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MULTI-LEVEL GOVERNANCE, CLIMATE CHANGE, AND MUNICIPAL SOLID WASTE MANAGEMENT: INSIGHTS FROM MURMANSK, RUSSIA

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Abstract

The past three decades witnessed a proliferation of academic research on climate change governance in cities around the world. This research has largely focused on case studies of large cities with populations of over several million. However, Arctic cities have received little attention in the urban governance literature, despite being located in the region most impacted by climate change. This paper examines climate change governance in the Russian city of Murmansk, evaluating how the theoretical framework of multi-level governance—derived primarily from EU and North American scholarship and experience—operates in the Russian urban context. We take municipal solid waste (MSW) management in Murmansk as a case study to better understand how climate change issues are framed and governed by the Murmansk city administration. We assess interactions of Murmansk authorities across vertical and horizontal dimensions, with regional authorities and non-state actors (voluntary associations and NGOs) in MSW governance. The research is based on document analysis, news media, and semi-structured interviews with state and non-state stakeholders in Murmansk. Our analysis finds that Murmansk authorities do not frame climate change as a challenge needing to be addressed by explicit climate-related policies. It also shows the absence of major, multi-level governance (MLG) characteristics in the Murmansk case. Our findings suggest further research is needed to better understand urban climate change governance practices in more centralized states like Russia and this contributes to a critical reflection about the limits and utility of the MLG theoretical framework in many parts of the world.

Keywords: multi-level governance; Arctic cities; climate change; Russia; waste management; urban

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Introduction

Despite the proliferation of scholarly research on urban climate change governance in the past decades, empirical knowledge about urban climate change governance *actions* remains limited [Van der Heijden, 2018; Westman, Broto, Huang, 2019]. Arctic cities¹ have received little attention in urban climate governance literature, including those located in the Arctic Zone of the Russian Federation² (AZRF). In comparison to other Arctic states, the AZRF is highly urbanized, where over 80 percent of the Russian Arctic population lives [Frauzer, Lutkina, Frauzer, 2016]. Since 1990s, these municipalities have undergone enormous political and economic transitions,

1 Since the population of even the largest Arctic cities is less than 400,000 people, we define an Arctic city as having a population of at least 50,000, being located above the Arctic circle and providing economic, social, cultural and political functions for its dwellers.

2 The Russian Arctic Zone is defined by the 2014 Presidential Decree № 296.

rapid depopulation, and changes in the state's approach to the region's development [Johansen, Skryzhevskaya, 2013; Zamyatina, Goncharov, 2019]. Importantly, the AZRF and its municipalities are expected to experience dramatic climate change impacts, as research shows that the last century of warming in the region occurred at approximately twice the rate of the rest of the world [Overland et al., 2012].

Using municipal solid waste (MSW) management in Murmansk as a case study, this article addresses knowledge gaps about urban climate governance in the AZRF, to better understand how climate change issues are framed and governed by the Murmansk city administration. Specifically, we assess how Murmansk authorities interact across vertical and horizontal dimensions with regional authorities and non-state actors (voluntary associations and NGOs) in MSW governance. This article expands knowledge on climate change governance in the Arctic, given that the literature has been dominated by North American scholarship focusing on indigenous communities [Ford et al., 2014]. A Murmansk case study also adds to the urban climate change governance literature because Russia remains largely unaddressed there [Martus, 2018; Van der Heijden, Luckmann, Cherkasheva, 2019]. Finally, urban climate literature mainly focuses on large cities with at least several million inhabitants [Lamb, 2019; Wurzel et al., 2019], attention to an Arctic city with a population of less than 300,000 further contributes to knowledge in this area.

The paper is structured as follows: after a brief section on Russia, climate change, and the AZRF, there is a short literature review on cities and multi-level climate change governance. Next, we turn to the descriptive case study of Murmansk. The following sections apply a MLG lens to discuss Murmansk's framing of climate change issues, and governance mechanisms of MSW management. Our analysis concludes that Murmansk authorities do not frame climate change as a challenge to be addressed by explicit climate-related policies. It also shows the absence of some major MLG characteristics in MSW governance.

Russia, Climate Change and the AZRF

Official Russian climate-related policy documents and the academic literature often identify positive and negative consequences of climate change [The President of the Russian Federation, 2009; The Government of the Russian Federation, 2019; Graybill, 2015; Anisimov, Kokorev, 2016]. Some cities are already experiencing the impacts of climate change on permafrost, ice conditions, snow, and weather extremes with negative implications for urban infrastructure, communication, and transportation systems [Graybill, 2015; Anisimov, Kokorev, 2016; Streletskiy et al., 2019]. Such impacts are exacerbated by the geographical location of cities and by financial constraints. Most Arctic cities are remote from transportation hubs and have limited access to evacuation roads. Municipalities are financially dependent on higher levels of government, requiring financial resources from federal and regional budgets to implement local policies and programs [Didyk, Riabova, Ivanova, 2008].

