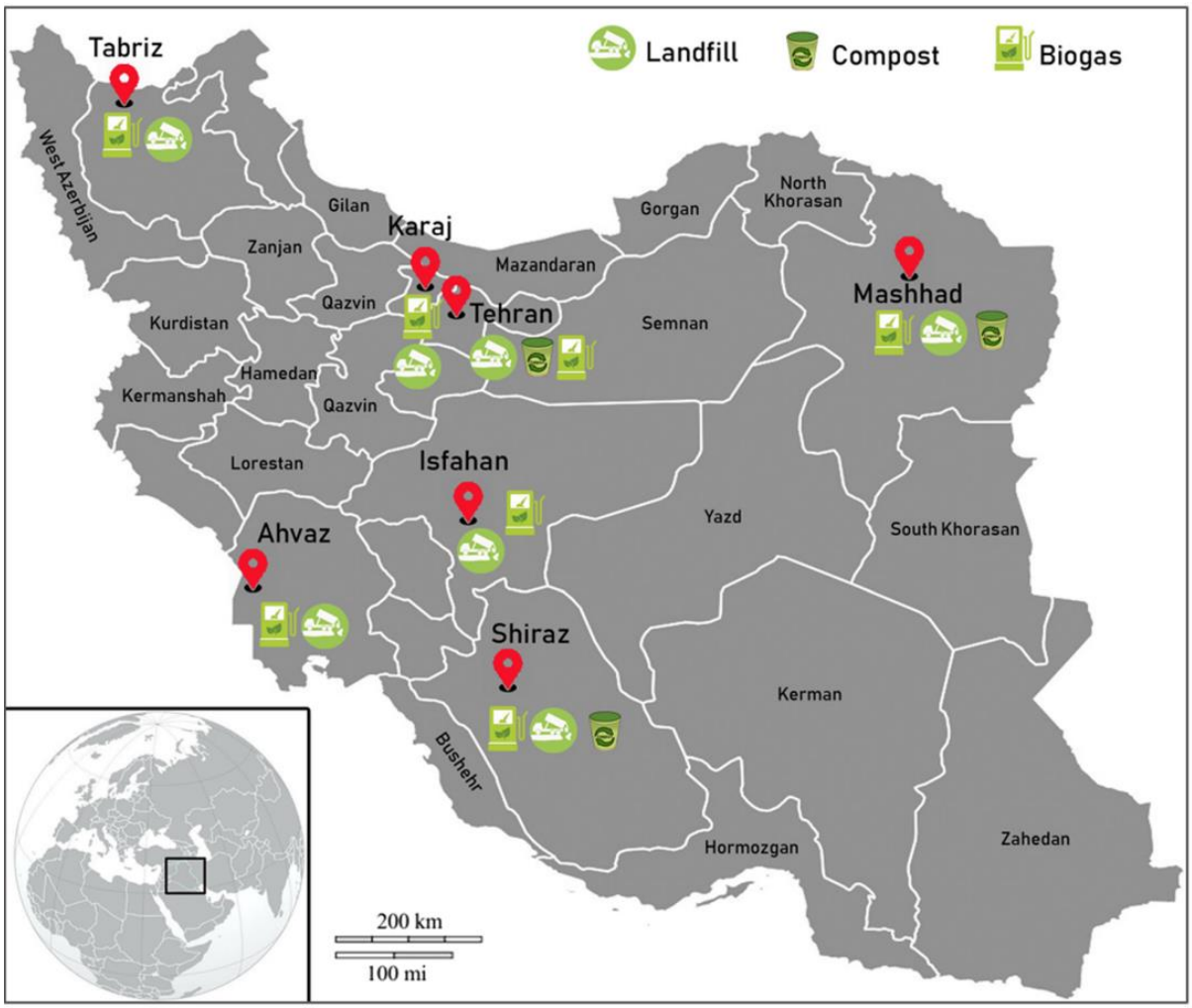

Fig. 1 Waste management methods applied in Iran's cities, Environmental Science and Pollution Research

The figure above shows the waste management methods landfill, compost and biogas and its usage in Iran's metropolis. Now a closer examination of Tehran's handling of waste will follow. Tehran, a city with 22 districts, has a population of more than eight million inhabitants (Mostofi, 2022). Currently the city produces over three million tons of municipal solid waste in a single year. Most of the waste is open-dumped in suburban areas. The problems that follow this practice are pollution of air, groundwater, and surface water (Maghmoumi et al., 2020). The next subchapter will look in more detail into the laws and guidelines issued by the Islamic republic of Iran.

