"Reduce, Reuse, Recycle:

Government recycling communication practice in

Kazakhstan, the case of Astana municipality"

by

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«Қысқарту, қайта пайдалану, қайта өндеу:

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ABSTRACT

This research aims to examine how the current recycling communication practices are implemented by the Akimat of Astana and measure how well these practices contribute to citizens' awareness about the recycling issues and facilities in Astana. Despite having extensive facilities for recycling, Astana only recycles 30% of its waste, which is not sufficient enough to reduce the solid waste that goes into landfills. An effective recycling communication policy is necessary to solve this problem, and this research conducts semi-structured interviews with Akimat officials and their contractors, citizens and eco-activists and a survey to learn more about the existing recycling communication tools and their effectiveness. The results of our findings show that there is a lack of a recycling communication policy in Astana. Moreover, the existing recycling communication tools are ineffective and the existing practices have a limited impact on the awareness of citizens.

ACKNOWLEDGEMENTS

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CHAPTER 1 - INTRODUCTION

1.1. Background

Utilization and recycling of municipal solid waste (MSW) is one of the most important environmental problems in Kazakhstan. In 2021, 754323 tons of waste were collected in Astana, which indicates that each resident of the capital generates about 1.5 kilograms of waste every day (Egov.kz, 2021). The management of MSW was declared as one of the main issues in the transition to a green economy by former president Nursultan Nazarbayev in 2013. In 2014 a presidential decree also developed a concept for Kazakhstan to become one of the "30 most developed countries in the world", according to which by 2030 the recycled waste share in Kazakhstan should be raised to 40% and to 50% by 2050 (Concept on the Entry of Kazakhstan, 2014). This research provides a detailed analysis of the current situation of Astana's communication policy on recycling, as well as public awareness of waste management. This study focuses on the city of Astana as the capital of Kazakhstan is getting extensive facilities in terms of recycling. Recycling is a very serious problem in Astana, since, considering all the investments and recycling facilities in the capital, only 30% of waste is recycled (Egov.kz, 2021). This may be a good percentage compared to other cities in Kazakhstan, or even at the national level, where the amount of solid waste increases by 4.5 million tons annually, of which only 15,8% is recycled (Egov.kz, 2021; Stat.gov.kz, 2021). As good as this percentage is comparatively, it is not sufficient enough to reduce the solid waste that goes into landfills. Currently, more than 45.7 million tonnes of waste have already been accumulated in Kazakhstan's official landfills (Bureau of National Statistics, 2020). Due to the high level of waste in landfills, since 2019 the authorities have banned the disposal of plastic, paper, and glass without pre-sorting (Environmental Code, 2019). Waste incineration at landfills releases hazardous chemical gasses containing toxic heavy metals, such as cadmium, mercury, lead, and other ozone gasses, such as methane and carbon dioxide (Manchenko, 2018). In addition to the landfill incineration issue, Astana has around 533 unofficial dumps all over the city (Egov.kz, 2021). Both incineration at landfills and unofficial dumps exacerbate environmental problems such as soil and water pollution and have a negative impact on human health. Therefore, recycling is considered as a sustainable waste management alternative. However, as mentioned before, the recycling levels in Astana remain disturbingly low.

One way through which this number can be improved is to improve the recycling communication. The goal of this study is to understand how recycling communication practices are implemented in Astana. To do so, the team interviewed the Akimat officials and their contractors i.e. the Clean City. This study also examined the recycling communication practices and how effective they have been based on Lee and Krieger (2020)'s work that has 6 distinct communication types. In addition to that, this research examined the existing recycling communication tools used by the Akimat of Astana. We identified that currently single channel deficit reduction and partially multichannel translational approaches are being used. To determine how effective the existing recycling communication practices have been in Astana, we conducted a survey among citizens and interviewed both eco-activists and citizens. The results of our findings show that the existing communication practices have a limited impact on the awareness of citizens. Therefore, cooperation between the state and the population as well as a reduction of communication gap between institutions is necessary. The state needs to properly inform the population about the necessity of sorting and recycling waste and provide clear guidelines based on the population's characteristics. This requires the development of an effective recycling communication policy.

This research consists of an in-depth literature review that focuses on the global, regional and national situation on recycling. This study analyzed using a specific research design, literature review, and methods of analysis and data collection. In this PAE both qualitative and quantitative research methods were used. For the data analysis part, thematic analysis and descriptive statistics were used for interpretation of the findings. The data analysis part is described in more detail in the rest of this paper.

1.2. Problem Statement and Research Questions

Communication is an integral part of any waste management service, because to participate fully, residents need to be clear about what the services are, what the rules are and what happens to their waste after it is collected (Zero Waste Scotland Communications guidance 2012). In other words, the most important factor for effective recycling is not the amount of money or variety of recycling equipment purchased, but rather effective communication and close collaboration with the general public. Until government agencies do this it will be very difficult to achieve positive environmental behavior. The reasons for the difficulty in recycling can be considered the indifference of

the population, the unregulated administrative base, the lack of support from the local authorities and the opposition of garbage trucks, which are not interested in competition (Waste Recycling, 2018). These factors can also be the reason behind Astana's recycling problem. Promoting waste separation is possible through effective communication policies that are clear and understandable and are critical to improving solid waste management (Lee & Krieger, 2020). Identifying and understanding how recycling information is currently communicated in Kazakhstan is important to promote proper individual solid waste recycling behavior.

Kazakhstan has made significant investments in recycling facilities in Astana in recent years. According to data provided on Egov.kz, there are 6276 containers for separate collection, 370 containers for quicksilver lamps and batteries, 31 containers for the recycling of electric equipment in Astana (Egov.kz, 2021). However, the success of these facilities relies heavily on effective communication and collaboration with the public. Without clear and understandable communication policies, residents may not fully understand the rules and procedures for recycling, which could lead to low participation rates. To address these challenges, it is critical to promote waste separation through effective communication strategies. Despite our team's efforts to research the waste management practices in Astana, we were unable to determine the presence or effectiveness of a recycling program due to a lack of adequate communication tools and information sources at the initial stages of our PAE journey. As the team started conducting interviews, we found that there is in fact a system for recycling. However, finding information about the recycling program was a difficult task due to the lack of guidance and informative messages available.This means that despite an extensive infrastructure, color-coded recycling bins and the program, recycling communication practices from the Akimat remain questionable and unclear. Therefore, understanding how recycling information is currently communicated in Kazakhstan, specifically the capital, Astana, can help identify areas for improvement and promote proper recycling communication practices.

The objectives of this research are to investigate how the current recycling communication practices are implemented by the Akimat of Astana and measure how well these practices contribute to citizens' awareness about the recycling issues and facilities in Astana. First of all, this study analyzed how recycling communication is implemented in the capital of Kazakhstan. Namely, which stakeholders are responsible

for the implementation of the existing recycling communication practices. We identified the tools used by the Akimat and their contractors to encourage citizens to recycle. Another important focus of our research is to examine people's awareness of recycling as a result of recycling communication. We want to understand whether the recycling communication carried out by the Akimat reaches its target audience i.e. the citizens. We explored this through a review of the literature on recycling communication, global and regional practices, and present our findings through a specific research design and data collection methods.

The research questions we will address are as follows:

General research question: How effective is the existing recycling communication strategy in Akimat of Astana?

Research question #1: How is the communication policy in recycling implemented in Astana?

Research question #2: What are the tools of recycling communication used by the Akimat of Astana?

Research question #3: How do recycling communication practices influence people's awareness?

1.3. Implications and Importance of Study

The study on the recycling communication practices in Astana, Kazakhstan has important implications for waste management and environmental sustainability not just in the city but also in the country as a whole. With the increasing amount of waste generated and accumulated in landfills, it is critical to develop effective communication strategies that promote proper waste separation and recycling behavior among the general public. The study highlights the existing communication gaps and limitations in Astana's recycling communication practices, and the need for a more comprehensive and collaborative approach between the government, citizens, and eco-activists. The findings of this study can inform the development of a more effective and sustainable recycling communication policy in Astana, which can ultimately contribute to reducing the amount of waste going to landfills, decreasing environmental pollution and promoting a greener economy.

CHAPTER 2 - LITERATURE REVIEW

The literature review is organized into eight sections, each exploring research and findings related to recycling communication practices. Additionally, the last section deals with the conceptual framework for this PAE. The first section examines the government's use of communication as a policy tool, with a focus on Howlett's work. The second section reviews a wide range of literature on recycling communication tools from around the world. The third section discusses citizen participation while the fourth section discusses best citizen communication practices. The fifth section shows the citizen participation challenges in recycling. Sixth section shows scholars' work on post-soviet legacy in recycling and MSW. Seventh and eighth sections focus on Kazakhstan, where the prior deals with literature on the current waste management framework in Kazakhstan and the latter is about the importance of media in the realization of communication policy in Kazakhstan. The literature review concludes with a summary table of the authors cited in this review. The final section of this chapter presents a conceptual framework based on Lee and Krieger's (2020) work.

