

COVID-19 in Kenya

Containment • Mitigation • Recovery • Reopening

April 30, 2020



Executive Editors

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Design and Layout: Evans Ombisa, HORN International Institute for Strategic Studies

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Executive Summary

This report presents considerations for containment, mitigation, recovery and reopening (CMRR) to ensure a seamless, organized and sustainable exit from the coronavirus pandemic in Kenya. The proposals for a systematic and organized exit, will hopefully lead to sustainable recovery and reopening in the public health, security and governance, economy, education and political sectors.

Section A describes the problem and challenge of the coronavirus pandemic, the COVID-19 phases and current status in the country. It also describes, and analyzes Kenya's COVID-19 status vis-a-vis other countries in the region and the rest of the world with regard to spread, trends and testing. It outlines possible reasons for why the infection rates are still very low in Kenya. This section also analyzes the gains made from current containment measures by the government, and examines challenges emanating from the said measures. The key to organized reopening is to anchor any action on sound evidence.

Section B describes and recommends that systematic plan of action detailing sectors, structures, processes and frameworks should be developed to ensure seamless and organized containment, mitigation, recovery and re-opening. This section is developed to inform such a plan of action. It contains policy proposals for containment, mitigation, recovery and re-opening during the COVID-19 pandemic.

... it is too early to undertake a full reopening, or a comprehensive plan of action because of uncertainty about the extent of the COVID-19 transmission based on the actual figures given by the Ministry of Health.

Overall, this report cautions that it is too early to undertake a full reopening, or a comprehensive plan of action because of uncertainty about the extent of the COVID-19 transmission based on the actual figures given by the Ministry of Health. It is not yet clear whether the low infection figures are as a result of yet-to-be-explained medical pre-conditions that help in the overall immunity; OR comparatively low exposure due to limited international air travel; OR is simply due to limitation in testing. These reasons obscure, or do not reveal the true extent of the infections, and therefore we do not know, or cannot confirm, for now, the actual or correct picture of COVID-19 pandemic in Kenya.

SECTION A

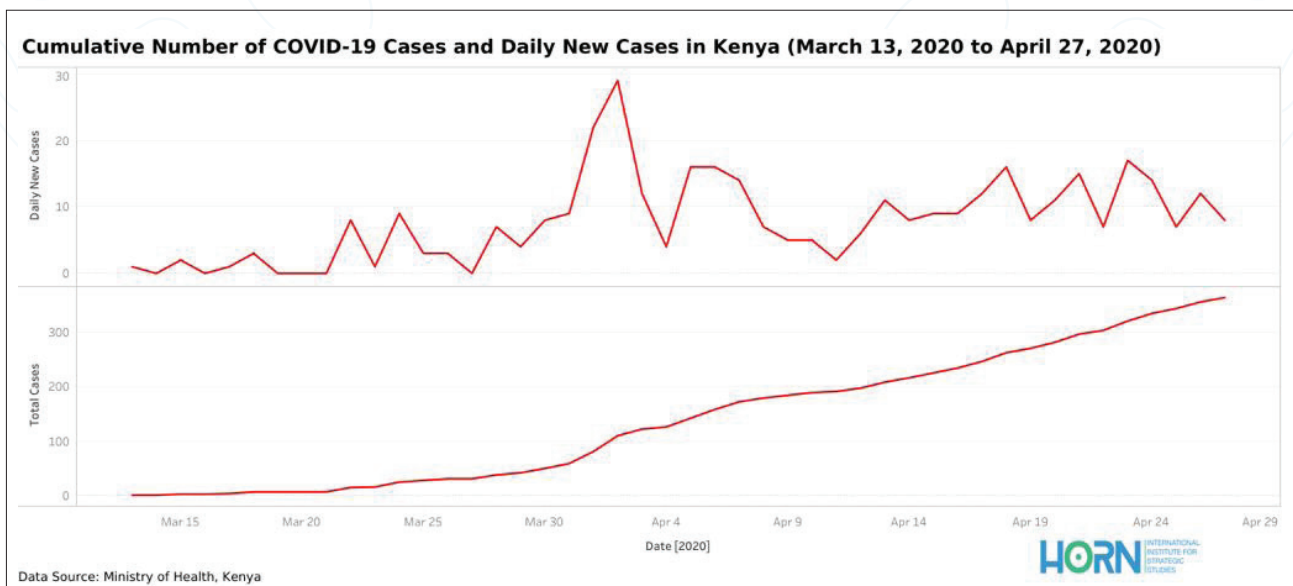
This section describes the challenge of the coronavirus pandemic in Kenya. It details COVID-19 phases, pointing out that Kenya, based on the Ministry of Health statistics, is currently in the *incipient* phase of the COVID-19 pandemic, but urges caution, and that this fact should be ascertained first, before significant policy on reopening is taken. This section also describes and analyzes Kenya's COVID-19 status vis-a-vis the other countries in the region as well as the rest of the world with regard to spread, trends and testing.

Introduction

In December 2019, a new strain of coronavirus – now COVID-19 – originating from Wuhan City, China was discovered. COVID-19 infections have since multiplied exponentially around the world. By April 28, over 3 million cases had been registered by WHO, with 227,000 deaths occurring, with significant disruption of socio-economic life of many nations around the world. Economic shocks, social upheavals, and insecurity will become the inevitable consequences, especially in fragile countries in the global south as the pandemic ravages nations.

In Kenya, the COVID-19 pandemic is leaving behind unprecedented damage on the public health, socio-economic and political foundations. Both short-term and long-term consequences will be profound.

Graph 1.1 Cumulative number of COVID-19 cases in Kenya (March 13, 2020 to April 27, 2020)



A paradigm shift will thus be needed in restoring the nation, reconsidering and refocusing its fundamentals. The areas that are most damaged at this point, and that require restoration, recovery and reopening include the economic, security, political, public health and education sectors. A recent snapshot of the infection trajectory for the month of March through April 27, 2020 is presented in graph 1.1.

Countries around the world affected by the pandemic will deal with containment, recovery and reopening as dictated by their own economic, socio-political and governance endowments and realities. How Kenya handles the containment and mitigation of COVID-19, and what measures it takes for the recovery and reopening of critical sectors affected by the pandemic will determine how fast the nation will achieve normalcy, restore security and stability, and rebuild its economic viability.

The Challenge

The biggest challenge occasioned by the COVID-19 pandemic at this moment is uncertainty because of paucity of data and a lack of facts and evidence of infections. Data and facts are required to ensure that prevention, mitigation and containment measures are grounded in reality, and respond to the *actual* need. In order to accurately and confidently predict Kenya's course of recovery and reopening, all actions must be anchored on hard evidence, drawn from quantitative and qualitative analyses.

Full recovery and reopening from a pandemic are dependent on the certainty and confidence the containment, mitigation and overall prevention measures yield. This situation—of uncertainty—shall prevail until such a time when a vaccine or cure is found.

The COVID-19 Phases in Kenya

So far, Kenya has passed through the *latent* and the *germinal* phases and is at the *incipient* phase of the COVID-19 transmission (refer to diagram on phases). Kenya was in the *latent* phase before and including March 3rd, 2020. In this phase, the coronavirus was still out of the country, and only presented a 'far-removed' threat. Then, additional measures, mostly public health screening and surveillance at border entry points were taken to ensure COVID-19 does not enter the country.

Kenya entered the *germinal* phase when the first known case was identified on March 13th, and immediately quarantined, isolated and treated. Those infected by the first case were quickly identified, tracked, quarantined and tested. A few more individuals carrying COVID-19 jetted in, and the virus spread to a few more locations in the country. The government put additional measures to prevent more carriers entering the country, and those inside, from spreading the virus. This phase started from around 4th March till 23rd to 25th March 2020.

The country entered the *incipient* phase on or around March 26. COVID-19 virus spread to specific localities within a country such as Nairobi, Mombasa, and Kisumu. More cases were identified as more testing was carried out. Tracing and isolation of contacts that came into contact with asymptomatic cases were done. Stricter measures were put in place, including introduction of the soft (partial) lock down (geographically targeted and dawn to dusk curfews). Mandatory quarantine was required for travellers from outside country.

Although Kenya is assumed to not have entered the *metastatic* phase of COVID-19, only aggressive testing particularly in areas that exhibit some form of community transmission will confirm this assumption. *Metastatic* phase is the stage in which there is varying community transmission—from minimal to extensive, depending on stage within this phase. This is a dangerous phase, in which economic slowdown is accelerated; joblessness and desperation rise among vulnerable populations; incidents of crime and public disorder in chokepoints (informal settlements and slums) is likely to rise; and initial pressure on the health system rise with hospital admissions; and initial surge stretches existing capacities to the limit.

The other critical phases are those of *emergency* and *resignation* phases. Italy and Spain are examples of countries on the *emergency* phase. New York City is also on this phase. None of the African countries, Kenya included, is anywhere near *emergency* phase. The dangers of getting in the *emergency* phase are; hard lockdown (full lockdown) becomes the only option of containing the transmission; emergency measures are put in place including deploying the military; and the economy of the country is severely disrupted. Stability may easily be compromised as the situation becomes critical.

KENYA: PHASES OF THE COVID-19 PANDEMIC

Containing the Spread and Reducing the Impact

PHASE 1: Latent Phase

COVID-19 still out of the country; additional measures are taken to ensure COVID-19 does not enter the country; national epidemic threat perception still low; and country still largely unprepared, population largely ignorant of the Epidemic. **Note:** Kenya was in this Phase before and including March 3rd 2020.

PHASE 2: Germinal Phase

COVID-19 enters the country; first known case is identified, quarantined, isolated, and treated; those infected by Patient Zero identified, tracked, tested and quarantined; a few more individuals carrying COVID-19 jet in, spreads in few locations e.g. homes, hotels; initial containment measures instituted; additional measures are put in place. **Note:** Kenya entered this Phase on March 4, 2020 and lasted till March 23rd to 25th, 2020

PHASE 3: Incipient Phase

COVID-19 spreads to specific localities within a country such as Nairobi, Mombasa, and Kisumu; Numbers of tested and asymptomatic cases is between 20 and 1,000; contact tracing and isolation using phone & credit card records of locations; stricter measures are put in place e.g. partial lock-down, curfews; mandatory quarantine required for international travelers; Non-essential services are disrupted. **Note:** Kenya entered this phase on or around March 23rd – 26th 2020, and is still in this phase.

PHASE 4: Metastatic Phase

Number of identified COVID-19 cases rises; cases reported in at least 20 – 25 counties in Kenya; Extensive community transmission; Economic slowdown is accelerated, joblessness and desperation is on the rise among vulnerable populations; Incidents of crime and public disorder in chokepoints (such as informal settlements and slums) likely to rise; and Initial pressure on the health system, rise in hospital admissions, and initial surge capacity by government is stretched.