11. Analysis of documents – Government Islamic republic of Iran

In this part of my work the official legislative documents concerning waste management in Iran should be analyzed. This includes laws as well as guidelines. The mode of outlining these documents will be organized chronologically depending on the year in which they were issued.

The first one is the Waste Management Law of 2004. It contains 23 articles with nine paragraphs. This law is based on the 50th principle of the Islamic Republic of Iran's Constitutional law. The 50th principle of the Constitution links current and future generations to the environment and states that the protection of the environment is a public duty. The second document that will be examined is the waste management bylaw of 2005. This bylaw contains specific provisions for the various types of waste in respect to waste avoidance, waste reduction, recycling, waste disposal and waste collection as well as the transport. The third official document concerning waste management that was available in English, is the Law of taxation for products that cause creation of dangerous materials of 2019. This law contains six articles which are binding for all the concerned parties. The aim of the law is to create a tax for all goods that create litter. This includes tires, toys made of plastic and other goods. Companies which reuse their goods are exempted from the tax. The next document being analyzed is a guideline "for reducing plastic consumption in the country". The guideline contains eleven articles with 14 paragraphs. Article two requires all manufactures and importers of plastic bags or raw materials of such commodities to submit 0.5 per thousand worth of goods to the National Environmental Fund when selling or when entering the country. Furthermore, plastic bag manufacturing units are required to reduce 27 % of plastic bags produced annually and are further required to replace them with environmentally friendly products. Article five of the guideline for reducing plastic consumption in the country prohibits the use of any plastic bag

in government agencies. Article seven prohibits all commercial advertising which uses plastic bags. The "guideline for environmental aspects in packaging, distribution and consumption of mineral plaster and cement products" contains twelve articles with three paragraphs. Article two says that only paper has to be used when packaging, distributing and consuming cement minerals. The guideline for biodegradable plastic use contains sixteen articles with two paragraphs. Article two establishes a biodegradable plastic replacement program for certain packaging goods. Article five asks the responsible organizations to monitor relevant national standards.

Apart from laws and guidelines, other protocols further explain how the laws should be applied locally depending on the type of waste and the specific jurisdictions in which it is implemented. These protocols have the force of law. Firstly, the protocol for the protection of the Caspian Sea against pollution from land-based sources and activities. Furthermore, the Convention on transboundary movement of hazardous wastes and their disposal (G20 report, 2020). It can be concluded that if the right to good administration was taken into account more, the issues on efficient waste management would be less severe. Furthermore, even when there are laws, decrees and protocols regulating waste management in practice, these laws are not most efficiently enforced or implemented.

12. Discussion of the findings

Contrary to the expected finding, which is linked to the hypothesis of this work, international organizations do not pursue a top-down agenda according to the findings. It can rather be said that the international organizations operating in Iran towards the matter of municipal solid waste management, pursue the efforts of assisting the Iranian government. The World Bank and the United Nations Development Program do not use a language in their policy briefs that

would assume a top-down agenda. The government of the Islamic republic on the other hand is quite rigorous in the formulation of its policies. To an extent, this is expected from the head of the government. The government tries to implement the issue of municipal solid waste management in all aspects of private and public life including the stakeholders from industries. This chapter requires an understanding of the terms of implementation and enforcement in the policy cycle. While implementation represents the stage where government executes an adopted policy as specified by the policy action (Theodoulou and Konfinis, 2004), enforcement is the process of making people obey the policy (Cambridge Dictionary, 2022).

In the analysis of the official documents of the Islamic republic of Iran, it could be observed that the three Rs of waste management, namely reduce, reuse and recycle were carefully followed as a guideline in establishing the laws and guidelines. Furthermore, an interplay between the work of international organizations and the local government was observed. The laws of the Islamic republic even ask for certain organizations to intervene and take over aspects of waste management. Another aspect that should be highlighted and come back to now, is to what extent the examined policies take the concept of good governance into account. Good governance was described above as the evolution of governance in a society with a sophisticated political system (Addink, 2019) whereas governance is the ability of the stakeholders in power to serve its citizens. Central aspects of good governance are accountability and efficiency of the governing. Furthermore, it depicts a certain right to the citizens. The notion of good governance could be observed in all of the analyzed documents to a certain extent as the aim of the documents is to serve its citizens. The documents analyzed show that the government is interested in regulating solid waste management, not only establishing clear laws and regulations, but also regulating the operation of the system. However, this does not necessarily mean that the service is effective and efficient. And it is