The oft-positing positive impacts of climate change mainly relate to potential economic benefits, warming associated with savings for cities on energy/heating costs, and snow removal [Anisimov, Kokorev, 2016; The President of the Russian Federation, 2009; Orttung, Reisser, 2014]. More broadly, there is a widespread expectation among public officials and researchers that Russia will benefit from climate change, in terms of expanded exploitation of bioresources, oil, gas, and other mineral resources, and from increased shipping in the Arctic [Anisimov, Kokorev, 2016; The President of Russian Federation, 2009; Orttung, Reisser, 2014; Stupak, 2017]. Several studies argue that such economic changes might engender further development of Arctic cities, new job creation, modernization of port and industrial infrastructure, and diversification of local economies [Plisetskiy, 2016; Sergunin, 2019]. Naturally, the impacts of climate change all have significant costs, as do the investments required to adapt to such changes. All of these factors, and the ability of governance to improve and adapt, will play important roles in the implementation of Russia's Arctic Strategy, to ensure the future well-being and prosperity of people living in the AZRF, and advancing government energy production and shipping goals [The President of Russian Federation, 2020].

A handful of papers elucidate the impacts of climate change on the health of Russian urban residents [Shaposhnikov, Revich, 2019; Shaposhnikov et al., 2019; Nikitina, 2019] and urban infrastructure [Anisimov, Streletskiy, 2015; Likhacheva et al., 2018; Semenova et al., 2019]. Several studies also ex-

amine the functions and roles of national and regional governments [Rakkolainen, Tennberg, 2012; Graybill, 2015], cities [Shiklomanov, Streletskiy, Suter, 2017; Rakkolainen, Tennberg, 2012], and local communities [Keskitalo, Kulyasova, 2009] responses to climate change impacts in the AZRF. In general, this research identifies the lack of attention paid to climate change impacts on cities and characterizes climate change governance in Russia as being at the formation and agenda-setting stage [Rakkolainen, Tennberg, 2012; Graybill, 2015].

Cities and Multi-Level Climate Change Governance

Beyond the Arctic, scholars have often studied urban change climate governance through the lens of MLG [Betsill, Bulkeley, 2006; Westman, Broto, Huang, 2019]. This approach is based on the premise that climate change governance is moving away from a primarily state-centric approach and being rescaled across different levels of authority [Bulkeley, Betsill, 2005].

The concept of MLG was developed by Hooghe and Marks [1996] in connection with discussions about the diminishing role of the nation state in the EU. They identified two types of MLG. The first referred to “[f]ederalism, which is concerned with power-sharing among a limited number of governments operating at just a few levels” [Hooghe, Marks, 2001, p. 4]. This type preserved the hierarchical relations between the different tiers of governance, where the core role was assigned to the state. The second type is where “[j]urisdictions are not aligned on just a few levels but operate at diverse operational scales; in which jurisdictions are functionally specific rather than dimensional, and where jurisdictions tend to be flexible” [Hooghe, Marks, 2001, p. 7]. The second type is focused more on the spheres of authority and the proliferation of horizontal networks [Betsill, Bulkeley, 2006]. MLG approaches fit well with research literature and political practice in federal systems [Selin, VanDeveer, 2009; 2012], with increasingly complex MLG approaches capturing the complexity of multi-scalar, domestic, and sometimes transnational dynamics, in which actors, institutions and influence can connect or even re-scale authority across and/or within scales. This conceptual fit with federalist politics is among the reasons that an MLG approach might apply in the Russian context.

Since its introduction, the concept has been modified and expanded, particularly concerning urban climate change governance [Betsill, Bulkeley, 2006]. An overview of the literature shows the following four MLG conceptual characteristics have been discussed and empirically tested in research related to urban climate governance:

Multi-level interactions. Urban climate governance is rescaled across and within vertical and horizontal governance scales [Bulkeley, Betsill, 2005; Fuhr, Hickmann, Kern, 2018]. Vertical interactions primarily occur between different administrative units (cities, countries) and they relate to the issues of authority and its distribution [Betsill, Bulkeley, 2007]. In contrast, horizontal interactions occur at different governance levels and between a diverse array of actors that operate across these scales [Betsill, Bulkeley, 2006]. Horizontal collaboration occurs between various public sector entities [Collier, Liifstedt, 1997], cities and NGOs [Foo, 2018], the private sector, and urban residents [Klein et al., 2018].

Horizontal networks. Networks empower cities by providing them access to international organizations, knowledge, and financial resources [Bouteligier, 2014; Kern, Bulkeley, 2009; Rutherford, 2005]. In certain cases, the cities’ intentions to join networks might be driven less by climate change concerns and more by a desire to attract new investors and a labor force [Van der Heijden, 2018]. A few works discuss the exclusiveness of these networks by highlighting that cities that are incapable of allocating personal or financial resources for taking part in network meetings may perceive themselves as left out [Granberg, Elander, 2007; Short, 2004; Bouteligier, 2014]. City networks might also try to attract already well-performing and successful cities and in this manner demonstrate the high level of their willingness to address climate change risks [Van der Heijden, 2017]. Hale’s work [2016] also demonstrates that cities’ participation in horizontal networks (with each other) can afford them opportunities to influence other (vertical) levels of authority such as UN-sponsored global climate change forums or their own national governments.

