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Changes and lessons learned from Covid-19 and the territorial dimension of health: for a new generation of development public policies

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Abstract

The paper analyses the set of revelations associated to COVID-19 and what was learned from it and discusses the position of health as an axis of a new development project. Besides environmental and inequity issues, it also examines processes and impasses related to the State's role and public services; the new productivity and technological dynamics; and the systemic and contextualized view of production and development. Drawing on Celso Furtado's work, which emphasizes the importance of a broad approach and considers the territory as a vital element in the analyses and propositions of policies, this study focuses on health and its production system and on how to ensure its quality and universal access.

Keywords: Covid-19. Health Economic-Industrial Complex (HEIC). Unified Health System (SUS). Regional and Territorial Development. Production and Innovation System in Health.

1. Introduction

This article summarizes and relates the discussion on the territorial dimension of health and the Health Economic-Industrial Complex (HEIC) to the new coronavirus crisis. To begin with, the processes which would take years to materialize occurred in just a few months. The pandemic unveiled and accelerated multidimensional crisis that were already being felt on a global scale. In 2020, United Nations general Secretary-General António Guterres stated that "Covid-19 has been likened to an x-ray, revealing fractures in the fragile skeleton of the societies we have built", exposing "fallacies and falsehoods everywhere". Among these, "the lie that free markets can deliver healthcare for all". Alongside the economic and financial crises and other effects from deregulation and the emphasis on austerity policies experienced globally, there are the consequences of destroying the nature, the ecological crises,¹ and the many environmental catastrophes; the armed conflicts and the constant nuclear threat; the colossal inequality worldwide (Cf.: Piketty, 2013).

We must be wary of "naturalizing" such grave distortions and simply live with them, albeit many of them have exterminated numerous lives, whether they are human or not. They pose a permanent danger to life.² When the Covid-19 pandemic outbreak was announced in December 2019, the world had already been facing these tensions. Several of them were acknowledged by the countries' leaders and international organizations.³

However, History shows that the most effective ways of overcoming crises depend on how fast the posed challenges are understood and how they are tackled. In the second half of 2020, the knowledge about Covid-19 grew with regard to how it is transmitted; contention, healing, and immunization; nature and the pandemic consequences; and the alternatives to overcome it

1 The World Health Organization estimates that air pollution, which is just one aspect of the ecologic crisis, is accountable for 7 million people's deaths. Publication date: May 1st, 2018. Available: https://www.paho.org/bra/index.php?option=com_content&view=article&id=5654:nove-em-cada-dez-pessoas-em-todo-o-mundo-respiram-ar-poluido&Itemid=839. Access: June 12th, 2020.

2 Sousa Santos (2020b) elaborates this argumentation.

3 In order to describe such tensions, Fiori & Nozaki (2020) discuss the two long-term, highly-corrosive international trends: "systemic saturation" and "ethical fragmentation".

and restart development. Consequently, diagnoses on the situation that caused this “instantaneous and unpredictable interruption of everyday life” that changed the world into a “festival of uncertainties” continue to emerge. This has placed humanity “at a crossroads”.⁴

There are many who defend that one of the main sanitary crisis messages has to do with changing quickly and radically the economic, social, and political structure worldwide. Also, the very concept of normality has taken center stage in this debate. In late April 2020, the UN declared that by the end of the pandemic, there will not be a return to the “old normality”, and governments must take action to create a new economy and new jobs. Its “roadmap for economic recovery” outlines the need to overcome the “global difficulties we face” and advance towards creating “resilient, sustainable economies and societies”.

While there are powers that are against change, there are those who: (i) point out the need of abandoning the idea that there is no alternative to the way of life imposed by “hypercapitalism” in which we live; (ii) for them, the pandemic and quarantine showed that when needed, societies will adapt to new ways of living; (iii) emphasize that new ways of living, producing, consuming, reusing, disposing, and coexisting must be explored, especially regarding the relationship with nature. Moreover, new forms of health, pharmacology, and equal rights to life and dignity for all are also proposed and discussed.⁵

Nevertheless, which options can actually become a reality from the social, political, economic, and environmental perspectives? In which contexts and to what extent can these options be conducive to a concrete, successful political action? Will it be made clear that what is considered “normality” was what led to the pandemic and will lead to other ones in the future?

To answer these questions, section 2 focuses on the main changes and lessons learned due to the pandemic; section 3 describes how relevant the territorial dimension of health is for both analytical and political aspects, and

4 See Morin (2020), who states that “the liberalizing, commercial doctrine” applied to health led to the catastrophic advancement of the disease, as well as Harvey (2020) and Mazzucato (2020a).

5 See Humbert (in press), Shiva (2020a) and Sousa Santos (2020b), who highlight the need to understand that there is much more life than the human life and defending the life on the planet as a whole is a condition for continuing the life of humankind.

it relates this discussion with the new coronavirus crisis. The final remarks summarize the main article aim, which is to discuss how urgent it is to place health and other essential public services as an axis for the country's new development project.

2. Changes and lessons learned from Covid-19 from a Global South perspective

The lifestyle created by the industrial capitalism will always be the privilege of a minority. Considering the physical world destruction, the cost of this lifestyle is so high that every attempt to generalize it would inexorably lead to the collapse of the whole civilization. This would risk the humankind species' survival possibilities (Furtado, 1974).

