



**PUBLIC HEALTH AND BIOPOLITICS STRATEGY UNDER THE
COVID-19 PANDEMIC**

**ESTRATÉGIA DE SAÚDE PÚBLICA E BIOPOLÍTICA DURANTE A
PANDEMIA DE COVID-19**

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ABSTRACT:

The purpose of the presented study is the complex analysis of competence and sufficiency of public safety measures implemented by the authorities in the early stages of the coronavirus pandemic. The article reveals the need for governmental involvement in solving the issues of essential services and maintaining public healthcare. The article also integrated the results of studies of governmental approaches to the development of compensatory policies in different countries while considering the population as a specific object of national biopolitics. A comparative



description of examples of national biopolitics as a reaction to the development of an epidemiological threat (cholera, smallpox, Ebola, coronavirus) is presented. A comprehensive strategic approach to developing state biopolitics is recommended, which includes a system of necessary measures, analyzes factors and threats affecting the mechanism of biological security, and summarizes international experience in preventing the spread of dangerous infectious diseases. The conclusion is drawn about the necessity of phased implementation of a complex of proactive preventive measures capable of ensuring the protection of the interests of all participants in the process of socio-economic development of society and the state.

Keywords: Epidemic; Public biopolitics; Strategic approach; Biohazards; Strategic planning; Biological security.

RESUMO:

O objetivo do estudo apresentado é a análise complexa da competência e da suficiência das medidas de segurança pública implementadas pelas autoridades nos estágios iniciais da pandemia do coronavírus. O artigo revela a necessidade de envolvimento governamental na solução dos problemas de serviços essenciais e na manutenção da saúde pública. O artigo também integrou os resultados de estudos de abordagens governamentais para o desenvolvimento de políticas compensatórias em diferentes países, considerando a população como um objeto específico da biopolítica nacional. É apresentada uma descrição comparativa de exemplos de biopolítica nacional como reação ao desenvolvimento de uma ameaça epidemiológica (cólera, varíola, Ebola, coronavírus). Recomenda-se uma abordagem estratégica abrangente para o desenvolvimento da biopolítica estatal, que inclui um sistema de medidas necessárias, analisa fatores e ameaças que afetam o mecanismo de segurança biológica e resume a experiência internacional na prevenção da disseminação de doenças infecciosas perigosas. Conclui-se sobre a necessidade da implementação em fases de um complexo de medidas preventivas proativas capazes de garantir a proteção dos interesses de todos os participantes do processo de desenvolvimento socioeconômico da sociedade e do Estado.

Palavras-chave: Epidemia; Biopolítica pública; Abordagem estratégica; Riscos biológicos; Planejamento estratégico; Segurança biológica.

1 INTRODUCTION

The multifaceted social, managerial, political, and economic hurdles brought about by the COVID-19 pandemic serve as a concrete example of the practical application of Michel Foucault's theory of biopolitics. The contemporary manifestation of this biopolitical paradigm, as shaped by the pandemic, is understood as the exertion of state biopower through heightened governmental intervention across various aspects and domains of society to safeguard public health and biological security. Modern biopolitics can be considered a combination of forms of social control with government strategies aimed at both ensuring survival (biosecurity) and maintaining





and developing key social institutions. The core feature of many governments implemented national biopolitics is the inversion and variability of strategic discourse. The degree and direction of economic and social losses from the damage caused by the COVID-19 pandemic directly depend on the level of economic development of states, the sectoral structure of their economies, and the resilience of small and medium-sized businesses.

For example, only in Russia in 2020, the amount of prevented economic losses of the gross domestic product (hereinafter GDP) as a result of the activities of Rospotrebnadzor (Federal Service for Surveillance on Consumer Rights Protection and Human Well-being, 2021) amounted to more than 161.3 billion rubles. The economic efficiency of the activities of this service, in terms of preventing GDP losses, in the Russian Federation in 2020 was about 20.23 rubles for every 1 ruble spent (World Health Organization, 2020b).

At the current historical stage of development, in the conditions of the spread of the COVID-19 pandemic, biopolitics becomes an increasingly relevant paradigm for the activities of any state, capable of ensuring its sustainable and progressive development, overcoming existing challenges and threats in socio-economic and other spheres of life.

The primary rationale preventing authorities from abstaining from addressing fundamental needs and upholding adequate healthcare standards is the increasing competition for human resources amidst the globalization of social networks and the widening scope of human interactions within society and the natural world. This is accompanied by a fresh phase of economic exploitation of natural resources.