Drivers and obstacles. Research has identified factors motivating cities to participate in MLG, including their approach to declaring more ambitious goals in comparison to their nation-states [Van der Heijden, 2018]; their inclination to apply new innovative instruments, their interest in information sharing and impacting international negotiations, and in lobbying national governments [Van

der Heijden, 2018; Betsill, Bulkeley, 2006]. Obstacles for cross-level cooperation often include jurisdictions imposed by state administrative institutions, elite intervention [*Gregorio et al., 2019; Patterson, Van der Grijp, 2019*], and the limited scope of city responsibilities [*Gupta, 2007; Westman et al., 2019; Patterson, Van der Grijp, 2019*].

Autonomy. The governance of local climate change actions depends on the level of cities' autonomy [*Bulkeley, Betsill, 2013; Bulkeley et al., 2018*]. Bulkeley et al. [2018, p. 705] identify four forms of autonomy:

- (1) distributed autonomy, purposefully designed as a form of political power-sharing;
- (2) networked autonomy, based on the functioning of autonomous units;
- (3) fragmented autonomy, based on the presence of autonomous units, but operating in chaotic and fragmented ways;
- (4) coerced autonomy, a top-down governmental autonomy with strong elements of hierarchical management.

Similarly, Bulkeley and Kern [2006, p. 2242] distinguish several modes of urban climate change governance, namely:

- (1) "self-governing," the capacity of local government to govern its own activities (e.g. reducing heating costs);
- (2) "governing by provision," the shaping of practice through the delivery of particular services and resources;
- (3) "governing by authority," the use of traditional forms of authority such as regulations;
- (4) "governing through enabling" (e.g. providing information).

These four conceptualized characteristics of MLG serve as the framework of analysis for our research on climate governance in Murmansk.

Framing Climate Change Governance in Murmansk

This case study of Murmansk sheds light on urban climate change governance in the AZRF. The research empirically describes and analyzes urban climate governance in Murmansk through the MLG framework. We describe how climate change is currently framed in Murmansk's urban politics and then focus on MSW governance. The data were collected through semi-structured interviews conducted in Murmansk during fieldwork in 2019 and 2020. Interviewees include 15 respondents from the public and private sector, including the municipal authority (the administration of the municipality), regional legislative (Council of Deputies) and executive (regional government) authorities, representatives of business and civic organizations (i.e. environmental NGOs and voluntary associations). The wide scope of participant types was important for data triangulation. All interviews were conducted by Nadezhda Filimonova in Russian, transcribed, translated into English, and coded manually. She is a native Russian speaker and scholar, who is familiar with the local political and cultural context. As presented below, the data analysis examined Murmansk's discourse of climate change framing and identified vertical interactions (municipality-region) and horizontal interactions (between the municipality and non-state actors) in MSW management. The coded data were compared with the MLG characteristics identified in the literature review. During the fieldwork, the challenge of low participation rates among local and regional government officials was addressed by comparing the interview data with municipal and regional archive materials, reports, programs and strategies, and media sources.

Murmansk, the largest city above the Arctic Circle and the administrative center of the Murmansk region, is located on the bank of nonfreezing Kola Bay and 50 km from the Barents Sea (*fig. 1*). This geographical position is beneficial as the Gulf Stream ensures the deep-water port in Murmansk does not freeze.

While many cities on the Kola peninsula are mining dependent, Murmansk has a diversified economy focusing on the development of its port facilities for shipping, natural resource transportation, and the fishing industry (*fig. 2*). Regional and local officials are trying to position the city as a hub for the Russian government's projects for the Northern Sea Route. The private Russian gas company Novatek has begun construction of a shipyard of the city's coast that the company's representatives claim will create up to 10,000 new jobs [*Staalesen, 2017*].



Fig. 1. Location of the city of Murmansk on the map

Source: <http://library.arcticportal.org/1595/>

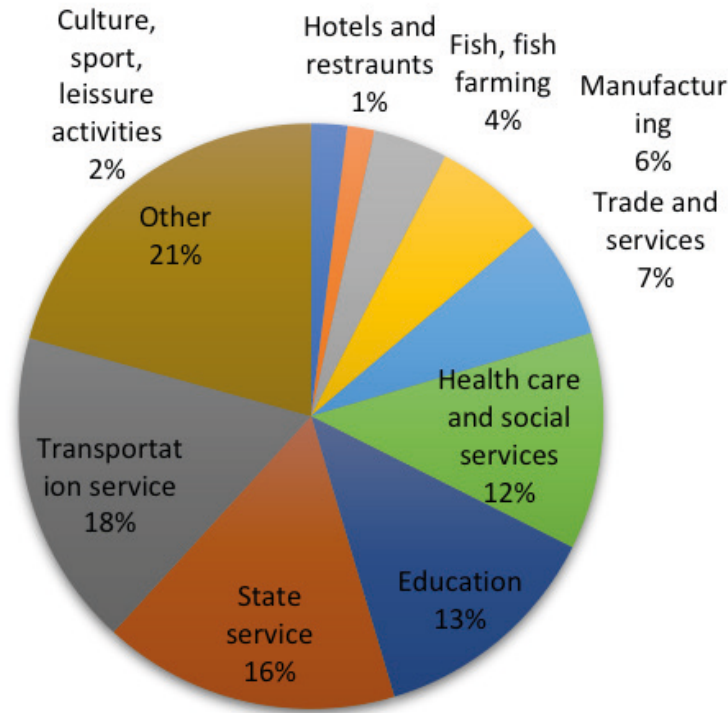


Fig. 2. The proportion of Murmansk working population by economic sector (2018)