possible that the operation of the service does not reflect basic concepts of good governance in practice; if this is the case, good governance is only in paper but not in the actual service provided to the citizens. In order to make a more impactful statement of the extent good governance is practiced in this matter, a comparison with another country's policies would be beneficial. As time resources do not allow for that, a comparison can be made with a secondary literature source. Benis et al. (2018) evaluated the attitudes of residents of the city of Tabriz towards municipal solid waste reduction, using the methodology of a questionnaire survey. The result of the study revealed that "[…] a high majority of the respondents were not satisfied with the current waste collection service provided by municipality, which indicates the lack of coordination of services and household demands" (Benis et al., 2018). Even though this is only a representation of a specific city within the country, the examination of this secondary literature shows that a lack of good governance prevails as citizens are dissatisfied with their government's efforts. This is a contradictory finding from the assumptions of the document analysis. In the next part of this work the above-described policies and laws will be used in order to assess policy failures and in a next step give policy recommendations.

13. Policy failures

What seem to be some of the main constrains in the efficient implementation of sustainable municipal solid waste management systems are the lack of up-to-date information, concrete data and resources. Without this information, it is very hard to make projections and estimations for future generations. Furthermore, there exists a lack between the policy and the policy implementation which is a crucial step in the policy circle (Rupani et al., 2019). Despite the project of MWMO that was described above in the section "country's efforts", the gap between MWMO's goals and the current status is still enormous. Babzadeh et al. (2018) investigated these gaps in their case study of Tabriz. They found that over 250 million

kilograms of recyclable materials in the city are still landfilled. This is far from MWMO's goals and means a great loss in national capital that is going to the organization. Moreover, it means further destruction and pollution of the environment.

Some other policy failures that could be identified in the process of document analysis include the lack of public education and informing. The design and implementation of public education, awareness and orientation on sustainable waste management is not adequate. Furthermore, citizens are not informed enough about waste separation plans that are being pursued. Current policies also do not support the private sector: the contracts with the private sector are incompetent and they lack transparency (Babazadeh et al., 2018). There also appears a lack of internal and external coordination. That includes inter-organizational and intra-organizational coordination and proper lines of communication. Some of the inconsistencies of MWMO include the poor interaction with stakeholders and the lack of communication from the side of the officials of the Waste Management Organization with the workers of the recycling stations. Apart from the government's lacking support of the private sector, the private sector also has performance issues in its contribution to waste management. Stakeholders from the private sector that are involved appear to have poor technical knowledge and often work inefficiently. There is a lack of commitment to implement the goals provided by MWMO and further a lack of coherent planning to implement the goals. This is often the case because the investor companies cannot make revenue from the waste separation program. In total what can be said, according with the literature, about the private sector's role in Iran's waste management program is that it is to a large extent not fully and efficiently integrated in the waste management system (Babazadeh et al., 2018). The policy failures can be summarized by a low level of participation among citizens, unbalanced resources, general weaknesses in

the process of policymaking, poor performance of the private sector and a lack of integration management (ibid). The next subchapter will now give a direction on what could be improved.

14. Policy recommendations

This section will lay out some policy recommendations which also address the issue of implementation which is a crucial part of the policy cycle. Retrieved from the analysis and discussions above, the identified key factors for efficient solid waste management are awareness, environmental friendliness, cost effectiveness and the satisfaction level to the community. The main policy foci are therefore environmental, economic and governmental policy.

