WOMEN IN THE EXTRACTIVE ZONE:

The Gender Dimension of Extractive Activities and Their Social Impacts on Georgia's Azerbaijanis in Bolnisi

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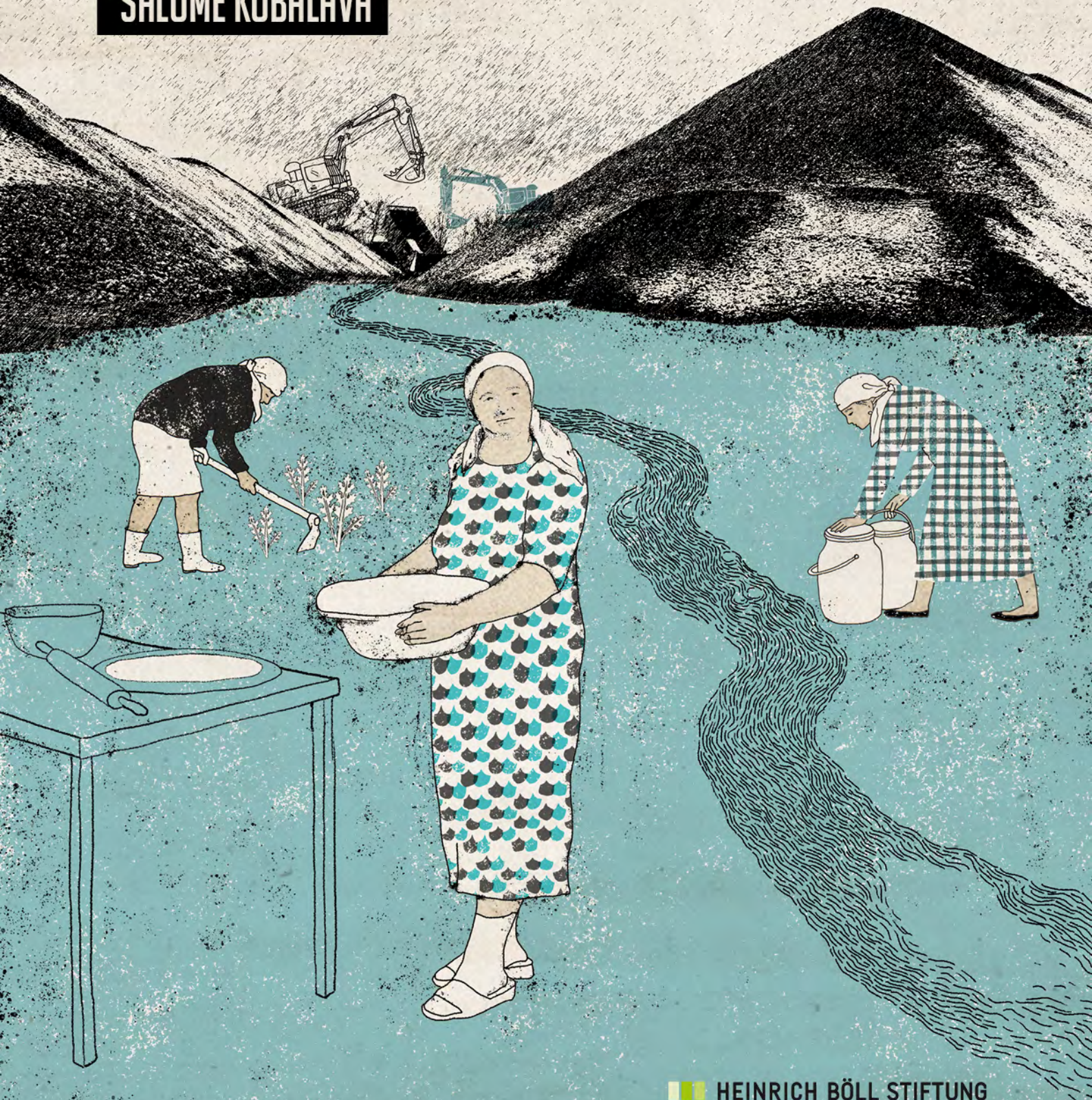

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Introduction

Defined broadly, extractivism is an appropriation of natural resources for economic accumulation at a scale that exceeds the regenerative capacities of natural systems and generates adverse environmental and social outcomes (Acosta, 2013; Gudynas, 2013). Even though industrialized mining of raw materials counts over a century-long history in Georgia and has seen a number of sector-related social protests in recent decades (Qeburia & Chubabria, 2017), local manifestations of extractivism are still a novel subject of study. While copper ores and concentrates – the products of mineral extraction – top the list of export materials of Georgia (GeoStat, 2022), more broadly, the mining sector's input in the country's overall economy and employment market remains negligible (Chivadze, 2020). Against this backdrop, in areas where natural resources are extracted intensively, local communities and ecosystems pay a disproportionately high social and ecological price (Aroshvili, 2020; Urchukhishvili, 2021; Tsintsadze, 2020).

The latest research on Georgia's mono-industrial, mining cities of Chiatura, Zestafoni, and Kazreti, examines the impacts of extractivism at the intersection of labor, ecological, social, economic, and gender relations (EMC, 2020; Urchukhishvili, 2021). The studies that specifically focus on the gender dimension of extractivism look at the labor migration of women from mono-industrial urban settlements and the absence of opportunities for their economic participation due to the lack of employment alternatives beyond the low-paid, and occupationally hazardous mining industry (Aroshvili, 2020; Urchukhishvili, 2021). Yet, little is known about Georgia's rural women who belong to ethnic minority groups, and who live in the extractive zones but are unable to leave or emigrate, having to make life possible under direct and pernicious effects of extractive activities instead.

Broadly speaking, rural women in Georgia experience multiple forms of discrimination and face numerous challenges, be it a lack of access to economic, healthcare, legal, social, and mental health services or a dearth of opportunities for civic and political participation. This is compounded by gender inequity in the accessibility of financial and land resources in the agricultural sector (Golemac Powell et al., 2020) which places rural ethnic minority women in a particularly vulnerable position, as they get excluded from support programs for women in agriculture, often because of a persisting language barrier (Mamedli, 2022). The gender composition of the agricultural workforce in the country suggests asymmetries in the distribution of labor as well. With the exception of Georgia's Racha-Lechkhumi and Kvemo Svaneti regions, the overall share of women employed in agriculture, especially informally, is greater compared to men. In this respect, ethnically diverse Kvemo Kartli leads the way where women engaged in agriculture (60% in 2019) outnumber men (Golemac Powell et al., 2020) and 42% of the local population is comprised of Georgia's Azerbaijanis[1].

In view of the multiple inequalities that rural women of ethnic minorities face in Georgia, this study examines the experiences of women from the country's largest ethnic group, Georgia's Azerbaijanis (6% of the total population) (GeoStat, 2016) living in Kvemo Kartli and specifically, in Bolnisi municipality where commercial extraction of natural resources abound. Considering the centrality of agriculture in Bolnisi's local economy (Darsavelidze et., al., 2018), and the input of Georgia's Azerbaijani community in its continuity, it is clear that the municipality as a whole, and Georgia's Azerbaijani community in particular, depend

1 CSEM.ge. (2016). Ethnic Groups of Georgia, http://csem.ge/wp-content/uploads/2016/07/ethnic_groups_of_georgia.jpg

greatly on the accessibility of natural resources, and environmental conditions, all of which are threatened by unbridled extractive activities in Bolnisi.

Given the above, this study analyzes extractivism in light of multiple forms of extraction operations that take place in Bolnisi and while doing so, it adopts the broader definition of the concept (Acosta, 2017). Theoretically, the study draws on feminist political ecology in an effort to understand how extractive activities affect women in Bolnisi's Azerbaijani community, uncovering connections between their labor, and daily experiences, access to natural resources, and changes in the natural environment.