PHASE 5: Emergency Phase

COVID-19 infections spread freely to communities (full-scale community spread is established); The number of COVID-19 cases substantially higher, spreads to whole or most of the country; Complete national lockdown in place for a specific period of time, perhaps 2 – 3 weeks; The country's social safety net stretched beyond limit; Economy is in critical stage; and National security in danger.

PHASE 6: Resignation Phase

COVID-19 now spreads freely; Hospitals and all public services overwhelmed; Government and authorities unable to do much about it; Only identified pockets, communities secured, isolated and protected; Those that survive, live, those that die, die; Pandemic takes natural course with very high mortality rates; Herd immunity from high infection rates takes shape leading to natural flattening, then downward curve and ultimately a reversal, at great cost. Nation at its weakest point.

PHASE 7: Recovery Phase

Those that survived work on recovery, traumatized, but live to tell the story; Government struggles to restore normalcy, society still in shock; Country's systems still weak; State of emergency lifted, law and order prioritized; Long road to social and economic recovery ahead.

PHASE 8: Reconstruction Phase

Those that survived work on recovery, traumatized, but live to tell the story; Government struggles to restore normalcy, society still in shock; Country's systems still weak; State of emergency lifted, law and order prioritized; Long road to social and economic recovery ahead.

The COVID-19 Pandemic in Kenya: Current Status

From mid-March 2020, the COVID-19 pandemic has affected many aspects of the economy, security and overall governance in Kenya. General physical, economic and social mobility and other aspects of human productivity, subsistence and wealth creation have been severely disrupted. The public psyche has equally been considerably affected and interrupted.

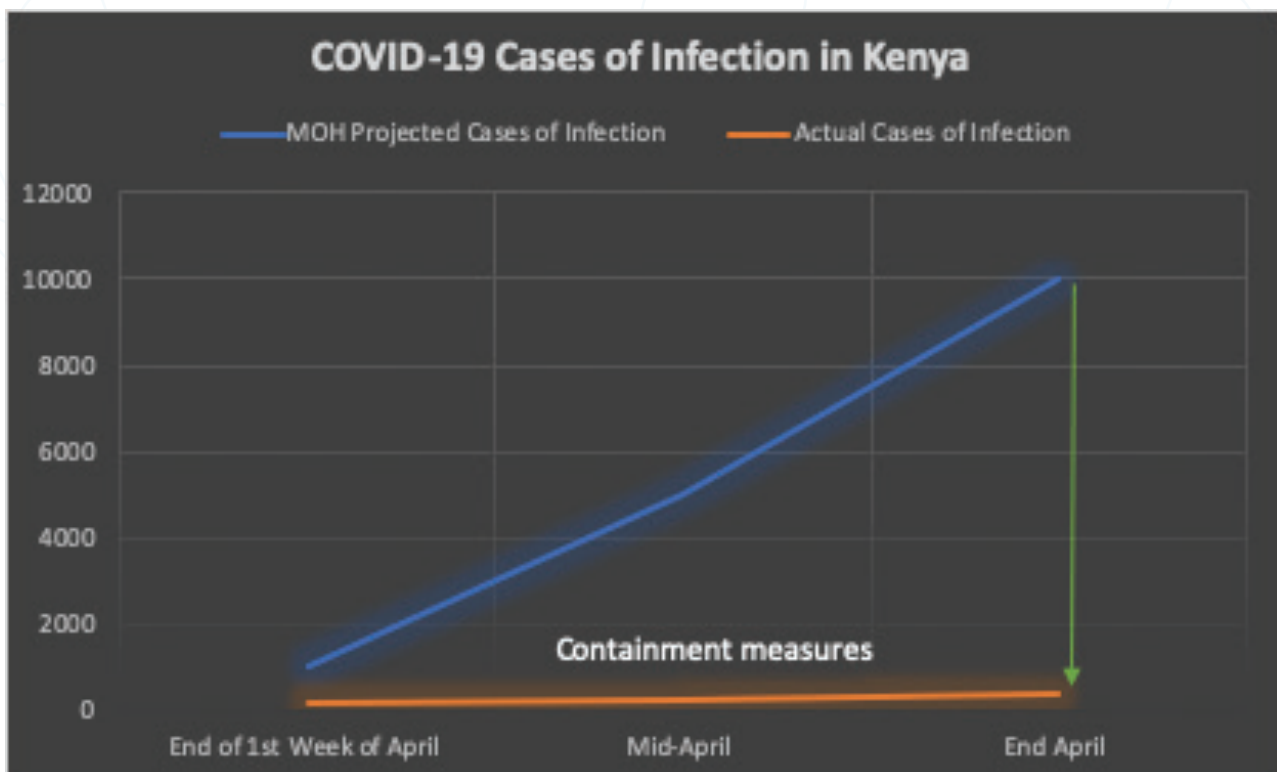
This state of affairs has called for robust sector-specific planning and mitigation measures; and to this end, government actions and efforts so far remain positive and commendable. However, the need to overcome uncertainty remains critical in order to inform and build confidence so that whatever is done in terms of overall management, recovery and reopening is relevant, reliable and sustainable.

The key questions here include:

- Where is Kenya placed in infection numbers compared to other countries in the region and the world?
- How certain and confident is Kenya about screening and testing among other mitigation and containment Protocols?

While Kenya's infection rate remains relatively low with only 384 confirmed cases as of 29th April 2020, many experts, policy and decision makers are asking what these figures mean. Questions about the statistics given by the Ministry of Health are asked in the context of the global averages. What exactly do these statistics mean? Graph 1.2 shows projected versus actual corona virus infections in Kenya.

Graph 1.2 COVID-19 Cases of infection against projected cases



Data Source: Ministry of Health (GoK)

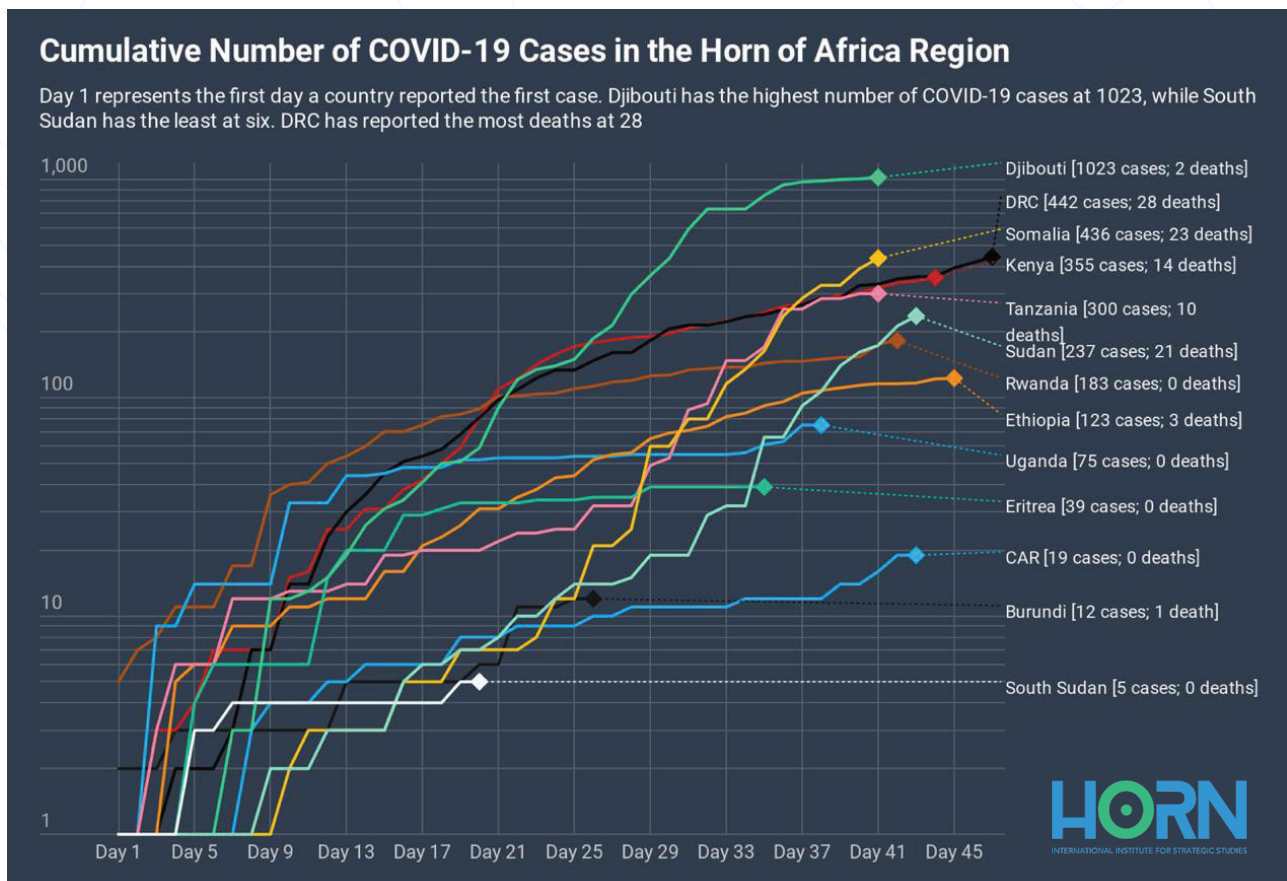
The low infection rates we have could be explained as; *Either* the government-led containment measures are actually working; *or* there could be inherent lapses in mass testing and contact-tracing. Therefore, there is need to clear doubts and confirm the figures provided by the Ministry of Health on the extent and rate of infections. This would then accurately inform further mitigation and containment efforts, as well as recovery and reopening. We examine a number of critical aspects regarding this aspect as follows:

Kenya's Status in Relation to the Global Outlook

On DAY 45 (April 27th, 2020) since COVID-19 infection was first confirmed in Kenya, the numbers tested still produced very low prevalence of infections. The confirmed statistics showing low prevalence rates may be possible as a result of any of these reasons;

- The immediate preventive measures Kenya swiftly took to contain the pandemic from WEEK ONE (upon learning from hard-hit countries such as Italy, Spain and US) are contributing to the successful containment;
- There are yet-to-explain medical pre-conditions that help in the overall immunity;
- The limitation in testing obscures, or do not reveal, the true extent of infections, and therefore we do not know, or cannot confirm the actual or correct picture at this point;