2 MATERIALS AND METHODS

As of now, the novel coronavirus disease has been reported in 216 nations, affirming its classification as a pandemic by the WHO on March 11, 2020 (Worldometer, 2020). As per the WHO's data until October 10, 2020, the worldwide tally of confirmed COVID-19 cases stood at 36,361,054, with the death toll reaching 1,056,186 (World Health Organization, 2020a). Efforts to contain the spread and combat its consequences undertaken by nation-states and international associations have a certain impact on the situation. The efforts of countries under the guidance of





the WHO have brought certain successes in preventing the spread of the dangerous coronavirus infection during the pandemic. Scientifically based action algorithms and recommendations (WHO, UNICEF, International Federation of Red Cross and Red Crescent Societies, 2020) for government and health authorities have been developed and approved (World Health Organization, 2020b).

Moreover, in several countries, active targeted policies and consistently taken by the government measures have proven to be highly effective. Noteworthy is the example of Vietnam, where, with the total number of performed coronavirus tests equal to 1,009,145, the number of detected cases was only 1,024, despite the proximity of the source of the current pandemic - China.

Analytical reviews and studies by various authors extensively discuss the social ramifications and governmental responses to the COVID-19 pandemic (Dolgov, & Savinov, 2020; Hoojon, 2020; Lell, 2020; Madray, 2020; Morozov, 2020; Rogério Silveira et al., 2020; Sazib, 2020; Schäfer, 2020; Somma, 2020; Werron & Ringel, 2020). There is a contention that the approach of nation-states towards formulating compensatory measures to sustain or revive the economy and social sector might undergo significant alterations compared to recent economic downturns (Moschonas, 2020).

Global practice indicates insufficient readiness of most countries to the real threat to the health and lives of people from the new coronavirus infection. Researchers note a clear link between the level of healthcare expenditure and the level of COVID-19 mortality: cost-cutting in healthcare expenditure corresponds to higher incidence and mortality (Sherpa, 2020).

In numerous instances, authors highlight how the global spread of the coronavirus pandemic exposes underlying systemic issues in healthcare development. This revelation underscores that for socially vulnerable groups such as migrants, refugees, asylum seekers, and the elderly, gaps and deficiencies in public healthcare systems translate into a lack of assurances and discrimination in accessing medical and social assistance, despite constitutional provisions stating otherwise (Santos et al., 2020; Sartoretto, 2020). Countries with a significant elderly population have been particularly hard-hit, often due to delayed implementation of COVID-19 restrictions and non-compliance by residents (Accounts Chamber of the Russian Federation, 2020).

While acknowledging the significant threat posed by COVID-19, some voices have argued that the scale of the problem, as emphasized by WHO, national





governments, and various researchers, is largely exaggerated and does not align with the actual circumstances. Furthermore, there are allegations that the fear of the coronavirus is being exploited as justification for increased governmental control over the public, leading to restrictions on people's rights and freedoms and serving the commercial interests of healthcare and pharmaceutical companies (Johnson, 2020).

3 POPULATION AS AN OBJECT OF PROTECTION OF STATE BIOPOLITICS

The notion of state oversight over the demographic trends of a nation, with regard to its impact on biological processes within the human populace, is not a novel concept. Viewing the inhabitants of a country as a collective population - a distinct subject of state governance—entailing the regulation of life processes, inherently biological in nature, and rooted in the Malthusian analysis of society, has been a foundational element in shaping state policies for over two centuries.

1) In contemporary times, the human environment is increasingly dominated by technology, with its effects on individuals becoming more diverse. As of 2019, 54% of the global population lived in urban areas, with the urban population and its proportion within the total population steadily increasing each year. By January 1, 2020, the urban population in Russia accounted for 74.6% of the country's total population, surpassing the global average. The technogenic environment imposes a growing pathogenic burden on the human body, potentially weakening the immune system or eliciting atypical immune responses, such as an exaggerated reaction to stimuli.

2) Human activity in the interaction with a growing variety of Earth's biomes involves not only the creation of new environments but also the alteration or destruction of existing ones. This process includes extracting resources from previously isolated areas, leading to the spread of viruses and microorganisms, including pathogens, that had not previously come into contact with human populations. Although most of them do not target humans as the host; however, they can mutate, which is perfectly illustrated by the example of the COVID-19 virus. Thus, as in this case, they may become a new, often significant, threat to human health.

The globalization of human society also applies to the evolution of diseases, well including the development of microorganisms and infective agents of both human and domestic animals diseases. Hence, there are also increasing risks of adaptation



of pathogenic microorganisms, originating from animal populations to habitat and reproduction in the human body, this eloquently evidenced by numerous studies of the sources of the modern pandemic.

