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Original Scientific Article
Received: 18 February 2022
Accepted: 3 March 2022
UDK: 343.3/.7:J504.12:502.7(497.11)
<https://doi.org/10.47152/rkkp.60.1.2>

THE TRUE COST OF TECHNOLOGY: DOUBLE EXTRACTIVISM AND GREEN CRIMINOLOGY IN SERBIA

The so-called green transition that relies on battery-powered technology dramatically raises demands for lithium and other minerals. The same resources are used to produce batteries for phones, computers, electric cars, and other devices with internet connectivity that simultaneously extract personal data. While research projects in natural sciences warn of ecological and human health implications of extracting minerals, social sciences emphasise the dangers of electronic transparency. The true cost of green transition and digitalisation turns out to be very high, especially because these processes are based on the extraction of both material resources and behavioural data. This paper argues that the mining of lithium and other minerals is not a local or national issue, but rather an international concern. Using concept analysis and digital ethnography, it analyses lithium mining narratives in Serbia and challenges the idea of "green transition" with notions of double extractivism and digital and green criminology.

Keywords: technology, extractivism, lithium, green criminology, digital criminology

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1. Introduction: Extracting Lithium, Extracting Personal Data

Traditionally, the concept of extractivism is understood as a “mode of accumulation”, and it is primarily used in the sphere of political economy since it is related to the practices of exploiting natural resources for economic growth (Scott, 2020). From fossil fuels, timber and coal to lithium and other minerals that are used for the so-called “green transition”, extracting leads to the depletion and destruction of “entire ecosystems, streams, rivers, wildlife, and the lives of the people” (Willow, 2019). Utilised to create batteries that power modern smart technologies, lithium has become a metaphor for the “green transition” that is to pave the way to carbon neutrality and bring about optimistic prospects with new means of power supply that should contribute to sustainability and the mitigation of climate change effects. In Serbia, however, lithium has become a metaphor for the dark futures as the mining plans threaten to contaminate the environment and endanger human lives.

Lithium is considered as ‘the white gold’ even though there are considerable environmental and social costs of its extraction (Lefiker et al., 2018). Impacts of sourcing and producing it include the release of toxic chemicals that harm ecosystems and communities through the contamination of water, soil and air, ozone depletion, extensive groundwater usage, significant GHG emissions, human health risks which involve cancer caused by cyanide and many others. Due to the lack of relevant environmental impact studies, Portugal has cancelled the licence for the Montalegre project (Hernandez-Morales & Diogo Mateus, 2021), which shows how the plans for “green transition” based on the exploitation of lithium and other minerals used in batteries can backfire. Additionally, massive protests in Serbia dubbed the ‘ecological uprising’ aimed against Rio Tinto and other mining companies eventually resulted in halting the plans for lithium extraction in this country. The Serbian scientific community has reacted to these events by conducting multiple research projects to assess the ecological and health implications of lithium mining (Ristić et al., 2021). The costs of “green transition” that relies on lithium extraction, therefore, includes “permanent change of the landscape character, degradation of biodiversity, soil, forests, water and groundwater, displacement of the local population, termination of sustainable and profitable agricultural activities and permanent risk to the health” (ibid.).

The extraction of natural resources which poses a great threat to the environment as well as the health of humans and animals complements the extraction of personal data incorporated into modern technologies. Lithium-ion batteries are not used only to replace fossil fuels, but also to power mobile phones, computers, digital cameras, other communication technologies and portable devices with

internet connectivity. The second type of resource used for these technologies is personal data that are becoming increasingly granular as they include information about behaviour, daily activities and even thoughts and emotions measured through facial muscles, retina, or tone of voice. Privacy violations go beyond traditional data collection to include deeply intrusive practices such as “eye tracking” (Klaib et al., 2021) or emotion recognition through voice data (Haritha et al., 2021). Algorithmic surveillance and user profiling based on data extraction can “break behaviours down into subcategories and even into small behavioural units, syllables or motifs”, (Zeigler, Sturman & Bohacek, 2021: 33). This machinic vision appears as a kind of a magnifying glass that strives to go inside of the human brain to be able to predict behaviour and alter it. Since these processes are jeopardising a whole family of human rights, including the right to privacy, freedom, and dignity, algorithmic surveillance expands the field of digital criminology far beyond the so-called cybercrime (Nosthoff & Maschewski, 2022).