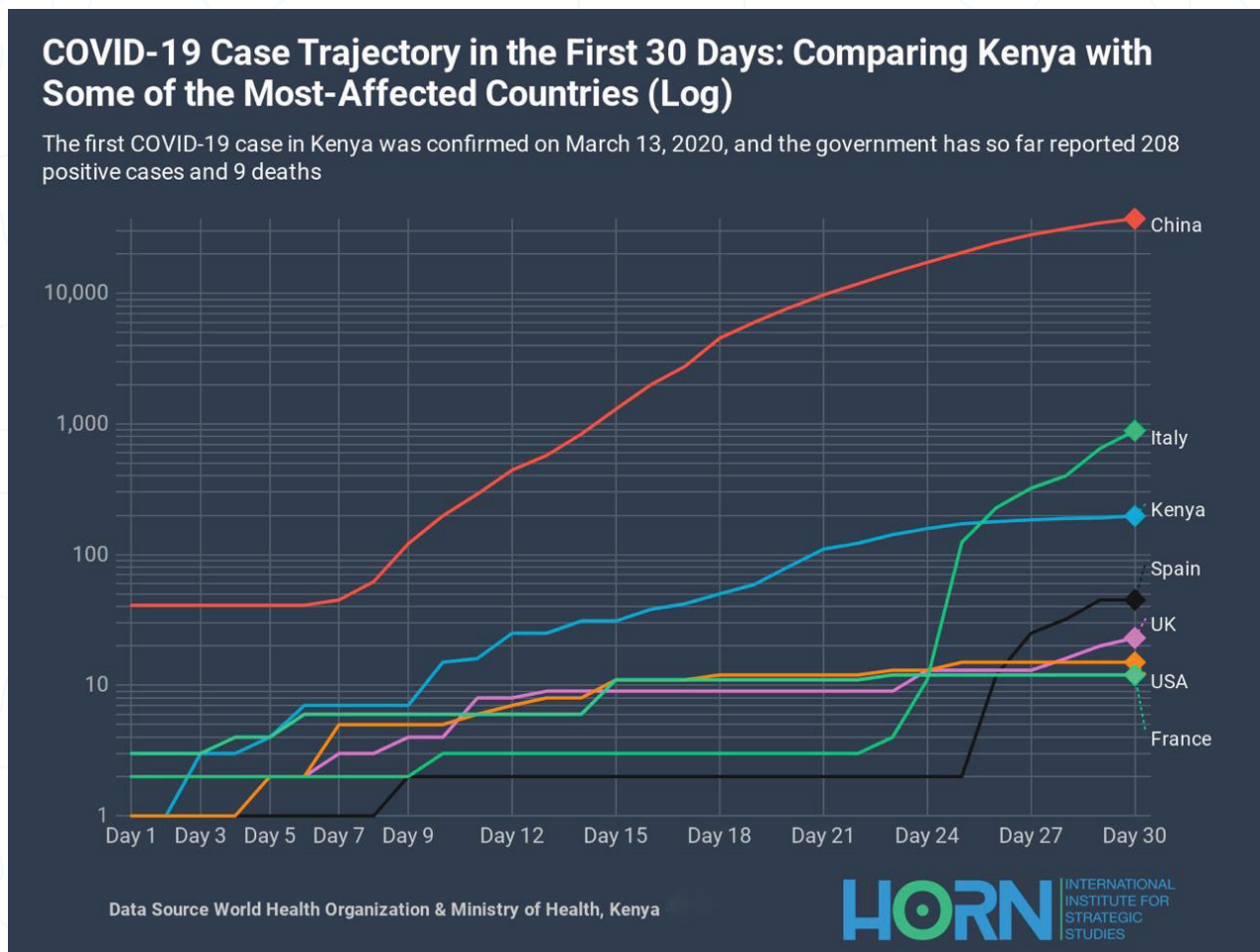
Graph 1.3 How Kenya compares regionally on COVID-19 infections



- d. Demography skewed to younger population; OR
- e. Limited air travel into the country

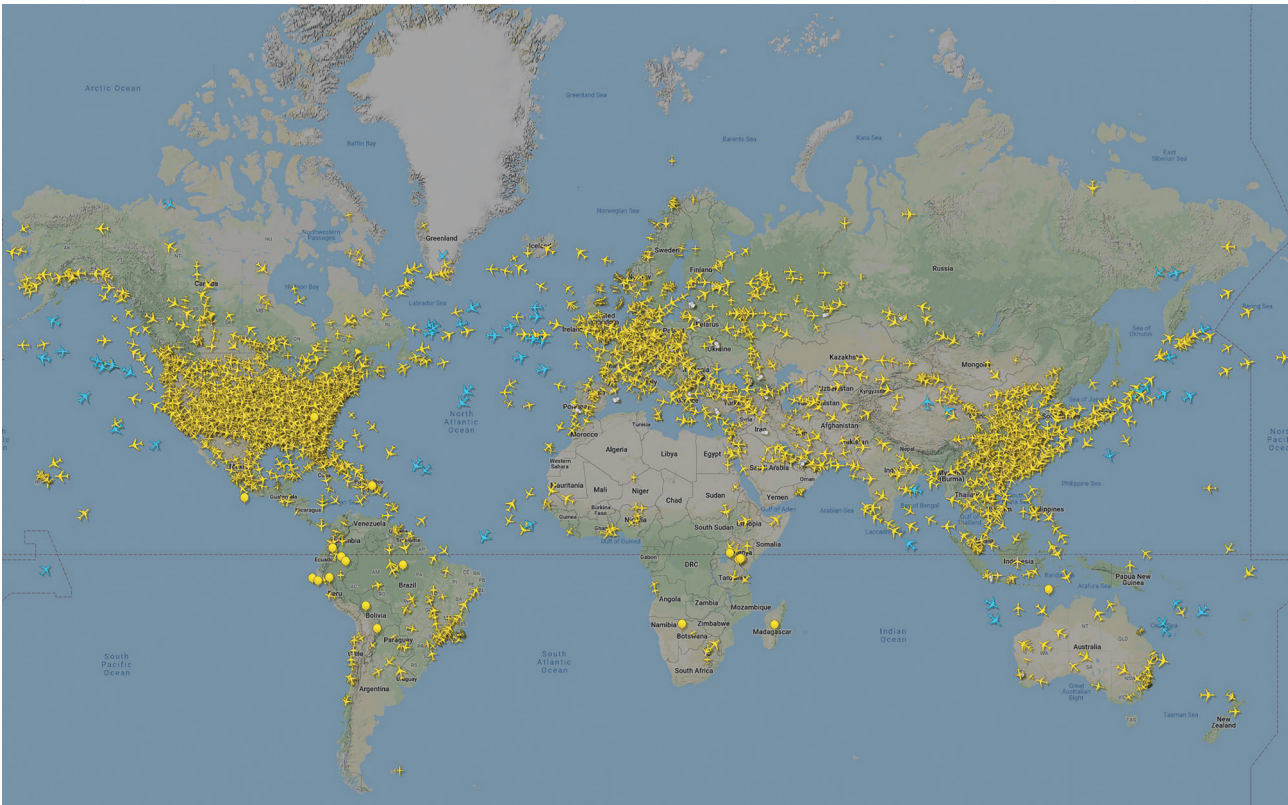
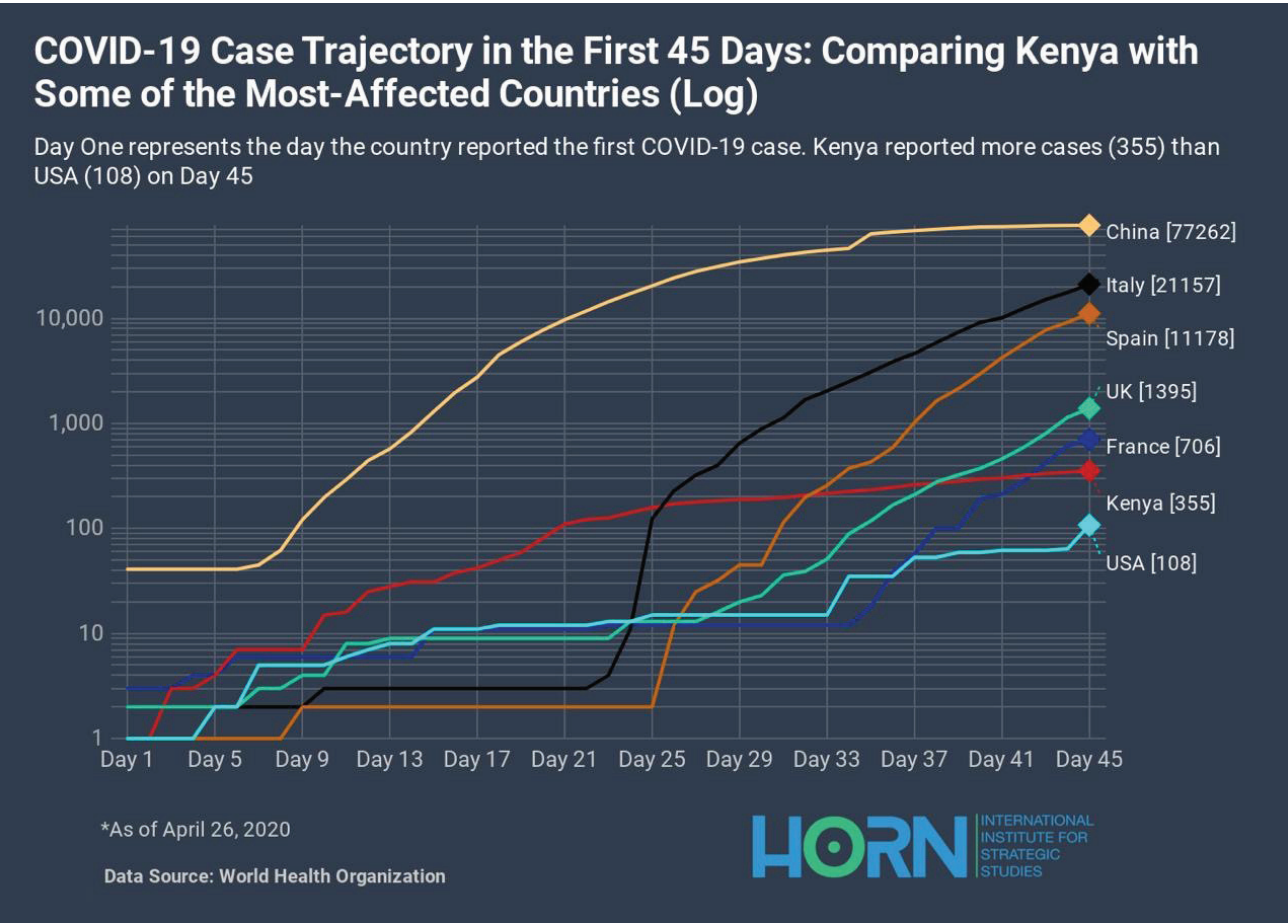
Comparative analysis of recent data from the World Health Organization and the Ministry of Health of COVID-19 cases in Kenya and the most affected countries is illustrated by the charts below. This is shown on the two logarithmic scaled graphs on Day 30 and Day 45. On DAY 30 from the date when the first case was established, based on WHO and Ministry of Health data, the logarithmic scale graph (Log) locates Kenya just below Italy, and above Spain and China in infection rates.