Throughout world history, numerous similar examples highlight the interconnectedness of environmental changes and the emergence of disease outbreaks. One such instance occurred during 1997-1998 when extensive fires ravaged thousands of square kilometers of rainforests across various Indonesian islands like Sumatra, Sulawesi, Kalimantan, and Papua New Guinea. These fires displaced local fruit bats in Malaysia from their forest habitats, compelling them to seek sustenance on mango farms. The pigs on these farms were fed with mango leftovers, which attracted the bats as well. This scenario facilitated the transmission of the Nipah virus (NIV), originally harbored by bats, through a straightforward chain of hosts: bats to pigs to humans. Consequently, this led to encephalitis outbreaks among hundreds of cattle farmers, with a mortality rate as high as 40%.

The Amazon has witnessed a surge in devastating fires since the 2010s, with human activity playing a significant role. Lumberjacks often use these fires to conceal the evidence of deforestation, which has been escalating annually. Additionally, agribusinesses clear land for projected pastures and soybean plantations, further exacerbating the situation. Human encroachment into the Amazonian forests continues to intensify as settlements push deeper into the timbered areas. Moreover, the water tanks utilized by locals for storage create favorable breeding grounds for mosquitoes. These mosquitoes, feeding on both animals (such as macaques) and humans, become natural vectors for diseases like chikungunya, dengue fever, yellow fever, Zika virus, hantavirus, leptospirosis, and numerous other infections.

Malaysia and Amazonia represent just scattered examples of how human activities contribute to the widespread of all new types of viruses that would otherwise prevail locally and within clearly delineated geographical boundaries. It can reasonably be argued that urbanization, intensive agriculture, industry, mining, hunting, and deforestation are some of the significant, if not the most important, factors in the dawn of emergent diseases.

Also, human actions create conditions favorable for the reproduction of pathogens, which are seemingly impossible. Such are, for example, the conditions of chaotic oriental 'wet markets' that are often portrayed as emblems of Chinese





otherness: lawless areas where wild animals are kept crowded, in cramped cages, and under unsanitary conditions.

In recent years, ixodid ticks, known carriers of diseases like typhoid, encephalitis, and borreliosis, are increasingly being discovered in city parks across Russia. Moreover, West Nile fever, once considered a rural disease, is now affecting urban residents more frequently. This is not only due to individuals contracting the virus during travels to warmer regions but also because of the proliferation of fever vectors like *Culex* mosquitoes in urban ponds, basements, and roadside puddles. Outbreaks of West Nile fever were previously reported in 1999 in regions such as Volgograd, Astrakhan, and the Krasnodar region.

These developments represent only a fraction of the broader picture. Another concerning phenomenon, and one much more perilous to human health, is the constant mutation of viruses and microorganisms. This ongoing process fuels an "arms race" between pathogens and antibiotic developers, posing significant challenges for public health and medical science.

3) The rise in survival rates, coupled with subsequent increases in the number of chronically ill individuals and the average life expectancy, presents a challenge in maintaining adequate public health services for the continuously expanding demographic requiring ongoing medical attention. This will inevitably lead to an escalating burden on public healthcare systems.

Moreover, threats to humanity extend beyond just life-threatening diseases to include epidemics and pandemics with relatively low mortality rates but profound repercussions across all aspects of society. As society becomes increasingly complex, the diversity and severity of these consequences for human civilization continue to grow. Despite significant improvements in average living standards, particularly evident in economically developed nations, any relative decline is keenly felt, even in the most prosperous countries.

4) The existence of competition between states, including in the field of ensuring epidemiological security, negatively impacts the process of uniting efforts to combat the pandemic. It exacerbates competition between management practices and fundamental concepts of state policy, including biopolitics, which is an important factor in ensuring the biological security of the population.

Despite the concern about the increasing interference of the state in the life of society, it has become generally recognized that state structures are responsible for a



tremendous part of public life in the field of ensuring the life-activity of people and preserving their health, along with overcoming the negative consequences of epidemics and pandemics. The government naturally takes responsibility for all that is happening, as it is created to address the most important problems of society and has significant resources to solve such tasks, including the state apparatus and mechanisms of state coercion.

4 EXAMPLES AND VARIABILITY OF STATE BIOPOLITICS

The dynamics of forming and the genesis of protective mechanisms of human population immunity are considered as the main elements of the system of forming state biopolitics, which today acquires strategic importance. Modern geopolitics must take into account factors such as the long-term nature and wave-like development of the pandemic, the species diversity of sources of viral infection, and the global scale of its spread, which complicates the implementation of quarantine measures.