Main Findings

Given the subject of inquiry and the socio-economic challenges Georgia's Azerbaijani women face, it is inevitable that this study calls attention to their vulnerability but not without emphasizing the critical role of their labor in sustaining Bolnisi's agricultural sector and the social reproduction of the entire community. Following the footsteps of feminist political ecology, this research report traces interlinkages between the exploitation of the natural environment, the general political, social, and economic context, and the everyday life of Georgia's Azerbaijani women in Bolnisi. Doing so shows that the impacts of ongoing extractive activities are uneven and reinforce structural and gender inequalities in the community. The study points to challenges that Georgian Azerbaijani women tackle under the multiple pressures of social exclusion and the deterioration of their living environment. More specifically, it discusses the issues of informal labor in agriculture and its feminization alongside time poverty, diminishing of women's agency, susceptibility to the chemical body burdens, confinement to the domestic sphere, heightened risks of physical and mental health issues, dual labor burden, and the inaccessibility of drinking and irrigation water.

As a life-sustaining substance and the central element in the agricultural and household activities in Bolnisi, water represents a key component to which extractive activities are linked and examined in this study. It shows that the persisting pollution of rivers by the toxic waste of a mining company "RMG" (Rich Metals Group), extraction of aggregate materials from the riverbed, and extractivist grabs of irrigation water, are hardly gender-neutral practices and shape not only everyday experiences of Georgia's Azerbaijani women but their social and political opportunities as well.

Overall, this study examines the above-mentioned forms of resource extraction from a gender perspective and presents the following findings:

- Residents in five out of six Bolnisi villages visited during the fieldwork emphasize recurring pollution of the Mashavera, Bolnisistskali (river Poladauri), and Khrami rivers, linking water contamination to the activities of "RMG" – the gold and non-ferrous metal mining plant in the borough of Kazreti. The pollution of the Bolnisi's hydrological network coincides with the decline of local subsistence farming and the rise of health issues among locals, including women and children. For instance, research participants point to the proliferation of different illnesses, including cancerous diseases in women, and skin allergies in children whenever the latter come into contact with polluted river water.

- Under the conditions of environmental pollution in Bolnisi, the women of reproductive age in Georgia's Azerbaijani community become susceptible to the potential negative social consequences of the *chemical body burden*. In circumstances of environmental pollution, combined with an unequal division of caregiving labor, exposure of women's bodies to toxicants can lead to the shifting of responsibilities over the health of children on mothers exclusively, creating conditions for oppressive practices towards women, especially in highly unequal contexts; when in fact, monitoring and ensuring the safety of the environment falls under the obligation of the state, the local governments, and mining companies. In such circumstances, the vulnerability of women's reproductive health that may be linked to environmental pollution is the outcome of a particular

configuration of economic and political structures that allow uncontrolled extraction of natural resources.

- Irrigation water is unevenly distributed in the visited rural areas of Bolnisi and one of the contributors to the unequal distribution appears to be irrigation water grabs that, according to study participants, are widespread practices in the municipality. The collapse of subsistence farming and livelihoods in the community intersects with the irrigation water shortages and feminization of the workforce in agriculture, increasing the burden of double and informal labor on women as well as their home confinement, ultimately limiting their opportunities for engagement in public and political life.

- The extraction of sand and gravel from the Khrami riverbed is linked to the risk of groundwater depletion and potential inaccessibility of potable water in two villages, generating likelihood of increased care and housework burden, time poverty and mental load for local women, that is bound to lead to the feminization of poverty in the community, and the reduction of already limited political opportunities for women.

It is clear that Georgia's Azerbaijani women, as well as the whole community living in the areas of extractive activities in Bolnisi, are in need of administrative and infrastructural support that is predicated on environmental and social equality politics. Current social and economic challenges linked to environmental degradation and the inaccessibility of natural resources, aggravate the everyday life of Georgia's Azerbaijani women in Bolnisi, limit their fundamental rights, reinforce existing structural inequalities, and generate new risks. From a feminist political ecology perspective, addressing these issues would require an effective and gender-responsive policy intervention of the state.

It is also important to note that, reliance on technological solutions of mining companies and the extractive industry alone, such as in the case of "RMG", has proven to be fragmentary and inadequate. Rather, the protection of the environment and local communities from excessive extraction of natural resources, whether in Bolnisi or beyond, calls for a strategic vision and policy instruments that reject the extractivist logic and recognize the interdependence of nature, economic, and social spheres. Achieving this would mean managing natural resources in a way that sustains environmental health and upholds the fundamental rights of the people who depend on these environments. Finally, developing the agricultural sector in Bolnisi which is the declared priority of the municipality (Darsavelidze et., al., 2018) cannot be accomplished without the undisturbed functioning of ecosystems. Similarly, the sector cannot advance without gender-responsive programs tailored to the needs of its indispensable workforce in Bolnisi – the women of Georgia's Azerbaijani community.

1. Methodology

1.1. Theoretical Framework: Feminist Political Ecology

This study draws on feminist political ecology, a theoretical perspective that integrates feminism and environmental approaches to examine everyday practices within a historical context (Van den Berg, 2017; Wember, 2018). Using a critical lens of intersectionality, political ecology enables us to uncover various systems of oppression and examine differences in access to natural resources across gender, class, ethnicity, race, and other axes of power (Sundberg, 2016).

The critical stance of feminist political ecology concentrates on tracing links between the subjugation of women and nature. It seeks to understand changes in the natural environment through observing interconnections between politics and economy, allowing us to see how politics and practices of decision-making affect nature, the formation of environmental regulations, and the accessibility of resources (Dombroski et al., 2018). Feminist political ecology pays particular attention to categories and practices such as care, domestic sphere, the everyday, and interpersonal relations as producers of economic value (Richardson-Ngwenya & Nightingale, 2018).

From the perspective of this theoretical approach, extractivism is inextricably interlinked with the everyday and global systems, simultaneously. It reinforces dominant structures of power while consuming humans, nature, and all forms of life via processes of resource extraction (Ekowati et al., 2023). Applied to the subject of this study, feminist political ecology serves as a useful tool for understanding what it means to live in the conditions of environmental crises as a woman, and as a member of a marginalized social group, in general. Importantly, with its intersectional lens and feminist sensibility, feminist political ecology sheds light not only on socially uneven expressions of environmental transformations but creates opportunities for social change. Lastly, by connecting global and local politics, practices and processes, this perspective helps to identify those economic, and political barriers that inhibit environmental sustainability and advancement of social justice (Rocheleau et al., 2013).

1.2. Extractivism

In literature, extractivism refers to a model of development and economic production that is based on the appropriation and export of natural raw materials at a large scale. The rise of extractivism as a form of economic accumulation is linked to the global financial crises and parallel surge in global demand for raw materials between 2000 and 2013, especially in the Global North but also in new centers of industrial production such as China. The same period is distinguished by the growing influence of global financial markets on mining and agro-industrial production that rendered these industries profitable assets for investment (Dietz & Engels, 2017; Torres et al., 2022).

Reliant on the incremental growth of the exploitation of natural resources, extractivism is primarily characterized by territorial expansion in the biophysical space which is typically accompanied by environmental degradation and deepening of inequalities in social and labor relations in the area of extractivist operations (Dietz & Engels, 2017). This multi-layered process also goes hand in hand with changes in regulations concerning land and natural resource accessibility, affecting the livelihoods and conditions for political participation of the

local population (Dietz & Engels, 2017; Acosta, 2017). As Latin American cases demonstrate, dispossession, impoverishment of local communities, diminished access to natural resources, weakening of democratic institutions, increased corruption and irremediable destruction of the natural environment are all associated with extractivism (Acosta, 2013; Temper et al., 2015). More often than not, these processes are followed by conflicts over resources (Wolff, 2017) and curtailment of democratic participation, especially in contexts where a state is far more dependent on international capital than on domestic modes of economic production (Peters, 2017). Albeit, in an uneven manner, extractivism and extractive industries connect places, people, ecosystems, various actors, and markets to each other. Natural resources flow from one locale to another in this web of relations, often, from the extractive spaces of the Global South to the economic centers in the Global North that at the same time, represent key centers of consumption (Dietz & Engels, 2017; Acosta, 2017).