A policy that is urgently needed is the implementation of educational programs regarding solid waste management. These educational programs could be implemented in the formal education system, media campaigns and through education in the private sector and industries. Programs of this manner will effectively promote the waste collection strategy (Rupani et al., 2019). Public and private partnerships will be needed in order to fulfill the policies. Municipalities alone seem to be overwhelmed with handling the issue. This is a way in order to pay more attention to the social dimension of municipal solid waste management. To design and implement coherent and continuous educational campaigns in order to inform citizens about the benefits of waste separation is crucial. This would ideally also increase their participation rate in source separation of waste. In order to achieve this goal, the recommended policy is to use diverse mass media channels such as radio, television, newspapers and tabloids and social media. In the information campaign, clergymen of various religious institutions, social workers and health professionals should be included as they possess role model functions and are respected by a large group within their network in society. Furthermore, it is important to include NGOs (non-governmental organizations) in the promotion of public participation and

awareness-rising. The information campaign can also include letting citizens know about the progress of the waste management plan. This can be conducted through establishing banners in places such as parks, sport facilities, schools, mosques, and shopping malls. A policy which informs people on the progress of the project, is a further motivation for them to contribute more.

The literature by Abtin Maghmounmi et al. suggests a policy to manage Tehran's municipal solid waste with a focus on incineration plants. This kind of policy can help to minimize the GHG emissions and municipal solid waste management problems. This policy can further be applied to similar cities in Iran. Finally, an extensive study on the waste specification in Iran could help to define a long-term plan to minimize the GHG emissions and MSW management costs simultaneously (Maghmoumi et al., 2020). Key authorities should therefore reconsider the recycling programs plan with appropriate focus on policy development (Babazadeh et al., 2018). For organic waste, composting is a method that has yet to be implemented through a corresponding policy. So far, Iran's authorities have been reluctant to use composting as a waste management method (ibid.).

Another policy recommendation is to do life cycle assessment research on greenhouse gas emissions. Life cycle research or assessment (LCA) is a tool that helps to quantify environmental impacts. LCA systematically looks at the different stages of an object. It is often used in sustainability projects. An assessment of this kind could help to find the most feasible policy.

Since one of the problems in Iran's waste management system is a number of unauthorized groups who collect waste in order to make profits by selling it, a recommended policy is to identify them and integrate these groups and individuals as forces of the waste management

organization. A policy of this kind is already implemented in Turkey which means the Iranian authorities could draw a lesson from there.

An additional policy recommendation is to organize for legal experts to supervise the activities of the government's waste management organization (MWMO). This would facilitate certain processes and allow for more legal security in the projects of the organization. Apart from legal experts, it would be useful to hire economists, urban planners and educational experts who are experts in their field in order to attribute to the MWMO's goals. Their expertise can be crucial in the planning, improvement, and implementation of sustainable waste management programs. Especially the implementation part should be the part to receive the most funds. Moreover, contractors of MWMO should be provided with subsidy funds and more facilities in order to improve their performance. Installing sufficient numbers of appropriate garbage cans, specifically designed for separation of wastes, throughout the cities, is another policy recommendation. Regarding the private sector companies that contribute to waste separation, it is important to carefully pick the ones which have the best experience and look at performance results (Babazadeh et al., 2018). The chosen private companies, in a next step, should be carefully monitored and evaluated by officials of the MWMO. The regular monitorization of performance level can be measured by quantitative and qualitative studies (Esmaeilizadeh et al., 2019). If one of the stakeholders is performing in a negative manner, a fine can be implemented. This policy of implementing a fine can serve as a deterrence for delivering bad performance. Environment related crimes punishments are getting more and more common globally, which makes Iran's hesitation to implement such a policy almost an exception. Furthermore, cost aspects should be considered and cost-efficiency balances are important to be well thought of before making executive decisions about municipal solid waste management (Esmaeilizadeh et al., 2019). Moreover, the specific circumstances of the region

where the policy should be implemented is important to consider in order to find the most appropriate method.

As a general observation, it can be said that all policies should aim for more collaboration between all stakeholders such as the government, associated organizations, educational units, health care and others. This collaboration has to take place on all levels of interaction (Babazadeh et al., 2018). What is important too, is to keep the key principles of waste reduction in mind when creating all policies (such as the three Rs and source reduction). Furthermore, it is important that all new policies about to be implemented take empirical evidence into account. International partners can help with technical assistance helping to develop indicators that help to obtain credible data which in turn will make it possible to measure improvements over time.