Modern world history knows many examples of the development and implementation of biopolitics by various states during the emergence and spread of dangerous infectious diseases. Examples include the cholera epidemic in the USSR in 1970 (Kologorov et al., 2010; Popov, 2011), the epidemic of smallpox in Yugoslavia in 1972, and the Ebola epidemic in Africa in 2014. The generalized results of the conducted research allow for an analysis of the main factors and parameters of the measures taken by individual states to ensure the biological security of the population.

Table 1. Factors and tools of anti-epidemic biopolitics

Factor/tool of biopolitics	USSR 1970, Cholera	Yugoslavia 1972, smallpox	West Africa 2014, Ebola	Russia 2020, Coronavirus
Routes of infection	Fecal-oral route of transmission of <i>Vibrio cholerae</i>	Fecal-oral and airborne	Fecal-oral, airborne, in some cases, sexual transmission	Airborne
Territorial coverage	Considerable proportion of USSR territory with the pest-spots in heavily affected Black Sea and Caspian territorial entities	Considerable proportion of Yugoslavia's territory with the pest-spots in heavily affected Kosovo and Metohija	Territory of West African states: Guinea, Sierra Leone, Liberia, several European states, and the US	Almost the entire territory of the Russian Federation
The timing and dynamics of the	The initial outbreak of the disease was	Pilgrims from Kosovo introduced	December 2013 - December 29,	The outbreak began on January



spread of the epidemics	identified in Indonesia in 1961, after which the infection spread to Indochina. Subsequently, in 1965, the first outbreak was documented in the Karakalpak Autonomous Soviet Socialist Republic (Karakalpak ASSR), with the disease reaching its peak by 1970.	the disease to Yugoslavia from Saudi Arabia in 1972. The epidemic affected a total of 173 people.	2015, the number of registered cases – 28640.	31, 2020 Number of registered cases: 1 167 805
Factors contributed to the spread of disease	High morbidity, rapid incubation period (within 24-48 hours), the most acute cases of infection were observed in resort areas with a high concentration of vacationers	Transmitted by contact with an infected or contact with personal belongings, household items, and physiological fluids.	According to healthcare experts, the reasons for the rapid spread of the epidemic became the poor hygiene and sanitation, as well as local funeral customs	The disease is characterized by a long incubation period, high transmission rate, and asymptomatic course in the early stages.
Mortality	The risk of lethal outcome with a moderate or severe course of the disease and lack of medical care is a quite high.	36 intercurrent death cases recorded	11,315 people died	20,545 deaths
Prevention efforts	Mass promotion of good hygiene practices: washing hands with soap, boiling water before drinking, etc.	Universal smallpox vaccination campaign	Canadian Tekmira Pharmaceuticals received a \$140 million grant from the US to develop the TKM-Ebola vaccine and obtained FDA approval for limited human trials of the vaccine. On August 25, 2015, Yoshihide Suga, the head of the Japanese Cabinet Secretariat, announced that Tokyo was prepared to provide a drug for Ebola treatment, which had been approved by Japanese authorities for treating influenza but not yet endorsed by the WHO. The drug,	Mass promotion of good hygiene practices and wearing PPE (masks, gloves, respirators).



			Favipiravir (T-705), was developed by Toyama Chemical, a subsidiary of Fujifilm. Earlier statements by company representatives indicated that drug stocks would be sufficient for treating over 20,000 infected individuals.	
Travel restrictions	Establishment of quarantine and observation zones with restricted access (ban on passage of tourist cruise ships, cancellation of tourist vouchers, railway and air tickets to contaminated areas, highway traffic restrictions). Departure from the quarantined settlements was permitted only after undergoing bacteriological examination and undergoing a five-day isolation period with observation. Official quarantine measures were implemented exclusively in the infection hotspots, specifically in the cities of Kerch, Odessa, and Astrakhan. All other resort cities in Crimea and along the shores of the Azov and Black Seas were evacuated of visitors to the greatest extent possible.	Full lockdown, complete closure of borders, etc.	Banned flights to and from the states with registered disease foci, cancellation of mass events followed by the introduction of quarantine in Sierra Leone.	Restrictions on flights and railway services, local lockdowns.
Other forms of social control	The emergence of the so-called sanitary patrols, social stigmatization of			Promotion of quarantine and isolation measures by state media.