The commodification of privacy through data mining intensifies as the demands for battery-powered devices grows, which means that digital extraction reinforces the extraction of natural resources. And if data and lithium are the new oil or the new gold, then the question is whether the extraction processes can really be “green” or whether they can truly offer solutions to ecological problems. If we consider green criminology which defines offence against natural ecosystems as a type of crime, then simple replacement of old resources with new ones does not solve the interlinked crises of the world. As Srećko Horvat writes, Covid-19 was a kind of an X-ray as it unveiled the global system and its vicious circle of “extraction, exploitation and expansion” which leads to multiple ends of the world (Horvat, 2021:19). Although social distancing (through the communication technologies) as a type of new normality has been established long before the pandemic, Covid-19 has exacerbated processes of digitalisation and convergence of physical and digital, but the real price of this transformation involves the eradication of privacy, normalisation of algorithmic profiling practices and ecological disasters that inevitably accompany extraction of lithium and other minerals required for batteries.

2. Lithium Mining as a Trans-Border Issue

Can lithium really be a solution to environmental issues? Is mining simply a local and national issue if contamination can travel through air and water across borders? It is estimated that the global demand for lithium will rise rapidly and the mining industry is expanding across the globe and expanding beyond the so-called “lithium triangle” or the deserts of Australia to the very heart of Europe

and densely populated areas, with Austria, the Czech Republic, Portugal, Serbia, and other countries announcing to start with the lithium extraction business. Worryingly, scientific studies about the impact of lithium mining on health and the environment are very scarce. While it is difficult to find any research on the health and the environmental risks of lithium mines in European countries (Chaves et al., 2021), it is surprising that there is very little information on the impacts of the mining of lithium raw material in general (Kaunda, 2020). According to some researchers, lithium extraction and fabrication can contaminate air, water and soil which can cause ecological disasters and negative effects that traverse borders and last for decades. Dangerous particles can travel through the atmosphere and water streams and affect not just local towns and villages that are surrounding the mines, but also other countries and entire regions (Trpeski, Šmelcerović & Jarevski, 2021: 457).

In Serbia, the project Jadar which was supposed to be conducted by the company Rio Tinto was paused because the affected locals together with activists and members of the scientific community in Serbia raised awareness about the dangers of lithium mining and possible implications on health and the environment. The planned extraction projects are currently on hold not because of the legal reasons related to poor ecological standards, but because of the grassroots initiatives as citizens themselves realised the life-threatening dangers of mining. Protests initiated by the local population in the Jadar Valley spread to the big cities across the country. The news about the uprising in Serbia travelled across Europe and the rest of the world, but the problem was mainly discussed as a local or national rather than cross-border issue even though many researchers warn of possible contamination of much larger territories.

The Serbian case has shown that “green ideology” is entangled with “green criminology” and that it is in fact a transnational, interregional and ultimately a global problem rather than just a local issue. Green criminology that recognises crimes against ecosystems could treat these problems as international and reveal a broader perspective. The key question is whether battery-powered devices truly are environmentally friendly or whether they show inherent paradoxes in international treaties and policies such as Kyoto Protocol¹, Paris Agreement², UN Sustainable Development Goals³ or a European Green Deal⁴.

1 The Kyoto Protocol: unfccc.int/process-and-meetings/the-kyoto-protocol/history-of-the-kyoto-protocol/text-of-the-kyoto-protocol, accessed on 10.02.2022.