Source: https://www.citymurmansk.ru/strukturnye_podr/?itemid=27#descr

Typically for AZRF cities, Murmansk has experienced population decline since the 1990s following the collapse of the Soviet Union and the restructuring of federal Arctic strategies. The Russian government ceased or reduced spending on state services and programs, and closed some enterprises, research stations, and military bases. In 2019, the population of Murmansk was about 292,600 [B-port, 2019] and it is expected to decline by another 13,000 in the coming decades [Gushin, 2019]. If the city is to stop shrinking, it is critical to create a comfortable urban environment, economic growth, and improved environmental conditions. Among the environmental problems, Murmansk officials underscore air, water, and soil pollution caused by industrial activities and emissions from cars [Administration of the City, 2013]. Some initiatives started in 2008, when the United Nations Development Program and the Russian Regional Environmental Center selected the Murmansk region for a pilot study of climate adaptation policies in the AZRF [CCS, 2009]. Additionally, since the 1990s, the Russian government has cooperated with its Northern European counterparts around such environmental issues as marine environment protection, biodiversity conservation and maintenance, air pollution, and nuclear waste management. One example is the Arctic Military Environmental Cooperation (AMEC) Program established in 1996 after the signing of the AMEC Declaration by the governments of Russia, Norway, and the US. Serving as a forum for communication to address military environmental issues in the Arctic, the three countries have paid special attention to nuclear fuel and radioactive waste from decommissioned submarines in the Murmansk region [Sawhill, 2000; Rudolph, 2006].

Framing Climate Change in Murmansk

In 2018, the average annual temperature exceeded the climatic norm by 2.2 °C on the Kola Peninsula [Ministry of Natural Resources, 2019]. However, our analysis reveals that climate change has not been framed by Murmansk authorities as a challenge needing to be addressed by climate-related policies. At the time of the fieldwork, neither the municipality nor the regional government had climate change strategies or policies in official documents. In this respect, Murmansk is no different from other municipalities in the Murmansk region: none have developed climate change strategies. This confirms previous research which found that municipalities in the Murmansk region prioritize press-

ing socio-economic issues over climate change challenges [Johansen, Skryzhevskaya, 2013; Skryzhevskaya, Tynkkynen, Leppänen, 2015].

Interviews revealed several factors that explain this disregard for climate change in Murmansk. Most interviewees mentioned an absence of climate change consequences for the city and the presence of socio-economic issues. Additional answers included a dearth of scientific knowledge on climate change and the lack of attention to the climate change agenda at the national level. These responses are consistent with the literature on drivers and obstacles for urban climate change governance. For example, barriers include a strong dependence on national policies, a lack of scientific information and difficulties in its understanding, and national and international economic conditions that impede investment into climate policies [Patterson, Van der Grijp, 2019; Nordgren, Meerow, 2016].

The data analysis indicates that mentions of climatic and weather issues mainly occur in relation to the municipality's geographical location and its functioning as the Northern city characterized by long and cold winters. Climate and weather issues were mentioned in interviews associated with the creation of a more livable urban environment. For instance, in one interview with an official in the Murmansk regional government, the following priority tasks were highlighted: measures introducing amendments to legislation on snow storage areas and the enhancement of protection of sidewalks from snow removal. The municipality's annual measures to control flooding caused by melting snow are identified as municipal tasks under the relevant federal, regional, and local legislation [Administration of the City, 2019d]. Generally, the framing of climate issues in the context of the city's functioning relates to Murmansk's strategic objectives connected to achieving high living standards, creating a comfortable urban environment, and transforming the city into the Center for Arctic development [Administration of the City, 2019c].

Contrasting views were expressed concerning the municipality's development given its geographical location. The local Strategic Plan for Socio-Economic Development for the period up to 2020¹ listed difficult climatic conditions, i.e. harsh climate, permafrost, polar nights, among other factors that negatively influence the city's investment attractiveness [Administration of the City, 2013]. On the other hand, interviewed officials in the Murmansk region administration expressed expectations that the municipality might benefit from climate change. As climate change reduces snowfall in the Southern areas of the country, the snowy municipality might become more attractive to tourists. Similarly, Skryzhevskaya, Tynkkynen, and Leppänen [2015] concluded that potential benefits from climate change were mainly associated with perspectives for economic activities such as an increase in tourism and navigation.

Previous research found that the framing of challenges mainly dealt with concerns about the impacts of climate change on the bio-productivity of the Barents Sea [Johansen, Skryzhevskaya, 2013; Skryzhevskaya et al., 2015]. One question put to interviewees was about their views on current environmental issues for the municipality. Nearly all interviewees (90%) singled out problems related to the growing amounts of MSW and its mismanagement; high concentrations of coal dust in the air; air pollution from cars and thermal power plants, and soil and water pollution, including in the waters of Kola Bay. They identified mainly the anthropogenic causes of the municipality's environmental problems. The most mentioned causes of these problems relate to ineffective environmental regulations; the lack of federal programs and budgetary support; old public infrastructure; inefficient emission measurement systems, and a low level of environmental culture among the city residents. As such, the responses indicate that Murmansk's challenges are seen as driven by factors other than climate change.