	camp vacationers and food-peddlers on the beaches of Soviet resorts.	wild and on of		
Remedial measures			The battle against the epidemic is hindered by the absence of specific treatments or vaccines for both humans and animals at present. While several vaccines are undergoing testing, none are yet ready for clinical application. Patients with severe illness necessitate intensive symptomatic therapy and supportive care. In many cases, severe patients suffer from dehydration and require intravenous fluids or oral rehydration using electrolyte solutions.	At this stage, treatment is limited to symptomatic therapy since there is no accredited vaccine against COVID-19. Widespread need for the use of ventilators due to lung damage.
Expansion of the healthcare system			The WHO, along with other partners, is mobilizing and deploying additional expertise to offer assistance. Material and logistical resources required for supportive patient management and all other aspects of outbreak control are also being mobilized.	Diversion of medical centers into infectious diseases hospitals, as well as re-profiling of doctors in order to combat coronavirus infection
International cooperation	No	Donald Henderson's WHO Mission to Yugoslavia	Médecins Sans Frontières and several other organizations sent their experts to contaminated areas.	In the early stages - a volunteer movement of doctors in China, Europe and the United States.
Affected sectors of the economy	Primary direct damage to tourism, trade, and agriculture			Almost all sectors of the Russian economy were affected, one way or



	(destruction of crops in the region due to fear of spreading cholera), trade.			another: air and railway transportation, retail and wholesale trade; being placed under quarantine, enterprises of various industries and educational establishments suffered heavily, along with the medical and other social institutions.
Compensation for losses to residents incurred due to pandemic	The Council of Ministers of the USSR ordered the extension of business trips and vacations with the paid leave to all those forced to be in the quarantine zone .			Benefit payments for families with children under 16, an increase in unemployment benefits, social allowance and volunteer support programs, a moratorium on penalties for housing and communal delinquencies, credit holidays.
Compensation for losses to the economy				Tax deferral for small and medium-sized businesses, support for micro-enterprises, other deferred tax liabilities, a moratorium on bankruptcy, direct financial no-cost support for several industries, a moratorium on business inspections.

The analysis of the various biopolitical approaches of states during the emergence of dangerous infectious diseases with different sources of origin shows that effectively dealing with such threats can only be achieved by adopting an efficient biological security policy. This policy should be based on a combination of sanitary, medical, legal, organizational, technological, resource-based, informational, and other measures capable of addressing complex challenges in all areas and spheres of activity.



Analyzing the experience of preventing the spread of the new coronavirus infection COVID-19 allows for certain conclusions regarding the effectiveness and sufficiency of measures applied by modern states in implementing policies to ensure biological security and sanitary-epidemiological well-being of their populations.

In developing the fundamental principles, objectives, and mechanisms for implementing biopolitics, public authorities need to consider the following factors that significantly influence the state of biological security and the activities of healthcare authorities:

1. The sharp increase in the burden on the entire public healthcare system and, consequently, the reduction in the capacity to provide necessary and timely medical assistance.
2. The prolonged period and global nature of the pandemic complicated by issues of variable symptomatology and the virus's high mutation rate.
3. The absence of unified adequate, effective, universally recognized treatment procedures (protocols), transitioning to a mobilization plan for managing the healthcare system in such emergencies, which involves:

- creating strategic anti-epidemic stocks and reserves of medical equipment, biosecurity equipment, and medications;
- addressing the issue of a universal COVID-19 first aid kit, the distribution of which among the population should help alleviate the burden on stationary medical facilities (World Health Organization, 2020c);
- utilizing accumulated experience in preparing anti-epidemic measures, using models of population protection during the Cold War era in preparation for the use of biological weapons;
- strategic long-term sectoral investments by the state in biological population protection;
- the need for applying new emergency diagnostic technologies for COVID-19 pneumonia and patient condition assessment;
- resolving issues related to the development and use of criteria for the rapid triage of patients based on the severity of their condition and applying appropriate treatment protocols.



4. The global pandemic and scenarios of morbidity in different countries, based on the principle of recurring waves, impose requirements for long-term organization of the healthcare system, taking into account the COVID-19 factor:

- developing projects for new types of medical centers with built-in capabilities for a rapid increase in the number of beds and the provision of medical assistance during a pandemic;
- developing an effective model for organizing outpatient care for COVID-19 patients with uncomplicated disease course.

The study shows that the existing vaccination biopolitics largely have a situational character. An effective vaccination model is one that achieves population immunity. The criterion for the possibility of an effective vaccination model is achieving population immunity in at least three countries.

All this gives grounds to assert that the issue of the civil legal status of vaccinated and unvaccinated citizens requires effective institutional regulation on a permanent basis. However, the possibility of such long-term regulation is conditioned by confirmation of the possibility of achieving population immunity through vaccination.

A critically important tool of biopolitics for protecting citizens' health and well-being, as practice has shown, has been lockdowns. From the perspective of the institutional status of lockdowns, the following questions remain unresolved: a) criteria for the necessity of implementing a lockdown; b) the optimal duration of a lockdown to block the next wave of the epidemic; c) methods of minimizing economic damage during the lockdown period; d) developing and testing scenarios for sectoral implementation of lockdowns to maximize the anti-epidemic effect and minimize economic damage.

