

Preliminary Considerations for Kenya's COVID-19 restart strategy

Initial perspectives, intended for discussion

MAY 2020



The Voice of Private Sector in Kenya

Executive summary

Restarting the economy requires balancing health, economic and social tradeoffs

Health: Kenya announced tight restrictions early but kept country **mostly operational**; restrictions have reduced mobility and appear to have flattened the curve allowing time to ramp up health care capacity

Economic: COVID-19 **impacts businesses in two distinct but related ways** - demand and supply shocks globally and in Kenya, and disruption from government restrictions (i.e. aimed to flatten the curve)

Social: Majority of **Kenyans face financial stress**; COVID-19 restrictions not sustainable long term

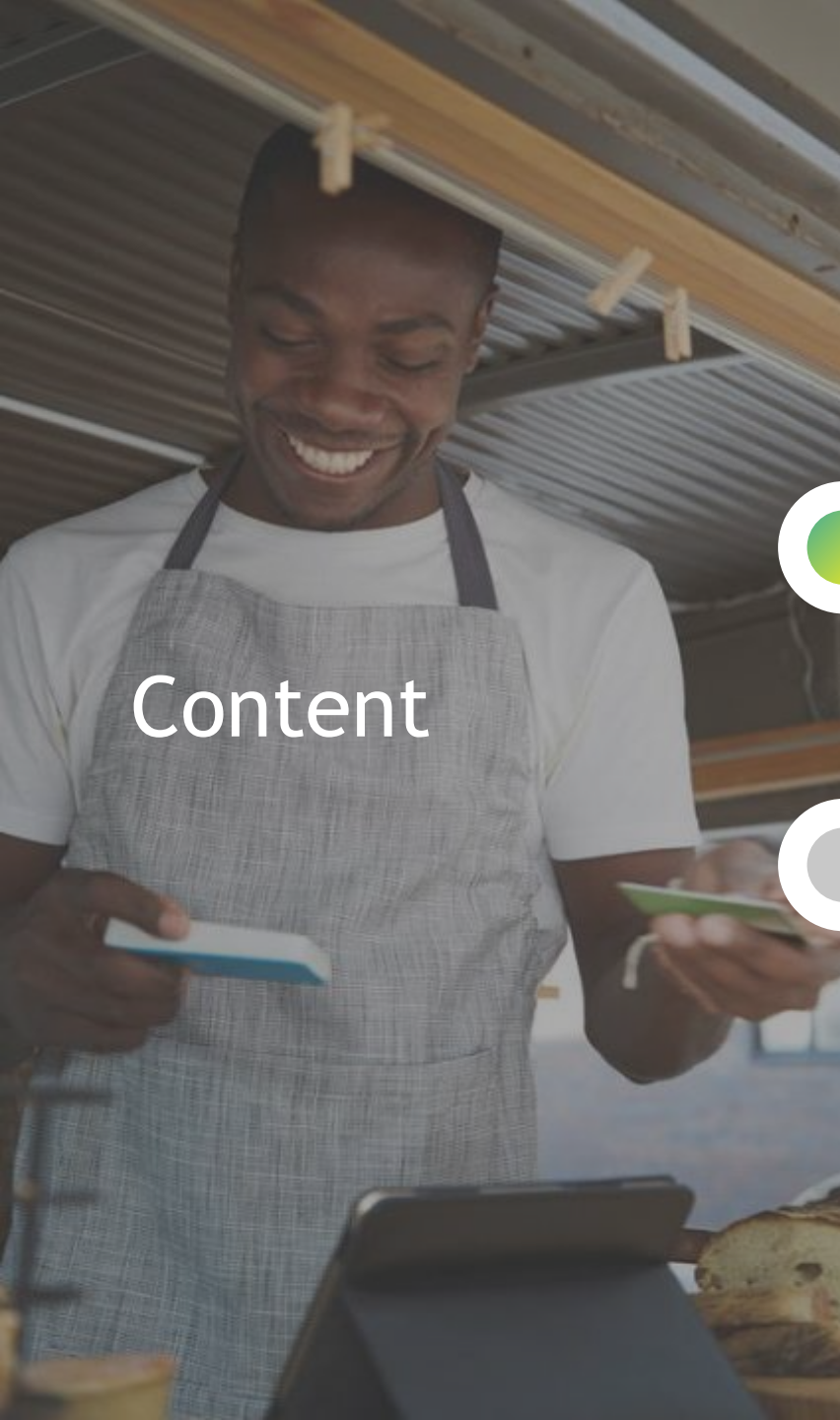
Globally, restart strategies have been staged based on rigorous health and economic data monitoring; approaches typically feature sub-national differences and high volumes of testing