Of the many discussions on the necessary structural changes that emerge in the early 2020s, one must focus on those that will adopt, or at least will not ignore, the perspective of the peripheral countries, which have a high level of inequalities. The perspectives which stand for the need to articulate and put a *cultural and ideological change* into practice that guarantees the continuity of worthy, sustainable human life on the planet.⁶

Such debate has been taking place in the last 50 years. This can be exemplified in the above epigraph, which alludes to an excerpt from Celso Furtado.⁷ Furtado stated that the economic development myth was applied to "mobilize the peripheral peoples and lead them to accept enormous sacrifices to legitimate the destruction of archaic culture ways, to explain and make one understand the need to destroy the physical medium, to justify ways of dependency that reinforce the predatory character of the productivity system" (Furtado, 1974, p. 76). Based on a valuable legacy, this study aims to reflect on the main revelations the current pandemic has made, the processes it has accelerated, and the lessons one can learn from it.

6 Sousa Santos (2020b) provokes us to reflect on the "cruel virus pedagogy" within a "epistemological, cultural, and ideological change" to guarantee the continuity of life on the planet.

7 We would like to honor the centennial of this author's birth in the month and year we finalized this article: July 2020.

An important lesson learned is that the current productive system has been causing the pauperization of people and communities, the deterioration of living conditions globally, and environmental catastrophes able to exterminate several species, including the human one. The lack of sustainability in multidimensional levels is one of the aspects that became most blatant because of the pandemic outbreak.

Epidemics, as well as extreme climate phenomena, are not natural disasters, but anthropogenic ones. The invasion of forest ecosystems, the destruction of several species' habitats and the manipulation of plants and animals causes the emergence of new diseases. Consequently, an "extinction crisis" is a discussion topic. Only when humankind modifies their relationship with nature will it be in condition of experiencing good living and coexisting.⁸

There are environmental questions, inequalities, and numerous dramas and human losses that challenge calculations and predictions. Many other processes and issues have been revealed and accelerated.⁹ In this article, we will summarize those related to the role of the State; public services, especially health, education, and science and technology; the forms and main impacts of the fourth technological revolution; the adoption of a systemic, contextualized view of development.

2.1 The Role of the State

For years, the times of more intense and radical changes require the coordinated action of the State. Its role in social protection and renovation of development possibilities deserves highlight. This is even more relevant now than at other times. However, several authors state that Covid-19 showed how financial, neoliberal capitalism caused the State to respond effectively to the humanity crisis and plan the recommencement of development.

Along these lines, Mazzucato (2020a) and Harvey (2020) argue that the 40 years of financial neoliberalism in the main capitalist countries made the

8 Shiva (2020b) states that the current pandemic is pressing for answers, and we could step forward and "found a new ecological planetary civilization," based on harmony with nature, or else we could live "the fantasy of dominion over nature... until extinction".

9 See Lastres (2020), among others.

population vulnerable and poorly prepared to face a public health crisis, despite the fact that the previous epidemics gave plenty of warnings and taught lessons. Sousa Santos (2020b) stated that both the State and the civil society were managed and assessed by the “market logic” and financial profitability criteria. Also, privatization of collective social assets – health, education, water, sanitation, electricity etc. – is the most visible manifestation of “collective life commodification” priority. To these warnings, one may add the prediction of new pandemics in the future that will probably be more serious. If the neoliberal policies continue to weaken the State, the populations will be increasingly vulnerable and indefensible.

About the discussion on financial capitalism, Lazonic & Hopkins (2020) found that the USA, which had 4.2% of the world population in July 2020, accounted for 26.0% of the confirmed cases of Covid-19 and 23.1% of registered deaths worldwide. They wondered what that picture would have been like if that country’s State had acted effectively when it became clear that the pandemic was serious, in January 2020. In their discussion about “predatory value extraction,” they question if the executives of “companies that repurchase their own stock” were not to be accountable for the [pandemic] tragedy, climate change, and wealth inequality.

The debate about the challenges and new forms and roles of States and accumulation regimes takes center stage. While some predict and fear a “digital police State” as a success model against the pandemic (Cf.: Han, 2020), others criticize “the return of the State fallacy”. The State actions always end up allocating more public resources in big banks and companies than small agents and populations in need.¹⁰ Intermediary suggestions propose to modernize and democratize the State, emphasizing the urgency of reorganizing health and other public services to respond to the difficulties territories face in the short and long terms.¹¹

In all these reflections, many believe that the most relevant pandemic

10 Along these lines, Dardot & Laval (2020) discuss the “pandemic political proof”. They believe that what is being assessed is the ability of political and economic organizations to tackle a global problem linked to the individuals’ interdependency and the ecologic crisis.

11 Mazzucatto (2020b) highlighted the opportunity of using this crisis to change capitalism in order to prevent and manage crises; start an economy based on sustainable, inclusive growth; invest on workers; and guarantee that they be adapted to new technologies and guide research and development activities towards public health aims. Also see Gadelha (2020c).

lessons have to do with the need to establish new and sustainable forms of egalitarian development and contact with nature. Whatever the alternatives are, democracy is the most adequate regime to guarantee liberties and deal with immense challenges. This discussion questions the possibilities of survival of democracy; how to overcome capitalism or transform it (either by weakening it or making it even more antisocial); and how to radically transform the accumulation regime into another that will guarantee that sanitary, social, environmental, economic, and political sustainability requirements be met (Cf.: Harvey, 2020; Dardot; Laval, 2019). In this intense debate, Sousa Santos (2020a) argued that despite the “imposed Northern epistemologies”, always intent at suppressing the Southern richness, several social movements and other achievements expanded the democratic imagination and the “constellation of contemporaneity conceptions” as alternatives to colonial, patriarchal capitalism.