In summary, our analysis reveals that climate change is not framed as a major driver for local policies in Murmansk. Such climate change policies can be characterized as contiguous. Dupuis and Biesbroek [2013] define such contiguous policies as ones with lower levels of politicization than climate change, and often being initiated to address other objectives. They argue that, although such policies are not framed or enacted primarily as climate actions, they may allow for adaptation and mitigation to be implemented [ibid.]. For Murmansk, mitigation and adaptation responses to climate change are integrated, in various forms, into local policies to tackle the problem of the unfavorable socio-economic conditions in the municipality. Generally, the state of climate change politics and policy in Murmansk is consistent with other findings on Russia's domestic climate change governance, i.e. that Russian climate change governance remains at the agenda-setting, formation, and elaboration stage [Rakkolainen, Tennberg, 2012].

1 At the time of article writing, the municipality was in a process of drafting its new Strategy for Socio-Economic Development.

Governing Municipal Solid Waste in Murmansk

Improving MSW management is one of the crucial tasks for Murmansk regional and local governments [Klyuchnikova, Masloboev, 2013; Administration of the City, 2013]. The growth of unauthorized landfills ranks among the most pressing environmental issues in the Murmansk region [Ministry of Natural Resources and Environment, 2019]. MSW is also an important contributor to climate change due to the emission of harmful substances during waste processing and disposal [Onyanta, 2016]. Landfills remain a major waste processing method in the Arctic. However, the projected temperature rise could lead to the decomposition of large quantities of waste that have been maintained at low temperatures. The potential consequences could be seen in air, ground, and water pollution, and in potential risks to the health of Arctic residents.

This section reviews federal legislation to examine the legal division of responsibilities for municipal and regional authorities. This allows us to identify specific issues within the municipality's interactions across different governance scales. Previous research found that the establishment of a clear register of functions at the municipal level represents an important prerequisite for effective MSW management [Pavlenkov, Voronin, 2018].

In January 2019, a new system of MSW management was introduced in the Murmansk region. The basis for this waste reform was the adoption of Federal Law № 458-FZ in 2014, which significantly changed the waste management system. One change was the delegation of MSW collection, transportation, disinfection, and disposal to a regional operator. In 2018, the Murmansk regional government concluded a 10 year agreement with the regional operator JSC "Upravlenye Otchodov" (JSC "Waste Management") on the organization of activities for MSW management in the Murmansk region. The Russian government anticipates local governments will cooperate with regional operators.

The current legislation assigns the federal government as the primary regulator of environmental protection. The municipal functions for MSW management are defined and implemented under the relevant federal laws. Broadly speaking, in Murmansk, MSW management is realized by educating and informing inhabitants about MSW policies; adopting general schemes for cleaning up urban areas; approving land use planning, and providing information at the regional level (Table 1).

Table 1. Regulation of municipal solid waste management in Russia

Federal Laws	Municipal Functions and Responsibilities
<p>Federal Law № 131-FZ "On the general principles of the organization of local self-government in the Russian Federation" (adopted in 2003 with further amendments);</p> <p>Federal Law № 89-FZ "On waste production and consumption" (adopted in 1998 with further amendments).</p>	<p>"to organize the collection (including waste sorting), transportation, disinfection and disposal of MSW" [Article 24, provision 16].</p> <p>"to establish and maintain sites for the accumulation of MSW;</p> <p>to determine the layout of sites for the accumulation of MSW and to maintain a roster of these sites;</p> <p>environmental education and the formation of environmental culture regarding MSW management" [Article 8, provision 2].</p>
<p>Federal Law № 89-FZ "On production and consumption waste" (adopted in 1998 with further amendments).</p>	<p>"to request information from organizations operating in MSW management to exercise powers established by the federal laws" [Article 24.11, provision 6].</p> <p>"state regulation of tariffs regarding MSW management is carried out by the executive authorities of the federal subjects or by local authorities in case of transfer of relevant powers by a federal subject under federal laws" [Article 24.9, provision 1].</p> <p>For Murmansk, the Committee on Tariffs Regulation of Murmansk Region defines tariffs for the provision of MSW management services.</p>

Source: authors' creation.

Before 2019, the legislation assigned regional executive power and the city administrations with the functions of “organization of collection (including waste sorting), transportation, disinfection and disposal of municipal solid waste” [Rossiiskaya gazeta, 1998; Russian Legislation, 2008]. However, the amendments introduced to Federal Law № 89 in 2019 specified municipal functions that currently include the establishment and maintenance of sites for the accumulation of MSW [Rossiiskaya gazeta, 2019]. Despite these elucidations, the legislation still needs further clarification, particularly regarding the functions of waste separation and recycling [Pavlenkov, Voronin, 2018]. For instance, one company representative pointed out the lack of clarity in functions as one of the obstacles for the launch of waste separation in the Murmansk region. Moreover, Makov [2019] says that the current legislation does not fully take into account the principles of MSW management in the harsh climatic conditions of northern regions. In general, the current legislation impedes MSW management in Murmansk, as is demonstrated in the following section.