Unclear whether Kenya is ready for restart: COVID-19 cases low but accelerating, health care system readiness a key question, and testing levels lower vs. countries that have re-started

- However, situation is heterogeneous across country suggesting opportunity to localize restart strategy

Request GoK to consider **four key actions for restarting** in clear, data-driven way, ensuring Kenya's strong rebound

- (1) Develop and publish restart plan with criteria by stage, (2) Clarify data being used for decision-making, (3) Ramp up testing significantly, (4) Allow for local differentiation



Content



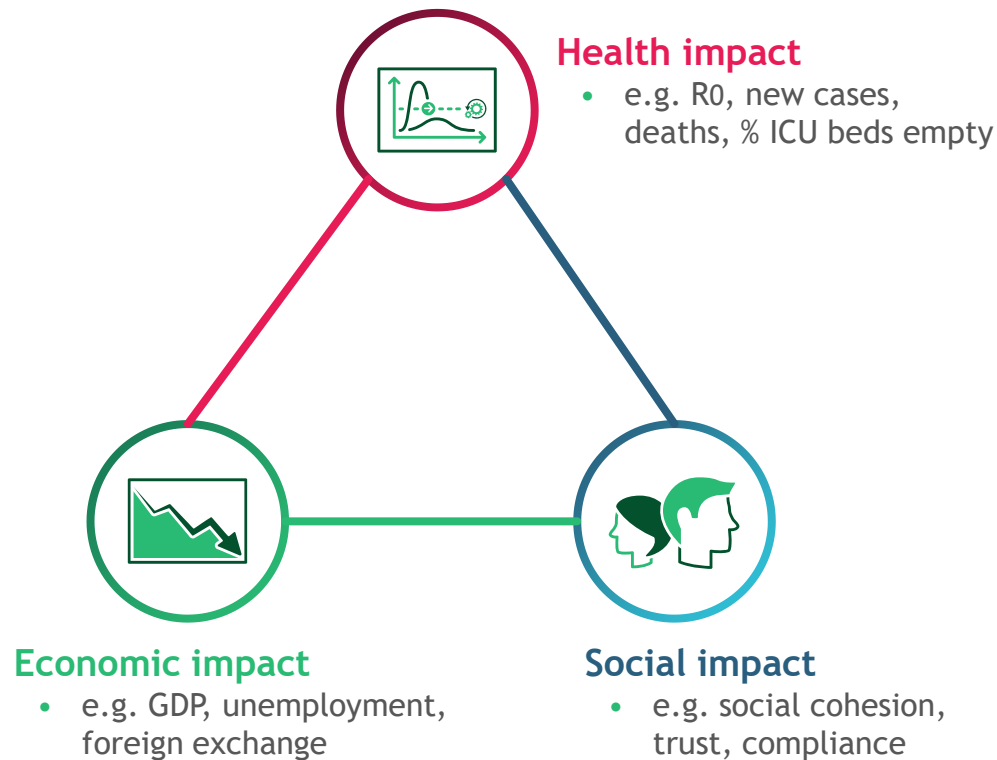
Restrictions implemented in Kenya and impact on health, economy, and society