Graph 1.4 First 30 Days: Comparing Kenya to worst-hit countries



On DAY 45 (April 26th 2020), from the date when the first case was confirmed, based on WHO and Ministry of Health data, the logarithmic scale graph (Log) indicate that Kenya is located only above US, (although US now on its DAY 103 since the first infection was confirmed), and below Spain, UK and France.

Graph 1.5 First 45 Days: Comparing Kenya to worst-hit countries



A flight tracker showing the intensity of air travel concentrated in the Global North

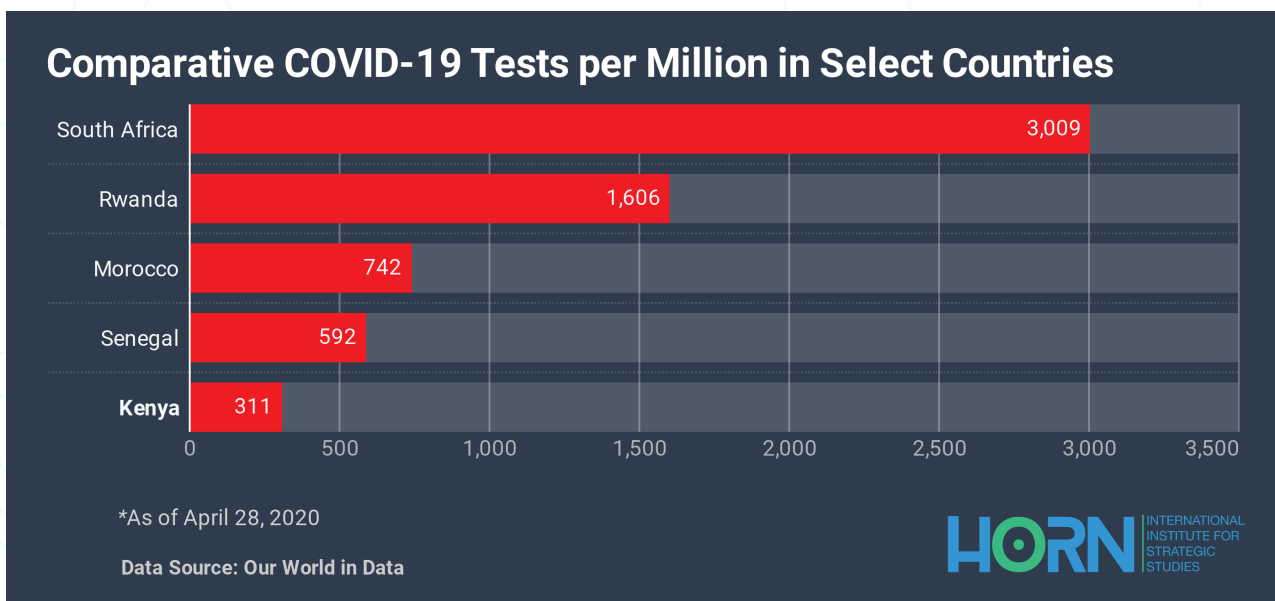
Mass Testing

Testing of the coronavirus among the population is a good measure of how the disease is spreading across the population (demographically) and country (geographically). Testing allows for rapid isolation, early introduction of prophylactic interventions, and quarantining of positive cases. It also enables rapid contact tracing and guides the country in allocation of medical resources and other capacity adjustments in the healthcare system. As such, testing is a great window for containment of the spread of the disease.

Only through mass testing to establish extent of infections can a country produce a **plan of action** to guide progressive interventions for containment, recovery and re-opening. For Kenya to effectively contain COVID-19 and embark on safe re-opening of the country and various economic sectors, it has to move towards achieving mass testing.

Kenya trails some of the countries with leading COVID-19 testing capacity in Africa with a testing capacity of 311 tests per million people. South Africa, Rwanda, Morocco and Senegal, lead in Africa with the testing capacity of 3009, 1606, 742 and 592 per million people respectively as shown below.

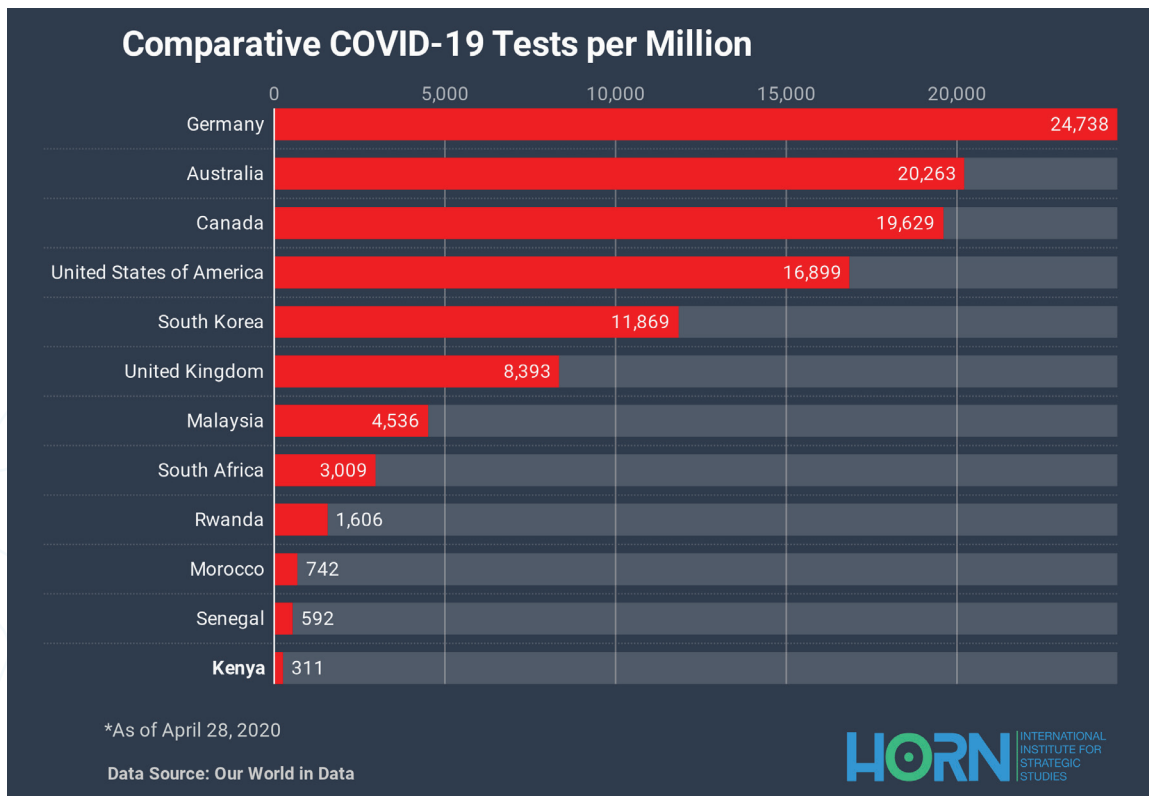
Graph 1.6 COVID-19 Testing capacity in Africa per million people, April 28, 2020



Data Source: *Our World in Data*

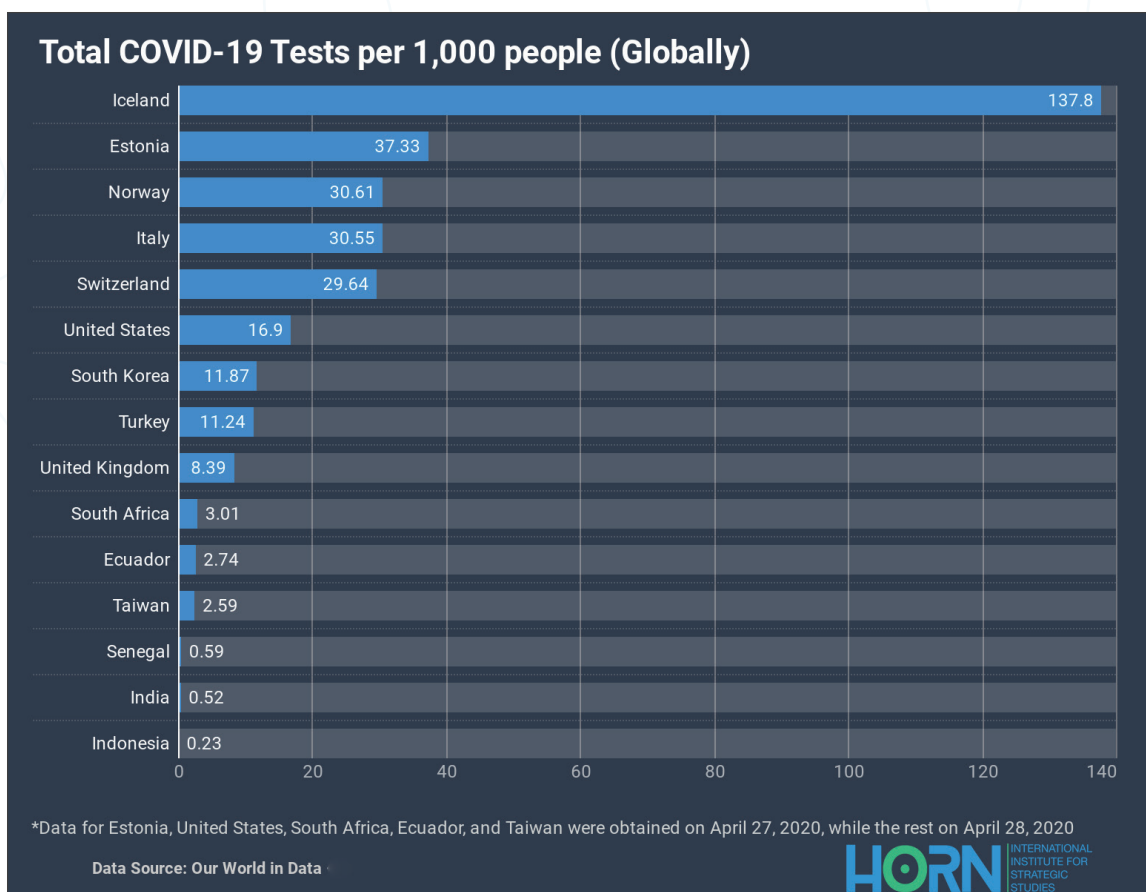
However, globally, leading countries with significant population exposure, in testing capacity per million people include Australia (20,263), Canada (19,629), the United States of America (USA) (16,899), South Korea (11,869), United Kingdom (8,393), and Malaysia (4,536). South Korea is in the similar popular range with Kenya. The leading testing capacity for 1,000 people in Africa and globally is as shown:

Graph 1.7 Comparative COVID-19 Testing capacity per million people, April 28, 2020



Data Source: Our World in Data

Graph 1.8 Total COVID-19 Testing capacity per 1,000 people, April 28, 2020



Data Source: Our World in Data

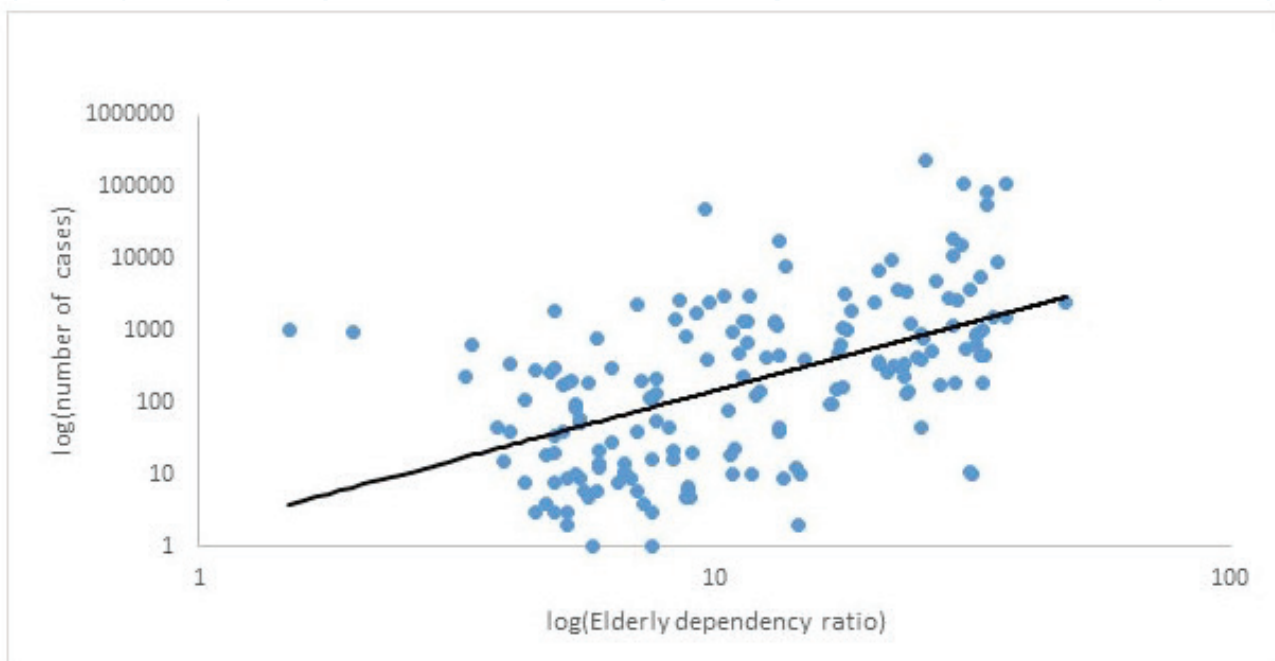
Possible Explanations for Relatively Low Infection Rates in Kenya

- Kenya (and the rest of Africa), may have been exposed at a later stage and at a lower scale of the global pandemic trajectory. Key reason for late exposure is the fact that the Africa continent accounts for only 2.2% of the global volume/share of international air transportation annually.
- Kenya took very early preventive steps in week 2 in light of what was happening in Europe and North America by day 45 of the pandemic. Closing schools, curfew and restricting inter-county movement likely made a big difference.
- Demographic patterns may partly explain why the outlook for Kenya looks better, and the curve is 'flat' in relation to Spain, Italy, China. For instance, older population in Italy, Spain and China suffered (are suffering) most, with rates of death and infection rising in part due to elderly dependency rates (UNU, 2020). Kenya's elderly dependency rate ranks relatively lower compared to Italy, Spain and China.

However, a considerable measure of uncertainty still makes it difficult to rely on the current 'case-load' scenario in Kenya until the country is able to optimize and sustain its testing capacity; such that the testing results the country has so far may not reliably inform predictions on where the curve actually is, and how it might move going forward.

Globally, the rate of death and infection resulting from COVID-19, in relation to elderly dependency as shown in the scatter plot below records correlation coefficients of 0.53 and 0.44 respectively, indicating strong significance.

Graph 1.9 The rate of elderly dependency and the number of COVID-19 infections globally



Data Source: UNU, 2020

It is crucial however to note that Kenya seems to be at the beginning of the pandemic. If we can be sure and confident that this is indeed the case, it may well be that we have contained the Pandemic at this early stage. But this calls for tactical caution, sustained surveillance, screening and testing in order to prevent major relapses in transmission and infection.

It may go either way – get worse and proceed to latter and more severe phases, or slightly increase then come down within a short period. Therefore, there is a lot more that we need to know and ascertain. Hence the question: What can we do in the coming days to know more about the current status of the pandemic in the country?

Critical Action Points

- a. Roll-out a robust, systematic and sustained multi-targeted and clustered random mass screening and testing in Kenya
- b. Ask scientists at KEMRI and any other medical research agency to establish the link between BCG vaccine, exposure to malaria and plausible immunity to COVID-19. In this regard, investigate likely pre-exposure and post-exposure prophylaxis aspect in the population as an explanation for comparatively low infection rates.
- c. Form an internal (ad hoc) medical think tank consisting of four to five medical professionals in public health, immunology, infectious disease transmission and research, to interpret what is going on in this regard, and to inform the next course of action.
- d. The ad hoc medical think tank should be in house, and whose role is to primarily help with analysis and organize information to reach certain decision-making points viz the pandemic.
- e. Next 4 weeks (May 2020) will help determine a clearer picture.

Containment, Mitigation, Recovery and Reopening (CMRR): A Sectoral Phased Strategic Approach

This section describes and recommends how a systematic **plan of action** detailing sectors, structures, processes and frameworks would look like. The objective is to ensure seamless and organized containment, mitigation, recovery and re-opening. This section is developed to inform such plan of action. It contains policy proposals for containment, mitigation, recovery and re-opening during the COVID-19 pandemic. These phases are intricately interrelated and interdependent. Successful recovery and reopening is fully dependent on successful containment and mitigation.

Containment and Mitigation Phase

Goals

In this phase, the main goals are to:

- a. Slow and prevent the spread of the Coronavirus disease.
- b. Provide prophylactic treatment to those infected.
- c. Limit infection rates within the capacity of the healthcare system.
- d. Enable early resumption to normalcy.
- e. Cushion shocks in livelihoods, employment, liquidity, and vulnerability.

Governance and Security Aspect

During this period, the relationship between government and citizens has been variously upset. Some of these aspects have been positive and while others potentially negative, depending on the spatial, social and temporal contexts in question. For instance, beyond the noble intentions that informed them, the COVID-19 prevention and management practices, protocols, rules and processes have had different outcomes on the Kenyan social fabric. The curfew, mandatory, quarantine, restricted movement, closure and suspension of various activities have all had a bearing on communities, families and individuals.

These COVID-19 preventive and management changes and protocols have also been complicated by seasonal weather exigencies and extremities as occasioned by disasters due to heavy rains and flooding, mudslides and destroyed habitats, disrupted livelihoods as well as transport infrastructure. Nonetheless, some of these changes have also come with some positive effects that are important in as far as governance and security is concerned. For instance, Kenyans have become ingenious, innovative, creative and



Ministry of Health Kenya headquarters in Nairobi (Photo Credit Ministry of Health, Kenya)

progressive in many ways that hold the potential of adding value to productivity and wealth creation that will certainly add value to the Big Four Agenda and Vision 2030 outlook going forward.

The security sector faces an unprecedented challenge in the wake of COVID-19 given the heavy involvement of security agencies in the implementation and enforcement of containment measures. Apart from maintaining law and order during the pandemic, especially with regard to ensuring that restrictions of movement in and out of the counties under lockdown (Nairobi, Mombasa, Kwale, Kilifi and Mandera) and guidelines on a nation-wide curfew are adhered to, the security agencies are also significantly vital in supporting public health strategies including contact tracing, enforcing isolation and guidelines on public gathering and wearing of masks.

It is important to note that the outbreak of COVID-19 is exposing millions of people to multiple threats including psychological depression, loss of livelihoods and jobs, and a state of uncertainty that might plausibly combine to create complex security challenges such as crimes (theft and banditry), conflicts and mass protests (domestic, communal or against state authorities) and radicalization into violent extremism, among others, both short and long term. These might not only affect the national security landscape but also impede effective control of COVID-19.

To this end, the security sector remains an indispensable facet in fighting and defeating COVID-19. Given the multifaceted nature of COVID-19 response, especially with regard to the multi-agency input required to save lives and livelihoods, it is cardinal that a seamless coordination of actions is achieved in all phases. Particularly, the security personnel should work hand in hand with public health officials and the general public to ensure that enforcement

strategies do not exacerbate people's suffering in the face of a gruesome pandemic.

All these issues, concerns and challenges around them are critical to any recovery and opening up strategy especially in the context of governance and security. The goals in this phase are to slow the spread by ramping up surveillance, diagnosis, treatment and control of Coronavirus; and implement strategies on prevention and coping through the pandemic. **Specific action points include:**

- a. Implement and enforce government guidelines on prevention and containment. Security agencies should support the implementation and enforcement of government guidelines and protocols on the same.
- b. Secure and hence enable a seamless flow and distribution of goods and services during the pandemic.
- c. Remain aware of the centrality of healthy state-citizen relations, the cultivation of more community participation and preservation of human rights.
- d. Embark a sound and sustainable strategy to maximize gains in saving lives, supporting livelihoods and cushioning vulnerable groups.
- e. Intensify vigilance and engage in constant intelligence gathering in security high risk areas with key emphasis on counter-organized crime and counterterrorism.

