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COVID-19 PANDEMIC: POLITICAL, ECONOMIC, SOCIAL AND TOURIST CONSEQUENCES WITH REGARD TO ENDOGENOUS KNOWLEDGE IN THE DEMOCRATIC REPUBLIC OF CONGO

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Abstract: This article assesses the impact of the coronavirus disease 2019 (Covid-19) pandemic on various aspects of daily life of local populations in the city of Kikwit, Democratic Republic of Congo. This pandemic is caused by a new strain of coronavirus, SARS-CoV-2. Infected people may experience fever, cough, and respiratory discomfort that can develop, in the most severe cases, into fatal acute respiratory distress, resulting in significant disruptions in the world of work. In addition to the evolution of the pandemic in the country, the study assesses how this pandemic has influenced the political, economic, social, and tourism aspects of the Democratic Republic of Congo.

I. INTRODUCTION

From its origins, this virus emerged in November 2019 in the city of Wuhan, China. After reaching other Asian countries, Iran and then Europe, the pandemic reached the African continent in February 2020, where the first case was recorded in Egypt. Nine other countries were subsequently affected. The World Health Organization (WHO) expressed on February 27, through its Director General Tedros Adhanom Ghebreyesus, its "greatest concern" for Africa, and particularly sub-Saharan Africa, highlighting the weakness of the health systems of most countries in this region. In the Democratic Republic of Congo (DRC) since 2018, the country has been fighting the worst Ebola epidemic in its history, described as a "health emergency of international concern" by the WHO, with the focus of tension being the city of Kikwit in Kwilu province, one of the 26 provinces in the country. However, at the beginning of March 2020 (the period when the presence of the coronavirus began to be documented in the territory), new cases of Ebola were detected becoming increasingly rare, and the official announcement of the end of the epidemic was envisaged by the authorities for April 12, 2020 []. The

DRC has also been fighting a major measles epidemic for more than a year, with the WHO having recorded 335,000 children infected, including 6,300 deaths, particularly in the north of the country. On March 7, while there were still no confirmed cases of Covid-19, the Minister of Health announced that all travelers from Italy, France, China, Germany, Iraq and Iran would have to be quarantined at home, and that those showing symptoms would be isolated and taken care of by the ministry. Subsequently, a state of health emergency was declared on March 24 by the President of the Republic. The lockdown of the commune of La Gombe, the administrative and commercial center of Kinshasa, has been decided for two weeks starting April 6, 2020. And virologist Jean-Jacques Muyembe, known for his fight against the Ebola virus, is leading the response unit against this new coronavirus.

II. THEORICAL FRAMEWORK

Two scientific theories serve as the basis for this study. Thomas Malthus's theory of the principle of population and Pierre-Joseph Proudhon's (1849) theory of population restriction. Argues that the population increases geometrically while food resources increase arithmetically, which leads to overpopulation and crises (famines, epidemics) if the birth rate is not controlled by preventive brakes (such as late marriage and chastity) or by positive brakes (wars, famines, diseases). Malthusianism is thus the doctrine that advocates population restriction to control resources. Malthus's principle supports geometric population growth, arithmetic growth of resources, growing imbalance and Brakes on growth. According to him, the population, without brakes, tends to grow following a geometric progression (2, 4, 8, 16, 32, etc.); the means of subsistence (food) increase much more slowly, following an arithmetic progression (1, 2, 3, 4, 5, etc.); the gap between population increase and food production widens over time,



making the survival of the population increasingly difficult. He reassures that to avoid this catastrophe, Malthus identifies two types of brakes that act on the population; events that increase mortality, such as wars, famines and epidemics as positive brakes and practices that limit birth rates, including late marriage and abstinence as preventive brakes. However, the theory has been criticized for its vision deemed "inhuman" by thinkers such as Karl Marx and Friedrich Engels, who considered overpopulation as a product of history and social organization, and not a universal law.