2.2 The importance of public services: health, science, technology, and innovation

The sanitary crisis threw a spotlight on the fatal consequences of ignoring the importance of essential public services such as health, education, science, technology, and innovation (ST&I). The sanitary crisis added them to the current hot topics worldwide again. It was the organizations that pay these services, particularly public health ones, which led actions to mitigate the devastating pandemic effects and investigate disease treatment and prevention. This highlighted how essential they were. The search for knowledge and solutions inspired and mobilized health organizations and ST&I, at a crucial moment of their existences, which was replete with funding cuts, questioning, and even persecution. The importance and quality of their answer resulted in both an increase in their social recognition and a strengthening of their legitimacy.

The pandemic threw a spotlight on the harmful consequences of commodification, privatization, and financialization of activities and organizations focused on health, education, and research, as well as the consequences of reductionism and fragmentation of knowledge and activities.

Alongside these issues, the insufficient way knowledge was taught to us and makes us decontextualize, separate what is inseparable, and reduce what is diverse to an only element. As highlighted by Morin (2020), the most significant pandemic revelation is that everything that seemed separated is connected: "it is tragic that disjunctive, reductive thinking reigns supreme in our civilization and has command both in politics and the economy." This is added to the consequences of the above mentioned "Northern epistemologies," which were imposed, and the knowledge internationally presented as hegemonic. Similarly, Belluzzo & Galípulo (2019) put forward arguments about the "intellectual scarcity within the capitalist abundance". They drew attention to the "intellectual capture" and the poor economic debate, generally reduced to a justifying, mystifying neoliberal ideology.

Finally, the imposition of single health knowledge modes must be questioned.¹² Also, the predominant views and knowledge and politics modes devised within/for the context of central countries generate new inequalities and reinforce old ones; paralyze theoretical efforts; and limit the possibility of creating appropriate alternatives to our development.¹³ On the one hand, one of the hardest challenges posed to peripheral countries and regions must be faced: the hegemonic abstract knowledge imposed as superior and universal, which eschews and impairs other forms of knowledge. On the other hand, the importance of the populations' own contextualized views and knowledge. This must begin by the concept of health and its development aims.

They integrate social, economic, political, institutional, cultural, and environmental dimensions and must be regarded with a view of the future and a focus on meeting to essential populations' well-being needs.

In order to view the Brazilian territory development as a whole and just a part of it, the following aspects must be considered: (i) overcoming the tendency to import concepts, indicators, and non-territorialized models of thinking and guiding development; (ii) demystifying the supposedly neutral,

12 The latter is approached in an already outdated fashion by some when putting the focus on the disease, but not on one's well-being.

13 It is obvious that the theories, concepts, indicators, and imported analytical and normative models are imbued of political choices. Their decontextualized adoption reinforces "invisible exclusions," inequalities, and other distortions because they place agents, activities, and territories "beneath the radar" (Lastres; Cassiolato, 2020).

universal character of public and private national, regional, and local development policies; (iii) contextualizing our knowledge so that we can articulate the scientific and technological potential to the existing knowledge in the vast Brazilian territory.

2.3 Changes in productivity dynamic

Because of the pandemic, the world slowed down and almost paralyzed physically, but not virtually. Digital technologies have been essential to make the economy, politics, and society work, as well as activities in finance, education, society, health, entertainment, production, and trade. The expectations regarding the future of development and the productivity/innovation dynamics are being reassessed. The tragic implications of losing autonomy regarding goods and services production, even the very simple ones, but of strategic relevance, were revealed. The fallacies, distortions, and fragilities found in the globalization processes and international division of labor modes became even more visible and influenced the production and value global chains. The emphasis they received as to education, research, and politics agenda was questioned. Consequently, the most autonomous, self-sufficient, and sustainable ways of local-level production were renewed. That was the case of local productive arrangements (LPAs).

Opportunities in the Industry 4.0, Artificial Intelligence, big data, Internet of Things, and other areas are also being reassessed. There was an exponential increase in their demand worldwide, especially in information technology and communications (ITCs). This was caused by the need to respond to the sanitary safety demand and other pandemic-related needs. Consequently, the discussions on the political, geopolitical, and ethical dimensions of these matters were heated. The warnings on risks, especially for peripheral countries, about the “human-technology interface era” and the intensifying “platform and vigilance capitalism” were reinforced. Their central argument is founded on appropriation, commodification, manipulation, and control of huge amounts of digital data exerted by a few international corporations. These data also comprised human beings’ behaviors, physical

and mental states without their knowledge or consent. When such regulation exists, it usually occurs through big corporations' boards' decisions.¹⁴

Such discussion was already heated when Zuboff (2015) noticed that it was a logic based on the "audacious and illegitimate colonization of the private human experience". Shiva (2018) outlined the challenges in what she defined as New Columbus and "anti-nature and anti-people economy" (massively diffused through "the colonization of America, Africa, and Asia"). She also mentioned the current, more complex colonialism forms (Shiva, 2020a).¹⁵ Consequently, the voices all over the world that claimed for an open debate favoring democracy and human rights were raised in order to (i) better understand such structural changes in the economy, politics, and society, as well as threats to privacy, safety, digital sovereignty, and the increase in inequalities; (ii) define an international regulation system able to protect and guide all countries and territories.