2 The Paris Agreement: unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf, accessed on 17.02.2022.

3 Sustainable Development Goals: sdgs.un.org/goals, accessed on 17.02.2022.

4 A European Green Deal: ec.europa.eu/info/strategy/priorities-2019-2024/european-green-deal_en, accessed on 17.02.2022.

Examples from Portugal and Serbia show that local communities who stood up against lithium mining companies through activism can impact the decision making and influence policies. The protests have mobilised scientific communities who raised awareness about the devastating implications of mining on human health and the environment. Moreover, they have pointed out that problems associated with lithium mining are not simply contained within Serbian or Portuguese borders. Several mining companies are nevertheless still planning to start with the lithium extraction business in multiple countries in Europe. With toxic pollution of water, soil and air being able to traverse national borders, the question of lithium extraction on the European continent requires a tighter collaboration of both EU and non-EU countries. Should Bosnia and Herzegovina or Croatia be concerned about lithium mining in Serbia, and should they require environmental impact assessment for their territories? Or should Slovenia and Hungary inquire into the environmental impact of the Wolfsberg mine in Austria?

3. #Neocolonialism: Narratives on Lithium Mining in Serbia

Analysing the narratives on lithium extraction in Serbia is crucial for understanding the scope and the nature of the systemic problem of extractivism and green criminology linked to the mining industry. It is also important to know the key narratives to be able to investigate how online and offline activism strives to impact policy-making processes.

On the one hand, political actors in Serbia are imposing narratives about the financial benefits of lithium mining. They focus on the concepts of economic growth and development while emphasising that Serbia can become an important player in the world's struggle for the "energy transition"⁵. On the other hand, citizens, activists, ecological organisations, and members of the scientific community that support protests against lithium mining are using different narratives. These narratives are opposing each other as the officials are supportive of the mining projects while the protesters are criticising them.

Actors who are campaigning against lithium extraction in Serbia include locals from potentially endangered rural areas that will be affected by the future mines along with the citizens from other parts of Serbia, activists, members of environmental organisations and movements as well as experts who support the protests. Their activities include street protests, digital activism and various campaigns aimed at political actors and larger communities in and outside of Serbia. Protest

5 Ministarstvo rudarstva i energetike, www.mre.gov.rs/lat/aktuelnosti/vesti/projekat-„jadar“-razvojna-sansa--odluka-kad-se-zavrse-sve-studije-i-gradjani-iznesu-svoj-stav, accessed on 17. 02. 2022.

slogans are of vital importance to understand the activists' narratives about lithium mining. They combine patriotic narratives with ecological, economic, and political messages. The key slogans include "Srbija nije na prodaju" (Serbia is not for sale), "Rio Tinto marš sa Drine" (Rio Tinto get off the Drina) and „Ne damo Jadar“ (We won't give away Jadar). The majority of slogans are focusing on Serbia in general or the river Drina or Jadar Valley in particular. However, since most of these slogans are written in both Serbian and English versions, it seems that the protesters are sending messages to the whole world and not just to the decision-makers in Serbia. The slogans from the street protests often coincide with hashtags on Twitter, and the keywords such as #SerbianLithium or #RioTintoGoHome are often paired with concepts such as #neocolonialism. One of the most prominent slogans from protests "Ne damo da Srbija bude kolonija" (We won't allow Serbia to become a colony) inspired numerous Tweets that are placing ecology in the centre of the new patriotic and nationalist narratives. Locals from the villages surrounding the mining sites are speaking about concerns for health and the environment while emphasising that they will be forced to leave their land, their homes, and their jobs.

Serbian protests against lithium extraction are often blending national and international perspectives because the slogans are bilingual and because many of the activists stress out the fact that lithium mining is a global problem. One of them is the Hollywood actress of Serbian origin, Bojana Novaković, who is leading one of the most prominent ecological movements „Marš sa Drine“. In one of her interviews, she says that „there are activists in Europe who are supporting us and we collaborate with them; since this has become a global problem, we are finding friends all over the world“⁶. In the same interview, Bojana is focusing solely on Serbia and says: „we are hospitable people, and you can drink our rakija, have a coffee, have some kajmak and burek, but we are not giving you that lithium, so take your extraction somewhere else“. Along with other activists, she is warning of the dangers of extractivism and consumerism while juxtaposing „us“ with „others“. One of the slogans emphasises this contrast in a message „vama litijum, nama otrov“ (lithium for you, poison for us). They speak about the colonial practices and imply that Serbia is seen as a colony where lithium can be cheaply extracted and processed before it is shipped to the developed countries.

