LUCIANO BRINA

Pharmakon landscape. An emerging territorial model for deep-time geochemical governance

Introduction

The Greek word *pharmakon* simultaneously signifies *remedy, poison,* and *scapegoat*. The first two senses refer to the everyday meaning of pharmacology, a combination capable of unleashing the productive potential of metabolism, here understood as a dynamic process of energetic and material transmutation, the outcome of which is not easily predictable. The third, according to Jacques Derrida, corresponds to an entity representing the sum of corruption and poisonousness. Originated during the aforementioned transmutation, and as a sub product of it, the scapegoat's eventual dismissal is by means of depurative protocols acting as a form of remediation (Derrida, 2000: 63–71).

If the scapegoat is an inevitable consequence of the interaction between remedy and poison, then it is not its existence that remains problematic, but rather the ways in which it is metabolised, processed, planned, and disposed—in short, the ways in which it is *deliberately embraced*. Pharmakon invites us to be opportunistic and systemically inclusive towards the leftovers of our metabolic regime, the one we perform while we extract, produce and consume, through scales which go from our own body to cities, landscapes, and the whole Earth system.

This essay is a development of the content and topics in the homonymous visual essay produced during mid-2020, in the context of *The Terraforming* postgraduate programme, at Strelka Institute for Media, Architecture and Design, in Moscow (Brina, Gong, & Tetekin, 2020). It presents the idea of a territorialising pharmakon, as a medium both for imagining alternative narratives, about our disbalanced, planetary metabolism, and a way to convert unwanted waste into vibrant, restorative landscapes. The initiatives presented in pharmakon could pave a path towards a viable future on Earth.

Waste, or the restorative potential of anthropogenic externalities

According to a 2016 World Bank study, the average person produces an average of 0.74 kg of human waste on a daily basis (2019). That does not sound like a lot. Now, imagine you had to store that waste where you live, whether it be a flat or a

house. In one year, you would have accumulated 270.1 kg of waste, which is more than four times the average body mass of a person. Imagine that four new people move to your place every year. That amounts to a lot of human waste. Waste is not as nice as people—it pollutes, stinks, rot, harms—but luckily, you are privileged enough to have a public waste management service, so you are not confronted with its abject materiality. Waste is somewhere else, somehow externalised.

Waste, the ultimate externality, is unaccounted, unmapped, and ungoverned poison. However, as Robert Pietrusko argues, in a truly metabolic cycle there is no waste: only excess, reproduction, transformation and vital will (2020: 2). This excess is wrongly acknowledged as waste because its manifestation has not yet been valorised by any of our life-support systems. The creation of value in our current metabolic regime is characterised by a highly unjust capture of benefits by entities—individuals, companies, global cities, and industries—that hold a privileged position within a network of worldwide extraction, production, consumption, and externalisation. At the other end of this relay chain, we find the peripheral hinterlands, towns and communities these entities exploit and feed on, which is precisely where so-called waste finds its burial site (Katsikis, 2014: 5–12). In effect, the infrastructure that maintains the connection between the global city and the exploited periphery is so absent from the narrative, sustained by our carbon-intensive regime, that without doubt we are facing (actually refusing to face) what Ghosn and Hazairy argue to be a convergent calamity: environmental, social, and aesthetic (2020: 10–27).

There is no outside in which the unwanted consequences of our actions can disappear as, right now, waste has become a geological layer (Parikka, 2015: 141–153). An enforcement mechanism capable of bypassing subjective decisions must be created, probably even a non-human one: subject-less, border-less, metabolic and geological. We need to adopt waste both as an operational measuring device, as a grounded, transformative geo-bio-chemical means of governance (Bratton, 2021: 56–60). We need to embrace the pharmakon now. But, how could we do that? Let us ask James Lovelock, father of Gaia theory:

> If permitted, I would happily store high-level [nuclear] waste on my own land and use the heat from it to warm my home … I have wondered if the small volumes of nuclear waste from power production should be stored in tropical forests and other habitats in need of a reliable guardian against their destruction by greedy developers (2001).