In pandemic times, Shiva (2020a) updated this discussion by pointing out that paper currency was viewed as a virus transmission element. Because of this, digital money use increased, making credit card operators and other related companies' profits soar. Above all, money use data was provided.¹⁶ Also, there was a sharp increase in digital registrations of the many ways in which we interact. This was consolidated during the several months of physical distancing. When she discussed the advances in digitalization and its relationship with life sciences, including food production, the author argued about what she named "digital dictatorship." The richness in biodiversity is in the forests, the crops and food we eat, "the intestinal microbiota, a common thread communicating with the planet and its various species, including human being, through health, not illness" (Shiva, 2020b).

Changing life standards radically has become urgent. It would be catastrophic to continue to insist on those standards previewed by the

14 See Srnicek (2017) and Zuboff (2015), who emphasize how important it is to understand "the new stage of capitalism" and its consequences. One of them would be the weakening national States' roles.

15 In a direct allusion to life being patented by big corporations. As in the case of the "data mining system for body activity" international patent granted to Microsoft in March 2020.

16 She remembers that during quarantine, despite the countless companies having gone bankrupt, financial power and the stock market continued to grow. This seemed to be a blatant display of their disconnection with the economy and the real world. How long such situation can last, and what its effects will be are two questions that are still unanswered.

hegemonic agents and countries. Meanwhile, others explore the possibilities of productivity of ecologic, local polycropping, able to provide healthy food without impoverishing the soil, polluting the water, and harming the biodiversity, as well as strengthening populations' health.¹⁷

Regarding the advances in digitalization, this discussion goes far beyond privacy and illegal trade of our data, and there are grave consequences.¹⁸ It is about a "subliminal manipulation" of values, preferences, expectations, identities, habits, etc. For years, there have been numerous individuals', corporations' and governments' strategic decisions that were surveilled and manipulated. Some of these are the manipulation of congressmen's votes in questionable impeachment lawsuits as well as voters' when choosing politicians in many countries and territories. Also, the creation of states of perplexity and distrust in politics led to a state of apoplexy and coexistence with situations that constantly violate democratic practices. The pandemic, which is taking place at a moment of a heated worldwide fight for the future of digitalization, has heightened the need for understanding these processes better. This will reignite the debates on regulating the cyberspace and the internet; digital, sanitary, and political sovereignty; and personal, national safety.

It is widely claimed that above all, one must replace the "digital dictatorship" and the "era of chronic and repetitive pandemics" with a new "era of common goods." In the latter case, health and public services must be institutionalized. This would include control and access to information as common goods, which (i) should be accessed by everyone, with no prejudice; (ii) should not be privatized, for they are not a State property; (iii) would be controlled and operated by society representative groups, starting by specific area professionals. They should be controlled on international, national, and local levels.¹⁹

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- 17 See Shiva (2000b) and Boff (2020), who mention Pope Francis's speech at a meeting with popular social movements in Santa Cruz de la Sierra, Bolivia, in 2015: "Do not expect anything from above... Be yourselves the protagonists of a new kind of world, a new participative, popular democracy with a solidary economy, an agroecology with sane, transgenics-free products. Be the poets of this new society. Fight for *science* to serve *life*, not the market. Fight for *social justice*, without which there is no *peace*. Finally, take care of *Mother Earth*, without which no project will be possible" (Emphasis added).
- 18 Shoshana Zuboff (2019) criticizes the typical reaction of those who despise the alerts and say they have nothing to hide. She states that the manipulation of our emotional state is at stake, but we are not aware of this.
- 19 See Coriat (2020); Dardot & Laval (2019) for further information.

Evidently, one cannot ignore that such visions and proposals reflect the opportunities and geopolitical disputes according to the contexts where they come from. Thus, one must consider the possibility of effectively contribute to the Brazilian future development project, in line with its territory specificities and its main challenges. As stated by Gadelha (2020b), “We cannot accept an excluding, society-fragmenting new normal [...]. We must restart the construction of a new future that will reconcile economic, social, and environmental development”.

Thus, one must investigate to what extent the Brazilian inequalities, found throughout its territorial dimension, can either be attenuated or exacerbated despite the technological transformations. At the same time, there is an opportunity to continue the conversations that emphasize the Short Circuits, Sustainable and Human Cities, Alternative Currencies, and mapping the locally innovative answers given to face the pandemic and survive, as well as those that aim to start over and establish development on new bases.

As found in many analyses on health, including those conducted by RedeSist across the Brazilian territory and worldwide,²⁰ there are numerous relevant advances with regard to: (i) new forms of developing, using, and diffusing innovations, technologies, equipment, and systems that are appropriate for different contexts; (ii) new forms of organizing production and service provision via public power/community partnerships and solidary economy, as found in the Family Health Program; (iii) new forms of funding health activities via new forms of using the State purchasing power and local currencies. The *SUS* governance structure features numerous interagency committee structures and collegiate bodies, boards, and municipal, state, and federal conferences. It is the seed of an innovative shared management of health as a common asset.