Activists in Serbia are implying the criminal nature of lithium mining that is not defined by the law. Many of the protest slogans and Twitter hashtags such as #ecocide and #pollution or „ecology or oncology“ imply that the devastating

6 Nova S (21. 01. 2022.) Bojana Novaković: Tek sam počela, borba za prirodu se nastavlja, www.youtube.com/watch?v=Z-VdNVpknPE&list=PLZXr2RpggkrydaN61S8j8zx6DyBc22PgX&index=16, accessed on 17. 02. 2022.

implications of this extractivism should be recognised as green crimes even though they are not recognised or sanctioned. The patriotic narratives are dominant but there is a deeper understanding that the problem is endemic and global. The protesters are emphasising that the problem of lithium mining is not confined to a single mining company, political party, or particular territory. They demand the annulment of the licences and permits to all the companies, and they request a new law that should permanently prohibit exploitation, exploration and the processing of lithium and other minerals in Serbia as this would be the only durable legal solution to the problem.

4. Towards the Concepts of Double Extractivism and Green Criminology in Serbia

The concept of green criminology recognises different living entities as possible victims of crimes, including plants and ecosystems. It expands beyond the traditional scope of criminology that focuses solely on human victims (Lunch & Long, 2021) and therefore breaks away with the anthropocentric view of nature which assumes that the environment is nothing but a resource available for humans to exploit. Nigel South writes that the concept of green criminology is helpful because it provides a different “perspective” and shifts the focus to vital concerns such as climate change, pollution, and public health (South, 2021: 114). He emphasises that the concept of green criminology connects the Covid-19 pandemic with issues of global health but also the problem of human impact on nature that causes such viral infections (ibid.).

As the pandemic paralysed the planet and imposed the new rules of social and physical distancing, it has become clear that the world’s economy heavily relies on new communication technologies and battery-powered devices that are raising demands for lithium, boron, and other minerals. In other words, the vicious circle of digital “prosumption” (Gerbaudo 2015: 81; Dyer-Witford 2015: 92; Duffy et al 2021: 1; Fuchs 2014: 245) and data surveillance is directly related to digital and green crimes that fall outside the scope of traditional criminology.

The problem of legal and illegal e-waste is also related to the consumption of technology. It is noteworthy that electronic waste that includes discarded electronic devices contains many dangerous elements and toxic compounds, including heavy metals that can contaminate and heavily impact plants and microbes, but also harm humans (Ankit et al. 2021). It is also known that large quantities of e-waste are either legally or illegally transported to low-income and underdeveloped countries where toxic materials are improperly handled – either burned on an open

fire or recycled by small, privately-owned shops that don't adhere to any regulations (Adam et al. 2021). Some research projects have shown that the illegal e-waste trade has been detected in the Republic of Slovenia, which is considered as a "transition zone" between Eastern and Western Europe and the non-EU countries like Serbia (Rožnik, 2018). As it is suspected that much of Europe's e-waste is shipped to Serbia illegally, the question is what the impact of these practices on the environment is. Since Serbia does not have a developed waste management system and most landfills do not meet the basic ecological or sanitary standards (Pavlovic et al. 2021), it is possible that illegal e-waste significantly contributes to the contamination of the soil, water and air while endangering the lives of humans as well as plant species and animals.

Adverse consequences of technology development and rapid prosumption and data surveillance are intertwined with policies on carbon neutrality and green transition. This is why concepts of double extractivism and green criminology help unveil the systemic problem. The notion of extractivism has expanded to include phenomena other than natural resources. The concept is related to that of exploitation which can be linked to surveillance practices of personal data utilisations within the sphere of social media and other online platforms. Namely, as traditional consumers become prosumers, extractivism reveals itself as a type of "logic" (Chagnon, Hagolani-Albov & Hokkanen, 2021: 176). Human actors have multiple roles in the production process because they are at the same time a resource, the consumers and the final product ready for consumption. In the digital realm, consumer goods always have their immaterial or semiotic form, including the online self or the data double composed of behavioural information. However, these practices are increasingly considered digital crimes. New legislation such as Artificial Intelligence Act⁷ and Digital Services Act⁸ define the new types of digital crimes that are not limited to cybercrimes as they treat algorithmic profiling practices and other misuses of AI as potential threats not only to privacy but also to freedom, dignity and other human rights.