2.1. Government Use of Communication as a Policy Tool

There are many scholarly views on the ways that governments can influence the public through communication. Howlett has written extensively on policy and communication, including the use of communication tools and strategies to generate support for policy initiatives. One article that specifically addresses this topic notes that effective communication can be used to "package" policy initiatives in a way that aligns with policymakers' goals and generates public support (Howlett & Rayner, 2013). Additionally, he highlights the importance of finding the right tool for the situation. Howlett presents policy tools as an important aspect of policy formulation, where the government must find the right tool for the right situation at hand (Howlett, 2020). This can be done through trial-and-error, or through analyzing the situation systematically. One of the main policy instruments is information-based (Howlett, 2020). For example, governments can use information collection and dissemination to inform, but not necessarily require action from citizens, for example, through campaigns, advertising, or passive information. He suggests that the ability to interpret the information from the public's side depends on their social and economic status, the quantity of information presented, and the way the information is presented. He also introduces exhortation as an

information-based tool from the "NATO toolkit", which is when the government is trying more to influence actions and public preferences. Some examples can be, through public advertisements to act in certain ways, or through recorded meetings of government officials with other specialists, experts of certain fields, or spokespeople, in order to increase the legitimacy of a topic being raised in the eyes of the public (Howlett, 2020). Although communication as a policy tool is effective, and the cheapest method for government action, it needs to be used with other policy tools, Howlett argues, since it is not as long-lived (Howlett, 2020).

2.2. Global recycling communication tools

Kok & Siero (1985) investigated the factors that affect program participants' willingness to recycle tin. The authors rely on the theory of attitude change and behavioral change through communication, which implies a step-by-step approach. The authors used a stepwise participation model that combines three theoretical perspectives: (1) attitude change through communication; (2) relationships among beliefs, attitudes, intentions, and behaviors; and (3) acceptance of responsibility. Essentially, the aim of this research was to study the relationship between the various stages in the model, where the stages were divided as follows: awareness, comprehension, attitude, intention, behavior and behavior maintenance. The data is collected from 586 female residents of a mid-sized Dutch town between the ages of 20 and 65 who received mail-in questionnaires to complete were used to collect the data in order to build the model. A clear distinction is made between attention, comprehension, attitude change, and behavioral change are made by McGuire (1973). According to the authors, people will be more likely to participate in a tin-recycling program based on these factors: (a) attend to information about the program; (b) comprehend what the program entails, and; (c) have a favorable attitude towards the program. The results regarding awareness show that the recycling program is unknown to one-third of the respondents. These participants, to a lesser extent, interact with prospective information sources, particularly newspapers and the board next to the container. When it comes to comprehension of the information, the results show that the program's goal and participation requirements are not always clearly understood by those who are aware of it. The best information sources seem to be newspapers. The study made by Kok & Seiro (1985) shows that awareness of the issue and comprehension play an important role in participants' willingness to recycle. However, these two components should be followed by one's intention to participate and good experiences with the

program in order to continue the recycling behavior (Kok and Siero, 1985). Although the study shows that using newspapers seems to be the best information source, it is important to highlight that some of the communication techniques used in this study are quite outdated.

Prior research illustrates that participation can be impacted by the effectiveness of the recycling experience. According to Taylor (1988), households become confused and uncooperative when awareness initiatives are poorly managed, lack consistency, reliability, and communication. Based on the results of other studies, the rate of recycling participation can be significantly impacted by people's poor comprehension of the program. Low participation rates may be caused by difficult and poorly communicated programs (Thomas, 2001). However, it is important to note that communication alone is not the solution to this problem. As stated previously, in order to continue recycling, citizens also need to have positive experiences with the program and the intention to participate (Kok and Siero, 1985). Recycling has both internal and extrinsic motives (De Young, 1986). Extrinsic motives come from outside forces like peer pressure and fear of fines, whereas intrinsic motivations come from inside impulses of recycling ("It is the right thing to do"). De Young (1986) found a strong correlation between intrinsic motivation and derived satisfactions, or the structure of satisfactions people obtain from acting in an environmentally responsible way. Another thing that the author found is that a long-term commitment to recycling comes from intrinsic motivating mechanisms rather than overt extrinsic solutions (De Young, 1986).

Another study conducted by Clarke and Maantay (2006) explores New York City's recycling program and mainly focuses on the potential causes of the disparity in recycling participation rates between neighborhoods. The authors used a weighted linear model to calculate a one-number descriptive measure, called the recycling education, awareness, and participation (REAP) index. The REAP index can therefore be used to target specific communities for assistance, set priorities for resources, and guide decision- and policy-making regarding strategies for boosting recycling education, awareness, and participation. Although the authors' main focus was on low-income apartments that had low participation rates in the recycling program. They suggested that one of the barriers may be rooted in the fact that education materials in the primary language (other than English) spoken at home and household square foot/per person information might be incorporated into the REAP index to improve the recycling rates. This is especially

important for a multicultural country like Kazakhstan, where Kazakh and Russian languages are both spoken.

Literature shows different citizen communication methods used to increase recycling participation rates. Reams & Ray (1994) conducted a study where they compared effects of three different prompting approaches on recycling participation. Reams and Ray (1994) list these approaches: "These approaches are: 1) the securing of pledges to recycle through direct, personal contact; 2) the securing of pledges through indirect contact; 3) the dissemination of educational information alone, with no personal contact or pledge" (p.371). The study was conducted in married student housing communities at Louisiana State University during a five-week test program. The results show that when pledges were obtained directly, recycling rates were much greater than when pledges were obtained indirectly or by just disseminating educational materials. However, it is important to note that what the authors argue is that it is not the pledging itself that increases participation, but rather direct-contact prompting increased recycling awareness, it also increased peer pressure to recycle, and improved information delivery. Therefore, these factors combined increased participation levels (Reams & Ray, 1994). The authors also recommend facilitating direct contact and human connection with potential participants in recycling programs as opposed to taking steps to obtain commitments directly (pledges). However, the authors recognize the costs of sending program staff to every home to talk about how important recycling is. Therefore, they suggest the introduction of "block leaders" and/or volunteers that explain the benefits of recycling and assist other residents can be a more manageable and economically feasible option that ensures direct-contact approach (Reams & Ray, 1994).

Another research shows that education, publicity and promotion are fundamental to the development of a local authorities' waste awareness campaign and for the success of any recycling scheme (Evison & Read, 2001). The authors conducted the study in three local authorities in England: Luton Borough, Shepway District, and Sutton London Borough. The aim of the study was to explore waste reduction promotion/publicity material, and the education and information policies provided by Local Authorities in order to assess their effectiveness, and identify any loopholes or omissions that exist in public awareness. As part of the investigation, which also included a survey of all available waste management-related media, the Recycling Officers of each of those authorities (Luton Borough, Shepway District, and Sutton London Borough) 150 families were contacted.

The success of these PR campaigns is evaluated in light of the survey results and the relevant authorities' recycling policy. The authors conclude that when designing the delivery of a recycling service, it should contain comprehensive education and publicity elements (Evison & Read, 2001). Also, regular quality promotion and publicity will result in improved recycling performance figures, whereas poor quality promotion, or none at all, will result in low recycling rates. The authors also highlight the fact that local newspapers are not always the best means of informing the public to use for promotion (Evison & Read, 2001). Moreover, they emphasize that if frequent reminders are not used, public awareness will wane. Regular leaflets help to preserve public awareness (Evison & Read, 2001).

Existing social research about recycling generally focuses on discerning distinction between those who recycle and those who don't. Vining and Ebreo (1990) argue that recyclers differ from non-recyclers in three potential ways. First, the accessibility of knowledge on recycling and awareness of the issue. Second factor that influences people to recycle is the perception of the importance of reasons for recycling. Among those reasons are concerns for financial reward, altruism, environmental quality, social pressure. A third class of reasons for not recycling is the inconvenience of the process, which include preparation, storing, and transport of the materials.

Derksen and Gartrell discuss the social context of recycling, where research suggests that more highly educated individuals tend to participate to a greater extent in recycling (Derksen and Gartrell, 1993). However, it's important to note that concern for the environment and education alone do not have a significant impact on recycling activity. According to Derksen and Gartrell, the most important factor for recycling is access to structured, institutionalized program that makes recycling easy and convenient.