20 Cassiolato & Soares (2015); Botelho *et al.* (2017); Chaves & Apolinário (2017); Matos *et al.* (2019).

2.4 The importance of a systemic, contextualized view of development

The pandemic heightened the importance of overcoming the distortions originated from the tendency to fragment and decontextualize the analyses and forms of promoting economic, social, environmental, and political development. Due to the vast knowledge acquired on the inseparable development aims and their resulting distortions, one must insist that health and economy are not alternatives and refuse the notion that the economy is more important than health.²¹

The pandemic put a spotlight on productivity and political initiatives; as inclusive, appropriate, participative, and cooperative knowledge; quality jobs focused on the well-being of societies as a whole. Ending the pandemic requires creating new thought and action models able to acknowledge, value, and strengthen the solidary, sustainable practices already taking place in Brazil and other countries for years. However, they remain invisible according to the lens of the hegemonic theories and economic models. This is not a utopia, and there are countless initiatives.

The ways we view and understand development must be replaced. The ways that send agents, activities, and entire regions “off the radar” must be replaced with ways that can see and value the countless virtuous transformation experiences on productivity, innovation, and social levels that have been flourishing globally. The sectoral perspectives²² and hierarchy they comprise must be rethought as they continue to undervalue health. This explains the importance of concepts such as HEIC and the productivity/innovation system. They focus on articulating health with a large structure including numerous activities and economic, social, and political

21 Furtado and other Latin-American structuralists have always stated that one must not separate the intrinsic dimensions of development neither analytically, nor normatively. In fact, the Brazilian experience between 2004 and 2015 has deemed this proposition as false. As summarized by Gadelha (2020b), “the pandemic exposes the fallacies in this model, where rights and social welfare did not fit GDP, and social protection was unattainable in Brazil. Those who defend such policy must apologize to the Brazilian people”.

22 This take on the productive sector was not always so poor and fragmented. It lost its meaning in the last decades because of the growing interpenetration of production, which has bringing down the classic boundaries between activities and industrial, agricultural, and service commodities.

agents. Thus, systemic and contextualized policies must be implemented. They must be able to mobilize development in Brazil as a whole, not just parts of it. This must leave behind models that concentrate wealth, richness, citizenship, and access to public services and opportunities.

To face the current crisis, one must surpass outdated, restrictive views of development and its policies. According to Coutinho (2012, p. 11),

facing the challenge of eliminating hunger and extreme poverty and universalizing public services that are essential to life such as education, health, and sustainable urban spaces is now seen as a chance to find innovation and industrial development alternatives. They are necessary to create a robust, lasting domestic market.

The Oswaldo Cruz Foundation president Nísia Lima (2020) has highlighted how essential the socio-spatial dimension is. She stated that both research and public policies cannot ignore the Brazilian reality, which is so complex and rife with inequality.²³ As Milton Santos (2005), one of the greatest Brazilian geographers put it, opportunities and hope come from the territory.

3. The territory as the central element of analyses and creation of policies for development and health

Regarding the debate about the possibilities Brazil has to face the pandemic within a contextualized, integrated view of development, it is in the territory where its economic, social, cultural, environmental, and political-institutional dimensions converge and are clearly positioned as inseparable. Development depends on the existing resources and capacities that are leveraged across territories. Context does matter. It is in this scale that numerous conditions of access to water, housing, sanitation, safety, work,

23 The World Federation of Public Health Associations vice-president Luis Eugenio de Souza stated that “this is a field of knowledge production to understand health and its determining factors, as well as a set of practices to protect and promote health, as well as prevent and treat diseases. It does not see individuals, but the collectivity”. Available: <https://www.abrasco.org.br/site/noticias/>. Access: June 12th, 2020.

education, etc. are viewed. It is in the territory where all contradictions and conflicts manifest. Thus, one cannot ignore that in the same city there could be neighborhoods with sanitary vulnerability conditions that are (more than) ten times higher than others (Gadelha, 2020a).

For years, we have seen more or less fruitful attempts at modifying how we see territories and implement development policies in them. The need to face the pandemic and leverage sustainable development put growing pressures to seize regions not as defined by their geographical administration, but in accordance with their natural configurations and their inhabitants' actions. Contextualizing health research and policies became essential, especially in a country with Brazil's specificities. Regarding the future of Brazilian development and the central role of health and the other public services, one must understand and meet the specific requirements of each territory and foster their potential. In addition, the positive consequences of contextualizing and focusing on the great challenges and national potential and link transformation to productivity dynamism and innovation with inclusion, equality, and social development deserve highlight (Cf.: Gadelha, 2016).

3.1 Territorial view within the national development project

In the design and implementation of national projects, the first advantage of the territorialized view of development to be outlined relates to the need of looking at development as a whole, contextualizing it and integrating perspectives. Contextualizing enables development plans to potentially make a common thread, relate interests and compromises, establish aims and territorialized budgets, articulate public and private actions on numerous themes, scales, and levels.