The mentioned factors and scientifically grounded proposals should be taken into account when developing proposals for amendments and changes to existing national legislation and preparing documents for strategic planning in the approval of state biopolitics

One of the most important strategic trends of national biopolitics is 'green entrepreneurship'. Within the UN framework, the promising goal of the XXI millennium was determined as the need to ensure the development of civilization through overcoming the environmental crisis and rational use of resources. The focus on maximizing profits may no longer objectively be considered as the main driving force



of development. More and more attention is being paid to social and environmental factors; therefore, from these positions, the strategies of green entrepreneurship within the framework of the national biopolitics become quite relevant. Despite the long history of theoretical and methodological research, such issues as the role of green entrepreneurship in the implementation of the concept of biopolitics, interpretation and legislative definition of its essence and types, identification criteria, economic analysis, etc., require additional clarification.

With that said, the issue of stimulating the development of green entrepreneurship as an activity that combines economic, environmental, and social components acquires additional relevance.

The lack of a universal definition of green entrepreneurship made it necessary to identify the specifics of this phenomenon. To this end, the authors conducted a content analysis of 100 scientific publications indexed by the international Scopus database from 1997 to 2019. Green entrepreneurs have a higher level of development of 'green' values that motivate the use of eco tools in achieving an entrepreneurial goal or formulating a 'green' entrepreneurial idea. These people are more likely to use eco-technologies to implement marketing strategies aimed at making a profit.

At the first stages of stimulating green entrepreneurial activity, an important role is played by governmental control and licensing. This circumstance is of particular significance for Russia since, according to PWC, the 'green' social trend is not very sustainable in this country. Therefore, in the context of the COVID-19 pandemic, ensuring cyber security, changing supply logistics, and optimizing production will become priorities for local enterprises while investments in green technologies will decrease.

As the ideas of a 'green' lifestyle spread in society, the level of personal motivation to implement eco-friendly entrepreneurial ideas increases. It is assumed that implementing the strategic intents of biopolitics will strengthen the motivational component of potential and operating green entrepreneurship.

According to the authors' research, the level of sustainability of the eco-trend in society is the most significant motive for creating and developing projects of green entrepreneurship. The lower the level of acceptance by society of 'green' values, the more important is the regulatory role of the state in the field of green entrepreneurship. Currently, the field of state regulation of green entrepreneurship includes financing of environmental activities, setting of limits for payments and quotas for use of natural





resources, and granting exemption status in the implementation of low-waste and resource-saving industries.

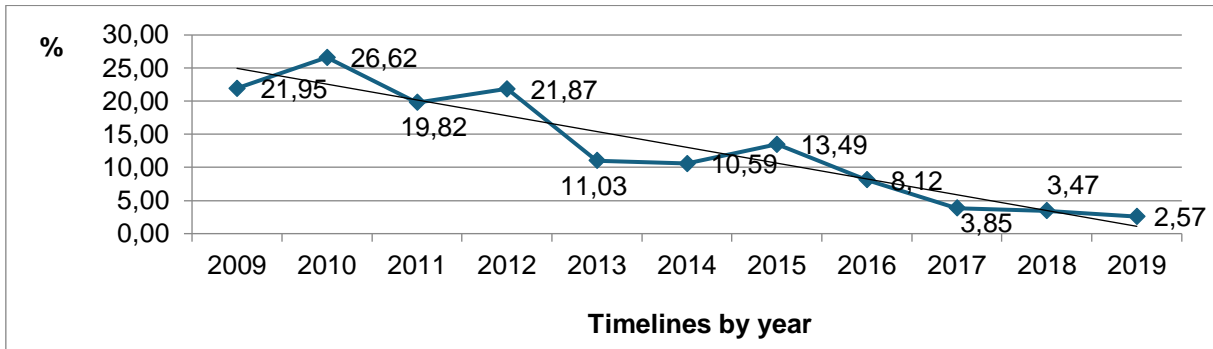


Figure 1. Dynamics of the share of negative impact payments on the environment in the structure of payments for the use of natural resources (consolidated budget of the Russian Federation)
Source: calculated and constructed by the authors according to Rosstat data.

The data in Figure 1 indicate a downward trend in the volume of payments for negative environmental impact (NEI). Their share in the structure of payments for the use of natural resources decreased by 8.5 times over the period from 2009 to 2019. The factors behind these dynamics were the methodological changes in the calculation and procedure for NEI payments introduced in 2016.