2.3. Citizen participation and engagement

The lives of its citizens depend to a large extent on the policies pursued by the state, so they are interested in participating in them and expressing their opinions. The right to political participation is a sign of a developed society based on the rule of law, which takes care that all its members can freely pursue their interests. The Constitution of the Republic of Kazakhstan enshrines the right of all citizens of the country to participate in political life. They may do so either independently or through their representatives. Citizens' participation in political life is required for everyone to be able to express their

opinions, attract the state's attention to the most serious problems, and influence the process of making state decisions. It can be achieved in a variety of ways. Citizens, for example, can take part in elections, referendums, and rallies, as well as apply to the authorities. They can also wield power through their representatives, i.e. political parties (The Constitution of the Republic of Kazakhstan, 2021).

According to Rasila and Mudau (2013), despite a number of communication mechanisms and models implemented by the government, there is a communication gap between state institutions and citizens. Rasila and Mudau (2013) also argue that it is this gap that makes citizens feel alienated from government initiatives and projects in general. This is the reason why citizens cannot feel part of the government and do not actively participate in governance issues and those that aim to improve their living conditions (Rasila & Mudau, 2013).

According to Karini (2008), citizen participation in decision-making is very important because citizen participation creates better policies. Karini (2008) argues that a decision that has been made collectively is very well thought out and leads to better outcomes. Karini (2008) also notes that public participation in decision making can be beneficial to both the state and citizens. Working together will reduce conflict and, most importantly, decentralization of power will benefit society through effective and quick decisions, which in turn will make the state more inclusive, democratic, and public policy will reflect the public interest. The participation of citizens in decision-making also contributes to greater transparency and accountability in policy making through access to information, consultation, direct public scrutiny (Karini, 2008).

Mellouli et al. (2014) examine the connection between citizen engagement and smart governance. The authors contend that the success of smart government programs, which seek to employ technology to enhance public services, depends on community participation. Citizens' active involvement in all phases of decision-making, from planning to implementation and evaluation, is defined by the authors as "citizen participation" (p. 2). According to Mellouli et al. (2014), there are various ways that citizens can participate in smart government, such as through co-creation, feedback, and data sharing.

The effectiveness of smart government efforts depends on community participation, according to Mellouli et al. (2014). According to the authors, citizen involvement may

ensure that smart government programs are sensitive to the wants and requirements of citizens. According to Mellouli et al. (2014), citizens are the ultimate consumers of public services, and their involvement may assist guarantee that services are effective, efficient, and appropriate (p. 2).

According to Cooper et al. (2006), a conceptual model of citizen-centered approaches to civic engagement and collaborative democracy can result in public policies that are more responsive and effective. The model they developed states that citizen-centered approaches entail "a systematic effort to solicit and incorporate citizen input into the formulation, implementation, and assessment of public policies and programs" (p. 80).

Cooper et al. (2006) contend that by taking into consideration the many viewpoints and experiences of citizens, citizen-centered approaches can enhance the quality of public policies. Input from citizens, according to them, "may improve the quality and relevance of public policies, ensuring that they address the most urgent needs and concerns of the community" (p. 80).

Moreover, Cooper et al. (2006) contend that citizen-centered strategies can contribute to the development of trust between the populace and the government. The government can demonstrate that it is attentive to the interests and concerns of the community by incorporating residents in the policy-making process. By doing so, the government and its constituents may be able to foster a culture of cooperation and foster a sense of shared responsibility for determining public policy.

Cooper et al. (2006) argue that citizen-centered approaches to civic engagement and collaborative government can lead to more effective and responsive public policies. Their conceptual model highlights the importance of citizen input in the policy-making process, as well as the potential benefits of citizen engagement for building trust and promoting collaboration between the government and its citizens. Cooper et al. (2006) provided a conceptual model of citizen-centered approaches to civic engagement and collaborative government. According to Cooper et al. (2006), in order to achieve effective collaborative government, six variables must be improved, which are government trust in citizens, citizen effectiveness, citizen trust in government, citizen competence, government responsiveness, and government legitimacy. To examine these variables, Cooper et al. (2006) described the approaches that are least and most likely to promote cooperative government. These are adversarial approaches, selective approaches,

legislative and administrative information exchange approaches, civil society approaches, and deliberative approaches. According to Cooper et al. (2006) , these five civic engagement approaches offer many opportunities for meaningful citizen action and will be a catalyst in promoting citizen-centered, collaborative government.

2.4. Best citizen communication practices

Karini (2008) noted the Czech Republic as one of the best practices of advanced citizen participation. According to Karini (2008), civil society in the Czech Republic plays an important role in influencing public policy and interacting on policy issues with the government. According to Karini (2008), two important areas of influence on the policies of civil society organizations in the Czech Republic are the environment and social services. This is defined by the Civil Society Index. The relationship between the state and the State Society Organization is very friendly and due to this the Organization is active and successfully influences the state policy (Karini, 2008).

The Czech Republic is also mentioned in the Good Practices Report on Participatory Citizenship in the European Union. According to the Good Practices Report (2012), the Czech Republic has established a website named "Our Politicians" (www.nasipolitici.cz), which gives thorough information about Czech politicians and political topics. The portal, which was established in 2008, allows voters to make responsible and well-informed judgments during elections (Good Practices Report, 2012). To assist prevent potential political corruption, citizens must have access to accurate and accessible information about politicians and electoral procedures in order to keep governments accountable. Furthermore, in order to participate in traditional politics, voters must have access to information about their possible political representatives and the bodies that will reflect their views in the national parliament (Good Practices Report, 2012).

The Good Practices Report of Participatory Citizenship in the European Union also notes the U.K.'s National Civic Service. This service is supported by the government and provided to outside organizations in the voluntary, charitable, and business sectors. The service aims to help young people develop the attitudes and skills they need to become active and responsible citizens (Good Practices Report, 2012). The National Civic Service promotes a rebalancing of the relationship between the state, society and individuals, through which citizens are trusted and encouraged to be socially responsible and to unite in their communities in order to reduce the scope of public administration. National Civic

Service seeks to create a more responsible, socially engaged, and cohesive society (Good Practices Report, 2012).

Karini (2008) also pointed to the U.K. as one of the best examples of best practices for citizen participation. Karini (2008) notes about a portal that the U.K. government has created for citizen-to-government and citizen-to-citizen interaction. This portal is called "Citizen Space". In such an online portal one can get advice, publicly discuss policy issues, offer useful information, and create a space for e-government. In many European countries, it is the Internet that is used as a means of connecting the public with the government and ensuring citizen participation in policymaking (Karini , 2008).

2.5. Citizen participation challenges in recycling

In developing countries, waste management systems (MSW) have numerous issues. It is necessary to understand the challenges and barriers at the community level in order to develop effective strategies for strengthening MSW recycling. In a study by Babazadeh et al. (2018), which focuses on describing the obstacles and barriers that citizens in Tabriz, Iran face when participating in the Source Separation of Waste (SSW) program. The authors have identified four major categories of impediments to home trash separation: issues with the waste collection system, a lack of accountability among people, insufficient awareness among citizens, and the expectation of getting incentives (Babazadeh et al., 2018).

A variety of factors may influence residents' level of participation in the SSW. According to a meta-analysis of the drivers of recycling behaviors, "the strongest predictors of recycling behaviors among householders were convenience with the behaviors, moral norms, information, and environmental concern" (Rousta et al., 2017, p.8). Furthermore, a review states: "recycling behaviors and waste-sorting systems, convenience (enough access to sorting facilities, good service, etc.) as well as knowledge and information were regarded as the most important elements that encourage waste sorting in households" (Rousta et al., 2017, p.8).

2.6. Post-Soviet legacy in recycling and MSW

A comparative study conducted by Skryhan et al. (2018) compared the status in the sector of municipal solid waste management in six post-soviet (including Kazakhstan) countries to that in EU member states (some of them have a socialist past) by using BiPRO

approach (BiPRO, 2012). The authors' tried to answer the following question: How much has waste management progressed in post-Soviet countries compared to EU members? The authors conclude that the municipal waste management in post-soviet countries is inefficient. The efficiency levels can be compared to EU countries of the third group – Latvia, Cyprus, Romania, Lithuania, Malta, Bulgaria and Greece. According to authors, the reason behind low levels of efficiency are as follows: 1) Insufficient legislation and regulation: lack of landfill ban, lack of biodegradable waste regulation, unstable forecasting and planning system, out-of-date tariff policy, and statistic accounting; 2) underdeveloped recycling and treatment capacity; 3) absence of efficient economic tools to encourage recycling and lower waste generation (Skryhan et al., 2018). The authors conclude: "The legal prohibition of disposing of municipal solid waste at landfills, the restoration of a separate waste collection system (disestablished after the collapse of the USSR), the establishment of economic and financial mechanisms supporting the waste processing sector, and public education campaigns encouraging people to produce less waste are need to improve waste management systems in post-soviet countries" (Skryhan et al., 2018, p.193).