It is in the territory where everything happens, where the agents are found, and the political actions become realities. Because the territorialized view of development enables greater understanding and experiencing opportunities and challenges for each context, it contributes to strengthen, coordinate, and perfect the implemented policies. The systemic, contextualized approaches enable a better adherence assessment and

complementarity among initiatives. Moreover, territorialized policies have the intrinsic potential to contribute to legitimize national development projects, as well as advance and consolidate democracy.

Therefore, the future of development policies is founded on the following premises: (i) policies that are blind to territorial dimension and treat unequal individuals as equal reinforce exclusion, inequalities, among other distortions; (ii) it does not make sense to implement policies that ignore the gridlocks and the great territorial opportunities in Brazil; (iii) development in Brazil demands integrated, territorialized, and participative policies which expand the understanding and identification of each territorial priority and are able to gain legitimacy.²⁴

The current concepts, regulatory frameworks, conditions, and rules for promoting and financing development must be reviewed and altered. They function as implicit, invisible politics, which by definition, exclude the possibility of supporting the agents, activities, and territories most in need in the country. One must escape the traps placed by the policies that oppose and create a competition among the federation entities and continue the conversation issues such as: autonomy and subordination; decentralization and coordination; territorial development agreements; and cooperation and participation stimulus mechanisms.

Focusing on context helps understand its place and relationship with the world system. Consequently, when health analyses are being conducted the following aspects must be considered: it is key to assess world transformations; diagnose the conditions and potential of all Brazilian regions; articulate experiences and knowledge; and investigate the implications for policies to end vulnerabilities and guarantee universal access to health in the five Brazilian macro-regions.

Regarding the needs and opportunities of new sustainable, social development policies that are environmentally and territorially cohesive, the following expectations are to be considered: (i) in moments of paradigm alternation, the regions that are less compromised with the hegemonic

24 For further information, see Cassiolato *et al.* (2014); Castro *et al.* (2017); Lastres (2019).

socioeconomic and financial standard take the lead in opening up new horizons for development, formulate, and implement new policies to this end; (ii) clearing the “inequality debt” and taking advantage of regional socio-biodiversity must become a stimulus to generate new development routes and leverage productivity and innovation capacities across the Brazilian territory that include social justice and sustainability on political, economic, cultural, and environmental levels.

The challenges inherent to achieving such goals must be dealt with while the opportunities for taking advantage of “development and knowledge reservoirs” come into the spotlight. They are linked to inclusion in the Brazilian innovative and productivity effort made by actors, based on knowledge, and originated in regions and activities that were invisible and marginalized in the policy agendas until recently. The perspectives offered by “development mobilizing LPAs” centered on increasing food production and providing health, education, housing, sanitation, water, and energy services, as well as waste treatment, mobility, citizenship, culture, and other essential public services (Cf.: Lastres *et al.*, 2016; 2020; Castro *et al.*, 2017; Matos *et al.*, 2017).

Amplifying and qualifying these essential services stimulate innovate solutions that generate opportunities for different agents, especially the LPAs centered on locally supplied items such as food, textiles and clothing, furniture, hygiene and cleaning products, as well as goods and services that are more specialized, e.g., medicines, equipment, information technology systems and communications. They are relevant examples to promote sustainable forms of solidary economy and support them through use of federal, state, and municipal governments purchasing power to stimulate productivity and innovation development.

The pandemic also exposed the need to review the focus of world concerns regarding the future of the industry for the survival and safety of life on the planet. It emphasized that all territories must preserve their autonomy in technologies, inputs, goods, and strategic services, and shed new light on productivity systems of health, education, and other public services. Therefore, one must consider the argument that such essential services account for a significant opportunity to implement a systemic policy. It should

be contextualized and adequate to the development needs of the country and its macro-regions. This must be thought about within a framework of inclusion, sustainability, digital safety, and territorial and national cohesion and sovereignty.

3.2 Imperatives in the territorial analysis of health

The advantages and challenges of analyzing health and HEIC in the Brazilian territory from a systemic, contextualized standpoint is key. This must be done by relating all geographical scales to the norms that establish the regionalization of *SUS*. A regionalization profile must be analyzed according to: (i) the determining social factors of health, focusing on the access to essential services and living conditions; (ii) the space occupation characteristics, which is materialized in cities of different sizes, whether they are far or close to one another; (iii) the citizens' participation in the local and regional policies.

Locating health services is a determining factor of its accessibility and people's mobility. Nonetheless, in the cases of access to less-complex services, the mobility need is measured by the basic care problem-solving ability. The distances traveled for each journey must be interpreted according to the transport infrastructure quality, the mobility services offered by the city councils and the Mobile Emergency Care Service (MECS [*SAMU*]). From a health services provision capacity standpoint, the health modules form units that provide basic care and some medium-complexity activities.

Health regions as sets of modules are reference units for a framework of the remaining medium complexity and high complexity activities. There is also the diagnostic/therapeutic support subsystem. These units provision capacity can be investigated according to the availability of professionals of various training backgrounds, physical resources (units, hospital beds, equipment etc.), and medical/hospital equipment, medicines, vaccines, etc.

Assessing the training, research, and technology subsystem must be assessed in connection with the health services provision framework. Qualified, trained professionals with residency and practice in collective health strengthens the cognitive territory, expands the abilities to identify, value,

and incorporate traditional knowledge, and builds the foundation to inform protocols and define technological options adherent to local and regional specificities.