Alongside formidable material ramifications, extractivism possesses an immaterial dimension that is rooted in a specific type of political order, worldview, discourse, and a set of ideas (Dietz & Engels, 2017). The dominant logic within this ideological framework objectifies nature and regards it as a source of economic profit (Szeman & Wenzel, 2021), transforming not only the material and biophysical environment but also, social relations. Finally, besides the mining of minerals, fuel, and other useful materials, extractivism encompasses monoculture plantations and industrial farming, logging, industrial fishing, and tourism, among others (Bisht, 2021; D'Angelo & Pijpers, 2021; Acosta, 2017). Consequently, this study employs a broad definition of the concept and discusses the subject of inquiry in relation to more than a single form of extractive activity.

1.3. Critique of Extractivism from a Gendered Perspective

The distribution of socio-ecological risks and benefits of extractivism intersect with various structures of inequality, suggesting that extractivism is neither a gender-neutral process nor detached from ethnic, racial, and class differences in terms of impact allocation (Leguizamon, 2020; Pereira, 2021). Adverse environmental effects of extractivism such as water, soil, and air pollution, landscape transformation, the enclosure of agricultural lands and forests, negative impact on public health, and unraveling of the social fabric, disproportionately affect women and most vulnerable members of communities that live in areas of extraction. Feminist scholars postulate that the extractivism and the extractive industry of the 21st century reinforce reproduction of gender inequities and hierarchies through the masculinization of labor. By making men the primary recipients of employment (Leguizamon, 2020), the extractive industry bolsters women's economic dependence on men (Cielo & Coba, 2018), and pushes them out via mechanization and technologization of the extractive sector (D'Angelo & Pijpers, 2022).

Studies show that in the areas of industrial farming, cases of violence committed towards women escalate as well. In such zones, gender-based violence is instrumentalized as a disciplining force of women and feminized bodies, resulting in the erosion of their physical and emotional safety and the seizure of spaces essential for their socialization, political participation, and social reproduction (Ojeda, 2022). The violent nature of extractivism is also manifested in the chemical pollution of land, water, and ecosystems, connecting bodies of women and recipients of their care to the quality and availability of water, soil, and food. So, it is no coincidence that the women's organized movements against pollution from extractive activities are numerous and scattered across continents (Rodriguez Fernandez,

2020; Caretta et al., 2020; Cock, 2019). Technologized, large-scale extractive operations also encourage the isolation and exclusion of marginalized social groups who live within or in the proximity of extractive zones. Women in these communities tend to bear a heavier brunt in the form of unpaid or devalued care work and increased susceptibility to diseases (Cielo & Coba, 2018). Thus, extractivism's distinct social effects are multiple but overall, it strengthens gender inequalities and hierarchies (Bell & Braun, 2010), specifically, by allowing one group of extractivists to accumulate wealth while the most acute ecological and social effects of this accumulation are directed on bodies, social relations, and living environment of the poor and the vulnerable.

1.4. Data Collection and Analysis

To assemble the data for this study, I conducted fieldwork in January 2023 in six villages of Bolnisi municipality with the assistance of an interpreter, considering that the language of communication for residents of these villages is Azerbaijani. I recorded 30-45 minute-long, semi-structured interviews with 26 women of Georgia's Azerbaijani community (age range: 26-71), more specifically in Zemo Arkevani, Kvemo Arkevani, Kvemo Bolnisi, Mamkhuti, Savaneti and Chapala villages. There were three main criteria based on which I selected the above mentioned rural settlements. Primarily, the villages had to be located in the proximity of polluted rivers of Mashavera, Bolnisistskali (Poladauri) and Khrami (Akhobadze et. al., 2020) (illustration 1). Prior scientific studies document the contamination of these rivers by mining waste of non-ferrous metals in Bolnisi, meaning that the consumed water in adjacent villages was more likely to be affected by the pollution. Ethnic composition of the local populace was another criterion based on which I selected the villages and concentrated on those where the population is composed of the ethnic minority, Georgia's Azerbaijanis. Lastly, I focused on settlements where subsistence farming is the main economic activity, a criterion which all the above-mentioned villages met.

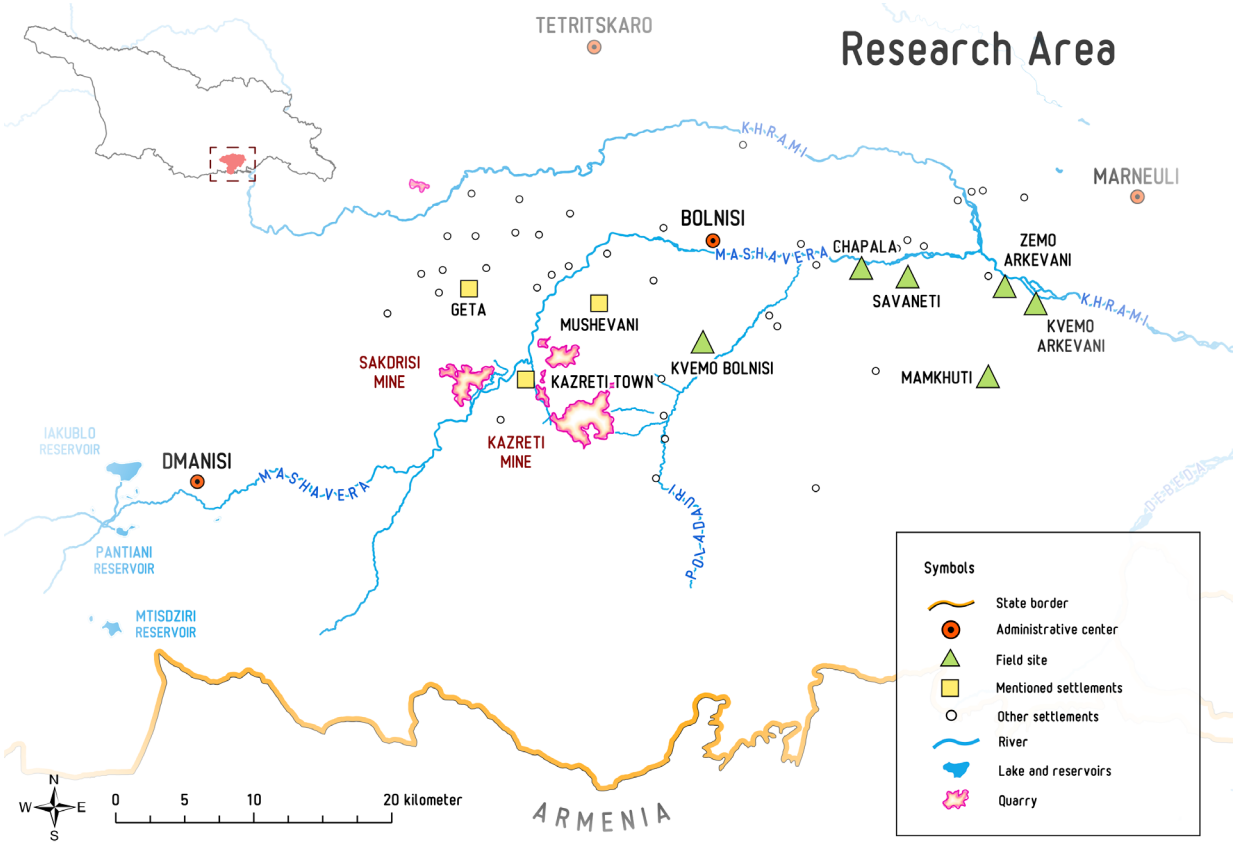

Illustration 1: Field site

Entering the field site and earning the trust of female informants in light of the linguistic barrier and the community's patriarchal social structure became achievable with the help of intermediaries. The chosen period of the fieldwork and unfavorable weather conditions made encounters with village residents practically implausible which further increased the role of intermediaries in the process of recruitment. With the intention to minimize control on the field, respondents were recruited spontaneously. This approach allowed the inclusion of women of more or less similar lifestyles but of varying economic status and age. Notably, 23 out of 26 randomly recruited and interviewed participants were unemployed and their daily activities involved household care and labor-intensive agricultural work.