2.7. Current waste management legislative framework in Kazakhstan

There is a scarcity of peer-reviewed literature in English about Kazakhstan's municipal solid waste management regulations. Inglezakis et al. review and assess the current regulations made in Kazakhstan, to be more specific, the authors focus on the Program of Modernization of Municipal Solid Waste Management for the years 2014–2050. There are several documents that play an important role in the waste management in Kazakhstan. In general, the Environmental Code of the Republic of Kazakhstan and its amendments as of 2009, as well as a number of other orders and resolutions relevant to Sanitary Rules such as the Order of the Ministry of Health of the Republic of Kazakhstan No 555 (2010) on the approval of Sanitary Rules and the Resolution No 291 of the Government of the Republic of Kazakhstan (2012) on the approval of Sanitary Rules regulate waste management in Kazakhstan (Inglezakis et al., 2018).

The Ministry of Environment and Water Resources released the Municipal Solid Waste Management Modernization Program for the years 2014–2050. (2014). This program is based on two acts. First, act No 577 (2013) entitled "Concept of transition of Kazakhstan to a Green Economy," and act No 750 (2013). The latter is the action plan of the

Government of the Republic of Kazakhstan to implement this concept (Inglezakis et al., 2018). According to Inglezakis et al. the implementation of the Green Economy Program requires the prioritization of the Program of Modernization of Municipal Solid Waste Management for the years 2014–2050. The latter program focuses on ameliorating the efficiency, reliability, environmental and social acceptability of MSW collection, transportation, processing and disposal services (Inglezakis et al., 2018).

The modernization program of municipal solid waste management in the 2014–2050 years, Government Resolution Republic of Kazakhstan on June 9, 2014 No. 634. The Ministry of Environment and Water Resources (MEWR) includes three stages of implementation.

- Stage 1 presupposes the preparation of a regional management program of solid waste between the years 2014-2020.

- Next stage is planned to be carried out between 2021-2030, the whole focus of the second stage is on the actual implementation.

- Stage 3 (2031-2050) requires the completion of the program, and this stage further focuses on the evaluation of the sustainability of the modernization of municipal solid waste management in Kazakhstan.

Inglezakis et al. have summarized the main measures that are going to be taken in the framework of the modernization program of municipal solid waste management in the 2014–2050 years, Government Resolution Republic of Kazakhstan on June 9, 2014 No. 634. The Ministry of Environment and Water Resources (MEWR). Some of these are:

- Increase MSW recycling up to 40% by 2030 and 50% by 2050;

- Integrate environmentally friendly and sanitary landfills;

- Introduce a household waste separation program for consumers;

- Attraction of investments;

- Introduction of new technologies for MSW recycling (Inglezakis et al., 2018).

Another important issue that Inglezakis et al. state in their work is regarding the government's policy. According to them, it is consistent with the European Union

policies, however, there are considerable discrepancies in terms of timeline. The authors view the EU legislation as a good example. Also, the MEWR clearly states the goals of the Program of Modernization of MSW Management for the years 2014–2050. However, there is no mention of the recycling communication policy (Inglezakis et al., 2018). Despite the fact that targets set were clearly articulated in the document, not including a communication policy about recycling is a huge weakness.

2.8. The importance of media in the realization of communication policy in Kazakhstan

An important role in the realization of communication policy in Kazakhstan, and not only, is the power of the mass media. To date, one of the effective tools for the realization of political communication in the country is the domestic media. Nurtazina (2011) noted that the activities of the media occupies a special place in Kazakhstan as the main instrument of political communication, because in the political sphere of Kazakhstan information about the activities of political actors is carried out directly in society through the media. The media forms public opinion about the activities of political power in the political system. According to Nurtazina (2011), in Kazakhstan, the number of consumers of the media, which is a public structure, is growing, and mass communication in their distribution is widely developed. Nair et al. (2019) argues that the media in Kazakhstan is generally not trusted. The author added that the government provides financial support to certain print media outlets because they lack circulation and advertising support, and the Independent Media face criminal investigations. Nair et al. (2019) also mentioned that in Kazakhstan, the lack of trust in the mainstream media has led to an increase in the popularity of blogs and critical comments on social networks about the state's activities. Medeuov et al. (2017) argues that in media management, especially with the ubiquity of social media, the government inevitably realizes that the essence of interaction is as important as the style and perception of interaction. Despite the large number of scientific works on political communication and related issues, there are very few special studies in domestic political science that comprehensively examine political communication, which plays a special role in strengthening the policy of Kazakhstan.

Before moving to the last section of this chapter, below you can see the summary of the literature review done by the research team. The authors are categorized based on the topics explored in this literature review.

Table 1.   Summary of the literature review.

#	Factor	References
1	Government Use of Communication as a Policy Tool	Howlett, 2020
2	Recycling communication tools	Kok & Siero, 1985; McGuire, 1973; Taylor, 1988; Thomas, 2001; De Young, 1986; Clarke and Maantay, 2006; Reams & Ray, 1994; Evison & Read, 2001
3	Citizen participation and engagement	Rasila and Mudau, 2013; Karini, 2008; Mellouli et al., 2016; Cooper et al., 2006
4	Best citizen communication practices	Karini, 2008; Good Practices Repo 2012
5	Citizen participation challenges in recycling	Babazadeh et al., 2018, Rousta et 2017; Miafodzyeva & Brandt, 2012
6	Post-Soviet legacy in recycling and MSW	Skryhan et al., 2018
7	Current waste management legislative framework in Kazakhstan	Inglezakis et al., 2018
8	The importance of media in the realization of communication policy in Kazakhstan	Nurtazina, 2011; Nair et al., 2019; Medeuov et al., 2017

2.9. Conceptual framework

We would like to take this one step further, and consider the communication tools implemented in the city of Astana through the framework of Lee & Krieger's work named "Moving from Directives toward Audience Empowerment: A Typology of Recycling Communication Strategies of Local Governments". In their study, Lee and Kreiger (2020) categorize qualitatively distinct recycling communication types. Since the main focus of this study is to identify the recycling communication carried out by the local government administration in Astana, we will categorize the recycling communication types based on their work.

It is crucial that clear and comprehensible recycling communication strategies are key in improving the MSW recycling management. According to Lee and Kreiger's findings there are six qualitatively distinct recycling communication types. These types are: single-channel deficit-reduction, multi-channel deficit-reduction, audience-centric deficit-reduction, single-channel translation, multi-channel translation, and audience-centric translation (Lee & Kreiger 2020). Note that each of the above mentioned communication strategies serves a different purpose.   *Single-channel deficit reduction* "includes specific waste disposal guidelines on local newspaper advertisements and/or a website" (Lee & Kreiger 2020, p. 6). This approach is usually used when there's a shortage of human and financial sources. *Multi-channel deficit reduction* "refers to using various marketing strategies, media channels, and persuasive message design techniques to maximize information exposure" (Lee & Kreiger 2020, p. 7). Examples include recycling messages that are distributed via broadcast, print, digital, and social media with the use of visual elements and seasonal campaigns to capture audience attention. *Audience-centric deficit reduction "*implies diving the audience into preferences and characteristics. For instance, bilingual advertising" (Lee & Kreiger 2020, p. 7). It is important to note that this approach is extremely relevant to Kazakhstan. *Single channel translational approach* refers to "interpersonal communication, where information on recycling is given and explained during face-to-face interactions and phone calls" (Lee & Kreiger 2020, p. 8). *Multichannel translational approach* includes events, recycling tours, presenting at local schools, and attending community organization meetings to increase program visibility, or to educate residents about sustainability and the waste management process. Also, the use of social media, radio, mobile apps is a common practice. *Audience centric translational approach* refers to "active involvement of the audience of the recycling

program. For example, acknowledging the decision making role of the public in the recycling process, thanking them for their involvement through local newspapers" (Lee, Kreiger 2020, p. 8). Findings from this research and the typology can serve as a compass for the identification of recycling communication styles in Kazakhstan.

Table 2.   Conceptual model (Lee & Kreiger, 2020).