Economic Aspect

As the country continues to battle COVID-19 pandemic, economic productivity has have been negatively affected. Pandemic control measures and protocols are limiting economic activities/normalcy which rely on movement of the population, and stable supply chains across the country and across the economic sectors such as manufacturing, mining, hospitality, financial services, small businesses, and trade (local and export markets). Markets are plummeting, while general flow of money is strained by a stagnating and shrinking economy, eroding consumer price index and general public confidence in the performance of the economy and markets. Businesses are experiencing liquidity challenges and struggling to finance payrolls, amid mounting profit cuts and losses.

Some of the strategic action points in this phase include:

- a. Allow certain sectors to operate for provision of essential services such as healthcare facilities (public and private), transport sector, certain manufacturing sectors especially ones producing therapeutics and protective equipment, financial services, food supplies and agricultural activities, among others.

- b. Lower interest rates through the Central Bank of Kenya, through new guidelines to commercial banks and lending/financial institutions, to ease circulation of money in the economy and cushion incomes and businesses.
- c. Inject economic stimulus to keep certain economic sectors and businesses afloat through the pandemic, with necessary measures to counter inflation and stabilize the value of the Kenyan Shilling.
- d. Extend income support to vulnerable households in worst-hit areas such as Nairobi, Mombasa and Kwale; vulnerable age-groups such as people aged above 70 years, and retired public and civil servants above the age of 60 years.

Education Aspect:

- a. The challenge of maintaining the Education Calendar: COVID-19 pandemic has disrupted the calendar of the educational system and institutions. For smooth operation, credibility and wellbeing of the education sector, it is important to maintain an education calendar. Disrupting it has ripple effects on sequencing of operations of other levels of education system, with local and international implications.
- b. The challenge of ensuring that learning does not cease during the pandemic: The pandemic has altered the usual learning, teaching and exam processes. While online learning is touted as providing learning during the closure of education institutions, its feasibility is still open to genuine doubt. Issues of connectivity, capacities of staff, students and guardian’s access to and utilization of technologies involved are real.



A section of the University of Nairobi in Kenya (Photo Credit Wikimedia Commons)

- c. The dangers associated with likely Manifestation of Educational Inequalities: The inequalities in the education sector have become more pronounced in terms of connectivity, staff and student capacities, and overall social class and regional inequalities. A study of the reality on the ground would inform policy making, service providers and teachers.
- d. Consequences of having idle youth in the communities: Having close to 17million students unengaged in learning and not well supervised by parents or authorities poses serious challenges. It could lead to leaving schooling early, marriages, pregnancies, drug and alcohol addition, criminality and other anti-social activities. This could become a lost generation in terms of education, skills and values
- e. Unrealized Educational Goals: Even in normal circumstances, hardly do our learners acquire quality education. They leave each level of basic education without requisite competences, knowledge and values. Hence improving teaching and learning in schools should be priority even in the present circumstances of the pandemic
- f. The question of how to manage expectations and uncertainties: Despite assurances that this year's exams will be not be postponed there is uncertainty hanging in the air resulting from measures taken to contain COVID-19. Parents are concern as to when education institutions will reopen for traditional teaching, learning and exams.

Critical containment and mitigation measures on education include:

- a. Top priority to parents, pupils and teachers and the government at this juncture is how to prepare students for national exams. Two suggestions have been made; The first option is to recall only the candidates (1.9 million) to prepare and eventually sit for exams. This entails opening of primary and secondary schools all over the country for class 8 and form 4. Most of primary schools are day schools, while secondary schools are a combination of boarding and day schools. The number of schools and location of schools should be noted. This option would also engage teachers, school administrators and support staff.
- b. While students are preparing for their exams, KNEC would organize and train exam administrators, examiners, markers, security personnel, transporters and ICT personnel.
- c. Option number two would bring back STD 7 and 8 for primary level and for secondary level Forms 3 and 4. The numbers of students would double and also the numbers teachers.
- d. Option three would be to reopen all schools. This option assumes the containment of COVID-19 and resumption of normal learning activities.

- e. The Ministry of Education should encourage learners to continue studying from home but not institutionalize it given the huge number of learners likely to be left out. While some learners, particularly those in urban and peri-urban areas can do with virtual learning due to the availability of ready-to-use infrastructure, those in rural areas (including those from low-socioeconomic status and those with special needs) are still struggling to access these services.
- f. The government should continue availing all the necessary learning materials and programs through radio, television, and digital learning platforms. This should be followed by an informational campaign on the availability and access of these resources. All this should be coordinated by the Kenya Institute for Curriculum Development (KICD).
- g. While internet connectivity is still a challenge, it is not the most significant problem at the moment. Access to appropriate and necessary gadgets; the cost of internet and electricity; and unfavourable learning environments are greater obstacles for most learners. Thus, proceeding with the new system risks aggravating learning inequalities in the Kenyan education landscape.
- h. The Ministry of Education and the Ministry of Communication and Information Technology should partner with local media outlets, especially the state television (KBC), to air educational content for school-going children in reach.

Public Health Aspect

On 25th of March 2020, the Ministry of Health (MOH) issued a circular suspending all elective surgical cases in public facilities in the country. This, according to the circular, was intended to redirect all available resources towards combating COVID-19. Some counties opted to close peripheral health facilities in order to consolidate human resource to county referral hospitals in anticipation of a surge of COVID-19 cases. This starved peripheral facilities of the capacity for continued delivery of essential health services. The interruption of normal health care services is so dire that there are reports of some referral facilities halting critical chemotherapy services to create space for COVID-19 services, leaving several cancer patients unattended.

The lag in provision of essential health services, occasioned by the supply-side interventions highlighted above, has also faced significant demand-side dynamics. Widespread fear in the general population in seeking health care has been evident, largely due to the perception that health facilities are unsafe and increase the risk of the public contracting COVID-19. In addition, perpetual reports of crippling shortages of appropriate Personal Protective Equipment (PPEs) and supplies for Infection Prevention and Control (IPC) for health care providers have aggravated the situation further.



Kenyan health workers at Mbagathi District hospital in Nairobi (Photo Credit Simon Maina AFP via Getty Images)

This requires significant intervention by the national government and county governments, through the Ministry of Health, to scale up testing, surveillance, and increase the public health workforce necessary to identify active cases and limit the risk of outbreaks, as economic functions gradually resume. An SIR epidemiological model developed by the Resecue.co, revealed, according to Winn (2020), that Kenya should target the capacity of:

- a. 9,000 – 199,000 hospital beds
- b. 3,000 to 77,000 ICU beds
- c. 2,000 to 55,000 ventilators
- d. 57 – 1,496 ambulances (Winn 2020)

Such preparations will require the National Governments' support, which includes expanding testing capacity and resources to support significant expansion of current public health infrastructures in the counties. **In order to try flatten the curve, the Government should:**

- a. Develop national public health guidelines and promote public awareness of COVID-19 and associated guidelines.
- b. Develop national and local screening and testing capacity, with progressive capacity for mass testing.
- c. Establish fully equipped isolation and quarantine facilities across the country through cooperation with the 47 counties.
- d. Extend the Kenyan Ministry of Health's Rapid Response Team to all 47 counties with the standard method of setting up the isolation units and

training all medical personnel to know how to contain the virus and without risking other patients.

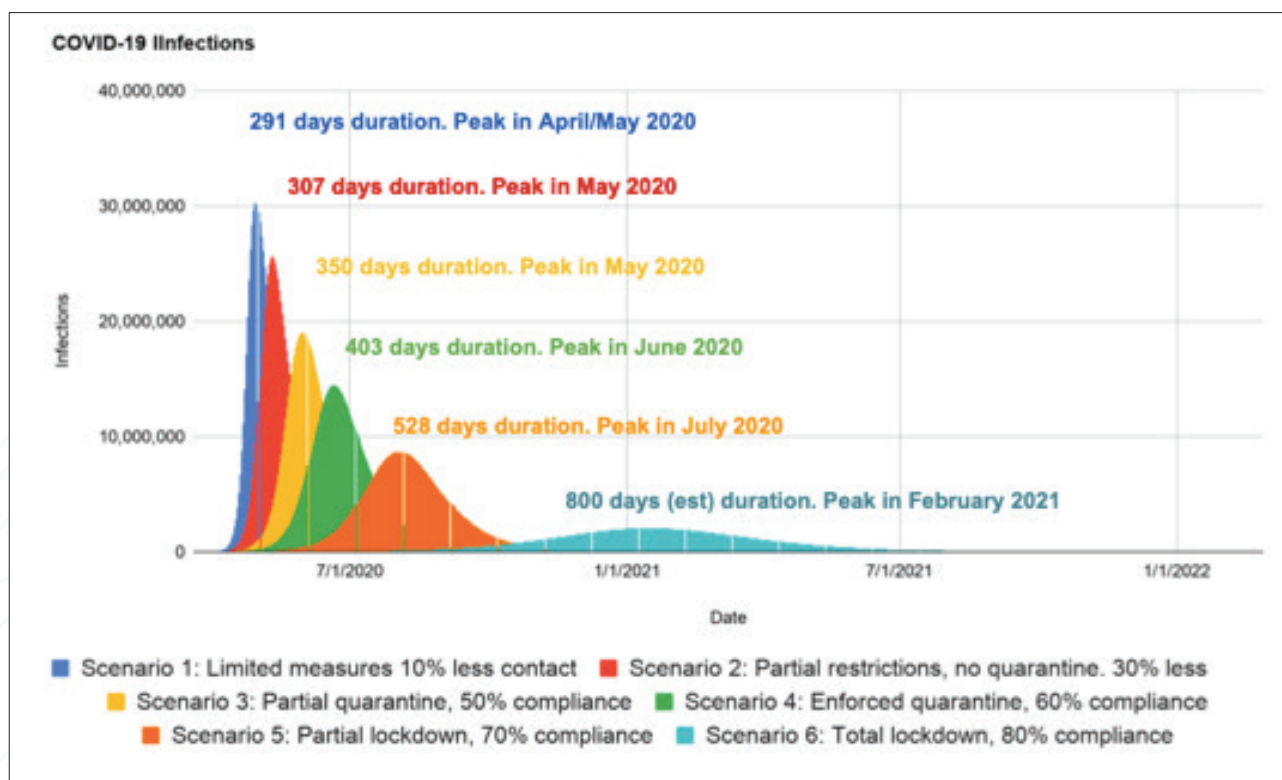
- e. Work with the Ministry of Industry and Trade Cooperatives to manufacture testing kits and PPE's in a local capacity by using our factories to ensure quality products and maintain job security.
- f. Increase medical and public health workers by recruiting retired health workers, retraining specialists, recruiting military medical workers, use of medical students in training, recruit and train community members and/or re-deploy early career public health professionals.
- g. Avoid a total lockdown scenario by continuing to enforce the containment methods such as social distancing, nationwide 7pm to 5am curfew.
- h. Re-strategize on Mass testing by working with key informants in the various communities to make contact tracing reliable and efficient.
- i. Improve on critical infrastructure such as isolation units/beds, oxygen tanks, ICU and HDU wards with trained personnel, ambulances and, software that updates healthcare workers in real-time on new discoveries that are released on the virus.