The role of the female interpreter in accessing the field and earning the trust of study participants deserves particular attention as her assistance eased the recruitment process significantly. Furthermore, given the gender composition of the sample group and the dominance of patriarchal social norms in the community, my position as a female researcher played a crucial part in establishing the contact and opening up spaces for conversations with female study participants.

Following ethical principles of research, interviews were recorded after obtaining informed consent from each participant. For the protection of their anonymity and privacy, participants' names and places of residence are not specified in the report.

The next stage involved transcription and translation of interview files from Azerbaijani to Georgian which was followed by data processing through utilization of the coding method (Bazeley, 2013). Afterwards, combining the identified categories with field notes and the

theoretical framework of the study, facilitated the emergence of themes and formulation of concepts from the data which ultimately led to the process of analysis.

Alongside primary data, this study draws on the secondary sources, namely, different reports and research documents, the Legislative Herald of Georgia, the website of Bolnisi municipality, and other open sources.

It is noteworthy that this research has its limitations. It covers a small geographical area– six villages of Bolnisi municipality out of 45 in total[2], primarily, due to the restrictions in budgetary and time resources. Besides, the study focuses on a single non-dominant ethnic group–Georgia's Azerbaijanis–and does not delve into the experiences of other ethnic minorities living in Bolnisi which renders its findings non-generalizable. Another limitation involves the accessibility of sectoral data, or more accurately, its scarcity, incompleteness, and oftentimes, total unavailability, preventing a more comprehensive evaluation of the subject matter and its broader context. An additional limitation relates to the inaccessibility of public information, resulting from either the partial release of requested information by state agencies and the relevant local self-government or the complete dismissal of public information requests in some cases. Consequently, the study relies on the secondary data obtained from open sources. Lastly, the perspectives of decision-makers are not represented in this research as it focuses on the experiences of the rural women of Georgia's Azerbaijani community. However, to elucidate a specific issue, information obtained from a state company representative was integrated in the study.

2 GeoStat. Comparison of the Main Indicators according to Georgian Municipalities. http://regions. geostat.ge/regions/muncom.php

2. Agriculture in Bolnisi and Georgia's Azrbaijani Community

Agriculture is the most important economic activity and critical source of self-employment in Bolnisi. The most recent data available reveals that 63% of Bolnisi residents are engaged in agriculture and subsistence farming (Darsavelidze et. al., 2018). The entire Kvemo Kartli region, of which Bolnisi municipality is part of, represents an administrative unit of agro-industrial specialization (Ibid.), supplying the central markets of the country with fruits, vegetables, and other foodstuff. Owing to its exceptional agricultural productivity, historically accumulated sectoral experience and well-preserved institutional memory, Bolnisi self-government has declared agriculture a strategic sector for the development of the local economy. However, the ongoing tendency of soil degradation in Bolnisi which, to a large extent, is caused by the industrial pollution of irrigation water, impedes the advancement of the sector[3].

Coincidentally, 63% of Bolnisi's total population (Social Justice Center, 2019) (56,900 in 2023)[4] is composed of Georgia's Azerbaijanis who represent the largest ethnic minority in the country (6.3% in 2014) (GeoStat, 2016) and, in Kvemo Kartli specifically, have been engaged in cattle breeding and land cultivation (Mechurchlishvili, 2020). Despite the long history of cohabitation and contributions made to country's political life, at present, Georgia's Azerbaijani community is deprived of opportunities for full civic and political involvement, while being underrepresented even in those municipal self-governments where they comprise the majority of the local population (Kandelaki, 2020).

The political and socio-cultural isolation of Georgia's Azerbaijanis can be traced back to the period of Sovietization of the country when, following the general census of 1939, the descendants of different Turkic tribes that had been living in certain parts of Georgia for centuries beforehand, were assigned a single ethnic marker – "*Azerbaijani*". From then on, and in line with the new Soviet policy, education was made available only in Russian and in Azerbaijani languages for the community, with the latter having been declared their native language (Zviadadze et. al., 2021). The possibility of overcoming the exclusionary linguistic legacy became a reality for Georgia's Azerbaijanis only after the dissolution of the Soviet Union, when in 2009, the Georgian state introduced an education accessibility program for ethnic minorities (Ibid.). Despite some advancements made in this respect, the linguistic barrier has remained an unresolved problem for the community which has hindered their full civic participation, and complicated basic communication with state agencies and local governments (Social Justice Center, 2019). On the other hand, the ineffectiveness of state policies concerning integration and political participation of ethnic minorities (Kandelaki, 2020) has continued to reinforce the isolation of Georgia's Azerbaijanis.

3 Bolnisi Municipality Official Website. (n/a). About Bolnisi: General Information. https://bolnisi. gov.ge/bolnisis-shesaxeb/zogadi-cnobebi

4 GeoStat. (n/a). Comparison of the Main Indicators according to the Municipalities of Georgia. http://regions. geostat. ge/regions/muncom.ph

2.1. Women of Georgia's Azerbaijani Community

In light of marginalization and poverty, women in Georgia's Azerbaijani community live under the pressure of multiple structural inequalities, facing entrenched ethnic, gender, and cultural stereotypes, and limitations in access to natural resources, education, healthcare, psychological and legal services (Modebadze, 2021). The availability of basic healthcare services and information in the Azerbaijani language, as well as the competence of medical personnel and timely provision of emergency care, especially in rural areas, are among those obstacles that stand in the way of ensuring the health security of the women of the community (Ibid.). As confirmed by study participants, in order to receive medical care, the women have to travel to municipal centers or the capital, and abroad, to Turkey or Azerbaijan, if their families can mobilize the necessary financial resources.

The lack of political representation and participation of women from Georgia's Azerbaijani community is yet another insurmountable problem that intersects with gender-based discrimination and prevailing gender inequities. Despite the growing public activism of the women from the community, their political participation and agency are constrained. According to the women themselves, the pervasiveness of patriarchal cultural norms in the community is the primary obstacle stifling their participation in the public sphere, even at the level of local politics. Another reason is the reluctance of the state to identify or address these women's needs and to support their political representation at the national level (Ibid.).

As mentioned in previous chapters, the share of women working in the Kvemo Kartli agricultural sector is higher (60% in 2019) compared to that of men (56% in 2019) (Golemac Powell, 2020). While no disaggregated data is available on the employment of women from Georgia's Azerbaijani community in the agricultural sector of Kvemo Kartli and Bolnisi, general statistics and the personal experiences of the study participants suggest that the community women's labor plays a critical role in upholding the local agricultural sector. In general, ethnic minority women lack opportunities to participate in agricultural support and knowledge acquisition programs in Georgia, largely due to the existing linguistic barriers (Mamedli, 2022). Considering these circumstances, it is valid to conclude that women of Georgia's Azerbaijani community face similar obstacles in Bolnisi's rural areas.

The persistent practices of underage and forced marriages are yet another overwhelming and oppressive practice affecting the women of the community. In 2018, the majority of citizens of Georgia who married under 18 were from Georgia's Azerbaijani community and rural areas (UN Women, 2021). Having stated the above, it must be emphasized that child marriages occur in Georgia irrespective of ethnicity, across dominant and non-dominant social groups, in correlation to broader tendencies of gender inequities and poverty (Shengelia et. al., 2017). But for women of Georgia's Azerbaijani community, child marriages amplify the existing structures of oppression, limiting their access to education and the formal labor market while exposing them to discriminatory and abusive treatment, including domestic violence (Modebadze, 2017). All of these challenges combined, make women of Georgia's Azerbaijani community in Bolnisi even more vulnerable to the adverse impacts of natural resource extraction and subsequent degradation of their living environment.