COMMUNICATION TYPES	COMMUNICATION INSTRUMENTS
Single channel deficit reduction approach	Waste disposal guidelines via newspaper advertisements.
Multichannel deficit reduction approach	Simultaneously broadcast, print, digital, and social media.
Audience-centric deficit reduction approach	Simplifying messages, bilingual advertising.
Single channel translational approach	Face-to-face interactions and phone calls.
Multichannel translational approach	Recycling tours, local schools.
Audience-centric translational approach	Active involvement of the audience in the recycling program via newspapers.

CHAPTER 3 - METHODOLOGY

3.1. Data

The intent of this study is to understand how recycling communication practices are carried out by Akimat, and how these practices contribute to raising awareness among citizens. The research strategy is a case study because the focus of the research is a particular case of recycling communication practices implemented in Astana. We used this location because of its relative ease of access, as well as its unique characteristic as a growing center that attracts citizens from all over Kazakhstan. For a more in-depth study, we took all 4 districts of the city of Astana.In order to understand how recycling communication practices are carried out in Astana (RQ1), we focus on the source of these practices i.e the Akimat to learn what kind of communication tools they use and their main contractors i.e. the Clean City NC (RQ2), and measure how these practices work to increase citizens awareness (RQ3).

In order to find the answer to the general question and research questions one and two, the study used interviews. To understand the implementation of communication practices on waste recycling and recycling communication tools we interviewed two Akimat officials from the Akimat of Saryarka district of Astana city. Semi-structured interviews with the Akimat officials were selected non-randomly based on their position and knowledge about waste management in the organization. We selected to interview Akimat officials because they are in charge of enforcing communication policies. As a result, they are a useful source of data for answering our study questions. Also, together with Clean City NC, Akimat is the main provider of communication tools for waste recycling. To conduct interviews with Akimat officials, we contacted the main office of the Akimat and arranged interviews. Our interviewees are heads of the departments, which deal with the problems of recycling in the city of Astana.We also interviewed one representative of the Clean City NC company, which is the main contractor of the Akimat of Astana. This company was chosen because of its tight partnership with Astana's Akimat in the recycling process. The Clean City NC company collects trash across the city, labels trash cans with stickers, and conducts other programs to teach people about recycling. Given their recycling knowledge, one of their experts was interviewed to answer our questions.

To understand the effectiveness of the existing communication strategy, we also interviewed 5 eco-activists who are the experts on recycling. We used social networks such as Instagram and Telegram to find participants in the research among eco-activists. To guarantee that our study included individuals with relevant knowledge and expertise in the recycling program, we used a purposive sampling strategy to identify eco-activists. We hoped to acquire representatives from those categories of people who are most likely to contribute significant insights into the topic by selecting participants in this manner.

To find an answer to the third research question, we used interviews and surveys to understand how existing communication practices affect people's awareness. We conducted a survey among 54 residents from all four Astana districts. For the interviews with citizens, we used random sampling through social media. The respondents were between the ages of 18 to 70 and residing in one of the four districts of the city of Astana, such as Baikonur, Almaty, Saryraka and Esil districts. We chose all four districts because we wanted to get complete and extensive information. The districts of the city of Astana are very different from each other, for example the largest area is Esil district. This area is considered the most affluent, because it is located on the Left Bank of the city and covers some of the most expensive residential buildings. On the other hand, there is Baikonur district, which is considered one of the less well-off because it is located on the Right Rank of the city and part of the district covers the most dangerous and criminal streets of Astana. Saryarka and Almaty districts cover both the Right Bank and the Left Bank, to the south and to the north of the city of Astana.

Interviews with citizens of Astana, Akimat officials and eco-activists took place between December 2022 and February 2023. The data for the study is collected at one point in time, therefore, the time horizon is cross-sectional. In order to find city residents who want to participate in the study, we used social networks such as Instagram and Telegram.

3.2. Methods

The research team used both qualitative and quantitative methods for this PAE. In general, semi-structured interviews were conducted with different stakeholders i.e. the Akimat officials and their contractors, the citizens and eco-activists. In addition to that a survey was conducted among citizens of Astana from the four districts. First of all, let us define the reasoning behind qualitative and quantitative methods for this study. In order to answer research question one and two, which is related to the implementation of recycling

communication practices and the tools used in Astana, we contacted the Akimat officials from the Saryarka district and a representative from Clean City NC. The semi-structured interviews included around seven priorly determined questions. These were focused on understanding whether there is a separate recycling communication policy implemented or not. Moreover, the research team was interested in the cooperation between the Saryarka Akimat and Clean City NC, that is, the team asked questions to the respondents to answer the question "Who does what?". Next round of questions were aimed towards understanding the specific recycling communication tools used by the Saryarka Akimat and Clean City NC. It is important to mention that, during the interviews, the research team also asked follow up questions and asked the respondents opinion on possible improvements and what issues stand in the way of a successful recycling in the city of Astana.

Secondly, in order to answer research question number three, which is aimed towards understanding the influence of existing recycling communication practices on people's awareness, we conducted a survey among citizens of Astana. The survey was done on a software application called Qualtrics and spread through social media such as Instagram and Telegram. There were twenty one questions in the survey in total. The first seven questions are targeted towards getting demographic information such as age, location (district), household size etc. from the respondents. The second part of survey questions focuses on understanding whether the respondents are aware of the program, and if so, how did they learn about it. Based on the literature review, we understand that measuring awareness and comprehension of the communication policies is crucial. As a result, respondents were asked if they were aware of their municipality's recycling program (awareness), how they became aware of it (source of information), and with which potential source of information they had been in contact. They were also questioned if they understood the objective of recycling (comprehension). Last two questions of the survey are a multiple-choice question, based on the sticker on a color-coded trash bin that is used by the Akimat of Astana and Clean City NC. The respondents were supposed to choose which type of waste goes to which bin.

In order to answer the general question about the effectiveness of the existing recycling communication, interviews with citizens and eco-activists were conducted in addition to the survey. The semi-structured interviews with citizens were conducted to get a deeper

understanding of citizens' comprehension of Akimat's current recycling guidelines. While the eco-activists were interviewed in order to help us understand the existing tools and assess their effectiveness.

3.3. Analysis

This study used thematic analysis as a method to identify, analyze, and report themes that emerge from the interviews. Thematic analysis was used to identify and explore themes related to the implementation, effectiveness, and impact of the recycling communication policies in the city of Astana. Descriptive statistics was used to analyze the survey.

With the interviews and thematic analysis, this study focuses on an inductive analysis, which primarily "has a descriptive and exploratory orientation" (p.7, Guest et al., 2012). The data was analyzed by carefully reading the transcribed interviews. After this, the team looked for "keywords, trends, themes, or ideas in the data that will help outline the analysis" (p. 7, Guest et al., 2012). The team used the software application called NVivo for thematic analysis. At first, we used the autocoding option provided on NVivo, but after seeing that it focuses on the frequency of words, we manually coded all the interviews by using the same application. It is important to note that the research team was not simply interested in the frequency of themes, but rather we were more interested in the important topics and the overlap of them between different stakeholders.

Regarding the survey, the analysis was done by using the software application called Qualtrics. Qualtrics provided an automatically generated report with the answers of our respondents. It also included several graphs to show frequency of some answers. This was especially useful when we looked into demographics. Moreover, Qualtrics also provided us with descriptive statistics on the answers.

3.4. Ethical considerations

In qualitative research, interviews are a typical approach of gathering data, and as with any research method, it is crucial to think about the ethical ramifications of interviewing study subjects. Participants in the interviews must first provide their consent after being fully informed. This entails informing volunteers about the study's goals, methods, possible drawbacks and rewards, and any financial compensation that will be offered. In the case of our PAE, before giving their agreement to participate in the study, participants were fully informed about the objectives of our research. Our team also told the

participants that their participation in the study is entirely voluntary and that they have the right to revoke consent at any moment.

The research team also made it clear that confidentiality and anonymity are our top priority. We guaranteed confidentiality of the data supplied by participants and the protection of participants' identities. The research team understands the prospective effects of the study on the participants. This was especially true for the interviews with Akimat officials. We noticed that they were extra careful with their answers and occasionally checked their words with the documents. Therefore, to make them feel comfortable, we followed the respondents' flow of answers. We understand that the interview procedure may have an emotional or psychological influence on participants, and our team was aware of this possibility and took precautions to limit any potential harm. We offered assistance or directed participants to options that helped them deal with any unfavorable outcomes of participation.

CHAPTER 4 - FINDINGS AND DATA ANALYSIS

To analyze the collected data, thematic analysis and descriptive statistics were used. The themes that occurred in the interviews were manually coded using NVivo as the research team was not interested in the frequency, but rather we were curious about relevant themes and the overlap of themes between different stakeholders. Thematic analysis will be used to identify and explore themes related to the implementation, effectiveness, and impact of the recycling communication policies in the city of Astana. The survey was necessary to measure citizens' awareness of the existing recycling guidelines. The results were analyzed by descriptive statistics with the help of Qualtrics software.