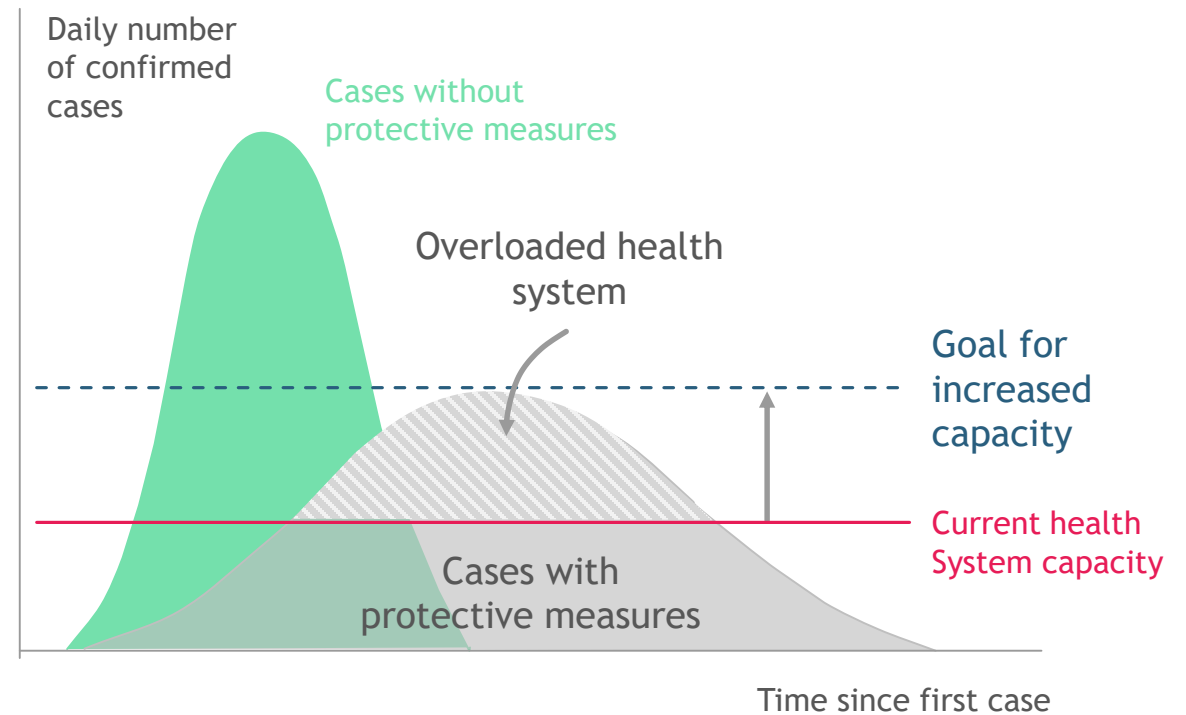
Potential data-driven restart strategy, based on learnings from other countries

Response measures aim to curb COVID-19 spread to allow time to increase health system capacity