III. MATERIAL AND METHODOLOGY

Focusing on the world of work in the city of Kikwit, this study of the influences of the pandemic in the workplace in the city of Kikwit in the Democratic Republic of Congo, used a final sample of 38 statistical units at random and as employees in 12 different companies operating in the city of Kikwit including, among others, ECOBANK, the Higher Institute of Kikwit, VODACOM mobile telephony, the University of Kikwit, and the pharmaceutical chain PROMED. Inductive and descriptive methods associated with documentary, interview and observation techniques served as the methodological architecture of this study.

IV. FINDINGS AND DISCUSSION

Chronological milestones of the epidemic

It all began on March 10, 2020, with the Minister of Health's press conference announcing the identification of the first case of Covid-19 in the DRC in Kinshasa by the National Institute for Biomedical Research (INRB). Initially reported as a Belgian, the Minister of Health, Eteni Longondo, announced at a press conference that the case was in fact a 52-year-old Congolese man returning from France. The DRC thus became the 11th African country to be affected by this pandemic. New measures were then taken, and each person traveling by plane must now complete an information sheet before being allowed to disembark. On March 17, when the DRC had three cases of Covid-19 in Kinshasa, an extraordinary Council of Ministers was held[, at the end of which the President of the Republic appointed virologist Jean-Jacques Muyembe, who is director of the INRB and already known for his fight against the Ebola virus, to lead the response against the coronavirus]. On March 19, Félix Tshisekedi announced the suspension of all flights from high-risk countries, and the closure of all schools and universities in the country[. On March 21, when the DRC had 23 cases of Covid-19, all concentrated in the capital, the Minister of Health reported the first death linked to this disease, which occurred in Kinshasa. Although he did not reveal the name of the victim, several media outlets believe that it was the chief of staff of the Minister of the Economy, Dédié Bandubola. On March 22, two suspected cases were reported among

passengers on a Congo Airways flight arriving in Lubumbashi from Kinshasa. The governor of Haut-Katanga province, Jacques Kyabula Katwe, then declared a complete lockdown for two days. On March 24, the Ministry of Health announced a first recovery from 45 cases and two deaths.

State of emergency declared

Masks and disinfectants in Kinshasa.

The establishment of the state of emergency was accompanied by mandatory mask wearing and the use of disinfectants. On the evening of March 24, 2020, the President of the Republic declared a state of emergency during a televised address, as well as a lockdown of the capital, Kinshasa. Originally scheduled to last three weeks starting on March 28, the lockdown was ultimately canceled. On March 26, while the virus had so far remained in the wealthy city center of the capital, Jean-Jacques Muyembe announced that a first case had been identified in the province of North Kivu. The Governor of the province denied this claim and indicated that a case had been discovered in the province of Ituri, which would be confirmed on March 27 by the health authorities. On March 29, two first cases were recorded in Bukavu in South Kivu. Professor Denis Mukwege was put in charge of the response to the coronavirus in this province[. On March 31, a first case was finally confirmed in North Kivu, in the city of Goma. On April 3, the health authorities announced that they had also discovered a first case in Beni (North Kivu), a hotspot of the Ebola epidemic. On the same day, Goma recorded two new cases, including a patient who had returned from Kinshasa. The North Kivu authorities then decided to isolate Goma, Beni, and the town of Butembo from the rest of North Kivu province for two weeks starting on April 6. On April 2, 2020, the governor of Kinshasa announced new containment measures for the capital, which ultimately only affected the commune of La Gombe, the administrative and commercial center of Kinshasa, for two weeks starting on April 6. On April 3, the first case was recorded in Idiofa in Kwilu, which became the fifth province to be affected by the virus. On April 15, the Committee responsible for the response to Covid-19 announced that the epidemic had entered an exponential phase in Kinshasa, and that the peak would probably be reached during the first two weeks of May 2020. It also warned of a potential "significant influx of patients into health facilities which will likely be overwhelmed" and said it "fears the worst" if preparation efforts are not completed in time. The extension of the state of health emergency for two additional weeks was voted on April 23 by Parliament [. On April 24, the first case was recorded in Lubumbashi, in the province of Haut-Katanga [. As of July 24, 2020 [27], the Ministry of Health recorded 8,801 confirmed cases, including 204 deaths and 5,305 recoveries in the DRC. Most cases are concentrated in the capital Kinshasa, with other



cases documented in the provinces of Ituri, Kivu, North Kivu, South Kivu, Haut-Katanga, Haut-Lomami, and Equator.