3. Extraction of Natural Resources in Bolnisi

The economy of Georgia is not extractivist in the classical sense of the term (Diakonidze, 2020) since the extraction of natural resources does not take up a substantial share of its economy (Chivadze, 2020), neither does it represent a main source of value generation (Gellert, 2010). On the other hand, the economy of Bolnisi municipality relies heavily on the mining of raw materials such as precious and non-ferrous metals, sand, gravel, and building and decorative stones (Darsavelidze et. al., 2018). According to the National Statistics Office of Georgia and a Bolnisi municipality-supported study, the most important export goods mined on the territory of Bolnisi are non-ferrous metals, namely, copper ores and concentrates (Ibid.). In 2022, the value of the exported copper ores and concentrates from Georgia reached USD 842 million, equaling 19% of the national export share (GeoStat, 2022), with the largest volume having been directed to China and the European Union's Spain and Bulgaria, while the rest went to Korea (Businessmedia, 2023). Having stated the above, it should be clarified that the National Statistics Office includes copper re-export in its statistics, meaning that in fact, less locally sourced copper is sent abroad than the final figures suggest (Chivadze, 2020).

Copper and gold are currently mined in Bolnisi municipality's Kazreti borough by the company "RMG" which has operated there since 2012 and extracts several other materials from local deposits, including silver, lead, zinc, cadmium, barite, indium, and germanium (Darsavelidze et. al., 2018). Even though the history of gold mining dates back thousands of years in Bolnisi, the industrial extraction of non-ferrous metals began here in 1975, during the Soviet era when the Kazreti non-ferrous metal ore processing plant started to operate. From 1994, already during the independence of Georgia, the local gold and copper deposits went through several rounds of privatization, until, in 2012, their owner became "RMG"[5]. The municipality has hardly survived these developments unscathed as mining of non-ferrous metals has been linked to the river, soil, and air pollution in Bolnisi. Studies have confirmed the contamination of the Mashavera, Bolnisistskali (Poladauri), and Kazretula rivers with iron and cadmium while adjacent lands have been polluted with lead, copper, manganese, zinc, and cadmium (Felix-Henningsen et al., 2010; Bakradze et. al., 2021; Tsikaridze et. al., 2017). Recently, "RMG"-s plans to expand open-pit mining to new locations have also sparked a wave of protests in Bolnisi's Mushevani (Radiotavisupleba, 2022) and Geta[6] villages, settlements that are populated by Georgia's Azerbaijanis.

Against this backdrop, the mining of non-ferrous metals represents only one of many other types of extractive activities that are ongoing in the municipality. The excessive extraction of aggregate materials, such as sand and gravel is another detrimental force affecting river ecosystems and dependent local communities. While most of these activities are concentrated in the Mashavera River valley (Darsavelidze et. al., 2018), some take place in other locations, as is the case of the transboundary Khrami River which adjoins two villages visited within the scope of this study, Kvemo Arkevani and Zemo Arkevani.

Excessive extraction of aggregate materials is prohibited by law in Georgia if such activity breaches the integrity of riverbeds and hydrotechnical structures that are located on them[7].

5 „RMG" Group. (N/A). About Us: Production History. https://www.richmetalsgroup.com/production-history/

6 Salam-Salami. (2023, 6 March). Collection of Signatures and a Protest in Village Geta (#Kvemo_ Gulaveri). Facebook. https://www.facebook.com/SalamPlatform/videos/759764659050946

7 The Law of Georgia on Subsoil. (17/05/1996). https://matsne.gov.ge/ka/document/view/33040?publication=1

However, this is proven otherwise in practice. As sand and gravel extraction activities rarely undergo inspection, especially in-situ, proper assessment of their environmental impact, and hence, imposition of penalties in case of violations, is rendered a rather difficult undertaking (Tsintsabadze, 2022). More broadly, the system that regulates the extractive industry's environmental responsibility is inadequate in Georgia, largely due to the absence of direct control mechanisms that makes prevention of environmentally harmful practices, their proper monitoring, and appropriate countermeasures impracticable. Meanwhile, funding of remediation activities is virtually non-existent and fines for violations remain small and undifferentiated (Ibid.).

Even though processes of natural resource extraction are intensive in Bolnisi, purportedly providing for the local economy, the poor development of public infrastructure is visible to the naked eye, especially in rural settlements where Georgia's Azerbaijanis live and lack access to critical services, public transport, kindergartens, healthcare, and other essential services. These conditions indicate that the economic benefits of natural resource extraction are distributed unequally while the creation of public goods is unsupported in rural areas of the municipality. These circumstances are compounded by systemic inequities that ethnic minorities experience (Piranishvili & Barbaqadze, 2022) and Georgia's Azerbaijanis face in the form of social, political, and rights-related marginalization in Bolnisi (Social Justice Center, 2019).

3.1. Mining of Gold and Non-Ferrous Metals

3.1.1. River Pollution by Gold and Non-ferrous Metal Mining and its Ecological Impacts on Rural Settlements of Georgia's Azerbaijanis in Bolnisi

Spillage of production waste from Kazreti gold and non-ferrous metals' processing facilities is a major source of pollution of rivers in Bolnisi. A handful of studies confirm that the Mashavera, Bolnisistskali (Poladauri) and Kazretula rivers are contaminated with toxic elements (Withanachchi et al., 2018; Felix-Henningsen et al., 2010; Hanauer et al., 2011; Kalandadze et. al., 2011; Tsikaridze et. al., 2017; Bakradze et. al., 2021). Despite the mining company's assertion that wastewater dumping in rivers is a thing of the past and necessary measures have been taken to prevent it (Radiotavisupleba, 2022), the statements of study informants suggest that toxic substances persist in rivers that they use for irrigation. This situation implies that toxicants contained in the polluted water leach into the soil and harm local agriculture, ecosystems, cattle and human health (Felix-Henningsen et al., 2010; Withanachchi et al., 2018), threatening the entire hydrological network of Bolnisi with contamination, including the groundwater from which drinking and irrigation water is supplied. Add to that the toxicants' propensity for easy migration through water (Kim et al., 2020; Bakradze et. al., 2011), and the aforementioned risk becomes more probable. Furthermore, even though the lack of data makes assessment of soil contamination unfeasible in Bolnisi, it is scientifically established that non-biodegradable heavy metals have a tendency to remain in the soil over a long period of time (Kim et al., 2020), rendering soil remediation a technologically complex and costly undertaking (Stanford.edu, 2019).

According to its public announcements, in 2020, the mining company installed water purification facilities and drainage systems in the licensed area of its operations which have reportedly prevented the pollution of the Mashavera, Bolnisistskali (Poladauri) and Kazretula

rivers[8]. Residents living in adjoining villages of Mashavera and Bolnisistskali specifically, emphasized that they are aware of these measures having been taken and that in general, water in Mashavera is "*good*" but occasionally, the river changes its color to bright blue, turquoise, or bright yellow and this transformation typically coincides with heavy rains. The study participants associate these occurrences with the Kazreti mining plant and the spilling of its toxic waste into the river, adding that whenever the water in the river changes its color, "*it poisons everything, fruit trees, plants*" (village III, a local woman), "*when [the river water] is dirty, we have a poor harvest*" (village VI, a local woman, 68).

> *It still happens, they spill [chemicals]. It's harmful, you know? it spoils the soil. We used to have fish in the river, now they're gone,* – Village VI, a local woman, 57.

> *Even cows don't go near that water. When the contaminated water ceases to flow in the river, it leaves behind the yellow residue on its banks. Just like poison [...] You water the potato with it, it starts to smell bad [...] then people eat this vegetable and get ill…,* – Village V, local woman, 64.