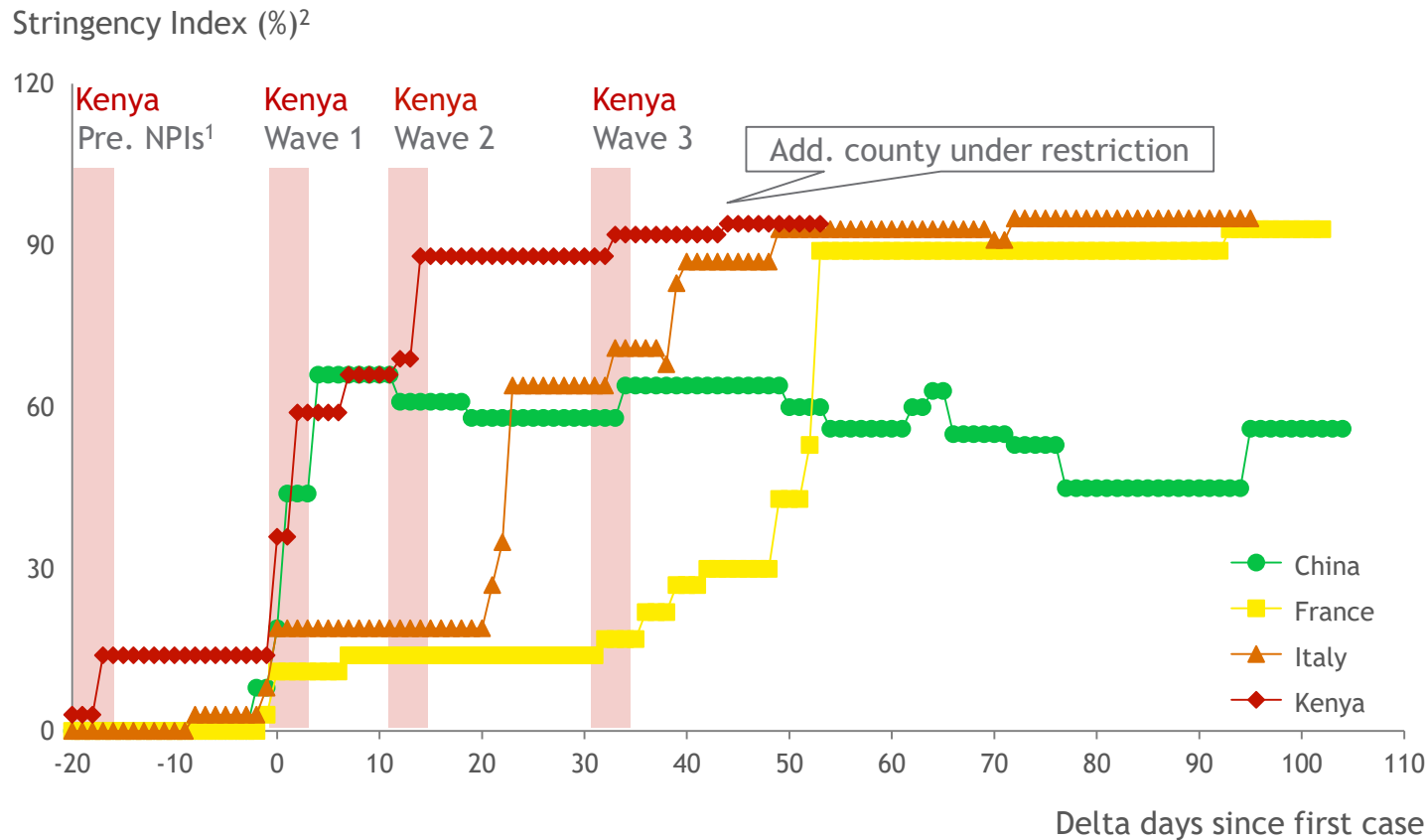
Need to balance **health, economic, and social impact** of implementing restrictions for COVID-19...



... with **initial priority on health**, enabling countries to increase health system capacity



Kenya moved quickly to adopt restrictions; stringency index at high end of global scale



1. Non-Pharmaceutical Intervention; 2. Composite index measuring the strength of reported NPIs per country
 Note: Small daily variations due to country data collection and quality (i.e.g. imprecise reporting or data lag)
 Source: (2020) Oxford COVID-19 Government Response Tracker, Blavatnik School of Government

Three waves of restrictions

Preliminary (20d before 1st case)

- Light international travel control (e.g. screening at airport)
- Public information (e.g. posts on MOH social media)

Wave 1 (15-16/03)

- School closure
- Contact tracing
- Cancel public events (e.g. all public / religious events canceled)

Wave 2 (25-27/03)