These quotes from Lovelock allude to an alternative rationale towards waste. His radical pragmatism is a call for de-dichotomising pollutants' disposal and climate change mitigation. For him, the precondition for ecological remediation, counterintuitively, begins with the deliberate and opportunistic management of waste. In the terms described in this essay, one could say that he is positing waste as a pharmakon, as a phenomenon which requires to be planned in order to be remediatory.

To use Russia as an example: unfortunately, there are only a small number of temperate rainforests in Russia's far east, which would be clearly insufficient to securely contain its nuclear waste, let alone all the pollutants coming from its hinterlands and its urban centres (Brenner, 2020: 23–25). Where do the waste products of Russia's hardcore extractivism go, then? Surely anywhere they can't be perceived: the vast Russian periphery. Considering that in such a centralised

Fig. 1 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Artificial hill of by-products from the iron smelting industry. [Film still: Andrey Tetekin, 2020]

country every place but the main cities is thought as peripheric, one might be facing the largest dumpster on the planet, as Russia's total area compromises 11.48% of the earth's land mass. There is a more precise category for this vast, forsaken landscape: it is called the *inner periphery*.

Entering the inner periphery

The current territorial expression of poison in Russia is what geographer Vladimir Kaganskiy has coined the *inner periphery* (2013: 23). It consists of once-developed, now declining territories, originated by the misplanned redistribution of human activities and industries during the USSR (Kaganskiy, 2013: 24–25). These territories have already lost their artificially sustained potential (i.e. their subsidy-based economy), their social capital, and any chances of normal economic self-development. As former collective and state farms they are in decline; the material and social infrastructure that once supported production is steadily degrading (Kaganskiy, 2013: 26).

Geographically speaking, the inner periphery's connectivity and accessibility is complicated because its administration is not within it, but surrounding it. From an economic point of view, it is possible to confirm that the limits of the inner periphery act as barriers rather than filters or buffers. However, seen from an ecological point of view, these limits form an environmental threshold, enclosing a vigorous and effervescent landscape.

These dichotomic conditions—a decaying socioeconomic fabric and ecological effervescence—are what imbue this territorial model with outstanding attributes for playing a key role in ecosystemic remediation and greenhouse gas (GHG) sequestration, one that fosters the spontaneous landscape rewilding and natural self-recovery of woods and steppes in former agricultural lands.

Given its extensiveness and massive ecological performance, and considering that metabolism is a concern at planetary scale, I argue that the inner periphery could make an important contribution to climate change mitigation and waste management. In a sense, Russia's landscape may be the only one in the world able to, literally, digest the Industrial era. Following Rodoman's proposal,

Fig. 2 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Abandoned greenhouses, pharmakon landscape. [Film still: Andrey Tetekin, 2020]

Russia has the possibility to shift its intra-border colonialism—both in terms of metabolic output and added value allocation—towards becoming an internationally-funded, planetary ecological donor (2017: 18–43).

However, the absence of concrete planning of the distribution of waste within the inner periphery has led to the collapse of Russia's metabolic regime. This clarifies the need for a conceptual and operational scaffolding to turn the Russian landscape's decline into an operational ecological landscape, one that can lay the foundations for a co-dependency between poisonous conditions and long-term remediation.

Pharmakon landscape: modelling geo-bio-chemical governance by means of waste management

Pharmakon landscape is a model of intense territorial intervention for climate change mitigation and geo-bio-chemical governance which, rather than reclaiming the decayed inner periphery for its former rationale and imaginary, aims to reorganise and enhance its ongoing poisonous, everyday practices, enabling them to have a positive terrestrial effect, across a timespan longer than human (social) time.

Pharmakon landscape is a model that comprises waste management, infrastructural repurposing, rewilding, curated direct human presence and self-funded relocation, remote and in-site sensing, and military enforcement. It is a geo-design initiative that challenges the clear boundaries between remedy, poison, and scapegoat. Here, pollution and human exclusion equates with accelerated remediation, increased biodiversity, and GHG digestion, so the ambivalent co-existence of this conceptual triad becomes figured by beneficial co-dependency. Pharmakon landscape aims to institutionalise the geo-bio-chemical regime of the inner periphery by means of five speculative, interrelated strategies.