Fighting the Virus Properly

Given the country's health system, which has been affected by an Ebola epidemic in Kivu since 2018, the Democratic Republic of Congo (DRC) appears better prepared than before to deal with new epidemics, particularly in the east of the country, where new practices have been implemented: temperature tests at borders, reporting of suspected cases by health centers, awareness-raising in local communities, training of health personnel, etc. A new laboratory with state-of-the-art infrastructure to manage epidemics was also inaugurated at the end of February 2020: located within the National Institute for Biomedical Research (INRB) in Kinshasa, it was funded by Japan. [28] The INRB will also be the structure that will carry out most of the tests to identify patients with the new coronavirus in the DRC. However, while the first cases have been identified in Kinshasa since March 10, 2020, virologist Jean-Jacques Muyembe (director of the INRB and co-discoverer of the Ebola virus in 1976) believes, in an interview with the French newspaper *Le Monde* published on March 13, that the DRC is not sufficiently equipped to deal with this pandemic, despite its preparation due to Ebola: "Honestly, we are not ready. The population in the east of the country has been confronted with Ebola, they understood the cost in human lives and the economic cost. But in the west and in Kinshasa, Ebola seems far away, so we have to do everything again, and quickly. The virus has entered Kinshasa, we must not let it leave." He also estimates that 10% of the population could be infected, and that the health system is failing: "Our care and resuscitation capacities are insufficient. And I am even more worried about the medical staff, who are not adequately equipped" [On April 10, three days before the Ebola epidemic was officially declared over, a new death linked to this disease was recorded in the Beni territory, marking a resurgence of this epidemic]. On April 15, the Committee responsible for the response to Covid-19 warned of a potential overflow of health facilities in the coming weeks due to the large influx of patients, with the epidemic expected to accelerate until reaching its peak at the beginning of May[. According to gynecologist and Nobel Peace Prize winner Denis Mukwege, who heads the Covid-19 response unit in the province of South Kivu, the youth of the Congolese population would however be an asset against the disease, with most fatal complications mainly affecting people over the age of 60.

Barriers gestures

Distribution of hydro alcoholic gel before entering the classroom (March 2021). Female soldier of the South African contingent of MONUSCO washing her hands to avoid spreading the virus (barrier gestures) on March 29,

2020 in Beni (North Kivu). To promote "barrier gestures" and hygiene measures to slow the spread of the virus, the government is printing posters in French to raise awareness among the population of Kinshasa (epicenter of the epidemic). However, since many Kinshasa residents do not speak this language, advice brochures in Lingala (local language) are also distributed to the population. Barrier gestures are, however, poorly applied, as many residents do not have running water (impossibility of washing their hands regularly) or do not respect the minimum distance of 1 meter between people (physical distancing), particularly in crowded markets. On March 27, 2020, the Ministry of Health launched a television channel to raise public awareness, "MINSANTE TV," as well as an information website, stopcoronavirus.cd. On April 15, 2020, the Committee responsible for the response to Covid-19 warned of the significant relaxation of physical distancing measures in Kinshasa, and feared "intense human-to-human transmission of the disease." It recommended the mandatory wearing of masks in public places, particularly on public transport and in markets. Gynecologist and Nobel Peace Prize winner Denis Mukwege, who heads the Covid-19 response unit in South Kivu province, also recommended this measure. On April 18, the Prime Minister's office announced the obligation to wear masks in the capital.