In order to answer question number one, which is "How is the communication policy in recycling implemented in Astana?", we used thematic analysis on the basis of interviews with two Akimat officials from Saryarka district and a Clean City NC representative. The interviews showed that the recycling communication in Astana is carried out by the Akimat and their main contractors i.e. the Clean City NC. One of the most pressing questions for our research team was to learn more about the existing recycling communication strategies. During the course of a meeting with Akimat officials, it was noted that Astana has a centralized system of municipal waste collection:

"The city of Astana has a centralized system for collecting municipal waste from the population, which includes the collection, transportation, sorting, processing and disposal of waste", said Akimat officials. However, as the research team asked follow-up questions during the interview, it was revealed that there is no separate recycling communication strategy. It is important to note that although there is no separate recycling communication policy, there are certain recycling communication practices that are being carried out by both the Akimat and the Clean City. The Akimat officials showed the documents signed between the Akimat and the contractors for the provision of some recycling communication services. As it was already mentioned in the literature review, social media is a powerful tool and it can be used to share guidelines on positive environmental behavior. The existing recycling communication practices are covered in the second research question.

To explore the instruments used for recycling communication in Astana, the interview questions were designed to delve deeper into the specific tools employed by both Akimat

and the Clean City. Based on the answers provided by Akimat officials during the interview, the recycling communication tools used are as follows:

● Social media: The Akimat uses instagram, which has a following of 1039 people, mainly for reporting purposes. The publications on the instagram page show what the Akimat has done in terms of environmental issues. That is, they do not provide any recycling guidelines on topics such as sorting and the importance of recycling.

● Stickers on color-coded bins: The stickers offer instructions on which bin to use for different types of waste.

● iKomek 109: The Akimat officials also noted that they use iKomek 109, a unified contact center of the Akimat of the city of Astana. Citizens use this platform to send their complaints. However, it is important to note that no information regarding recycling is distributed through the platform. The Akimat officials respond to citizens' complaints.

In addition to that, the interview with the Clean City officials gave an insight into their tools used for recycling communication purposes:

● Social media: Similar to Akimat, Clean City also has an Instagram page. Clean City's following is slightly higher, which is around 2466 followers. The publications have a more informative and educational tone, providing tips and advice on how to recycle and keep the city more sustainable. In addition to that, Clean City's Instagram page features more visuals, such as photos and videos of community clean-up events, public awareness campaigns, and environmental initiatives.

● Stickers on color-coded bins: The stickers offer instructions on which bin to use for different types of waste.

● Irregular offline events: Clean City takes part in offline events such as *subbotnik* (cleaning day), *darmarka* (event for exchange of clothes and other items), visits to schools.

To understand how recycling communication practices influence people's awareness, we decided to show the findings on the example of one of Akimat's recycling tools. These are color-coded bins. 87.80% of respondents answered that they knew about the color-coded trash sorting bins. 60.98% responded that they have the color-coded bins near their homes. The results were less spectacular, though, when it came to the exact trash categories that should be disposed of in each bin. This survey had multiple-choice questions, where citizens had to choose which type of waste goes into which bin. For example, paper, glass, plastic, metal, small appliances and electronics should go in the yellow container. For our

example, we decided to take the statistics for plastic, which should be in the yellow bin. From 92 responses to the multiple choice question, only 28 (or 30.4%) responses for plastic were correct. Similar to this, food trash, fabrics, leather, wood waste, ceramic utensils, and hygiene products are to be disposed of in the gray and/or green bins. And only 22 out of 91 responses (or 24.2%) correctly recognized food waste as a substance that ought to be dumped in gray and/or green bins.

These findings imply that even while a large percentage of respondents are aware of the color-coded system used for waste sorting, they might not be entirely aware of the exact materials that should be disposed of in each bin. Lack of awareness may lead to items being disposed of improperly, which could reduce the efficacy of the recycling program

To answer the general research question about the effectiveness of the existing recycling communication strategy in Akimat of Astana, the research team used the results of both survey and the interviews. The current recycling communication strategy in Astana City Akimat is ineffective. Only 17.07% of those polled said they recycle waste, while 82.93% said they don't. This demonstrates a lack of citizen awareness or willingness to recycle rubbish. Furthermore, only 19.51% of respondents said they were aware of Astana City Akimat's recycling initiative. This implies that the program's communication strategy is ineffective. In terms of waste sorting, just 24.39% of respondents verified having participated, while 75.61% reacted negatively. However, 68.29% of those polled reported an interest in taking part, indicating a possible readiness to participate in waste sorting if adequately informed and motivated. In terms of where people acquire their recycling information, 70.73% of respondents said they get it from social media or the internet, while only 2.44% get it through TV or radio. This implies that the current communication approach may require a shift toward internet promotion. 53.66% of respondents assessed Astana City Akimat's efforts in informing citizens about recycling as inadequate (rating 1), indicating that the existing communication strategy needs to be improved. In conclusion, the data suggests that the current recycling communication strategy in Astana City Akimat is ineffective.

As mentioned before, in order to answer the general research question, we also conducted interviews with citizens and eco-activists. Some of the themes that emerged during the interview are:

- Ineffectiveness and insufficiency in information campaigns;

- Trust issues;

- Lack of recycling education in the curriculums.

The topics mentioned above will be considered thoroughly by using the findings from the survey among the citizens and the collected interviews.

1) *Ineffectiveness and insufficiency of information campaigns*

The theme of inconsistent and insufficient information campaigns were mainly brought up by citizens and the eco-activists. The eco-activists mentioned that one of the tools that the government is using for recycling communication is the posters on recycling bins. However, the eco-activists are questioning the effectiveness of this method:

"... *Don't even doubt it, there is no need to check whether the waste is misplaced. Because it is. The process of recycling starts at home. That is, at the stage when mom, dad or child put trash in the trash can at home. They should already be thinking about how to sort it all (the waste). When posters on recycling bins are used, you need to be really sure that people will throw exactly where they need to. Otherwise, it's just throwing dust in the eyes, unfortunately"*, said respondent #1 (ECO-ineffective).

Another eco-activist shared the results of an experiment she conducted at the backyard of 100 panel houses. She taped informational posters on recycling bins herself within the framework of a project:

" Unfortunately, they (the posters) did not affect the situation in any way, the sorting process is done at home, that is, by the time people reach these recycling bins they already have everything (the waste) mixed up", explained respondent #5 (ECO-ineffective).

Regarding the insufficiency of the information campaigns, the majority of the eco-activists (4/5) mentioned that more could be done to raise awareness among the citizens. Some of the instruments they recommended include the following:

- Information posters at supermarkets, entrance of the buildings , public transport and other type of public places;

- Information campaigns spread through the chats of residential buildings and KSK (personal approach);

- Preparing a unified information campaign that provides clear guidelines to people;

- Providing information through TV, social media;

- Teaching about recycling at kindergarten, schools and universities;

- Introduce more offline events like picnics and *subbotnik (cleaning event)* to raise awareness.

2) Trust issues

The topic of trust issues was mainly raised by citizens. Citizens noted that one of the reasons for not recycling is lack of trust. Some citizens noted that they are not motivated to recycle because they see all the garbage taken away together by one machine. Respondent #9 (CIT-trust), a city resident, noted in an interview that, "*Why should I sort my trash and put it in different bins if I see all the trash from all the bins taken away by one car in the morning. Given that, all the effort and time spent on sorting is a waste of time*".

Another resident specifically made her own observation and also noted mistrust as the most important reason why she does not participate in recycling. Respondent #10 noted: *"I woke up in the morning specifically to watch the garbage truck pick up trash from the bins. The garbage truck came and just put all the trash together. It didn't matter if it was a yellow bin or a green bin, it was all collected in one car. After that there is no motivation to sort the garbage at all".*

When conducting an interview with officials of the Akimat, this question was raised by the researcher team. The Akimat answered that according to the rules, the garbage truck must be different for different types of garbage. The Saryarka Akimat works closely with Clean City for the transportation and recycling of the waste. The Akimat officials showed several documents that prove transportation contracts with CleanCity. One of the Akimat officials commented on the trust issues of the citizens by mentioning two platforms [Sergek](#) and [iKomek](#):

"The citizens should not be worried about the trash transportation. The garbage trucks are colored and have their schedule. For that we have Sergek cameras and a special tracking system that tracks the movement of garbage trucks on the map, controls the timeliness of arrival and the waste removal. If a citizen spots that a garbage truck takes the wrong bin, they should file a complaint through Ikomek. The complaint will be processed and the guilty party will be punished".