1. Military and satellite repurposing

Since the maintenance of the metabolic cycles of the pharmakon landscape requires a permanent performance audit, functions such as territorial enforcement, remote sensing, surveillance, and protection against environmental

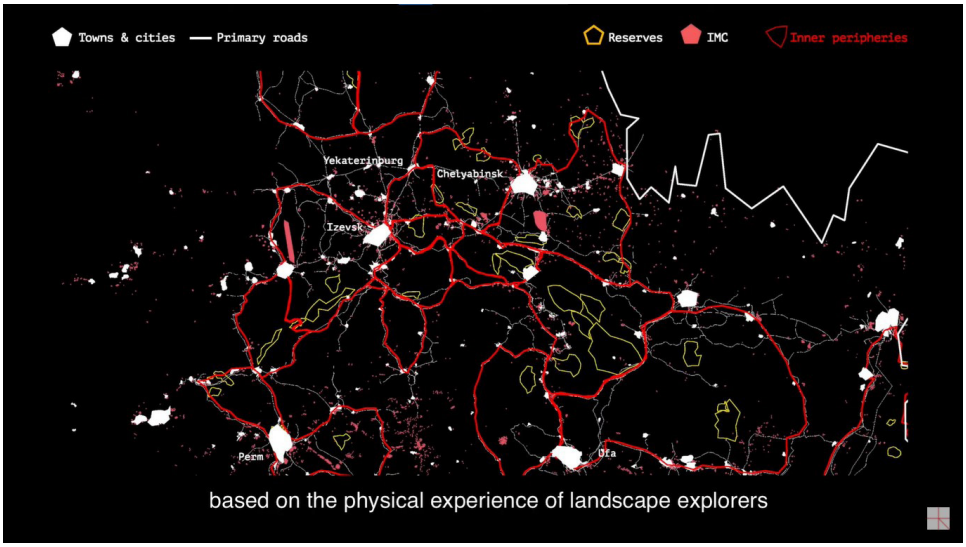


Fig. 3 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Author, 2020]

aggressors could be undertaken by the Russian military forces. The Russian Defence Ministry is one of the largest social organisations in the world, directly employing about three million people, as well as the largest consolidated land user in the world, with about a tenth of the total area of the country under its control. The Ministry is in charge of two-thirds of Russian satellites and has 143 test ranges—mostly located in nature reserves or protected landscapes.

Currently, however, environmental protection for climate change is an issue practically absent from the Ministry's agenda (Brzoska, 2012: 43–54). Although the average temperature of the Arctic is increasing 2.5 times faster than the rest of the world (Conley, 2017), the Ministry's initiatives focus on securing the Arctic for naval and trade purposes, rather than addressing environmental protection as a matter of planetary ecology.

2. Solid, gaseous, and liquid waste management

Controlled contamination from strategic waste processing and human depopulation due to the risk of exposure to chemical threats would turn the pharmakon landscape into a human exclusion zone, where only flora, fauna, and essential part-time personnel coexist. In Russia, municipal landfills are the main waste management strategy. Only four percent of waste destined for these spaces is recycled, while the rest is dumped without additional classification or management (IFC, 2012: 5–7). Official subsidies and programmes were abolished after the collapse of the USSR: recycling and sorting facilities are now 50–70 percent obsolete, and waste collection services in small settlements and villages are now cancelled (IFC, 2012: 9). As a result, illegal dumping has become common practice. According to the Federal Service for the Supervision of Natural Resources, there are currently more than 17,000 illegal dumps in Russia, and between 2000 and 2015, the deposition in these dumps has doubled (McGee, 2018).

Pharmakon landscape proposes to reverse this trend. In these landfills the anaerobic decomposition of organic matter produces methane gas (NH4), and the installation of equipment to capture this gas would not only significantly reduce GHG emissions, but would also provide an alternative source of energy. This could be distributed to other regions or, alternatively, to the few permanent settlements and industries within the pharmakon landscape. In addition,

composting would play a fundamental role in the nutritional recovery of the soil, a prerequisite for the resilience of this degraded landscape.

The absence of concrete planning regarding waste has resulted in a complete misallocation of poison within the inner periphery, which has led to a collapse of its metabolic layer. Pharmakon landscape aims to restore this layer by establishing an everyday geoengineering practice based on systematic waste zoning and classification, in order to take advantage of the geo-bio-chemical composition of media that traverses its soil, its trees, its inhabitants, and its infrastructure.[1] Accelerated and intensively planned pollution results in an equally accelerated metabolic recomposition towards GHG reduction, soil nurturing, and energy production.