Treatment

Virologist Jean-Jacques Muyembe, appointed to lead the response to the epidemic in the DRC. On March 24, 2020, virologist Jean-Jacques Muyembe, who is leading the response to the coronavirus, announced that he had chosen to use chloroquine to treat patients. This antimalarial drug could, according to some international studies, be useful against Covid-19, but is not unanimously accepted by the scientific community, as its actual effectiveness has been questioned. The same day, in his televised address declaring a state of emergency, President Félix Tshisekedi encouraged the production of chloroquine "in industrial quantities." On April 3, Jean-Jacques Muyembe sparked controversy by announcing that the DRC had applied to test a new vaccine against Covid-19, with some Congolese refusing to be considered "guinea pigs." Faced with criticism, the doctor tried to reassure the population the next day, stating that the vaccine would first be tested in the United States, China or Europe before being tested in the DRC. In early April 2020, the president's special advisor, Vidiye Tshimanga, who tested "positive" and then recovered from Covid-19, denounced in his testimony the stigmatization of the sick and warned that many infected Congolese were hiding out of shame at having caught the virus. On April 6, the Minister of Health, Eteni Longondo, announced that he had received 1 million chloroquine tablets, which would be given free of charge to patients.



Trials of Artemisia Annua and Local Herbal Medicines

In May 2020, the President of the DRC, expressed great interest in Dr. JérômeMunyangi'sresearch[38] on annual mugwort and Covid-19[39]. He invited JérômeMunyangi to return to the country to coordinate this research and conduct the urgently needed clinical trials. On June 15, 2020, the DRC's National Health Research Ethics Committee (CNES) authorized researcher JérômeMunyangi to conduct a clinical trial of his traditional remedy against the Coronavirus based on Artemisia annua at Monkole Hospital in Kinshasa for the period from June 15, 2020, to June 14, 2021. In November 2020, the "Doctor JérômeMunyangi Foundation", engaged in the creation of a Research Center, thanks to funding from the Industry Promotion Fund (FPI), announced the planting of artemisia on an area of 60 hectares on National Road No. 1 in Menkao, in the commune of Maluku. On December 15, 2020, the Luozi Pharmaceutical Research Center (CRPL) announced the approval of Manacovid to treat Covid-19 in the Democratic Republic of Congo. The results of the trials were observed by three teams of doctors on a total of 300 cases tested positive with symptoms of Covid-19. All these cases tested negative with disappearance of symptoms and good tolerance, within five days of treatment, i.e. 100% recovery. Manacovid, a "product based on local medicinal plants" rich in quercetin, was developed and patented in March 2020 by the Congolese pharmacist researcher, Etienne Flaubert BatanguMpesa, at the head of a team of pharmacist researchers. The product was validated on January 11, 2021, by the Minister of Public Health. Manacovid is marketed for 110 dollars per bottle[. On Thursday, January 14, 2021, JérômeMunyangi presented to the Director General of the FPI, Patrice KitebiKibolMvul, ArtiCovid, a 10-day protocol to fight against Covid-19, a project financed by the FPI, by creating a formula based on Artemisia annua, intended to fight against malaria and coronavirus. "The urgency pushed us to research the appropriate formula that meets all the pharmacological requirements for covid-19." It is awaiting "the completion of ongoing clinical trials, before its possible approval by the country's health authority."