It seems like current businesses are not motivated to invest in green technologies. According to the authors' research, for the period from 2015 to 2019, the growth of investments in fixed assets aimed at protecting the environment is quite unstable. Yet, the year 2019 was marked by an increase in investments in fixed assets in general (by 5% compared to 2018) and in certain areas of environmental protection. According to the research, it does not seem possible to assert a correlation between the volumes of NEI payments and the dynamics of 'green' investments in fixed assets.

Thus, the existing trends of state regulation of green entrepreneurship include the financing of environmental activities, setting quotas for the use of natural resources, as well as payments for such use and associated pollution, and granting exemption status to natural resource users when introducing low-waste and resource-saving industries.

The measures aimed at the development of green entrepreneurship and already implemented by the state are applied ex post facto, which is clearly not enough.

Therefore, the progress in this area may get a demandable boost through the development and implementation of a comprehensive state program that not only takes into account the economic, institutional, and social factors of green



entrepreneurship but also creates a sustainable trend to increase the importance of 'green' values.

As the ideas of eco-friendly lifestyle spread in society, the level of personal motivation to implement green entrepreneurial ideas will undoubtedly increase, followed by strengthening of the motivational component of potential and operating green entrepreneurship.

5 STRATEGIC APPROACH TO THE DEVELOPMENT OF NATIONAL BIOPOLITICS

Today, there is an imperative need for a comprehensive strategic approach to the development of national biopolitics. This approach should encompass a thorough study followed by administrative and organizational measures, systematic investments in establishing a network of institutions to address the pandemic threat, and investments in strategic reserves of medicines.

An example of a systematic strategic approach to the development of theoretical and legal foundations of state biopolitics in modern conditions can be seen in Russian legislation, which has normatively defined its goals, principles, tasks, priorities, and implementation mechanisms. The National Security Strategy of the Russian Federation has outlined the objectives of state policy in the field of biological security for the long term (President of the Russian Federation, 2021). The Federal Law of December 30, 2020, No. 492-FZ "On Biological Security in the Russian Federation" (State Duma of the Federal Assembly of the Russian Federation, 2020) served as the theoretical, legal, and methodological basis for the new paradigm of planning and implementing state biopolitics. This law legislatively established the basics of state regulation in the field of biological security in Russia and defines a complex of measures aimed at protecting the population and the environment from the impact of hazardous biological factors, preventing biological threats, and creating and developing a system for monitoring biological risks.

At the legislative level, the state has, for the first time, enshrined principles, key concepts, tasks, powers of public authorities, medical and scientific organizations, citizens' rights, monitoring of biological risks, and mechanisms for international cooperation in ensuring biological security. This law can be considered an effective theoretical and legal basis for developing the fundamentals of state biopolitics.





However, federal legislation on strategic planning in Russia (State Duma of the Federal Assembly of the Russian Federation, 2014) provides for various levels of adoption of strategic planning documents, based on the territorial and sectoral principles of organizing the activities of public authorities. As practice shows, the effectiveness of state policy largely depends on the quality of adopted strategies, concepts, programs, and other strategic planning documents of a sectoral nature and regions. At present, the strategy of Russian biopolitics should be based on a reliable implementation mechanism, the foundation of which consists of strategic planning documents. However, as research has shown, there is no unified comprehensive document defining the strategy for its implementation.

Separate provisions for implementing biopolitics are scattered across numerous targeted programs and strategies that determine state policy in the field of healthcare development (President of the Russian Federation, 2019b), environmental safety (President of the Russian Federation, 2017), and ensuring chemical and biological security (President of the Russian Federation, 2019a), which are implemented by various authorities. Legislation lacks a strategy or concept for ensuring the sanitary and epidemiological well-being of the population—a top priority of biopolitics. All this once again emphasizes the high relevance of systematizing sanitary legislation and developing a unified Concept for Ensuring the Sanitary and Epidemiological Well-being of the Population of the Russian Federation (Sakhno, 2021).

Fundamental research conducted in this direction as part of the scientific project "Development of a Strategic Planning System and Development of Regional Legislation to Ensure Sanitary and Epidemiological Well-being of the Tyumen Region," supported by the Russian Foundation for Basic Research and the Government of the Tyumen Region, aims to create a strategic planning and implementation system for biopolitics in terms of epidemiological population safety at the level of Russian Federation subjects.

It seems that the developing project of the state program for ensuring regional biobsecurity should take into account scientifically substantiated and empirically confirmed conclusions and proposals, including that the measures taken should be proactive and contribute to solving problems in all spheres of activity. For example:

1. Building a nationwide network of medical and social establishments designed to be transformed (if necessary) into infectious diseases hospitals and quarantine centers. With this end in view, at least the so-called resource optimization of healthcare



(which has led to massive hospital closures in Russia) should be discontinued, and the same would be preferential for the social sphere in general. The stated goal also requires the ability to quickly determine the demand for such establishments, develop a territorial scheme for the location and projected equipment of such centers, thuswise systematically filling the links of the network. At the same time, excessive centralization should be avoided, giving priority to decentralized forms of placement.