Other strategic action points in this phase include:

- a. Enforcing mandatory quarantine for in-bound persons at all ports of entry.
- b. Rolling out mass testing for early detection, isolation and prophylactic intervention.
- c. Augmenting surveillance and contact tracing.
- d. Enforcing social distancing.
- e. Developing and sensitizing the public on and enforce public health guidelines.
- f. Improving public health, water, hygiene, and sanitation infrastructure.
- g. Increasing county preparedness for scaled-up testing of both symptomatic and asymptomatic cases.
- h. Prepare for and intensify surveillance and rapid response.
- i. Both national and county government should prioritize and train more public health workforce in readiness for mass testing and possible handling of symptomatic cases.

The model developed by Rescue.co further shows that Kenya is likely to experience the following containment scenarios under respective government measures, from January 01, 2020:

Graph 2.1 COVID-19 infections in Kenya under various scenarios Source: Winn, 2020



Political Aspect

In Kenya’s case, COVID-19 broke out during heated political debate over the referendum and Building Bridges Initiative (BBI). 2022 succession politics and divisive politics was rife among the public, in parliament, political rallies, and mass media. **Accordingly, during the containment phase, the political leadership should:**

- a. End divisive political discourse and promote a unifying political narrative. The presidency should be the political face in the fight against the pandemic.
- b. Discourage debate around BBI, referendum, and 2022 succession politics in any form, across all platforms and media indefinitely. This will pave way for a conducive environment to pursue a unified approach, and to rededicate national focus on the pandemic.
- c. Restrict or suspend all public and political rallies to prevent mass transmission of COVID-19, and enforce social distancing to help slow down local transmission.
- d. Forge bipartisanship in parliament to offer necessary support to the executive through the containment phase.
- e. Set up a national expert-led COVID-19 pandemic management task force, to provide technical, tactical and strategic leadership in containing the novel virus.
- f. Institute population control measures against assembly and movement especially from epicenters of COVID-19 infections in the country, either through social distancing, curfews or partial/soft lockdowns.

- g. Re-adjust the national budget to mobilize resources for the containment strategy. This may include sequestration of county budgetary allocation, especially for non-critical programs and projects, and phasing out certain national programs and projects.
- h. Improve critical medical and public health infrastructure and the overall capacity of the healthcare system. This may include creation of special quarantine and isolation facilities, expansion of high dependency and intensive care units, training of healthcare workers on handling COVID-19 cases, employment of more healthcare personnel, and provision of personal protective equipment to healthcare workers across the country.
- i. Close international borders, leaving only essential supply chains to flow across borders, while maintaining strict border screening, testing and quarantine measures.
- j. Cushion vulnerable members of the society.
- k. Develop national containment and public health safety guidelines, and create adequate public awareness of the pandemic and respective safety guidelines.
- l. Roll out mass production/procurement and distribution of personal protective equipment (PPEs) and associated prophylactic inputs/medical technology for high dependency use and intensive care.
- m. Establish intergovernmental strategic cooperation framework, through the ministries of health, devolution and planning, water and sanitation, and interior to assist counties in containing COVID-19.
- n. Reach out to best-performing countries and resource-rich countries for strategic assistance and information sharing.
- o. Keep parliament, and sections of the judiciary, and the executive open to facilitate containment in law, policy and execution with utmost bipartisanship.

Recovery Phase

Goals

The recovery phase is when the pandemic infection and mortality rates reaches their peak, plateaus and begins to decline in ways that significantly reduces the pressure on existing medical infrastructure. **The focus should be:**

- a. To prevent a relapse into phase I, and to beat potential second wave of infection.
- b. To stabilize the main sectors of the economy and livelihoods.
- c. To address pandemic-related vulnerabilities within the population.

Governance and Security Aspect

Goals in this aspect include kick-starting the journey to normal functionality of businesses and major public institutions; and ensuring sustained actions to flatten the curve. **Some of the strategic action points in this phase include:**

- a. Enforcing government guidelines and protocols during the recovery phase regarding lockdown, curfew and public gatherings. Although systems will start to loosen up on hard restrictions, the security agencies will still need to stay on the course in implementing and enforcing relevant protocols for the recovery phase. Ordinarily, there will be a need to coordinate with public health officials and community members for effective contact tracing and isolation of both asymptomatic and symptomatic cases.
- b. Additionally, the security agencies should enforce compliance with controls on public gatherings, wearing of masks and conduct in public transportation.
- c. In this direction, the prime task of the national security machinery is to support all measures and protocols in place in order to prevent a relapse and/or reversion of gains made in the containment and mitigation phase.

Economic Aspect

After managing the virus, the government's immediate priority should be to cushion the economy from further shocks and disruptions. This will be done by enhancing cash flow into the economy to balance the demand and supply forces. Also select economic activities, albeit on a small scale, to resume. On the part of the government, the aim will be to enhance revenue collection to raise resources to support other recovery efforts. Some of the strategic action points in this phase include:

- a. Renegotiate the repayment terms of external debts. This will allow the government to spend more on social grants and welfare programs, and to avoid the trap of overtaxing a drained economy. If necessary, the government should negotiate to reschedule debt repayment.



A health worker sprays a disinfectant to prevent the spread of COVID-19 at the Jomo Kenyatta International Airport in Nairobi, Kenya on March 24, 2020 (Photo Credit Reuters)

- b. However, the government should prioritize scheduling repayment of domestic debt ahead of foreign debt to inject money into the economy to sustain recovery.
- c. The government should explore concessional financial borrowing to close budgetary deficits.
- d. The government through the Central Bank should embrace quantitative easing to increase the supply of money in the economy and encourage investment and lending.
- e. Repurpose national and county government expenditure both in the current budget and in the first quarter of the next financial year, which commences on July 1. Resources allocated to development expenditure including development kitties such as the Constituency Development Funds and Ward Development Funds should be directed to supporting small and medium enterprises.
- f. Commercial banks should be incentivised through a reduction in reserve amounts and lowering of interest rates restrictions to enable them support businesses most affected by the virus such as the hospitality industry.
- g. County governments should be brought on board to support reopening of markets and small-scale businesses in counties that are low risk. Security agencies, health officials and county enforcement officers should be deployed to enforce social distancing measures and hygiene standards. This will go a long way in enhancing the collection of revenues.
- h. Social places should remain closed at night but allowed to operate during the day subject to social distancing and hygiene and sanitation rules.

- i. Restrictions on capacity in public transport should be relaxed.
- j. Allow necessary inter county movements.
- k. Gradually re-impose statutory obligations.
- l. Ban on eateries, hotels and other closed business should be gradually lifted.
- m. Allow limited international conferences and meetings to support hospitality industry.
- n. Launch massive tourism promotion in corona-free countries.
- o. Provide export-promotion incentives to specific sectors of the economy such as agriculture and SMEs.

Education Aspect

This phase requires improved surveillance approaches by sharing/exchanging the health data or health reports within the medical community in order to monitor/collect emerging data, improve accessibility of health information and identify emerging hotspots. **Some of the strategic action points in this phase include:**

- a. School management and other authorities should consider renovating and installing hygiene facilities such as hand washing stations and restrooms. More importantly, they should provide running water, antibacterial soaps, and if possible, disposable hand towels.
- b. Provide with or train teachers, matrons and other individuals in schools on COVID-19 to easily identify students with the virus-related problems when they are back in school. This includes providing psychosocial support on a case by case basis; during assembly days; and other gatherings (or on demand).
- c. Simple and easy-to-use guidelines on the use of masks and their disposal should be created. Unsound management of this waste, including gloves and personal protective equipment, could have unforeseen 'knock-on effects' on human health and the school environment.
- d. Review school calendars and curricula with realistic and progressive re-opening targets and steps.
- e. It is important to communicate regularly with teachers, parents, and students on reopening dates as well as conditions for reopening the schools. The ministry should also communicate broadly and clearly with all education stakeholders including KNUT and KUPPET regarding preparations to re-open these schools.
- f. Move to appeal to community leaders and local authorities to disseminate accurate information on the reopening of the school system while ensuring discounting misinformation.

Public Health Aspect

In the recovery phase, the health systems should aim at stabilization; moving from a crisis to a more stabilized public health system. As in the containment phase there is need to scale-up surveillance, prevention, diagnosis and treatment of COVID-19 patients and other flu-like symptoms without causing a strain on the public health system. **Some of the strategic action points in this phase include:**

- a. Increasing funding by tapping into sources such as the African Development Bank COVID-19 Response Facility package afforded to member states, to plug into the public health sector by renovating existing infrastructure and building more government health facilities and, have an infectious disease unit in each Level Five hospital for future infectious diseases outbreaks.
- b. Investing in training more medical personnel on infectious diseases.
- c. Modifying the National Hospital Insurance Fund (NHIF) policies to include infectious diseases cover.
- d. Providing better screening methods at all entry points (land, sea or air) into the country by training staff on testing individuals before entering the country and, providing quarantine holding centers at all entry points.
- e. Channeling funds from international donors such as the World Bank who spearheaded the Kenya COVID-19 Emergency Response Project for medical diagnostic services and capacity building in order to filter down to all the counties.
- f. Have Kenya partake in the global search for a vaccine by sending the country's top scientists as the vaccine for COVID-19 is projected to be ready in the timeline of 18 -24 months. At the moment, the next best possible response in mitigating the virus is a vaccine, the trials should be carried out with the aim of developing a safe and effective drug and ensuring equal access to all.
- g. Continue with mass testing and required social distancing measures.
- h. Identification and isolation of immune cases for possible medical and immunological research, for potential vaccine production.

Beyond the current pandemic, the country should consider the following:

- a. Telemedicine is entrenched in the Health Act 2017 but MOH is yet to finalize policy guidelines that outline the obligations and rights of both providers as well as patients. This can ensure continuity in provision of essential services Furthermore, MOH should lay Telemedicine infrastructure to public facilities countrywide. Therefore, there is need for MOH to finalize telemedicine policy guidelines as well as make infrastructural investments to operationalize this mode of service delivery.