When the pollution becomes visible, because of the lack of access to alternative water for irrigation, while trying to minimize harm to the crops and to their own health, some locals refrain from using the river water during the irrigation season. However, as a rule, this approach leads to a poor harvest.

> *When water [from the Kazreti plant] mixes with the river, it turns white. That's where all this radiation and pollution comes from and gives us headaches. When this happens, we avoid watering our crops. It kills corn, potatoes, everything. Sometimes, they release poison from there but we do not use such water because we know it will destroy our crops,* – Village V, a local woman, 61.

In the period of toxicity, the water in the river leaves a visible mark not only on the banks and food plants but on people as well, with children being particularly vulnerable to its detrimental health effects. In one of the villages observed, women stressed that in summer, children who swim in the Mashavera River get skin allergies. Adults, on the other hand, never do, simply because they consciously avoid swimming in the contaminated river. When such cases occur, however, locals shun consulting doctors, mainly because children's skin issues *"heal fast".*

> *In summer, children sometimes go swimming in Mashavera. When they get into the water, they get a skin rash that itches because the water is contaminated. [...] They mine gold, wash it, and then dump that poisonous water in the river,* – Village VI, a local woman, 29.

Due to their capacity for easy infiltration and migration, heavy metals tend to accumulate in the biophysical environment, including in the bodies of animals, cattle, and people, irrespective of their gender and age. However, in the social context, these impacts reflect differently

8 "RMG" Group. (2020, 12 February). „RMG" Works under the Environmental Program. Facebook. https://www.facebook.com/richmetalsgroup/videos/2469714196579874/?locale=pl_PL

on various groups, depending on factors that range from individual habits and practices to the position of these groups in the matrix of structural inequalities and even geography. Moreover, when analyzed from a gender perspective, these impacts acquire additional layers. Overall, the extraction of natural resources, and the everyday life of Georgia's Azerbaijani women in Bolnisi are often indirectly interlinked, yet these interconnections determine their life conditions and opportunities substantially.

3.1.2. The Impacts of Gold and Non-ferrous Metals Mining on the Women of Georgia's Azerbaijani Community in Bolnisi

How does river contamination by heavy metals that leach from mining operations in Kazreti affect the women of Georgia's Azerbaijani community who live in the villages chosen for the fieldwork? To answer this question, there are two issues that I would like to bring forth. Both focus on the embodied experiences of these women but have ramifications far beyond their physical well-being, as they raise important social and political matters of concern. The first issue refers to the reproductive health of women while the other addresses devalued but vitally important work that the community women perform in the municipality's agricultural sector. Before I elaborate further, it should be emphasized that this study does not claim to establish cause-and-effect relationships between women's reproductive health and extractive activities that are ongoing in Bolnisi. However, the circumstances in the field and the relevant literature point toward risks that need to be evaluated with regard to women's health and its social aspects under the conditions of environmental pollution. This bears crucial significance in light of the respondents' strong emphasis on the rise of different kinds of illnesses in the villages, including cancerous diseases among women and frequent cases of spine problems, dizziness and headaches among children. The prevalence of such cases and their potential links to the contamination of rivers attributed to mining activities create a solid ground for conducting relevant studies and implementing urgent measures from authorized actors in the impact areas.

To delve into the subject of women's reproductive health, the existing medical knowledge should be brought to attention which identifies a woman's body as the transmitter of toxicants to the fetus or a newborn during the pregnancy and breastfeeding period. This knowledge ties a woman's physical health directly to a child's well-being and marks physical parts of her body, namely, the mother's milk, the uterus, and the placenta as conduits of pollutants (MacKendrick et al., 2019; MacKendrick, 2014). Considering the above, contamination of water, soil, and food by heavy metals that are associated with extractive activities, exacerbate the risks of placing "chemical body burdens" (MacKendrick, 2014; MacKendrick et al., 2019) on the women of reproductive age in Bolnisi. Given unequal divisions in social practices of caregiving and gendered ideas about caregiving labor, under circumstances of environmental pollution, chemical body burdens can result in the shifting of responsibilities over children's health and well-being exclusively on mothers, when pollution and ecological safety are outside these women's individual control. Thus, under such conditions, chemical body burdens run the risk of feeding the discourse of "mother blame" (Ibid.) that can motivate the exertion of control over women's bodies and ultimately, reinforce gender hierarchies and structures of oppression. Therefore, to avoid the risk of subjecting women to chemical body burdens, the responsibility must be redirected from women to extractivists, state regulators, and self-governments that have both the authority and the obligation to monitor the environmental conditions and to protect the health of citizens. After all, the vulnerability of women's reproductive health in circumstances of environmental pollution is the outcome of a

particular configuration of economic and political structures that are linked to the process of accumulation by dispossession. Having noted that, we should not forget that women of ethnic minorities, and particularly, the women of Georgia's Azerbaijani community, who live under multiple forms of structural injustice and oppression, are especially vulnerable to gender and social consequences of weaponized chemical body burdens.

Another pollution-related issue concerning the health of the women of Georgia's Azerbaijani community in rural Bolnisi intersects with the feminization of labor in the local agrarian economy. As it was already established, the main source of employment in the municipality is agriculture but as men are forced to emigrate for seasonal employment due to lack of opportunities at home, the demand on the workforce is filled by women who remain at home. This tendency is underscored by study participants, including those who have to work on the croplands of others in exchange for daily wages, and by those who hire hands to have their crops cultivated and harvested. Besides, as local cultural norms and gendered division of agricultural labor designate manual work such as sowing, tending of plants, gleaning, or crop collecting as "*women's jobs*", at present, it is mostly women who come into direct contact with heavy metals through toiling on the contaminated soil in rural Bolnisi, meaning that they face health risks from yet another polluted source while working under physically demanding conditions. Consequently, the productivity of agriculture, which in one way or another, is affected by the mining of non-ferrous metals in Bolnisi, relies heavily on the bodies, health, and the devalued, yet essential labor of these women. Similarly, the toxic substances that transcend water and soil barriers, pass through the bodies of these women and the food they produce, reaching food markets in cities outside Bolnisi, and bodies of humans beyond the municipality. Eventually, adverse health impacts of non-ferrous metals mining have a distinct gender dimension, connecting the women of Georgia's Azerbaijani community in rural Bolnisi to the quality of water, soil, the state of children's health, and the food markets in the country.

3.2. Irrigation Water

3.2.1. Extractive Character of Uneven Distribution of Irrigation Water in Georgia's Azerbaijani Community in Bolnisi

Water is a critically important element to the extractive industry, both as a technical component that is utilized in the production processes and as a biophysical environment, in which toxic waste is discarded, as it happens when rivers, seas and other types of surface waters become dumping grounds. Needless to say, such disposal practices are not only destructive but typically, illegal as well. Water grabs in agricultural production is hardly considered an extractivist practice, however, some scholars recognize it as such, especially in contexts where water is diverted from local livelihoods toward commercial farms that produce food at scale for export (Torres et al., 2022; Stensrud, 2019). With this premise in mind, the appropriation of water in Bolnisi's agrarian sector is examined from an extractivist lens where water represents an essential resource in the commercial production of food, and its grabbing or uneven distribution contributes to the decline of local subsistence farming, while irrigation water shortages encourage the rise in labor migration from Bolnisi and deepening of gender and economic disparities. In this section, hydrological and infrastructural inequities are approached as political and social matters, acknowledging that the organization of water flow, be it via canals, dams or pipes reflects how social power is distributed in the society in which specific actors decide who gets access to water and who does not (Swyngedouw, 2009).