Lockdowns

Boulevard du 30 Juin deserted in Gombe (Kinshasa) during the lockdown (April 6). Lockdown in the capitalOn March 23, with around forty cases in the country, all concentrated in the capital, MPs Claudel Lubaya, Patrick Muyaya, JuvénalMunubo, and Senator Francine Muyumba called for Kinshasa to be quarantined. On March 24, during his televised address declaring a state of emergency, President Félix Tshisekedi announced the isolation of the capital. On March 26, the governor of Kinshasa province, GentinyNgobila, specified the terms of the lockdown. It would be an "intermittent total lockdown" starting on March 28, alternating between four days of total lockdown and two days where travel to obtain supplies would be authorized,

rotating for three weeks. The Struggle for Change (Lucha) movement said it feared a "humanitarian catastrophe or riots," as these measures risked lowering the incomes of many residents and putting some at risk of starvation. Panic gripped residents, and supermarkets were stormed with queues hundreds of meters long. On March 27, the governor of Kinshasa finally decided to postpone the lockdown of the capital to an unspecified date, citing the problem of soaring prices for basic necessities and the risk of insecurity. This mess was notably criticized by Cardinal Ambongo, who declared: "This situation is simply unbearable. Let's not gamble with the lives of our people."

On April 2, the governor of Kinshasa announced new lockdown measures for the capital, which ultimately only affected the commune of La Gombe, Kinshasa's administrative and commercial center, for two weeks starting April 6. These new measures were contested, and several personalities and organizations called for a total lockdown of Kinshasa to slow the spread of the virus, such as the Struggle for Change (Lucha) movement and the former Minister of Health, Félix KabangeNumbi. Supermarkets, banks, and gas stations in La Gombe were closed from April 6. Access to the commune was filtered by police: a pass, as well as handwashing and temperature readings were required to pass through the checkpoints. The homeless and street children, however, moved freely. On April 15, the Committee responsible for the response to Covid-19 advised extending the lockdown to the neighboring municipalities of La Gombe, where a relaxation in compliance with barrier gestures (and in particular physical distancing) was observed, raising fears of a rapid spread of the virus[.Other LockdownsA two-day lockdown was declared on March 22 in Haut-Katanga province by Governor Jacques KyabulaKatwe, following the announcement of two suspected cases (which ultimately tested negative) among passengers on a Congo Airways flight arriving in Lubumbashi from Kinshasa. Beginning on April 6, North Kivu authorities decided to isolate Goma, Beni, and the city of Butembo from the rest of the province for two weeks. On April 18, gynecologist and Nobel Peace Prize winner Denis Mukwege, who heads the COVID-19 response unit in South Kivu province, advocated for a partial lockdown of only those over 60 (more exposed to fatal complications from the disease), highlighting the difficulty of implementing a widespread lockdown of the population, the vast majority of whom live precariously in substandard housing. Media ContributionOn April 28, 2020, the Minister of Health of the Democratic Republic of Congo, Dr. Eteni Longondo, inaugurated the radio station Minsanté FM, intended to relay reliable information on the Covid-19 pandemic.



Consequences

Political

On March 15, 2020, the two chambers of the Congolese Parliament (National Assembly and Senate) issued a joint statement suspending their activities from March 18 to April 5 due to the pandemic. The government, for its part, was directly affected by the coronavirus. During the extraordinary Council of Ministers on March 17, Minister of the Economy Acacia Bandubola began to show symptoms. She and her husband subsequently tested positive for Covid-19, having been infected by the minister's chief of staff and brother, Dédié Bandubola, who had returned from a trip to France. [56] He died a few days later, becoming the first Congolese to succumb to Covid-19. Several other ministers were tested after this meeting, but only the Minister of Justice, Célestin Tunda Ya Kasende, made public the "negative" nature of his test. Several other figures close to President Félix Tshisekedi tested positive, some of whom even died, including his uncle and head of his civil cabinet, Bishop Gérard Mulumba Kalemba [24], and Jean-Joseph Mukendiwa Mulumba, president of the bar and former political advisor to the late Étienne Tshisekedi (the president's father) [1]. On April 3, Félix Kabange Numbi Mukwampa, former Minister of Health and member of the Common Front for Congo (coalition of former President Joseph Kabila), criticized the government's decision to confine only the commune of La Gombe, and not all of Kinshasa. He also believes that the government has not been able to assist the most deprived populations, and says he fears their reaction if the number of deaths increases [1]. A political crisis is also brewing within the ruling coalition: National Assembly President Jeannine Mabunda Lioko and Senate President Alexis Thambwe Mwamba, both close to former President Joseph Kabila, accuse Félix Tshisekedi of having declared a state of health emergency without prior authorization from Parliament, and want to organize a Congress to "correct this irregularity." The presidential camp refuses, and the Constitutional Court ultimately rules in favor of the head of state. A vote extending the state of health emergency for two weeks is held on April 23, ending the political crisis.