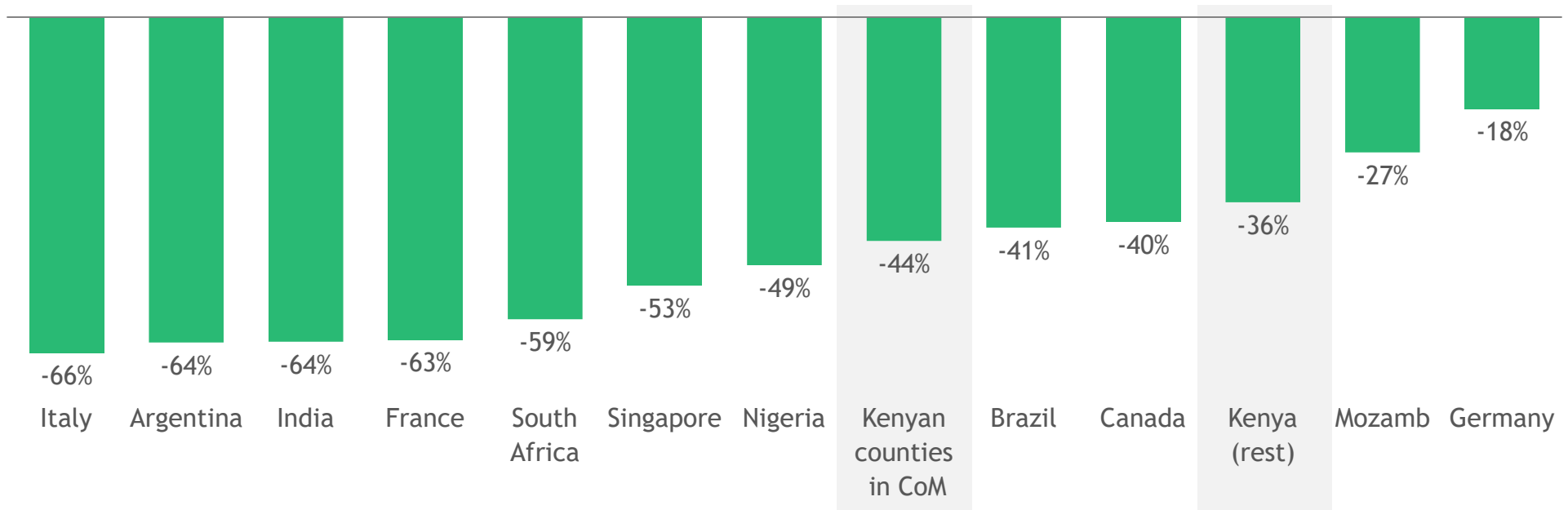
- Public transport restrictions (e.g. max 50% capacity if allowed at all, curfew)
- Hard International travel control (e.g. ban on all non-residents; cargo flights and trucks allowed with quarantine)

Wave 3 (02-06/04)

- Internal movement restrictions in 4 counties
- Additional county added under restriction on 22nd April