15. Conclusion

It can be concluded that the waste management system of Iran definitely has strengths and weaknesses. Some of the problems and deficiencies of the municipal solid waste management system in Iran were discussed in this work. Many of the identified problems are a result of research and mismanagement gaps. Although the results of this work are limited in scope, the analysis of the documents and its findings could be used by other researchers to further investigate the waste management policies in Iran and how they are implemented. Furthermore, it can help the concerned policymakers to better plan and make decisions for MSWM in the Islamic republic of Iran. The research question posed in the beginning "Do international and domestic policy documents converge on the three Rs of sustainable waste management?" was answered by stating that a focus on the three Rs of waste management which are reduce, reuse and recycle is visible. Nevertheless, more focus on the three Rs is definitely possible. Some of the, partly expected, limitations this research encountered was the

lack of significant documents and data. Many of the available documents were rather short in details and some language barriers depicted a further challenge. The lack of available documents and data can also in part be explained by the Islamic republic's missing transparency in reporting and providing information that would allow for independent analysis. Therefore, also the credibility of some of the documents is not easy to determine. Furthermore, more research, educational programs and more specifically targeted policies are needed in the field.

References

Addink H. 2019. Good Governance: Concept and Context. Oxford.

Babazadeh T., Nadrian H. et al., 2018. Identifying Challenges and Barriers to Participating in the Source Separation of Waste Program in Tabriz, Northwest of Iran: A Qualitative Study from the Citizens Perspective., MDPI.

Batalhao A., Martins M. et al. 2019. Sustainability Indicators: Relevance, Public Policy Support and Challenges. In: Journal of Management and Sustainability 9, no. 2: 173-190.

Bauhr, Monika, and Naghmeh Nasiritousi. "How Do International Organizations Promote Quality of Government? Contestation, Integration, and the Limits of IO Power." *International Studies Review* 14, no. 4 (2012): 541–66.

Benis K., Safaiyan A. et al., 2018. Municipal solid waste characterization and household waste behaviors in a megacity in the northwest of Iran. In: International Journal of Environmental Science and Technology. Springer.

Bruno. 2009. Iranian President Have a Critical Role in Policymaking. Accessed at: https://www.cfr.org/interview/iranian-presidents-have-critical-role-policymaking

Cambridge Dictonary. 2022. Sustainability. Accessed at: https://dictionary.cambridge.org/de/worterbuch/englisch/sustainability

Chehabi E. 1991. How Theocratic Is the Islamic Republic? In Religion and Politics, Vol. 120, No. 3.

Coffey A. 2013. Analyzing Documents. The Sage Handbook of Qualitative Data Analysis. London. Sage Publications.

Edalatpour et al., 2018. Investigation on a novel sustainable model for waste management in megacities: A case study in Tehran municipality. In: Sustainable Cities and Society 36.

Eisinger F. & Stock S. Umweltbundesamt. Accessed at: https://wasteconcepts.cleaner-production.de/images/Ergebnispublikation/Ergebnispublikation_Iran_FINAL_engl.pdf

Esmaeilizadeh S., Shaghaghi A., Taghipour H. 2020. Journal of Material Cycles and Waste Management, Vol. 22 Issue: Number 4. p: 1284-1298.

German Federal Foreign Office. 2021. Germany and the Islamic Republic of Iran: Bilateral relations. Accessed at: https://www.auswaertiges-amt.de/en/aussenpolitik/laenderinformationen/iran-node/iran/218250

Hansen, L. 2006. Security as Practice. Discourse analysis and the Bosnian war. London: Routledge.

Holliday. S. J. 2016. Defining Iran. Politics of Resistance. Routledge: London and New York

Hoornweg, D. & Bhada-Tata, P. 2012. What a Waste : A Global Review of Solid Waste Management. Urban development series; knowledge papers no. 15. World Bank, Washington, DC.

Hoorweg T. & Thomas L. 1999. What A Waste: Solid Waste Management in Asia. The World Bank.

Iran International Newsroom. 2022. Police Crack Down on People Protesting Local Landfill. Accessed at: https://www.iranintl.com/en/202204288099

Keddie. N. 2005. Iran. Religion, Politics and Society. Collected Essays. Frank Cass and Company: Oxon

Lange P. et al. 2013. Governing Towards Sustainability- Conceptualizing Modes of Governance. In: Journal of Environmental Policy and Planning. Routledge.

Leslie, C. M., Strand A. et al. 2021. Shifting the Balance among the 'Three Rs of Sustainability:' What Motivates Reducing and Reusing? Sustainability 13, no. 18: 10093.

Maghmouni A. et al., 2020. Environmental and economic assessment of sustainable municipal solid waste management strategies in Iran. In: Sustainable Cities and Society Vol. 59.