- b. The Kenyan health system will stand to gain long-term dividends resulting from improved access to care to all as well as optimization of the existing specialists even after the COVID-19 pandemic.
 - c. At a national level there is need to rationalize allocation of resources towards COVID-19 response as well as all other essential public health services. This should include – but should not be limited to - infrastructural, financial as well as the human resource. Resource prioritization will be critical in this context.
- Political Aspect**
- a. Maintain bi-partisanship, unifying all political persuasions and political parties for the purpose of facilitating recovery in all sectors of the economy and public health sector.
 - b. Develop progressive guidelines for all sectors of the economy and all levels of jurisdiction, to fully participate and sustain the recovery phase.
 - c. Gradually relax curfew in the least-hit regions/counties.
 - d. Incrementally re-open public/governance institutions such as the judiciary and executive (jurisdictional levels, ministries, regions, counties, personnel/ level of responsibility).
 - e. Gradually relax international trade to stabilize essential supply chains and economic sectors dependent on import supplies.
 - f. Enforce new public health guidelines (personal protective equipment – PPEs, hygiene and sanitation...) for the public and private sector, including trade (smart transactions), services and manufacturing sectors.



A section of the crowd at a past political rally in Nairobi, Kenya

- g. Maintain open parliament/top executive to facilitate recovery and prepare country and economy for re-opening.
- h. Roll out targeted stimulus/stabilization packages for essential employment creating/revenue generating/livelihoods supporting/GDP-growth promoting sectors such as agriculture, tourism and hospitality, manufacturing and processing, and small businesses.
- i. Form multi-sectorial/multi-agency/inter-ministerial task force (key stakeholders in relevant ministries, bureaucrats, business community (Kenya Private Sector Alliance/Federation of Kenya Employers/Central Organization of Trade Unions), professionals, and civil society), to prepare the country for re-opening.
- j. Invest in medical research and development of vaccines, with the help of isolated immune cases.

Reopening Phase

Goals

In this phase, the main goals are:

- a. To make strategic and deliberate efforts to bring social, economic, diplomatic and political order back to normalcy after sustaining stable and steady recovery.
- b. To build resilience against COVID-19 and any future pandemic as well as highly infectious diseases.

Governance and Security Aspect

Some of the goals in this phase include restoring full normalcy for all businesses, social, and political activities; and constant monitoring and control the spread of the virus to avoid a possible resurgence. Some of the strategic action points in this phase include supporting, securing, normalizing and optimizing all national and county approaches and processes on reopening.

Economic Aspect

After managing the virus and enhancing the country's level of preparedness, the focus should shift on getting back the economy to its original state and work on balancing the deficit precipitated by the disruptive period. Economic activities should be ramped up across the country. Some of the strategic action points in this phase include:

- a. Restrictions on movement into and out of the economic heart zones should be lifted
- b. The ban on passenger flights into and out of the country should be lifted.
- c. The night time curfew should be lifted.
- d. Reopen all markets.
- e. Restore public service operations
- f. Restore conference tourism and business
- g. Limit importations that can hurt local industry and prevent business recovery
- h. Gains made during the lockdown in the sector of manufacturing and inventions should be institutionalized. Ministry of trade directed to support such business with financing and market acquisitions.
- i. The main issue of focus in the context of governance and security within this phase is to ensure that the public psyche and morale is positive, vibrant and high; while the negative energy that comes with bad and divisive politics, crime, violent extremism and corruption is kept at bay and fully suppressed.

Education Aspect

Scenarios for Opening Education Institutions:

Some of the strategic action points in this phase include:

The MOH should set preconditions for reopening the schools to which MOE should adhere to. The major players should be engaged: students, parents, and private school owners and teachers unions. The preconditions should include availability of resources for general hygiene, provision of water, toilets, space for social distancing, counselling and plans for catching up. Given the changes and services required, additional resources would be required by MOE.

Private schools would determine how to raise funds they require to comply with MOH protocols. To ensure these institutions do not become centres for spreading the virus, teachers, administrators, support staff should be tested. The logistics of this could be a nightmare. In absence of this how would the country ensure these institutions do not become new centres for transmission.

The following options should be explored:

- a. Option 1: students seating for exam this year, STD 8 and Form 4. This could be extended students seating final exams in the universities, colleges and technical institutions. This will happen in the middle of June to allow monitoring of spread of COVID-19 in counties and undertaking changes required in education institutions.
- b. Option 2: students seating for exams and those in STD7 and Form 3. The implications should be weighed very carefully.
- c. Option 3: formal schooling for non-examination students (STD 1-7 and Form 1-3) is undertaken for a short period (6-8 weeks) after the exams are over. This could be in December and January. It has its challenges, a buy-in by teachers and students and parents have to be convinced. It is contingent on status of containment of COVID-19. Alternatively, let this group remain out of school with consequence indicated above!
- d. Option 4: all institutions and classes reopen in June 2020 but through a staggered program, starting as indicated above with exam candidates, and then other classes would follow as prioritized.

Further measures

- a. In liaison with the Ministry of Health, the Ministry of Education should assess the safety of schools given that some of them were used as quarantine facilities. This also means that relevant institutions should spell out conditions that must be met before schools are reopened including some outlined in this document.
- b. As an exceptional measure, fumigation of all schools used during the pandemic should precede reopening of these schools to mitigate the risk of students spreading the virus further. The Ministry of Education should also reassure parents and students of the safety measures taken by the ministry to guarantee safety of students and to ensure that the risk of contagion is diminished.

- c. Given the huge percentage of learners that may not be accommodated by these measures, the Ministry should strongly consider readjustment of the primary and secondary school year-round calendar depending on the amount of time lost during the pandemic. Consequently, this adjustment is contingent on the recovery and reopening of the economy. The November and December holidays could be affected by this readjustment.
- d. Phased re-opening of schools should begin with near exams students in primary and secondary schools.
- e. The Ministry should also consider an accelerated syllabus for all levels to lessen the time spent on recovery. This includes allowing special after-school studies for candidate classes of Class Eight and Form Four.

Public Health Aspect

The workforce reentry must be met with consideration of workplace hygiene protocols and easing of the measures that have been put in place such as the curfew as well as cessation of movements in the different counties. A risk classification hierarchy should be designed to identify high exposure risk occupations to lower risk occupations by sector and job responsibilities. **For the public health sector, the Government should;**

- a. Increase funding to Kenya Medical Research Institute (KEMRI) to enhance the country's capacity in testing and detection of infectious diseases.
- b. Invest in public health by renovating and building Level 5 hospitals in each county equipped with adequate laboratories and equipment and, infectious disease units for future infectious diseases outbreaks.
- c. Enhance screening capacity of infectious diseases at all entry points into the country by training staff on testing individuals before entering the country and, providing quarantine holding centers at all entry points.
- d. Modify the National Hospital Insurance Fund (NHIF) policies to cover pandemics.
- e. Use this gap in the market when medical products cannot be imported at the same rate as before, to produce Kenyan medical products such as the PPE's, ventilators and testing kits.
- f. Retain the ongoing public information campaign on importance of observing high hygiene standards.
- g. Institutionalize, through an act of parliament, the national health emergency coordination committee. The committee should include representations from county governments and medical professional bodies.
- h. Establish a national infectious diseases center to help research on epidemics and pandemics, to help avert future public health crises arising from infectious diseases such as COVID-19.



A section of Machakos Stadium that was converted into a temporary health facility for mass screening and isolation of COVID-19 cases (Photo Credit Alfred Mutua)

Political and other Aspects

Some of the strategic action points in this phase include:

- a. All opening-up must be informed by success in mass testing and buttressed with sustained preventive surveillance
- b. Lift the curfew in select counties especially those where there is assurance that infections and risk of transmission is low; and where preventive surveillance structures are fully in place.
- c. Restore normalcy in various economic activities select counties especially those where there is assurance that infections and risk of transmission is low; and where preventive surveillance structures are fully in place.
- d. Gradually relax social distancing while restricting mass gatherings, crusades, stadia and beach events as well as church and mosque activities.
- e. Develop national re-opening guidelines and assist Counties to develop county-specific re-opening guidelines.
- f. Regionalized and partial re-opening. Worst-hit counties to remain under curfew. Least-hit counties to lift curfew first. This will open up over three-quarters of the country and similar size of the population to help in the recovery of the economy and lift the economic burden of livelihood support on the government.

- g. In the event of phased or regionalized re-opening, only essential supply chains (especially food trucks and essential civil servants and businesspeople) and necessary movements into and out of 'locked down' counties should be allowed. A COVID-19 free certification should be required for such movements, among other regulations.
- h. Maintain hygiene and sanitation among the public.
- i. Prepare for case-specific response in case of new infections.
- j. If the vaccine is ready, embark on mass vaccination.
- k. Form a pandemic diseases unit to help avert future contagions/pandemics and maintain COVID-19 surveillance.
- l. Open borders to least affected countries first, and gradually, to the worst-hit countries after progressive evaluation.
- m. Fully re-open governance institutions: the judiciary, parliament and critical branches of the executive (civil service), to allow essential public service delivery in sectors such as health and nutrition, education, water, power, sanitation, and public transport.
- n. Project diplomatic leadership in the region through Regional Economic Communities (RECs), such as IGAD, EAC, ICGLR, and COMESA (and by extension AU at the regional continental level).
- o. Consider reopening borders with neighbouring countries that are at the same phase.
- p. Incrementally open other public sectors normalize operations across all arms of government.
- q. Form a parliamentary select committee on long-term pandemic/infectious diseases.

Conclusion



The month of May 2020 will be critical for Kenya in ascertaining the precise picture of the spread of coronavirus disease in the country. Therefore, critical actions should be concentrated on rolling out a robust, systematic and sustained process of screening and mass testing across the country.


Some of the facts that we, currently, do not know, can only be established by scientists. Therefore, KEMRI and any other medical research agency should be asked to concentrate efforts to establish possible link between BCG vaccine, exposure to malaria and plausible immunity to COVID-19. In this regard, KEMRI and scientists should specifically investigate likely pre-exposure and post-exposure prophylaxis aspect in the population, as a possible explanation for comparatively low infection rates.


Formation of an (ad hoc) medical working group (think tank) consisting of four to five medical professionals in public health, immunology, infectious disease transmission and research, should be established. The ad hoc medical working group should be in-house, and whose role should be to primarily help with analysis, organization and interpretation of data and information required for critical decision-making and responsible agencies dealing with the pandemic.

As more community transmission of COVID-19 are detected in the country, it should signal the need for a strategy change—from containment to mitigation. Epidemiologically, it is not possible to quarantine entire populations that have come into contact with a COVID-19 patient. Overall, the recovery and reopening should be informed by evidence obtained from screening and mass testing, as well as preventive protocols such as wearing masks, washing hands and social distancing at all times.




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