Restrictions have reduced mobility in Kenya though less than in other countries

Average drop in mobility vs pre-COVID period
As of 16/04/2020

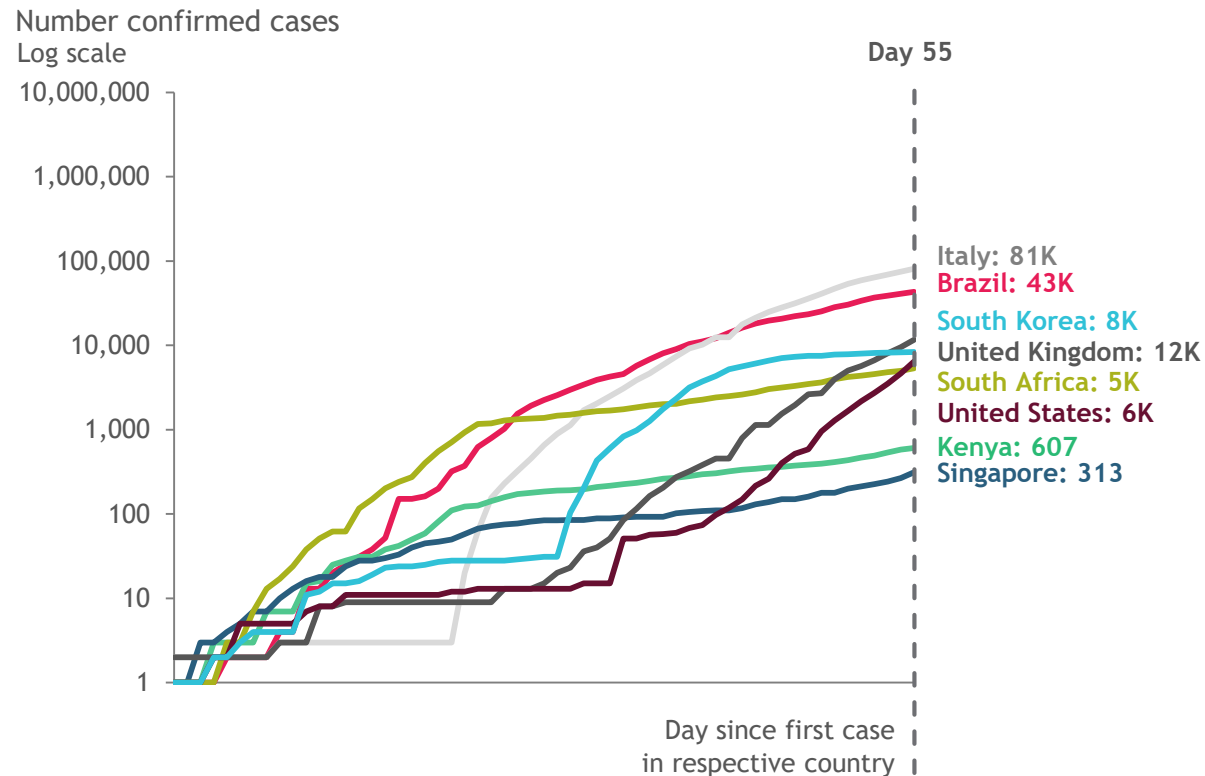


Note: Mobility at 17/04/2020. Mobility calculated at average of various mobility indicators including parks, workplace, shop centers, etc. Residence indicator is not taken into account Source: Google Mobility

Preliminary indication that restrictions helped to flatten curve, and health systems strengthening took place

Possible that early restrictions measures had high impact on **disease transmission** in Kenya...

... while allowing public and private sector to build up **healthcare capacity**