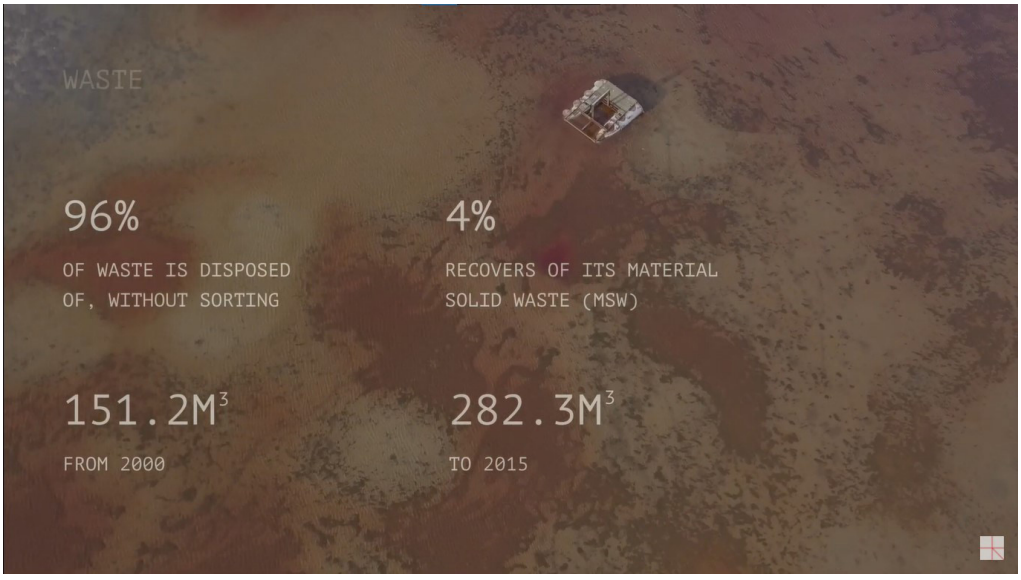


Fig. 4 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Luciano Brina, 2020]

3. Forestry, ecosystemic regeneration and remote sensing

Pharmakon landscape proposes to configure a homeostatic cycle based on chemical processing through the photosynthetic capacities of native flora. The landscape displays a formidable number of air pollution removers: forests, steppes, and grasslands. Russia owns 19 percent of the world's forest reserves. This percentage could be increased through reforestation and replanting in abandoned or low-yield arable areas, or in already exploited quarries. According to the Russian Federal Ministry of Forests, at least 50 to 55 million hectares formerly used for agriculture are suitable for afforestation, while of the 76 million abandoned arable hectares registered in 2018, 30 million of them have already been spontaneously covered by new forests (Korotkov, 2018: 7–11).

However, spontaneous afforestation is insufficient both in quantity and pace to capture the amount of GHG required. Additionally, illegal logging and forest burning are a huge problem worldwide, and Russia is no exception. There, the former represents up to four percent of total felling, while the latter is presumed to amount to 25 percent of the loss of forest (Brzoska, 2012: 54). From satellite images, it is clear that in the last 20 years the rate of deforestation caused by fires in Russia has reached 400,000 hectares per year.

Again, the Russian military forces could take responsibility for policing this. On land, they could install and maintain sensor networks, providing an immediate

response to clearing and intentional fires, just as their Chinese counterparts have been doing (Brzoska, 2012: 55–57). In the air, Russia's satellites could verify the health of each ecosystem and audit its GHG removal capacity.

In addition to the locations where afforestation and reforestation initiatives could be carried out, as mentioned earlier in this paper, ecological buffers between different inner peripheries could be established. These could achieve a separation between toxic conditions in the pharmakon landscapes and surrounding human-inhabited areas. Despite being almost as unsuitable for permanent human settlement as the landscape they circumscribe, these green belts would displace population, commerce, recreation, and habitat to their outer edges (thus along road infrastructure), creating ecologically protected environments, with higher population density, and greater economic activity.