Finally, strengthening service provision structures in the territory leverages a potential demand for various types of inputs, products, systems, and equipment. The existing productivity structures in the territory must be identified. The segments that can be articulated and stimulated on local, state, and macro-regional scales must be found. Proximity economies, systemic relationships and short circuits can be mobilized as conceptual reference, as well as the purchasing power of the government as a crucial stimulus factor.

To sum up, tackling health from a territorial perspective requires an analytical articulation of the following aspects: (i) health social determiners; (ii) territory occupation profiles and city networks; (iii) traveling required for accessing health services; (iv) services provision capacity and health system problem-solving ability; (v) professional training and strengthening the cognitive territory; (vi) HEIC's various productivity segments; (vii) mediation, conciliation, and policy implementation instances.

All these aspects must be inter-related and analyzed on the following territorial scales: local (health modules); micro/meso-regional (health regions); state; and macro-regional. However, the health regions deserve special highlight. As far as they are defined as per intercity proximity parameters, along with social, economic, and cultural identities, they can provide an idea of territory as a socially constructed structure with a shared history. As discussed above, treating the health policy within a common good logic puts the spotlight on a geographic outlook where its actors share identities and express effective possibilities to exercise their political participation rights. This is the place where articulations with numerous goods and health services productivity segments can be strengthened.

3.3 Impacts and macro-regional responses to Covid-19

The Brazilian macro-regions, historically characterized by vast heterogeneity, were faced with inconsistent answers and denial of scientific

reasoning by institutions and key relevance agents during the pandemic. This caused lack of actions and block the awaited national coordination. It was clear that even the response to the pandemic regional specificities required coordination and articulation on federal level. The tragic results were the high number of deaths and contamination rates.

On the macro-regional and territorial levels, there were multiple subnational entity actions that were incredibly innovative from a public crisis management standpoint. State and municipal governments, universities, among others, created crisis internal committees in order to act in a contextualized way and backed by scientists. Several initiatives stimulated cooperation among social, productive, and scientific capacities, regionally and locally. This enabled a quick productive reconversion effort and presented opportunities of territorializing the health system and HEIC. All of this happened in a context of new relationships between the knowledge infrastructure, society, companies, communities, and people. There were relevant lessons learned and expectations for these efforts to continue steadily.

On the other hand, the pandemic exposed the political, financial, and legal limitations of acting in subnational spaces. It outlined the questionable public-private and philanthropic relationships that form *SUS*. It also exposed how irrational the “economic rationality” is and the concept of “efficiency” that makes available the global offer of health products and inputs in distant nations, even those that are technologically simple and could be provided by productivity systems regionally and locally. It showed that decentralization of health accountabilities opposes answer conditions on a subnational. The available resources are widely different for entities to face the pressure on the provision (hospital capacity, equipment availability, beds and intensive care units (ICUs), personal protective equipment (PPEs), and tests) beyond the worsening due to demand, unemployment, bankruptcies, labor precarity, increased hunger, and lack of guidance regarding waste disposal and treatment. To sum up, the socioeconomic and environmental fragilities were added to the instabilities and pressures of political institutions amidst the “perfect storm” that hit Brazil and its macro-regions.

The pandemic widened the crucial importance of *SUS* and its productive-

innovative system for the Brazilian population's health and showed how essential this incomparable treasure is in the macro-regions. Health was top of the agenda as a key element to foster well-being and quality of life, the economy, development, and ST&I because of the pandemic. A new rationality, based on the right to health, wealth, and social distancing emerged and exposed the false duality between health and the economy.

In fact, training the national health system to treat the pandemic and other epidemics such as yellow fever, dengue fever, zika and chikungunya were highly valued and acknowledged as unique. To answer some questions on its relevance, it was made clear that the accumulated experiences and learning throughout the year were indeed necessary to fight the epidemic. This is a policy model founded on a systemic and contextualized view of development capable of making headway towards an integrated, cohesive development, centered on health.

The pandemic also shed light on the leading role of the Brazilian subnational federative entities, whose actions have been essential to face the crisis and minimize the damages of the poor national coordination. Several challenges are on the agenda of these initiatives, such as: operation of a regionalized health system within a municipal mobility-restricted context; short circuits and provision of basic products for the health system; living conditions, housing, mobility, and their impacts on contagion risk; indigenous' lives, whose peoples are in different degrees of integration and isolations; use of traditional knowledge and its supplementary mobilization to conventional treatment.

States and municipalities play a key role in conducting a national health policy that is spatially decentralized and nationally coordinated. This correlation of forces heightens how urgent it is to review Brazil's Federative Pact and how its entities are funded. As explained by Tania Bacelar de Araújo (2020), if the tax system is not changed, the federal entities will not be changed; a new, decentralized Federative Pact and a tax reform able to execute a project for the future is key to structural change. The *SUS* model is strengthened and acknowledged as a fantastic Brazilian innovation. It puts into practice the coordinated decentralization proposal, which is essential for

a country of Brazil's dimensions and diversity.²⁵

The analysis on the dramatic technological changes and the world trends in health reinforce how important it is to explore the following aspect on: (i) differences and convergences of the already implemented system in Brazil, with the advantages of adopting integrated, appropriate, and universal perspectives focused on common features; (ii) the possibilities of our advancing in providing goods, technologies, and services that are vital to health in the Brazilian territories with the aim of achieving autonomy, mobilizing and establishing production and innovation training across the country. This will renew development opportunities. Once leveraged by the health system, the information and communication subsystem will be able to realize its full potential and strengthen the safety and sovereignty principles, digitally and nationally.²⁶

The investigation on these opportunities must be advanced. It must focus on the health productivity/innovation system and HEIC in the five Brazilian macro-regions and investigate its fragilities and potential, as well as support requirements.