Selected examples, not exhaustive



Kenyatta University Hospital added additional wing; 44 ICU beds



M.P. SHAH HOSPITAL
A Legacy of Care

MP Shah prepared isolation unit for adult and pediatrics, and set up add'l non-COVID capacity with 60 beds and medical staff



AKUH has 6 months inventory on COVID-19 related supplies, built isolation bubbles, and advise county hospitals on 'eICU' checklist



GoK announced hiring 5,000 new healthcare workers (i.e. potential to mobilize young graduates and retirees as needed)



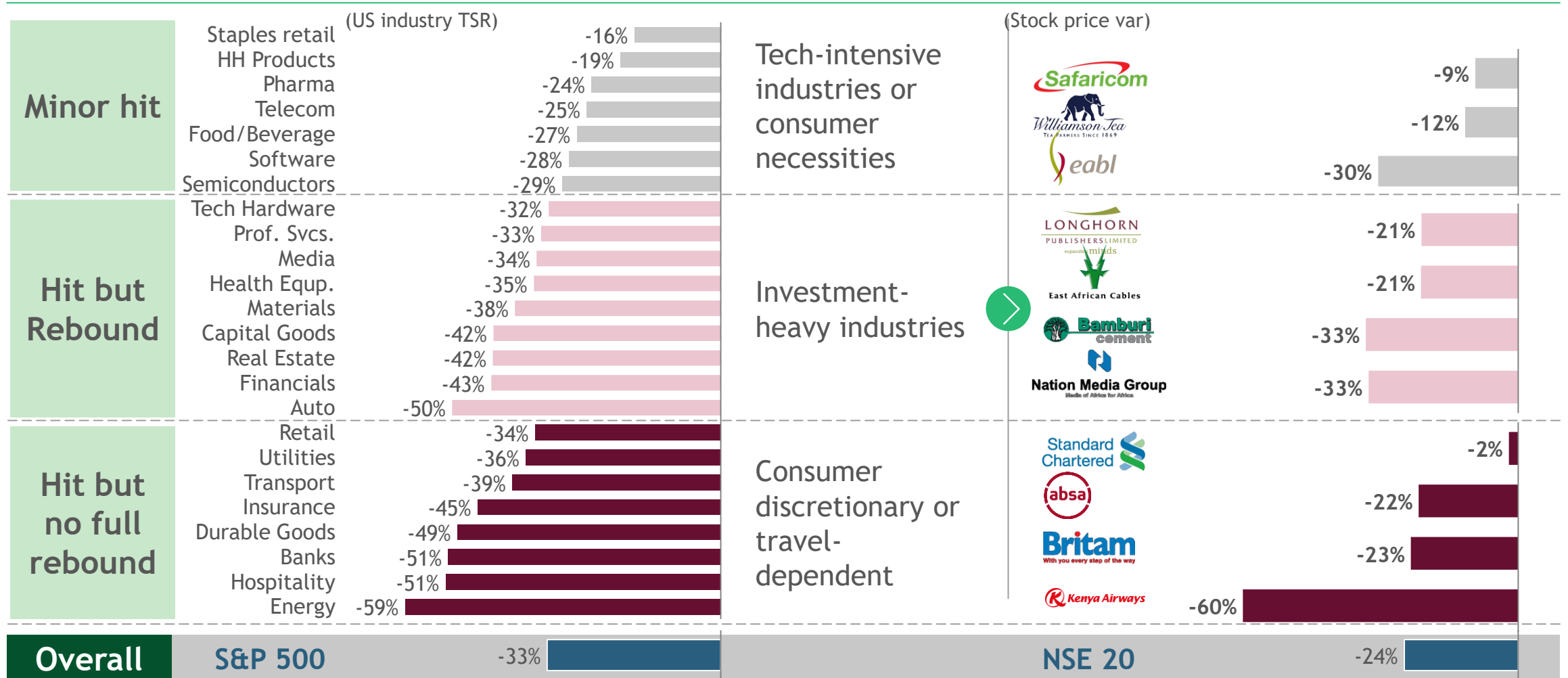
KHF and GoK-supported webinars trained over 1,300 HCWs on COVID-19 preparedness