Extractivism can be seen as an economic strategy, regardless of whether the resources are material or immaterial and whether they are in the form of natural elements such as lithium and boron or personal data extrapolated from individuals. However, this strategy is problematic because of the invasive nature of extraction processes that incorporate various forms of violence. Couldry and Mejias speak about the non-physical violence associated with data extraction while establishing a new concept of "data colonialism" (Couldry & Mejias: 2020:

7 Artificial Intelligence Act, eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0206, accessed on 17. 02. 2022.

8 Digital Services Act, eur-lex.europa.eu/legal-content/en/TXT/?uri=COM%3A2020%3A825%3A FIN, accessed on 17. 02. 2022.

9). They are emphasising that the practices of “data appropriation and processing” are simply the continuation of the traditional colonialism which focuses on immaterial as well as material resources which can be located anywhere and not just in the traditional sites of colonial extraction (ibid. 10). In the case of Serbia, the extraction of lithium has usually been discussed among the protesters and various activists precisely as a form of neo-colonialism. With its rich reserves of lithium and boron, Serbia is seen as a new colony where the western countries will be extracting minerals required for batteries. Namely, the “green transition” is happening at the expense of the undeveloped countries. However, the fact that some of the EU countries plan to open mines too, it is more appropriate to talk about this new extractivism as a new type of colonial practice where colonies are no longer located only in exotic, underdeveloped and faraway countries. Colonial practices are now present even in the very heart of Europe and in some of the most developed countries across the world. This does not mean that traditional colonialism does not occasionally overlap with the modern one and that the underprivileged “Global South” does not remain to be exploited by the “Global North”. It simply means that the double extractivism of data and minerals needed for the production of technology should be seen as a global rather than a local problem and that the new colonialism is decentralised, dispersed and omnipresent.

5. Conclusion

While underdeveloped countries such as Serbia might be paying the biggest price of technology because they import electronic waste and extract lithium and other minerals, the problem is not simply local but, in fact, transnational and global. The narratives around lithium mining in Serbian traditional and social media as well as scientific communities focus on local issues while failing to recognise wider implications. The concepts of double extractivism and green criminology help understand the bigger picture and reveal how the practices of lithium mining and illegal e-waste transfers are related to the practices of data surveillance. All these practices involve certain types of violence, but many of them are not recognised as criminal activities and are therefore not sanctioned. Most importantly, the dispersion of the extraction sites outside the traditional colonial locations calls for new approaches to the protection of the environment as well as natural and human resources.

The new colonial practices of extraction are revealing new power constellations and new types of crimes associated with these practices. The case of Serbia shows how local environmental problems should be seen from a different

perspective. The initiative against the mining of lithium and boron in Serbia has come from the local community of Jadar Valley who were concerned for their future, but the grassroots movement that emerged later has mobilised larger communities including academic researchers who have raised the questions of the spread of contamination beyond the mining areas and the immediate surroundings. With several mines planned in different locations throughout Europe, the question is not just how does this type of extractivism impact certain regions or even nations, but also what are the wider implications of "green crimes" related to these processes.

The criminality of contemporary extractivism lies in the vicious circle of the two interconnected processes. The depletion of natural resources and ecocides are conducted to achieve carbon neutrality and produce green energy which is then used for data extractivism through data surveillance and violations of human rights, including the right to privacy, dignity, and freedom. This paper aimed to raise the questions of the price of this economic and ecological production and whether these processes are truly green and sustainable or whether they should rather be considered in the context of digital and green criminology. The case of Serbia shows how the seemingly legal processes of extraction conceal criminal activities and how online and offline activism has helped uncover the green crimes of lithium mining. Even though the dominant narratives are addressing the problems of lithium mining as local and confined to Serbia, some research findings clearly show that this is a cross-border issue and a global problem. It is also a point in which green and digital criminology intersect.

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