3) *Lack of recycling education in the curriculums.*

This theme is an important one due to the reason that it was mentioned by all three groups that were interviewed i.e. the citizens, eco-activists and the government officials. All three groups believe that recycling habits should be taught at educational institutions. This section starts with the results of the survey from the citizens and then switches to eco-activists.

All of the eco-activists mentioned that recycling behavior should be taught at educational institutions. The age at which it should be taught varied among the respondents. Some activists think it should start from kindergarten, some believe it should start at school. One of the eco-activists had a voluntary project, where she and her team prepared a teaching plan both for students and the teachers from Kazakh schools to teach about recycling. They focused on Kazakh schools because there is a lack of information in Kazakh language on the topic of recycling. Respondent #3 shared why they chose to work with schools:

"If you want to change something, you need to start with children. So we went to schools. That is, you go to school, you get the teachers, and teach the teachers. Then, they teach the child, the child goes to the family, and already through the child there is an impact on the family. That is, this is not a one time effect. It creates a cascade effect".

The eco-activist also mentioned that the knowledge level of recycling is low among both the teachers and students at schools. She also noted that it was hard to arrange this program at schools as it depended on how the school administration reacted to this project. According to the eco-activist, ecology lessons with practical knowledge on recycling and other issues should be a part of the curriculum. In addition to that, the Akimat officials noted that: "People in our country do not have a recycling culture. It should be taught at schools. The Ministry of Education should prepare a program".

Overall, these results indicate that more funding for public education is required to boost recycling in Astana. The creation of more accessible recycling facilities and focused public education programs may help to remove obstacles to recycling and motivate more locals to take part in waste reduction initiatives.

CHAPTER 5 - DISCUSSION

As communities and policymakers seek to address the growing problem of waste and its impact on the environment, effective communication strategies are essential for promoting recycling. The government in Kazakhstan is making attempts to address its growing challenges in waste management. Therefore, there is a need to better understand the existing communication practices and identify how communication can be leveraged to encourage positive changes in waste management behavior. In this chapter, we will discuss the implications of our study on recycling communication in Kazakhstan, drawing on the findings presented in the previous chapter. This will be done on the basis of the theoretical framework of Lee & Krieger's work "Moving from Directives toward Audience Empowerment: A Typology of Recycling Communication Strategies of Local Governments" (2020).

As mentioned in the conceptual framework, Lee and Krieger provided six qualitatively distinct communication types based on the recycling communication campaigns that are implemented at the municipal level in the US. By relying on these communication strategies, our team identified the communication practices that are being currently used in the city of Astana. The findings suggest that currently only two types of communication strategies are being used in Astana. These are single channel deficit reduction and multichannel translational approaches. The next paragraph explains why some of these communication types were considered relevant to the case of Astana municipality, while others were not.

1. *Single Channel Deficit Reduction Approach.*

The authors note that this approach is a method of promoting recycling information that involves using a single communication outlet. Waste disposal guidelines are conveyed to the public with the use of tools such as websites, newspaper advertisements and instructions at drop-off facilities. Although the Akimat of Astana uses several channels for communication, the guidelines are provided through the stickers on color-coded bins.

In addition to that, Lee and Krieger (2020) highlighted that the single channel deficit reduction approach is usually used when there are limited resources for educational campaigns or recycling programs. This indicates that the recycling issues might not be a top priority as there is not much budget allocated for this.

2. *Multichannel Deficit Reduction Approach*

This communication strategy uses various marketing tools to increase the citizens' information exposure. The authors suggest that main communications instruments are broadcast, print, digital, and social media. The Akimat of Astana and their contractors, Clean City, do not use this communication approach because the messages regarding recycling are not distributed simultaneously, and this is one of the most important aspects of multi-channel deficit reduction approach.

3. Audience-Centric Deficit Reduction Approach

In this case, the audience is divided into different groups according to their preferences and characteristics. This is done to create and spread messages that are easy to understand, remember, and motivate people to take action. The findings from the interview show that there is no segmenting and targeting based on audience i.e. the public. In fact, many of the stickers on color-coded bins use Russian language for guidelines, when they should be bilingual.

4. The Single Channel Translational Approach

This recycling communication strategy aims to educate residents on recycling through personal communication methods like face-to-face interactions or phone calls. The face-to-face interactions are usually done on recycling sites, which is not available in Astana as the recycling sites are located outside the city. Although it is important to note that visits to recycling sites are not forbidden, they are not promoted as well.

5. Multichannel Translational Approach

This strategy includes events like community outreach and recycling tours, presentations at schools and community meetings, and increasing program visibility to promote sustainability and recycling. This communication strategy is partially carried out in Astana, especially by the contractors, Clean City, as they host offline events at schools, *subbotnik* (cleaning day), *darmarka* (event for exchange of clothes and other items) where they teach about sorting and recycling. However, these practices are not carried out regularly.

6. Audience-Centric Translational Approach

The authors suggest that this communication strategy focuses on audience empowerment through active involvement of the audience in the recycling program. We believe that this communication strategy has a big potential for Astana, especially considering the results of our findings, where distrust levels from citizens remain high. Neither the Akimat of Astana nor the Clean City are sharing the citizens' experience of recycling through various channels like social media, broadcasting, newspapers.

The existing recycling communication practices show that there is a lack of sufficient interaction with the citizens. As it was shown in the literature, communication policies in Kazakhstan, for the most part, have been based on a top-down approach, with the government often dispersing information, more than discussing with the public (OECD, 2017). These policy formulation and administrative methods are reminiscent of Soviet practices in governance (OECD, 2017). However, it is important to mention that, Tokayev, in his speech, talked about how the government will be shifting to become a "Listening State", which aims to take into consideration citizens and their opinions (Tokayev, 2019). The current government, thus, voiced that it's willing to reinforce and nourish the role of civic society, and to include them in discussions during the policy formulation stages, however, this is not visible in the recycling communication strategies currently. Despite this rhetoric, there is still a lack of citizen-centered communication strategies for the recycling system. Achieving the goal of becoming a "Listening State" will require strong political will to enact the necessary reforms, particularly in communication policies. At present, it appears that there is still a lack of political will to implement these changes.

CHAPTER 6 - CONCLUSION

6.1. Research summary

The study concluded that the existing communication strategy of the Astana City Akimat in the field of waste recycling is ineffective. According to the survey, the majority of respondents from all four districts of the city of Astana, are not educated enough about the recycling and waste sorting procedures. Also, according to the interview, we came to the conclusion of a trust issue. Since residents mentioned distrust of waste collection, explaining it by the fact that many people saw sorted waste is taken away by one car. And also according to the interview with a representative of the Akimat, we can conclude the lack of information campaigns on recycling among residents of Astana. Thematic analysis of interviews was conducted using NVIVO, and the survey results were interpreted using descriptive statistics.

6.2. Practical implications

Based on the data we collected, we conclude that there are 4 important results that we want to highlight in our research.

1. No single defined communication policy on recycling in Astana.

Neither of the interviewed Akimat officials nor the Clean City NC representatives were able to give a definite answer about the existence of a specific communication policy on waste recycling. This is confirmed by the words of eco-activists, who also said that the Akimat has no communication policy on recycling in Astana. The majority of respondents in our survey responded that they are not aware of the existence of a specific communication policy on waste recycling in the Akimat of Astana city.

2. Lack of effective communication tools in Astana.

The interview with Akimat officials made it clear to us that the Akimat has very few recycling communication tools. And moreover, most of it is used by the Clean City NC company through Akimat. Both Akimat and Clean city NC use social networks, such as Instagram. Both use stickers on the bins. Akimat also uses IKomek 109 application. and Clean City NC, in turn, additionally conducts offline events. This shows the use of only two types of communication strategies. These are single-channel deficit reduction and

multichannel translational approaches. And according to the survey, these communication recycling tools are ineffective and insufficient. Akimat works only on reporting and does not conduct any surveys and does not receive any feedback from residents. The tools used by the Akimat work only in one direction, and no one gets feedback on the effectiveness of the tools from the residents.

3. The Astana Akimat's recycling communication methods have a limited impact on citizens' levels of awareness.

The survey about color-coded bins clearly showed the awareness of the residents of Astana. Awareness of residents is small and many even having the necessary recycling tools near the houses, do not know enough about how to use it and sort waste.

4. Astana's current recycling communication strategy is deemed ineffective in terms of information campaigns, citizen trust and recycling education.