Miller J. 2016. Japan's Strategic Ties with Iran. Aljazeera Centre for Studies. Accessed at: https://studies.aljazeera.net/en/reports/2016/02/201621864717335576.html

Ministry of Environment Japan. 2020. G20 Report on Actions against Marine Plastic Litter. Second Information Sharing based on the G20 Implementation Framework.

Mostofi. K. 2022. Iran. In: Britannica. Accessed at: https://www.britannica.com/place/Iran

Muschter R. 2022. Iran: Inflationsrate von 1980 bis 2022 und Prognosen bis 2021. Statista Accessed at: https://de.statista.com/statistik/daten/studie/259316/umfrage/inflationsrate-im-iran/#:~:text=Im%20Jahr%202021%20belief%20sich,Prozent%20gegen%C3%BCber%20dem%20Vorjahr%20prognostiziert.

Nima A. 2018. Poverty forces more people to dig through garbage in Iran. Iran News Wire. Accessed at: https://irannewswire.org/poverty-forces-more-people-to-dig-through-garbage-in-iran/

OECD. 2022. Geographical Distribution of Financial Flows to Developing Countries in 2022: Disbursements, Commitments, Country Indicators, OECD Publishing, Paris.

Providas. C. 2022. Improving Waste Management Processes in Tehran City. UNDP.

Rahimi. E. 2014. Capabilities, difficulties and obstacles for energy recovery from MSW as a sustainable option for waste management in Iran. In: Energy and Sustainability, volume 789.

Ramzy O,, El Bedaway R. et al., 2019. Sustainable Development & Good Governance. In: European Journal of Sustainable Development 8, 2, 125-138.

Rinkesh, 2021. The Reduce, Reuse, Recycle Waste Hierarchy. Accessed at https://www.conserve-energy-future.com/reduce-reuse-recycle.php

Rotman A. 2005. Project Information Document (PID) Concept Stage. World Bank.

Rupani, P.F., Delarestaghi, R.M., Abbaspour, M. et al. 2019. Current status and future perspectives of solid waste management in Iran: a critical overview of Iranian metropolitan cities. EnvironSci Pollut Res 26, 32777–32789.

Sarkodie SA, Owusu PA. 2020. Impact of COVID-19 pandemic on waste management. Environ Dev Sustain. 2021;23(5):7951-7960.

Stoffers, M. 2019. Analyzing primary and secondary sources: a basic checklist. Course Manual Back to the Sources (pp. 32-35). Maastricht: Faculty of Arts and Social Sciences.

Tehran Times. Japan, UNDP promote waste management in Tehran. 2021. Accessed at: https://www.tehrantimes.com/news/463083/Japan-UNDP-promote-waste-management-in-Tehran

Thaler, D. E., Nader A., Chubin S, et al. 2010. The Nexus of Domestic Politics and Policymaking in Iran. In Mullahs, Guards, and Bonyads: An Exploration of Iranian Leadership Dynamics, 75–114.

The Anaerobic Digestion and Bioresources Association. 2022. The AD Process. Accessed at: https://adbioresources.org/about-ad/the-ad-process/

The World Bank. 2005. Iran, Islamic Republic of - Cost Assessment of Environmental Degradation. Washington, D.C. Accessed at: http://documents.World Bank.org/curated/en/401941468284096627/Iran-Islamic-Republic-of-Cost-Assessment-of-Environmental-Degradation

UNDP, Sept. 2021. Waste Management, UNDP in the Islamic Republic of Iran.

United Nations Development Program. 2022. Health Care Waste Management. Accessed at: https://www.undp-capacitydevelopment-health.org/en/capacities/focus/procurement-and-supply-chain-management/6-use/waste-management/

Werlen, B. 2015. Global Sustainability. Cultural Perspectives and Challenges for Transdisciplinary Integrated Research. Springer Heidelberg.

World Bank. 2022. Solid Waste Management. Accessed at: https://www.World Bank.org/en/topic/urbandevelopment/brief/solid-waste-management

Graphs and Figures

Fig. 1 from Rupani, P.F., Delarestaghi, R.M., Abbaspour, M. et al. Current status and future perspectives of solid waste management in Iran: a critical overview of Iranian metropolitan cities. EnvironSci Pollut Res **26,** 32777–32789 (2019). https://doi.org/10.1007/s11356-019-06456-5