4. Infrastructural and industrial repurposing

Russia's main product is not commodities, but heat. Whether as a by-product of any of its extractive industries, or to heat housing complexes within the country, the generation of heat is an unavoidable requirement for the maintenance of life and production in the Federation. However, heating a country the size of Russia is an incredibly demanding task, and naturally produces a dangerous by-product: greenhouse gases.

According to Climate Transparency, almost 40 percent of Russian GHG emissions come from the burning of fossil fuels for the generation of electrical and/or heat energy (2019, 4–8). The capacity of this industry far exceeds current demand, which has been significantly reduced since the collapse of the Soviet Union in the early 1990s, and 40 percent of thermal power plants are now more than 50 years old (McKinsey & Co, 2009). In addition, half the emissions from the oil and gas industry come from leaks and losses during their distribution. These situations have enormous consequences in terms of efficiency, and therefore, in increasing GHG emissions.

The Russian industrial complex has to be called upon not only to clean up its own environmental disasters, but also to immediately shift to a negative GHG emissions scenario. The decrease in the participation of industry in the Russian GDP, compared to that of services since the last decade of the current millennium, indicates a necessary re-functionalisation of the manufacturing establishments and the infrastructure located in the internal periphery.

Firstly, underused or even unused factories across pharmakon landscape would shift their prior main activity towards *carbon capture and sequestration* (CCS), residual heat recovery to be used for residential heating, and methane capture to replace fossil fuel usage. Carbon capture and storage (CCS) is not just a singular technology, but rather a practice that combines several verbs: capture, transport, store, monitor. For example, decommissioned oil and gas pipelines in the Inner Periphery could be repurposed for CO2 transportation, abandoned mines and reservoirs could be repurposed as carbon sinks. Steel plants could utilise their residual blast furnace gas (BFG) for power and heat production. Attaching CCS equipment to existing chemical and steel plants, and selling the CO2 retrieved for enhanced oil recovery (EOR) could not only reduce emissions, but also decrease the CO2 price per ton. Then, methane produced by biomass fermentation could be recovered and distributed to provide energy to facilities and residential buildings.

Secondly, with waste being the main resource of the pharmakon landscape, large-scale recycling could be performed in ore and cement sectors. Regarding the former, metal scrap could be gathered and sold to steel and copper producers. Regarding the latter, retrieving specific by-products such as slag and fly ash to replace clinker, the main component of cement, could reduce CO2 emissions by 55 percent. Iron smelting mineral by-products could be repurposed as well.

After all, if growth results in a rising atmospheric concentration of CO2, the reverse of growth is not degrowth, but carbon-negative growth. Capturing, injecting, and remineralising soil with CO2 is a deep-time, deliberate poisoning of the geological layer of pharmakon landscape, facilitated by misused factories within the inner periphery.

5. Human exclusion and relocation

Just as the inner periphery is the land of ecological terrorism, where polluting companies get away with it, it is also the land of environmental racism. There is a clear spatial correspondence between ethnic minorities and/or low-income groups, and the distribution of environmental hazards (Lerner, 2010: 4). These inhabitants experience severe exposure to all types of toxic agents, a condition diametrically opposed to the inhabitants of highly urbanised and privileged regions, such as Moscow.

But environmental racism is not limited to chemical exposure, it is a multi-causal situation that includes three critical characteristics of the urbanisation of Russian territory during the 20th and 21st centuries: cold, remoteness, and migratory processes.

Regions such as Siberia or the Far East, characterised by their low temperatures and lack of transport infrastructure, are territories in which direct private investment would not flow *de facto*, since the costs associated with maintenance, operation and habitability are extremely high compared to warmer, more urbanised regions. However, during the centralised Soviet administration, planners overinvested in areas of the country that were either too cold or too remote to sustain themselves in the context of a market economy: during this period Russia became economically "colder" (Hill, 2003: 37).

In this sense, human settlements were conceived as a hierarchical network organised along the route of the Trans-Siberian railway. Take the case of the main cities such as Tomsk, Novosibirsk, or Omsk, which were urban centres of the first hierarchy, capable of concentrating specialised health, cultural and educational services. Somewhat further from the railway, small towns such as Surgut and Nizhenevarstovsk acted as a link between the main settlements and the most remote outposts along the Arctic.