The study comes to the conclusion that the existing communication strategy of the Astana City Akimat in the field of waste recycling is ineffective. According to the survey, the majority of respondents from all four districts of the city of Astana, are not educated enough about the recycling and waste sorting procedures. Also, according to the interview, we came to the conclusion of a trust issue. Most of the respondents mentioned a lack of trust in waste collection, explaining it by the fact that many of them saw the sorted waste being taken away by one car. And also according to the interview with a representative of the Akimat, we can conclude the lack of information campaigns on recycling among residents of Astana.

6.3. Limitations of the study

There are two limitations to the study that should be considered. First, the sample size is limited, with only 54 respondents taking part in the survey. This may restrict the data' generalizability to the larger Astana population. Second, we had restricted access to participants because only one Akimat out of four districts volunteered to answer our questions. The Akimat of Saryarka district was the only one who responded to our request and answered our questions. Akimats from the districts of Baikonur, Almaty, and Esil did not answer and did not participate in the research. This could have impacted the sample's representativeness and the accuracy of the conclusions. As a result, study needed additional research with a larger and more representative sample.

6.4. Policy recommendations

The research's findings support a number of recommendations that could boost the effectiveness of Astana's Akimat's recycling communication strategy.

1. Develop a clear recycling communication policy.

Taking into account the results of the survey and interviews, we can conclude that in order to enhance the level of waste recycling in Astana, a clear waste recycling communication policy is required. Priority should be given to online communication channels in the newly created policy in order to reach the majority of residents who acquire recycling information from social networks and the internet. The Akimat should also increase efforts to promote the recycling program and make participation easier for homeowners by offering additional recycling containers and convenient waste sorting sites in residential areas. Residents will be more likely to assist in waste sorting if there is a clear and consistent communication strategy in place. Overall, a well-designed recycling communication policy will help to make the city cleaner and more sustainable.

2. Increase the visibility of the program and regularly promote it through various channels.

The majority of survey participants said they learned about recycling from social media and the internet. In order to reach a larger audience, the Akimat of Astana ought to take advantage of this trend by stepping up their social media presence. Eco-activists also recommended using tools at hand such as direct contact prompting. This can be done by corporating block leaders and volunteers in informing processes. Block leaders and volunteers can inform the residents of the houses about the importance of recycling in addition to guiding them in the waste sorting process. Despite the fact that 87.80% of respondents said they were aware of the color-coded system for waste bins, many individuals still aren't aware of which types of waste belong in which bins. By public campaigns, workshops, and training sessions, the Akimat of Astana might spread more information about waste sorting.

3. Increase intrinsic motivation mechanisms by adding recycling to curriculums.

Both eco-activists and Akimat officials highlighted the importance of working with the younger generation, and thus introducing a course on environmental issues that touches

upon the recycling process. Literature review shows that positive recycling behavior also depends on training intrinsic motivation mechanisms meaning, addressing ethical and moral sides of environmentally positive behavior. A group of eco-activists have already prepared education materials both for teachers and students on the above mentioned topics and introduced these in Kazakhs schools in Astana. Therefore, educational material on recycling and environmental issues is already available. It is essential for the Ministry of Education and Science of the Republic of Kazakhstan to work on introducing this into kindergarten, school and university curriculums.

4. Incorporate citizen participation and feedback to the recycling program.

Our research implies that the Akimat is introducing policies without getting feedback from one of the main stakeholders i.e. the citizens. In addition to that, our interview with Akimat officials suggests their attitude towards low citizen participation rates is rooted in the "lack of recycling culture" position. Whereas our literature review suggests that informing, education, publicity are important elements of any recycling program. Therefore, we recommend Akimat to conduct quarterly surveys on citizens to understand the availability of information and effectiveness of the introduced communication policies. As well as that, our research shows that eco-activists have done substantial work in the field, and using their expertise in policy making can make a difference in promoting environmentally positive behavior. Collaborating both with citizens and eco-activists aligns with Tokayev's 'listening state' approach to policy making.

5. Work on the communication gap between institutions.

In addition to recommending a more collaborative government, it is important to reduce the communication gap between institutions. Based on the recommendations made above, it is clear that the Ministry of Education and Science of the Republic of Kazakhstan, The Ministry of Ecology and Natural Resources of the Republic of Kazakhstan and Akimat and CleanCity shall work more closely to improve accessibility of knowledge on recycling and awareness of the issue and boost publicity of the program.

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APPENDICES

Appendix 1. Questions for the survey of residents of the city of Astana

Introduction

Dear participant, we invite you to take part in a study on "Reduce, Reuse, Recycle: Government Recycling Communication Practice in Kazakhstan, The Case of Astana municipality". The study is conducted by master's students of the Nazarbayev University Graduate School of Public Policy.

Procedures.

The purpose of this study is to examine current communication practices conducted by the Akimat of Astana, and to determine the extent to which these practices contribute to raising citizen awareness of waste management issues and opportunities in Astana. If you agree to take part in this research project, you will be asked to fill out a questionnaire, which will take about 7 minutes to complete. All information you provide will be anonymous, so we would appreciate your honesty in answering each question in this survey.

Risks.

There are only minimal risks associated with this study. We remind you that your answers will remain anonymous, and you can withdraw from the study at any time without any consequences.

Compensation.

No tangible compensation will be given.

Confidentiality & Privacy.

The survey will not collect information that may reveal your identity, including your first name, last name, or IP address. Any data collected in this survey will be securely stored in accordance with Nazarbayev University's Research Data Management Policy. This data will not be shared with anyone outside the research team. Summarized anonymous results of this survey may be presented at a conference or published.

Voluntary Nature of the Study.

Participation in this study is strictly voluntary, and if consent to participate has been given, it can be withdrawn at any time without prejudice to the case.

Points of Contact.

It is understood that if you have questions or comments about this project, you should contact Akbota Amantay (akbota.amanta@nu.edu.kz.) and Aminanur Chaia (aminanur.chaia@nu.edu.kz). Any other questions or concerns can be directed to the Nazarbayev University Institutional Research Ethics Committee, resethics@nu.edu.kz.

Statement of Consent.

By clicking "I agree" below you are indicating that you are at least 18 years old, have read and understood this consent form and agree to participate in this research study.

1. Your age.

- 18-25

- 26-35

- 36-50

- 51-60

- 60 and up

2. Your gender.

- Male

- Female

- Other

3. How long have you been living in Astana? (How many months or how many years).

4. What district of Astana do you live in?

- Esil district

- Saryarka district

- Almaty district

- Baikonur district

5. What kind of housing do you live in?

- Apartment complex (built after 2010)

- Apartment complex (built before 2010)

- Private house

- Soviet Panel House

6. If you have chosen an apartment complex option, please specify the name of the apartment complex where you live.

7. Household size?

8. Do you recycle?

9. If yes, what kind of waste?

10. Assess how aware you are of recycling?

11. Do you know about the recycling program of Akimat of Astana city?

12. From what source of information did you learn about it?

- Social media, internet

- TV, radio

- Banners, posters

- Other

13. If you answered "Other" in your previous question, please specify.

14. Have you ever participated in the recycling process?

15. Do you want to participate in recycling?

16. Do you know about the color separation of garbage cans for garbage sorting?

17. Do you have colored (yellow, green) recycling garbage cans near your home?

18. What type of trash should you put in the yellow bin?

- Plastic

- Waste wood

- Ceramic dishes

- Metal

- Glass

- Hygiene products

- Paper

- Household Appliances

- Food waste

- Textiles, leather

19. What type of trash should be thrown in the gray and/or green bins?

- Plastic

- Waste wood

- Ceramic dishes

- Metal

- Glass

- Hygiene products

- Paper

- Household Appliances

- Food waste

- Textiles, leather

20. How do you evaluate the work of the Akimat of Astana in informing citizens about recycling?

- 1

- 2

- 3

- 4

- 5

21. Do you have any suggestions for improving recycling awareness practices in the city?

Appendix 2. Questions for interviews with officials of the Astana City Akimat.

1. How is waste recycling being implemented in Astana?

2. Do you think it is important to increase awareness among the citizens about recycling?

3. What tools do you have to inform people about the importance of recycling?

4. What kind of publicity do you use to increase awareness on the importance of recycling and the recycling program in Astana?

5. Do you use social media to inform the public about recycling? If yes, how?

6. Do you have different communication tools for different groups of people such as low income households, elderly etc?

Appendix 3. Questions for interviews with private companies and eco-activists.

1. Do you know about the recycling program of Astana city Akimat?

2. How did you find out about this program?

3. How do you evaluate this program?

4. How do you evaluate the work of the Akimat in informing citizens about recycling?

5. Do you know what recycling communication tools the Akimat of Astana uses?

6. What could be done to improve the recycling communication practices in Astana?