The agricultural land area (28,825 ha) takes up 35% of Bolnisi municipality's entire territory (Darsavelidze et al. 2018), of which only 5,736 hectares are covered with the irrigation system[9]. During the Soviet period, 12,000 ha was provided with irrigation in the municipality (Darsavelidze et al., 2018) but after the destruction of the water delivery infrastructure in the 1990s[10], the irrigated land area was reduced to half. Currently, the Bolnisi irrigation system is fed by the Mashavera River which is the main artery of the municipality. A state subsidiary, "Georgian Amelioration" Ltd delivers irrigation water from Mashavera to Bolnisi but on a schedule, for two or three days per week during the growing season, collecting an annual fee of GEL 75[11] from locals in exchange for its services. Yet, water provision is unreliable, fueling distrust among locals, motivating them to avoid signing contracts of service with the company (Mamedli, 2022).

During the vegetation period, when demand for water peaks on Bolnisi's croplands but climate change-induced erratic rainfall keeps water volumes low in the Mashavera River, "Georgian Amelioration" Ltd replenishes the river from a neighboring Dmanisi municipality's Pantiani, Iakublo, Mtisdziri and Khorkhori reservoirs[12]. Still, many agricultural plots remain without irrigation water. During the fieldwork, study participants spoke of severe water shortages, and blamed the situation on water-intensive, larger farms as well as the unfortunate location of their settlements. According to them, most of the water is consumed in upstream villages, leaving their plots dry during the growing season.

> *There is no water. They don't provide any. Those who cultivate large plots and sell their produce are more likely to be supplied. Lands that are located near water networks get irrigated but for us there is none. The land that we used to have here, dried out…that's the kind of struggle we are facing,* – Village III, a local woman, 47.

Importantly, the study participants raised the issue of irrigation water grabs, emphasizing that these practices are informal but common and aggravate an already uneven distribution of increasingly limited water resources in Bolnisi. As their accounts suggest, water grabs harm subsistence farmers but put larger farms at an advantage since they have financial resources to acquire water if needed.

> *We do not have enough water even for the orchard [...] They don't deliver water here and there is nobody who can solve this problem. They use money to get ahead in line [on the irrigation schedule]…water flows in rivers from Bolnisi but they sell this water,* – Village II, a local woman, 71.

In contrast to these accounts, a representative of "Georgian Amelioration" Ltd argued that the company's authority to deliver water ends at the level of central conduits of the infrastructure while internal networks of irrigation in villages are within the purview of designated district regulators.[13]

As a result of irrigation water shortages, the croplands that belong to subsistence farmers are mostly dependent on rainfall but as droughts become more frequent in Bolnisi, they are left without a harvest. Subsequently, many are pressured into abandoning land cultivation,

9 Information received from "Georgian Amelioration" Ltd in response to a public information request (March, 14, 2023).

10 Telephone interview with the representative of "Georgian Amelioration" Ltd (April 18, 2023).

11 Information received from "Georgian Amelioration" Ltd in response to a public information request (March, 14, 2023).

12 Telephone interview with the representative of "Georgian Amelioration" Ltd (April 18, 2023).

13 Telephone interview with the representative of "Georgian Amelioration" Ltd (April 18, 2023).

with formerly self-sufficient families having to purchase vegetables for their own consumption, instead of growing and selling for economic gain, as they used to.

> *We grew crops and sold them for good money. This is how people [the older generation] made a living and supported us. They covered the expenses of wedding celebrations and our education… but now we can't grow anything. There is a problem, water is scarce,* – Village IV, a local woman, 38.

In sum, once an important economic activity, agriculture and food production are on the decline in Bolnisi due to irrigation water shortages, drastically limiting material basis for physical and socio-cultural continuity of Georgia's Azerbaijani community.

3.2.2. Gender Dimension of Uneven Distribution of Irrigation Water in Georgia's Azerbaijani Community in Bolnisi

Analyzing the impacts of uneven distribution of irrigation water from a gendered perspective suggests that its shortage has significant ramifications for the daily lives and labor practices of the women in Georgia's Azerbaijani community in rural Bolnisi. Before further discussion, it must be emphasized that the community's attitudes to water and its management are gendered. As study participants confirmed, the provision of water for domestic needs is the responsibility of women while "*irrigation is solely for men*" and *"Men take care of irrigation water"*. Markedly, the decline of subsistence farming due to water shortages coincides with the upward tendency of seasonal labor migration of men from the community when in parallel, engagement in informal labor is on the rise among women, alongside time poverty, and confinement to the domestic sphere. The latter, among other variables, is explicable by the patriarchal social structure of the community in which women's opportunities and duties are limited to the domestic sphere and even their mobility is restricted in public spaces (Laws, 1997). In contrast, men's freedom in movement is encouraged and fundamentally, enabled by the gendered division of domestic labor. This is evidenced by accounts of the research participants who underline that those who travel abroad to find seasonal jobs are mostly men. Women, on the other hand, toil on croplands in neighboring villages as temporary, informal workers, in exchange for "*daily wages*", earning around "*25-30 Laris"* per day. According to one female informant, there are instances when a husband who is abroad as a migrant worker but earns well, *"sends word to his wife, telling her not to go to work, sit at home and take care of the children"*. Such cases fail to demonstrate the multilayered, complex experiences of women in Bolnisi's Georgia's Azerbaijani community, yet they exhibit gender asymmetries and hierarchies prevailing in gender relations in the local context. Thus, in conjunction with other structural factors, labor migration of men, culturally determined patriarchal privilege in mobility, and gendered distribution of responsibilities in the domestic sphere produce a social environment that fosters women's economic dependence on men which further reduces already limited opportunities of civic and political participation for them.

Going back to the question of women's informal and low-paid work, the growing feminization of agricultural labor in Bolnisi, particularly, in Georgia's Azerbaijani community, increases the vulnerability of its women because informality rules out social security, proper remuneration, and health and occupational safety. Notably, this trend intersects with the collapse of subsistence farming in light of irrigation water shortages. Consequently, in conditions where

the local economy is agrarian but women are no longer able to grow food on their croplands, and no employment alternatives exist, often, due to lack of qualification or language skills, the only option they have is to work on someone else's land and engage in labor which is characterized by harsh bodily experiences and harmful impacts on one's health.

> *I went and worked in the field – strained my lower back. It's cold, my feet are freezing, my kidneys are bothering me. It's impossible to work. Maybe if you light a fire in one place, warm your hands in the cold, and so on [...] In the summer, you'll get a heatstroke. It's hard... –* Village V, local woman, 41.

The hard work of these women does not end on agricultural lands, however. After a long day in the field, they return home to engage in heavy-duty household chores. Thus, by bearing the brunt of double labor, these women ensure the continuity of their families and ultimately, the social reproduction of the entire community:

> *During the work season, I wake up at 6 [AM], I eat, and then take care of household chores: cattle, children… Around 8 [AM] I go to the field to work and come back after 6 [PM]. After that, I resume household chores – cattle… You work even after you come home. There's no rest for me. Constant work. There's so much to do,* – Village V, local woman, 46.

The double burden and the resulting time poverty, in combination with the perils of informal labor, leave these women against the systems of oppression all alone. In this vicious circle, they get neither a break for recuperation or self-development, nor opportunities for acquiring useful skills for the formal economy, let alone for building social relations outside their communities, getting trapped in marginality and socio-economic exclusion. As irrigation water shortage reinforces power inequalities and social and economic disparities for Georgia's Azerbaijanis in Bolnisi, these inequalities produce specific experiences for the women of the community.

3.3. Sand and Gravel Extraction

3.3.1. Environmental, Social and Gender Impacts of Sand and Gravel Extraction in Zemo and Kvemo Arkevani Villages

Excessive extraction of riverine sand and gravel fuels severe ecological, social and economic impacts that include downstream flooding, degradation of ichthyofauna, fishing and aquatic biodiversity, droughts, loss of local agriculture, and accumulation of economic gain from aggregate material export for the benefit of the extractive company exclusively (Bisht, 2021). Adverse ecological and social consequences of sand and gravel extraction can be observed in two villages of Bolnisi – Kvemo and Zemo Arkevani that are directly affected by the commercial removal of aggregate materials from the adjoining Khrami River.