2. Of particular importance is the generation of strategic reserves of medical and protective equipment, both as part of equipping medical centers and using geographically distributed storage facilities.

3. It is imperative to establish a domestic industry for the production of medical and protective equipment, capable of rapid mobilization for accelerated and large-scale production of necessary medical products. Additionally, there is potential benefit in enhancing the export capacity of this industry.

4. Specific policies should be formulated to promote the development of the pharmaceutical industry:

4.1. Maintain and foster the complete cycle of national production of essential medicines. Encourage advanced development in pharmaceutical manufacturing by creating a conducive environment for research centers within domestic corporations and fostering the integration of AI technologies.

4.2. Develop a system for timely review and adaptation of public procurement practices in response to changes in the list of essential medicines based on ongoing anti-epidemic practices. Establishing a mechanism for swift evaluation and mutual approval of proposed list changes is of paramount importance;

4.3. Introducing universal anti-epidemic first-aid kits into mass production (Cold War-era Soviet military aid kit AI-2 can be considered an analog). That will tremendously reduce the burden on the healthcare system through implementing self-administering medication protocols in patients with mild and moderate disease flow patterns. This measure needs to be supported by an appropriate awareness-raising campaign.

5. Creation and/or funding of research centers and conducting trials in the field of epidemiology and virology is essential. The Russian Institute of Virology currently houses 2,800 strains and over 600 species from 18 families (Institute of Virology named after D.I. Ivanovsky, n.d.). However, it is estimated that there are at least 320,000 types of mammalian viruses (Anthony et al., 2013). Thus, proactive research





is crucial at this stage to identify potential epidemiological threats and develop countermeasures in advance.

6. Further development of technologies for a "contactless society" is also important, eliminating the need for physical interaction between individuals. Modern information technologies offer significant opportunities for remote communication, replacing many interpersonal activities. The widespread availability of the Internet and advancements in cable and wireless communication standards enable a sense of presence and ensure the authenticity of communication. Advancements in augmented reality (AR), virtual reality (VR), and robotics technology provide hope that even tasks requiring physical contact, such as haircuts and medical procedures, can be performed remotely without compromising quality.

Biopolitical measures as a set of legal regimes to counter the ongoing COVID-19 pandemic are already regulating many spheres of society. Therefore, such measures should provide *inter alia* for their stage-by-stage activation upon reaching certain morbidity thresholds. A critical condition for a successful national strategy to counter a pandemic is the balance of anti-epidemic measures conducted by the state authorities. Proclaiming the preservation of public health and ensuring the top survival rate as the main priority of biopolitics, the state may also face the need to protect the processes of economic production and exchange.

6 CONCLUSION

Thus, for the nation-states, biopolitics is becoming a high-demanded paradigm of their activities. The growing struggle for human capital does not allow the authorities to withdraw from solving the problems of essential supply and maintaining the appropriate level of public healthcare. Also, in the context of the COVID-19 pandemic, the efforts of particular countries to contain the spread of the disease and combat its consequences are effective to quite varying degrees.

Despite the experience that modern states have in responding to epidemic threats, the characteristics of the current pandemic (its long duration and wave-like nature) require a paradigm shift in the state's approach to developing compensatory measures. A comprehensive strategic approach to the development of state biopolitics is necessary, including measures of a research nature, administrative and organizational measures, and state investments. It is important to ensure the proactive





nature and phased activation of these measures, the balanced implementation thereof, and the protection of economic development processes.

Theoretical and legal foundations of the new paradigm of planning and implementing state biopolitics acquire important constitutional and legal significance and presuppose the formation of a reliable mechanism for ensuring biological security. This mechanism should include a set of measures aimed at protecting the population and the environment from the impact of hazardous biological factors, preventing biological threats, creating and developing a system for monitoring biological risks, and establishing mobilization and protective mechanisms in all areas of the economy.

At the legislative level, the state should determine the priority and content of principles, basic concepts, tasks, powers of public authorities, medical and scientific organizations, the fundamentals of restricting citizens' rights, monitoring biological risks, and mechanisms of international cooperation in ensuring biological security. Such legislative acts should comply with international legal instruments, including those of the UN, WHO, and other international organizations on issues of ensuring biological security and implementing common state and international biopolitics, as an important basis for overcoming the consequences of the pandemic.

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