4. Final Remarks

The overall reflections as presented above lead to a set of questions to be further examined. The pandemic heightened the need to articulate and put a cultural and ideological change into practice that guarantees the continuity of worthy, sustainable human life on the planet. This would require the creation of a new critical sense and attribute it to (i) the usual production, consumption, waste, and the human relationships with themselves and the nature; (ii) wealth concentration, exclusion, and discrimination, especially racial and sexual; (iii) guarantee universal access to health, public education

25 Moreover, the legislation controlling purchases and service hiring by the public administration must be changed to enable municipalities and state governments to mobilize the productivity capacities of their territories and maintain a close link with transparency and social control parameters.

26 Furthermore, the national technological sector must be mobilized to adjust the degree of municipal and state health autonomy according to the need to consolidate an integrated information system that will guarantee people's data security.

and its protection as common assets along with other essential services, potable water, fresh air, land, and forests (vital living spaces for several peoples and species); (iv) the sustainability and civilization ethics of current living standards; (v) the future of living, well-being, and development.

The central question discussed in this article is how to answer the challenges of universal access to quality health and how to convert these challenges into a motor to restart growth on new bases with an innovative, socially inclusive development process that can explore the Brazilian specificities and its potential. The possibility of health becoming one of the main aspects to start a new long-term development project for Brazil is related to its close relationship with perspectives and quality of life, new technologies and the country's central position among the "productivity and innovative systems aimed at the future".

As seen above, good health and well-being depend on access to public services productivity systems like sanitation, water, waste treatment, housing, education, information, energy, and others. Even though these productivity systems have a place in the world's future development agendas, in an unequal country with a large deficit in these services provision, the solution to this problem can actually become one of the key factors for a new development project.

Continuing the conversation on the outreach and limits of this factor is essential. This will demand an innovative, systemic, contextualized outlook that can overcome the traditional sectoral perspective constraints. Among the other advantages described above, supporting essential services can leverage productivity and innovative capacities for a wide range of activities, agents, and territories.

Meeting sustainability requirements and adequacy to needs and local potential will require development and production of new materials, machines, equipment, software, energy solutions, various goods, and services. This will also require new processes and ways of supporting, funding, institution articulation, and coordination. These are large-scale demands, whose public purchases systems have a great induction power. They multiply high investments in several chains, complexes and productivity systems and can propagate productivity and innovative development all

across the country.

It is in the specific case discussed herein – health productivity system and HEIC²⁷ – that the advancements and convergence of ICTs, digitalization, biotechnology, new materials, nanotechnology, and data science are noticed more significantly. The impacts of these technological changes in the possibilities of maintaining guarantee to universal access to health services must be analyzed in order to support the sustainability of SUS. This must be done on the foundations of a new development project.

This is a complex question because the effect of these changes on HEIC are contradictory. On the one hand, intensifying the use of drugs, equipment, and increasingly more sophisticated and expensive procedures could cause difficulties to fund and maintain SUS. This would also strengthen the tendency of centering input innovation and production in the more advanced countries and regions. On the other hand, disruptive solutions in biotechnology, ICTs and new materials, as well as environmental and social technologies, demand adequacy. They are also windows of opportunity for peripheral regions to improve in both their public health systems and productivity/innovative development.

The actions to be taken to be effective in this conversation involve the refusal to the healing, overmedication standpoint. A multidimensional approach to health as well-being must be adopted. It must focus on prevention and search for technological solutions appropriate to the Brazilian reality.

The quick and creative response given by the Brazilian research centers and companies to the pandemic challenges with regard to devising and manufacturing diagnostic kits, vaccines, materials, and tools revealed a potential that must be better understood. Brazil has great potential in innovation and production in the biotechnology field, especially in solutions in health, food production, and the bioindustry.

The conversation on the advancements of digitalization and use of ICTs to guide, organize, and promote access to services, train agents, manage and

27 The health services and their main input supplier segments (medicines, tools, and materials) compose this complex.

coordinate the system must receive special attention. Another important question is how to mobilize the Brazilian talent in hardware, software, platforms, and data science so as to find innovative solutions that are inexpensive and have simple, context-adequate interfaces, from the SUS base up. Achieving degrees of autonomy and digital sovereignty is vital for the health goods and services production system across Brazil and many other equally strategic systems.

Health may be the passport to Brazil's digitalization sovereignty. This is a great opportunity to make headway for a better world where there is less inequality and more respect to life, the environment, and universal human rights. This world would be less dependent, less vulnerable, yet more sovereign and secure.

Finally, a new generation of public policies must be devised to guarantee human life and the other species' that must be based on a democratic, systemic, contextualized, and long-term perspective of development. This and other possibilities should be investigated from a national project standpoint that will fully explore the potential of health and other essential public services provided in Brazil. Legitimacy, territorial cohesion, and sustainability on socioenvironmental, political, and economic levels are the keywords of this desired future.

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