With the collapse of the USSR, investments shifted to places where production could have a quality and cost efficiency capable of competing in the global market: Russia became an economically "warmer" country. The economic decline suffered in the northwest regions, in the Urals, and in the Arctic Circle, was accompanied by simultaneous and massive emigration. Between 1979 and 1994, about two-thirds of Russia's urban centres experienced an abrupt population decline, even to the point of abandonment (Mikhailova, 2012: 11–13). Thus, highly urbanised regions, diversified cities, and specialised R&D towns prospered, while monotowns, company towns and *besperspektivnyye* (unpromising towns) perished.

The combination of meagre labour opportunities, cuts in state subsidies, geographic disconnection, and low urban quality resulted in a social and habitational catastrophe. Without sufficient concentrations of people, not only is the provision of normal municipal services extremely expensive but urban life itself begins to break down. With fewer taxpayers, revenues are lower, often leading to higher taxes per capita, resulting in an overall deterioration of services. More people depart, and the downward spiral continues.

Most Russian migrants in the 1990s moved from remote villages and small towns and cities in the north and the Far East to the frost belt—in other words, from extremely cold places to other, somewhat warmer, larger settlements (Mikhailova, 2012: 26). However, not everyone departed, or were able to, even if they wanted to.

The decline in the eastern economy left large portions of population without the means necessary to relocate to more prosperous regions: they were tied even more to their current locations. Residents from *besperspektivnyye* villages were persuaded to leave, while the economically disadvantaged were often left behind because they could not afford to abandon their plots or their family networks. For them, even if they had the resources to move elsewhere, finding themselves in a new location, but far away from their remaining social networks of family and friends, had serious consequences.

After all, this is the social, economic, and territorial background of the inner periphery: decay, stagnation, emigration, pollution, obsolescence, aging, remoteness, solitude, defunding, degrowth, and extremely low temperatures. How might a pharmakon landscape reverse or at least propose an alternative, more qualitative scenario for this forsaken territory and its inhabitants?

Fig. 5 Luciano Brina, Andrey Tetekin, Yu Gong (2020). Pharmakon landscape. [Film still: Luciano Brina, 2020]

Funding pharmakon landscape

> The choice is simple: to develop production and increase the extraction of raw materials so as to eventually give Siberia and the Far East to China; or not to carry out any activities in order to keep these lands as a nature reserve under the patronage of the United Nations, in alliance with Europe and the United States. (Rodoman, 2017: 37)

In this provocative statement, Russian geographer Boris Rodoman posits two very different possible paths for Russia. One is to continue depleting its natural resources in the name of profitability, thus accentuating the inequities between centre and periphery, with the guarantee of confronting an economic, social and environmental crisis in the short term. The other path is for Russia to become an internationally funded environmental donor, capable of providing ecological services for the entire planet. This alternative proposes that, given pollution is an unequally distributed, planetary produced phenomenon which affects commodity-based economies, and given the formidable ecological capacity of the Russian green infrastructure to contribute to planetary sanitation, both the Russian state, its companies, and its population (for that matter, the inhabitants of the pharmakon landscape) have to invest in and monetise its environmental potential.

As an example, firms such as Microsoft, Amazon, Glovo, SoftBank and others listed in the S&P 500 index transfer their GHG emissions by financing green infrastructure in Latin America thanks to NGOs and platforms such as Pachama (https://www.pachama.com) or Restor (https://www.restor.eco).

These leverage geospatial information, artificial intelligence and local communities, in order to provide accurate information on the ecosystemic capacity of landscape projects, to determine the cost of each ton of CO2 sequestered, and what investments are needed to enhance these landscapes. For this, Yandex, the largest internet-related service provider in Russia and the fifth largest worldwide, could take advantage of its extensive network of satellite, on-ground coverage, and its horde of programmers to carry out the geospatial audit necessary to allow government organisations and NGOs to monetise the pharmakon landscapes. This initiative would contribute to the creation of new jobs, necessary for the few and impoverished communities that would continue to live in the inner periphery.

The second has a more participatory, democratic and horizontally-managed character, engaging civilians, professional and local organisations in the restoration of the ecosystems they inhabit. Restor offers a free online platform for analysing ecosystemic performance by means of georeferenced information, as well as being a platform for economically supporting different projects and NGOs around the world. This alternative would be extremely valuable for the organisation and coordination of the inner peripheries' inhabitants seeking to recover their environment and quality of life, maintain their socio-emotional ties, and reconvert their productive matrix from toxic extractivism to planetary care and maintenance.