Assessing Vertical and Horizontal Interactions

Applying aspects of MLG to Murmansk’s MSW governance, we assess interactions across vertical and horizontal dimensions via attention to budgetary relations, information sharing, and the municipality’s relations with non-state actors. The Murmansk case study presents a variety of governance interactions that do not fully reflect MLG characteristics, in particular, there is a strong adherence to top-down policies in MSW management. Previous research found that nearly all municipalities in Russia cannot fulfill their functions properly without regular communication with the regional authorities [Didyk et al., 2008]. One reason for this is the dependence of municipalities on allocations from federal and regional budgets to implement their policies [Didyk et al., 2008; Graybill, 2015]. Such dependence resulted from changes in tax legislation and the adoption of a budget code that significantly limited the basis for municipal revenues.

In 2019, in Murmansk’s total budget revenues, the share of local tax revenue was 54.1% and financial aid (donations, subventions, and subsidies from regional or national levels of power) was 42.3% [Administration of the City, 2019a]. It was estimated that tax revenues and financial aid would be 55.5% and 41.4% in 2020, respectively [Administration of the City, 2019b]. In fact, in 2020, tax revenue and financial aid were 48.2% and 49.5%, respectively [Administration of the City, 2020]. In comparison with previous years, the situation has changed. In 2014–15, the difference between the share of tax revenue and financial aid was around 10% [Administration of the City, 2014; Administration of the City, 2015].

Generally, Murmansk is better positioned compared to some other Arctic cities, where financial aid makes up most of the local budget. An interviewee from the city administration stated that, for the most part, the municipality’s budget is used for the social sphere and infrastructure (fig. 3). Subventions from higher levels of authority are generally aimed at covering expenses in the social sphere, including, for example, repairing foster homes or providing free meals to economically disadvantaged students [Administration of the City, 2019a; Administration of the City, 2018b].

Regional Law № 1674-01-ZMO stipulates financial assistance for MSW programs [Russian Legislation, 2008]. For instance, regional subsidies were provided to liquidate 24 unauthorized landfills in 2014. In September 2020, the landfill reclamation in the Drovyanoy micro-district was included in the national “Ecology” program upon the decision of the committee under the Ministry of Natural Resources and Environment of the Russian Federation.

However, our analysis identified that local programs are mostly funded by the municipal budget. For instance, the municipality allocated funds from its budget to the subprogram “Environmental protection in the city of Murmansk.” As part of this program, Murmansk spent RUB 13,5 million and RUB 17,7 million in 2017 and 2018, respectively [City Administration, 2019a; City Administration, 2018c]. Based on annual reports by the Head of the Administration of the municipality, from 2011–2018 major activities included the construction of barriers to prevent unauthorized landfills; collection and disposal of mercury-containing waste; waste container installation, and production of environmental-oriented educational materials. These activities primarily reflect the roles and responsibilities of the municipality as defined by federal legislation.

One interviewee, who worked within the Murmansk regional government, stressed the municipality’s reluctance to take initiatives beyond the fulfillment of its assigned functions. In addition to the local budget being socially oriented, another reason for this may be that state responsibilities are often passed on to municipalities without any prior negotiation or consultation, and without addi-

tional funding allocations [Didyk et al., 2008]. Such delegation of authority or responsibility impacts municipal priorities and funding.

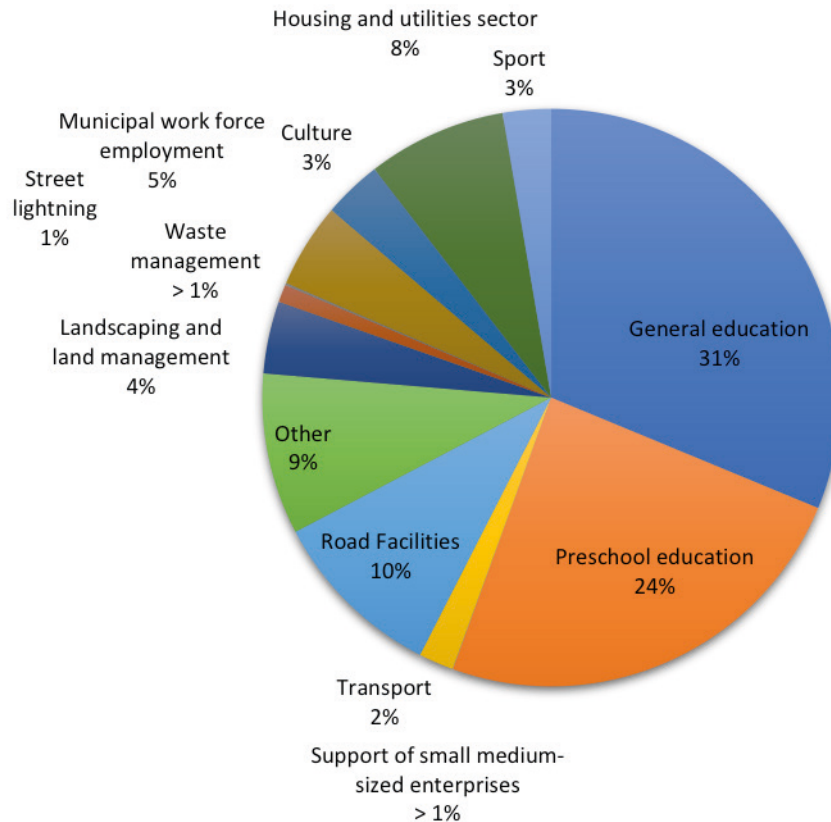


Fig. 3. Murmansk budget expenditures (2018)