The swamped (Photo 1) and pitted (Photo 2) landscapes in the immediate vicinity of the quarry which is located on the riverbed indicates the unraveling of the equilibrium in the river ecosystem.

Photo 1. Salome Kobalava, January 2023, Khrami River Floodplain. Kvemo Arqevani Village, Bolnisi.

Photo 2. Salome Kobalava, January 2023, Khrami River Floodplain. Kvemo Arqevani Village, Bolnisi.

Accounts of the study participants suggest that residents of Kvemo and Zemo Arkevani villages used to cultivate "*large areas of land*" near the river but with the onset of sand and gravel mining, the riverbed transformed completely, the water in the river dried up and surviving adjacent croplands were left without irrigation water. These processes were compounded by the disappearance of swimming spots and natural springs that used to supply the villages with drinking water before water distribution networks were put in place.

> *The drinking water that we used to carry [from near the riverbank], flowed from the ground. We used to get it with a glass [...] totally clean [...] Us women, we used to carry this water with carts from the riverbank. We took the laundry there too...* – Village I, a local woman, 40.

Transformation of the riverbed and subsequent loss of adjacent lands have eaten away areas used as pastures in these villages, the implications of which have been the impoverishment of local livelihoods and the decline of animal husbandry.

> *They dug a quarry where there used to be pastures. There is no space left, the cattle, sheep, everything is famished now. In the past, people used to own two, or three cows, but now nobody has as many. Why? Because pastures are gone. This is a village. My husband and I want to have a cow but there is nowhere an animal could graze anymore,* – Village I, a local woman, 40.

River pollution emerged as another issue that study participants linked to the gravel quarry, emphasizing that whenever "*they remove sand, water in the river gets muddy".* There are other risks associated with the riverine aggregate material removal that result both in contamination of the water and imbalances in the groundwater flow. The former is related to the spillage of the wash water from the technical equipment, used for the extraction, into the surface waters and the groundwater; the latter concerns the depression of water-bearing rocks that lead to groundwater depletion (Gujaraidze, 2021). These hazards are particularly worth considering in the context of Kvemo and Zemo Arkevani villages as locals are supplied with drinking water from the groundwater well and via a supply network that they installed at their own expense only a few years ago. Considering the above, excessive and uncontrolled extraction of sand and gravel from the Khrami River endangers both the quality and volumes of the drinking water, hence the health and wellbeing of the residents in these settlements.

Analyzed from a gender perspective, the volatility of water accessibility or its downright curtailment is likely to have a massive impact on the lives of women living in these villages. Given the patriarchal social structure of Georgia's Azerbaijani community in which the responsibility of domestic water provision is feminized, water shortages will increase the burden of care and housework for women. Especially for those, who do not enjoy access to private vehicles, therefore, are bound to walk a long road or will have to hire a car to fetch the necessary supply of water. Thus, restricting access to domestic water will increase not only the cost of its provision and demand more physical work from women but exacerbate already acute time poverty since tasks of water collection are gendered and responsibility of household chores fall on the women. The problem of mental load which implies a range of essential but unrecognized and unpaid emotional, mental and physical labor required for household management (Dean et al., 2021) is expected to exacerbate for women as well. Accordingly, the inaccessibility of water is likely to increase the mental load for women in Kvemo and Zemo Arkevani villages which, in combination with time poverty, will confine

them to the domestic sphere even further, making escaping from the cycle of poverty far more difficult while contributing to the feminization of poverty (Abdourahman, 2010) and to the reduction of already scant opportunities of public and political participation for women in the community. When analyzing the risks of riverine sand and gravel extraction, we should keep in mind ongoing processes of climate change as well, a dynamic that significantly reduces freshwater supplies and aggravates threats of water inaccessibility. In these villages, in particular, climate change-linked depletion of potable water suggests doubling of all above mentioned pressures on the women of the community. Thus, to facilitate the social, economic and even emotional empowerment of the women of Georgia's Azerbaijani community, it is essential to guarantee convenient access to water resources in Bolnisi. In the context of Kvemo and Zemo Arkevani villages, this would mean the mitigation and elimination of risks that stem from excessive extraction of riverine aggregate materials.

Recommendations

This study demonstrates that various forms of natural resource extraction that are ongoing in Bolnisi municipality reinforce structural and gender inequalities in Georgia's Azerbaijani communities living in the immediate and secondary impact areas of these activities. Under intersecting processes of dispossession, natural resource exploitation, and systemic oppression, women of the community pay a disproportionately high price. Namely, in the form of increased engagement in informal labor practices, time poverty, economic dependency, constrained political agency, confinement to the domestic sphere, double burden, and susceptibility to physical illnesses and mental health risks. Mitigation of adverse ecological, social, and gender impacts of extractive activities, and addressing challenges that the women of Georgia's Azerbaijani community face because of them, call for cross-sectoral and intersectional approaches that require the involvement of the state, Bolnisi's local government, and mining companies. These approaches entail concerted action based on both long and short-term decision-making and application of technological, infrastructural, policy, and administrative solutions that focus on social and ecological responsibility. More specifically, the following measures need to be taken:

- To safeguard the health of Georgia's Azerbaijani women in Bolnisi and of the entire community who live in the areas affected by the extractive operations of "RMG", as well as to maintain the continuity of local subsistence farming, and ensure the safety of the agricultural production, it is imperative **to protect Bolnisi's hydrological system from toxic pollutants**. To this end, it is essential to eliminate the major source of the Mashavera River pollution–the spillage of production waste of gold and non-ferrous metals mining, and to remediate the soil that has been contaminated by heavy metals. Despite the company's announcements concerning the installment of wastewater filtering and cleaning facilities, the personal experiences of study participants confirm that pollution of the river is a recurring and persistent problem in Bolnisi. Consequently, addressing the issue requires **meaningful involvement and response from the local governmental, state regulatory, environmental monitoring, and executive agencies**. In view of the adverse ecological and social effects of gold and non-ferrous metals mining, the state and the local self-government are advised to **attend to and integrate into response measures, issues concerning women's health, including risks related to their reproductive health that may be linked to the mining.**

- Considering these women's and the entire community's lack of access to healthcare services, and their fundamental environmental rights, there is **an urgent need to study and collect data on the impact area of non-ferrous metals mining.** The accounts of the study participants who point to the rise of cancerous diseases and other types of illnesses in the community, provide a solid ground in this regard.

- To foster the economic and social resilience of the women of the community and Georgia's Azerbaijanis in Bolnisi who draw their livelihoods from agriculture, it is vital **to solve the problem of unequal distribution of irrigation water.** This can be facilitated through uncovering practices of water grabs, among other measures, and applying proper response and prevention mechanisms.

- To reduce the double burden and alleviate time poverty among the women of Georgia's

Azerbaijani community, it is necessary **to develop a groundwater management policy and protect rivers from the adverse effects of excessive extraction of aggregate materials**. Evidently, seemingly unrelated issues of groundwater accessibility and domestic labor of women are, in fact, closely interrelated in the context of Bolnisi. Potable water is typically supplied via groundwater in rural areas of Bolnisi while the provision of domestic water is feminized in the community, hence, accessibility to groundwater has a direct impact on the everyday lives of the women and more broadly, on their social and political opportunities. At the procedural level, management of the negative effects of aggregate materials extraction calls for the introduction of direct control mechanisms. More specifically, **proper monitoring, supervision, and response measures ought to be implemented, and fines ought to be defined based on the degree and scale of ecological and social harm of mining activities.**

This list of general recommendations may not cover all issues unpacked in this report. However, implementing the suggested solutions can contribute to the social, economic, and political empowerment of the women of Georgia's Azerbaijani community in Bolnisi, as well as improve their access to vital natural resources and their living environment.

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