Both cases demonstrate how different layers of technology (geospatial, platform-based, and financial) could contribute to the interaction between material and human resources, one aimed at the development of what we can understand as a territorial technology: the pharmakon landscapes to come.

For those inhabitants who feel their future is somewhere else, emigration has to be promoted instead of being resisted or delayed. The question, then, is how to properly plan this emigration, and by what means to sustain and finance it.

As mentioned, emigration from colder to warmer, and from decaying monotowns to larger and economically diversified cities had been happening for some years prior to the collapse of the USSR. However, in a country such as Russia, with birth and growth rates declining since the mid-20th century, and in which two thirds of its territory have less than one inhabitant per square kilometre, human migratory flows are a real concern and require proper planning. Thus, it is a responsibility of pharmakon landscape to relocate its former inhabitants and guarantee them a better quality of life, a responsibility extended to the host cities.

The hosts could be what are known as "one million-plus cities": regional, emergent cities with more than one million inhabitants, whose growth could drive substantial development to country's economy. Research conducted by Strelka KB showed that 15 percent of Russia's GDP is produced by these cities (excluding Moscow), though their productivity is not accompanied by sustained investment, urban environment quality, and financial resources (Strelka KB, 2017). This imbalance between productivity and investment signals that these cities have a lot of remaining potential, that could be fulfilled with an inflow of highly qualified workers and consumers from the pharmakon landscapes. Relocation could be tailored so that newcomers land in a city where their skills are needed. To that end, Strelka KB's research states that sets of cities have specific specialisations, as follows: Krasnodar and Ekaterinburg specialise in trading; Omsk, Ufa, and Kazan in manufacturing; Krasnodar, Samara, Kazan, Nizhny Novgorod, Ekaterinburg, and Novosibirsk in construction and real estate.

Conclusion

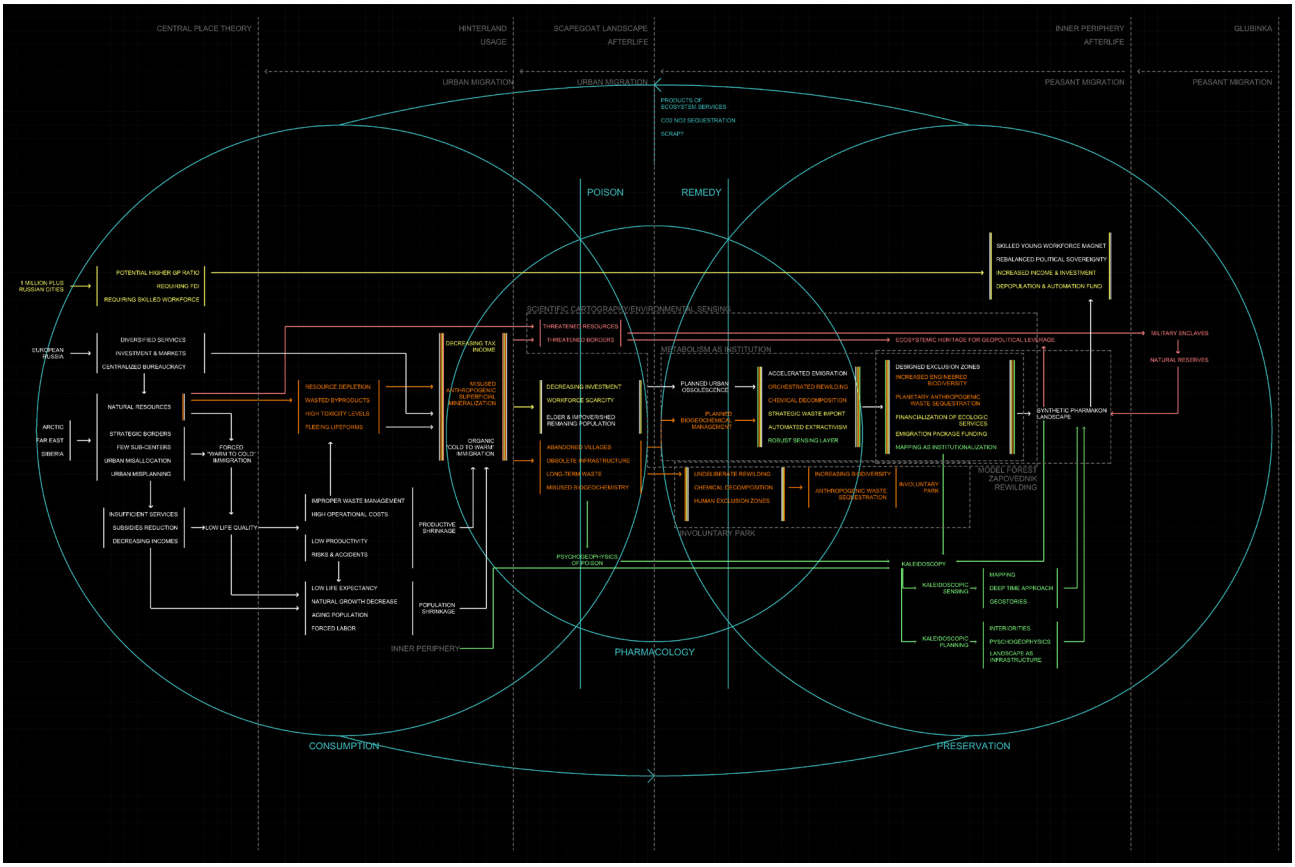
Pharmakon landscape stands as the reification of the transition from an extractivist territorial and economic model, to one based on planetary caretaking. In an attempt to propose an alternative development model for a viable planet, pharmakon landscape puts forward remediation and restoration of what has been contaminated, degraded or left over. Rather than building anew, it invites us to put further attention on the opportunities that waste holds for climate change mitigation. In a pharmacological sense, planetary remediation must emerge from the remains of the most mis-planned and least overseen territories in our globalised productive regime: the hinterlands and operational landscapes in general, and Russia's inner periphery in particular.