Source: https://www.citymurmansk.ru/strukturnye_podr/?itemid=24

When asked about the initiators of Murmansk’s achievements in waste reform, however, most of the interviewees identified support from municipal and regional levels. In 2008, the head of the municipal administration described initiatives for launching a waste separation system [Regnum, 2008]. The literature underlines the role of mayors in the initiation and push for a new environmental agenda [Acuto, 2013; Curtis, 2016]. Despite the positive attitude in the literature, there should be a supporting environment for the mayor’s actions to be effective, i.e. a legal framework and resources [Patterson, Van der Grijp, 2019].

Besides the lack of clarity in the legislation, Murmansk’s geographical location presents challenges for MSW management. For instance, interviewees mentioned the vast distances between settlements, low population density, and the absence of recycling infrastructure as obstacles for MSW management.

Our analysis reveals that provision and exchange of information represents one area of interaction between the local and the regional levels of authority. These occur in various forms and with different goals. One example is information provided by the municipality to inform the regional government’s policy decisions. A municipal official noted that his department provides information to the regional executive of the Murmansk region on written request. The level of consideration at the regional level of this information varies depending on the issue. For instance, as per Federal Law № 89-FZ, local governments provide information for regional waste inventory, projects, and programs [Rossiiskaya gazeta, 1998]. In general, providing information to higher levels of authority is seen as a municipal responsibility.

However, some scholars suggest information sharing is one of the drivers for cities to participate in MLG [Van der Heijden, 2018; Betsill, Bulkeley, 2006]. They mainly refer to city participation in var-

ious networks. In the structure of the regional legislative and the executive powers of the Murmansk region, there are government bodies that interact with municipalities regarding issues related to waste management.

For example, the Coordinating Council of representative bodies of the municipalities of the Murmansk region is an advisory body to the Regional Duma. Its main goals are to enhance interactions between the local legislative powers (i.e. the city administration) and the Regional Duma. The main forms of interaction are realized through the development of recommendations, the creation of a platform for discussion during regular meetings, and the establishment of connections with other organizations. For instance, following the adoption of the territorial scheme for waste management by the government of the Murmansk region in 2016, the Council recommended municipalities to develop and update their general schemes for cleaning up local areas.

The Council serves as an important platform for municipalities by providing access to different organizations, government structures, and information. In this regard, the Council's roles can be compared to those of city networks. The literature discusses the benefits of cities' involvement in networks, emphasizing that networks empower cities by providing them access to organizations, information, and financial resources, to jointly develop and share experience of governance solutions [Bouteligier, 2014; Van der Heijden, 2018]. A municipal official expressed an opinion about the municipality's interest in participation in networks for the exchange of experience. However, it is hard to define Murmansk's interests in and benefits from its participation in Council meetings. At the time of the writing, no information had been received from the city administration on this topic.

On the initiative of the regional authority, meetings are organized with municipalities, businesses, and federal structures to discuss the waste reform in the Murmansk region. Their outcomes, scope, and participants vary depending on the issues discussed. Some meetings aim to engender information sharing, while the results of others are direct orders for municipalities. However, an interview with a municipal official noted a lack of interaction between the municipal and the regional levels. Previous research also found a lack of direct contact between the city of Kirovsk and the Murmansk regional government [Didyk et al., 2008].

Regarding interactions with non-state actors, data analysis revealed the limited scope of communication between the municipality, environmental NGOs, and voluntary associations. This also agrees with previous research on the limited involvement of NGOs in political processes, partly as a result of measures undertaken by the federal government to centralize its political power [Henry, Douhovnikoff, 2008; Graybill, 2015]. Interviewees mentioned areas of interactions that primarily dealt with municipal functions such as assistance in the dissemination of information on organizational activities. The lack of communication with civic organizations was also noted in an interview with a municipal official. In general, municipal departments are guided by internal regulations for crafting municipal policies. The municipal official noted that his department prepares programs without any consultation with civic organizations. Our analysis also revealed the involvement of the public and civic organizations in raising awareness of, and monitoring, municipal responsibilities for MSW management. The municipal official noted that residents watch out for problem areas and provide information to the municipality.

The interviews with NGOs and voluntary associations discussed their interactions with the regional Ministry of Natural Resources and Environment, which vary depending on the expected outcome. Such interactions include a ministerial provision of financial or transport support for environmental activities, the organization of meetings and conferences to share information, and assistance with the dissemination of information. A representative from the Murmansk regional legislature mentioned that his committee hosts meetings and consultation with a wide range of actors, including civic organizations. Despite the general difficulties for environmental NGOs and voluntary associations in Russia in participating in political processes, the interviews revealed that environmental NGOs interact more with regional level authorities than with local ones. This may result from the regional level's responsibility to develop local regulations for MSW management. Interviews with non-state actors also singled out difficulties in communication with municipal officials, noting that support of their initiatives depends on interest from state officials.