Economic

The economic impact of the health crisis in the DRC will likely be severe, according to the International Monetary Fund (IMF), which expects a recession in 2020, with a 2.2% decline in Congolese GDP. On April 22, the financial organization announced that it had decided to release \$363.27 million to assist the DRC under its Rapid Credit Facility (RCF) [1]. On April 27, Prime Minister Sylvestre Ilunga announced that the \$11 billion budget planned for 2020 could not be implemented due to the pandemic. The economic context had indeed been severely disrupted: the DRC, with its extroverted economy, was highly dependent on its trade with the rest of the world, and

"revenues are not keeping up, while expenditures are still high." This budget, passed at the end of 2019, had already been criticized at the time by the IMF, which found it "unrealistic."

Furthermore, containment measures are difficult to implement economically, particularly in Kinshasa, where a large part of the population lives in precarious conditions. The Struggle for Change (Lucha) movement said it feared a "humanitarian catastrophe or riots" when the authorities announced the lockdown of the capital at the end of March. This threatens to reduce the incomes of many residents and expose some to the risk of dying of hunger, because an inability to go out means an inability to work and earn money to feed themselves. The barrier measures and the lockdown thus jeopardize the informal sector, based on human mobility, which provides jobs to more than 77% of Congolese people and allows many households to live from day to day.

Social

An explosion in cases of domestic violence against women was observed during the lockdown, with women forced to remain indoors all day with their abuser. An increase in divorces was also observed in Kinshasa. The rise in the unemployment rate, already observed in Kinshasa before the epidemic, intensified, and a resurgence of acts of banditry (particularly armed robberies) was observed in the capital during the lockdown. Following the closure of schools, a television station created in 2019 by the Ministry of Education, "Educ-TV," offered educational programs to address the situation. On April 26, 2020, the government launched radio-based learning. Congolese National Radio and Radio Okapi then offered educational programs, with the support of UNICEF. A distribution of learning kits was also planned for 25 million children.

Local Knowledge as Hoax

"Kongobololo" (common bittersweet), whose consumption is said to provide immunity against the coronavirus, according to a persistent rumor in the DRC. Hoax about Covid-19 is widely circulated among the population, with some Congolese believing, for example, that the virus simply doesn't exist or that it only affects white people. As early as March 10 (the day the first case was announced), false information circulated on social media, indicating that virologist Jean-Jacques Muyembe had claimed that "black skin cannot be affected by the coronavirus." He denied these allegations to AFP on March 18, stating: "It's scientifically unfounded. The proof is that we have seven cases, and they are Congolese, and black. Black people are just as susceptible to Covid-19 as white people." Some Congolese also believe that consuming "Kongobololo" (common bittersweet) provides immunity against the coronavirus. The World Health Organization (WHO) advises against self-medication with this plant, stating that there is no evidence



that its consumption can prevent or cure the disease. A 30-year-old man died on April 4 in Gemena (South Ubangi) from Kongobololo poisoning, after consuming it to protect himself against the virus. These false reports are due to a lack of information as well as government "blunders" in its crisis communication (mistakes regarding the nationality of the first patient, the location of the first case outside Kinshasa, postponement of the lockdown in the capital, etc.), which have created distrust among the population towards the authorities, with some believing the government is lying to free up funds.

Tourism

On March 23, Virunga National Park decided to close its doors to tourists until June 2020 to protect gorillas from the coronavirus, as these animals are susceptible to human respiratory diseases, according to WWF.

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