Internationally funded environmental services could be provided by Russia, by converting these territories into pharmakon landscapes, i.e., multi-layered green infrastructures, on which rewilding, carbon capture, energy production and depollution could be performed. In parallel, newly curated exclusion zones, created from the remains of the inner periphery, would promote an urban and demographic intensification around its buffer zones (i.e. the administrative borders between different inner peripheries) and towards one–million-plus cities, which would be co-responsible of providing a better life to communities that suffered the collapse of the Soviet Union, the transition to an open market economy, and the poisoning that decades of living next to highly polluting industries produced in their bodies.

To quote Bernard Stiegler, "technology is our pharmakon, an inescapable poison that has curative potential, and culture is a therapeutics that must recover from its colonisation by the digital-audio visual processes of cognitive capitalism" (2013: 4-11). Pharmakon landscape proposes a shift from using technology for advertisement, individual surveillance and narcissistic self-validation, to using it for to audit, support and promoting landscape restoration initiatives. As shown in the case of internet-based environmental restoration platforms, pharmacological conditions could be traced and taken advantage of all over the Earth, as a global territorial model, one not limited to Russia's national borders.

This essay proposes pharmakon landscape as an experimental scaffold for ecosystemic governance, a toolkit for identifying metabolic phenomena, an invitation to configure and imagine new narratives for renewed landscapes to come, and a grounded platform for empowering communities and their culture. It is a proposition that would require taking a leap towards addressing the complexity of waste and its connection to territory and human endeavour. This is the point where an expanded form of architectural discipline must come into play, one that considers the Earth's system as an architectural project (Sarkis, 2020: 10-17). Maybe, if architecture follows the poison, if it embraces *the city outside the city,* it will find a pharmakon landscape to be configured.

Fig. 6 Luciano Brina (2020). Metabolic regime of a Pharmakon landscape. [Diagram: author, 2020]



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ENDNOTES

1 Following Parikka's *A Geology of Media* (2015) and Easterling's *Medium Design* (2018), here media is understood as a material vector embedded with specific properties, whether they be intensive or extensive. This standpoint allows including the history of material processes and the ones from the formations emerging from them. Here I focus on matter itself as a means for human and non-human recomposition, mediation and intermingling.