Our analysis reveals the limited scope of interaction across vertical and horizontal governance dimensions. MSW management in Murmansk remains a top-down process with the federal government serving as the primary regulator in MSW governance. The municipality's interactions with re-

gional authorities and institutions, and non-state actors primarily deal with information provision and sharing. The municipality relies on local funding for the implementation of its environmental programs. This represents an obstacle since spending from the local budget is mainly directed toward social policies. In this regard, the municipal budget looks to be insufficient for the provision of MSW management.

Conclusion

The case of Murmansk helps us understand urban climate change governance in the AZRF, using a multi-level governance approach and an analysis of municipal solid waste management. Although MLG is a widely used approach in the literature on urban climate governance, it has rarely been applied in the Russian context (see [Van der Heijden et al., 2019]) despite Russia's federal structures. We draw four insights from this analysis.

First, despite the ongoing and accelerating climate change impacts in the Arctic, Murmansk authorities generally do not frame climate change as a challenge to be addressed by explicitly climate-related policies. The city's climate-change-related policies are better characterized as contiguous ones, sometimes integrated into local policies to tackle socio-economic problems.

Second, waste management policies in the Murmansk region remain heavily top-down political processes, with the federal government mentioned as the primary actor in defining policies, and the means and directions for their implementation. The Murmansk municipality has a mostly reactive and dependent role, under the direction of the federal and regional authorities.

Third, the analysis shows a lack of substantive interaction across the vertical and horizontal dimensions. Despite the limited scope of these interactions, however, the research reveals the presence of more important interactions of environmental NGOs and voluntary associations with regional authorities and institutions. The analysis also finds that, unlike the policymaking process, the implementation of MSW management has more bottom-up initiatives due to the involvement of public and civic organizations in awareness raising and monitoring.

Finally, the case of MSW governance in Murmansk and its connections to climate change suggests that some common multi-level governance characteristics are absent, including decentralization and rescaling across different levels of authority. This finding is consistent with previous research that also cautions researchers about the applicability of aspects of MLG frameworks in highly centralized and/or semi-authoritarian countries with top-down command-and-control regulatory systems [Selin, VanDeveer, 2012; Westman et al., 2019]. While such states certainly have political dynamics across different levels of authority [Sowers, 2012], the MLG framework may have embedded institutional assumptions more appropriate to its EU origins. Our findings suggest further research is needed to better understand how urban climate change governance practices in more centralized states contribute to a critical reflection on the limits and utility of the MLG theoretical framework in many parts of the world. Multi-level climate governance frameworks may apply only after climate change policymaking and activism are explicit in particular urban settings. Where they are not already explicit, more traditionally state-centric expectations may be more appropriate.

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НАДЕЖДА ФИЛИМОНОВА, СТЕЙСИ Д. ВАНДЕВИР МНОГОУРОВНЕВОЕ УПРАВЛЕНИЕ, ИЗМЕНЕНИЕ КЛИМАТА И ГОРОДСКОЕ УПРАВЛЕНИЕ ТВЕРДЫМИ БЫТОВЫМИ ОТХОДАМИ: ОПЫТ МУРМАНСКА, РОССИЯ

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В последние три десятилетия сформировались академические исследования системы управления последствиями изменения климата в городах по всему миру. В них изучаются в основном глобальные и крупные города с населением более миллиона человек. Однако арктическим городам в этой литературе уделяется недостаточно внимания, несмотря на то, что они расположены в регионе, который наиболее подвержен влиянию изменения климата. В данной статье исследуется политика управления последствиями изменения климата в Мурманске. Оценивается теоретическая база многоуровневого управления, основанная в первую очередь на научных знаниях и опыте европейских и североамериканских исследований, а также ее применение в контексте российских городов. В качестве примера авторы обсуждают политику обращения с твердыми бытовыми отходами в Мурманске, что позволяет лучше понять, как проблемы изменения климата формулируются и решаются администрацией Мурманска. Они оценивают ее взаимодействие по вертикали и горизонтали с региональными властями и негосударственными акторами (общественными объединениями и неправительственными организациями) в сфере обращения с твердыми бытовыми отходами. Исследование основано на анализе документов, газетных материалов и полуструктурированных интервью с представителями региональной и городской власти и негосударственных структур. Результаты исследования показывают, что администрация Мурманска не рассматривает изменение климата как проблему, требующую решения посредством формирования климатической политики. В городском управлении в Мурманске в сфере обращения с твердыми бытовыми отходами отсутствуют основные характеристики многоуровневого управления. Выводы авторов свидетельствуют о необходимости проведения дальнейших исследований, чтобы лучше понять практику управления последствиями изменения климата в таких централизованных государствах, как Россия. Кроме того, подчеркивается необходимость критического осмысления ограничений применения теории многоуровневого управления к изучению городов, расположенных в разных регионах мира.

Ключевые слова: многоуровневое управление; арктические города; изменение климата; Россия; обращение с отходами; город

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