Source: Johns Hopkins, Github, organization websites and press releases

Severe economic fallout from COVID-19, globally and in Kenya

Crisis phase US
(Feb 21st - Mar 23rd)

Kenya consistent with world trends
(Feb 3rd - Apr 22nd)



Note: Based on top 500 companies by market cap in each region as of 12/31/19; industries based on GICS definitions | Source: S&P Capital IQ, Henderson Institute analysis

COVID-19 impacts businesses in two distinct yet related ways

Main focus of this document

Demand and supply shocks to global and domestic markets

Impact can **only partially** be attributed to government interventions

Demand shock includes global airlines and tourism halting; supply shock includes higher input costs from disrupted global supply chains

GoK has lower control - it can cushion businesses and individuals, and try to stimulate demand and supply; but impact dependent on global economic conditions

Primary driver of severe distress to Kenyan businesses to-date

Disruption caused by restrictions, aimed at flattening the curve

Impact **can be directly attributed** to government interventions

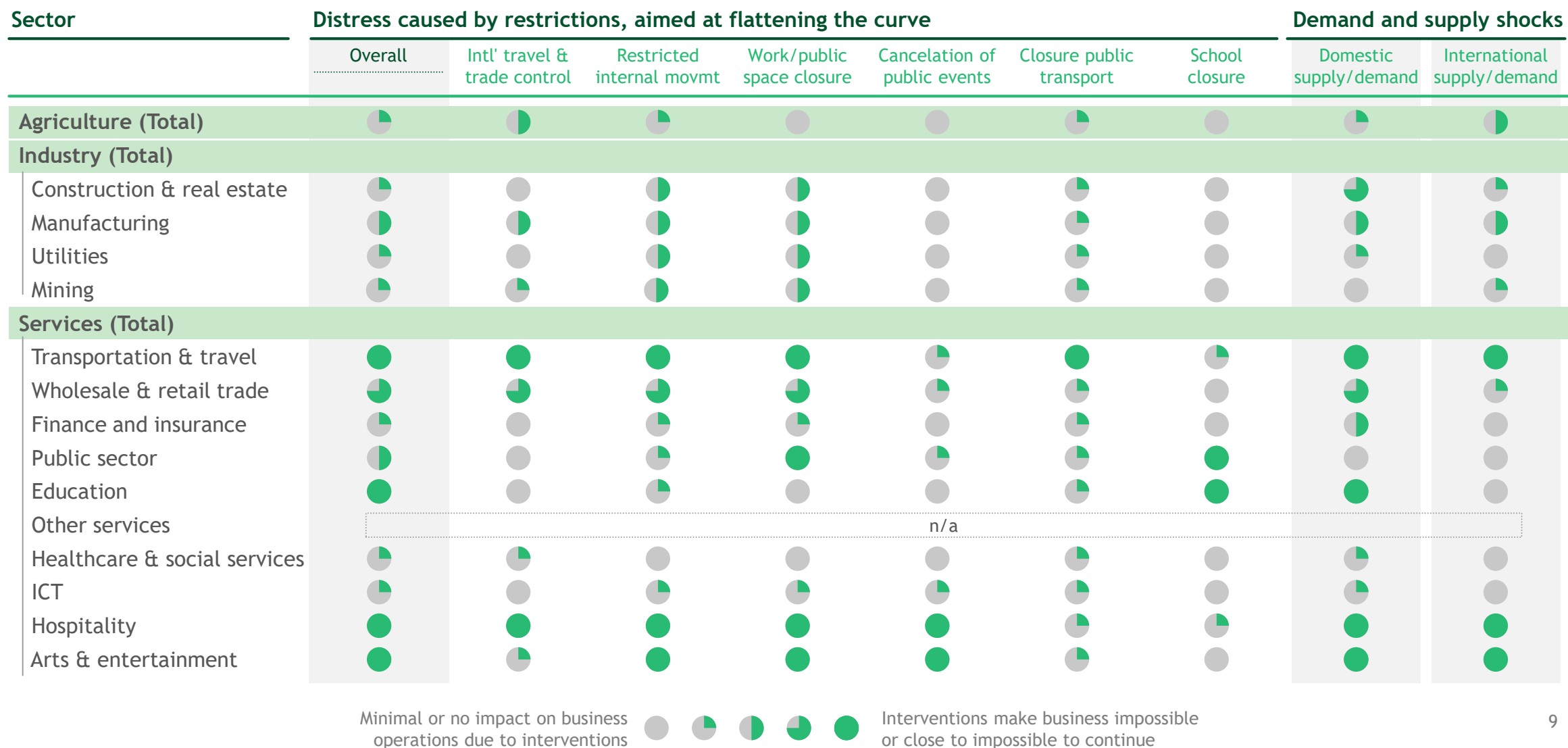
Examples include international travel control, restrictions on internal movement, workspace and school closures, cancelled public events

GoK has higher control - it can ease restrictions (i.e. allow workplaces to re-open), or make more stringent (i.e. 24-hour curfew), depending on disease situation

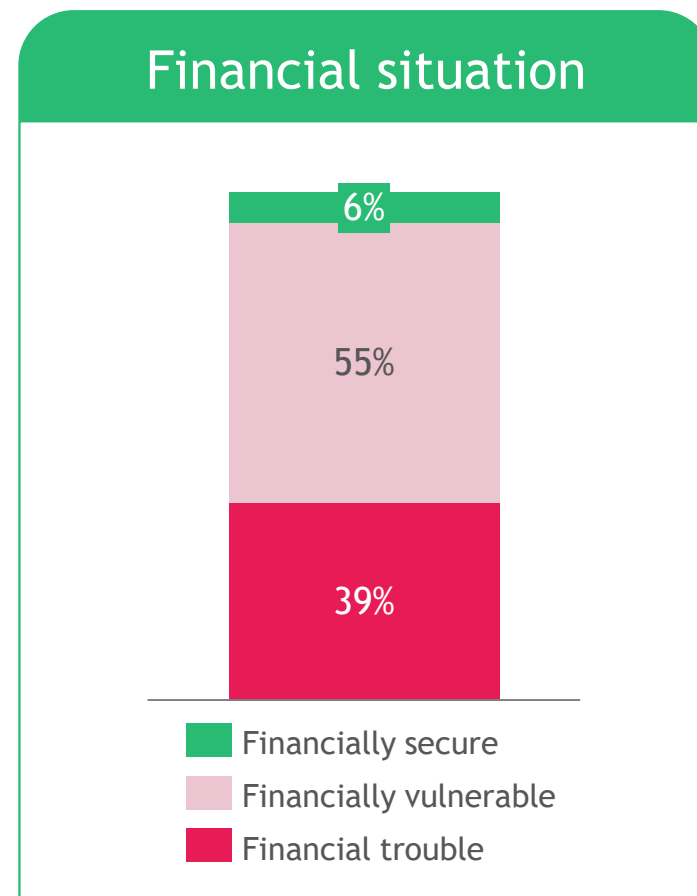
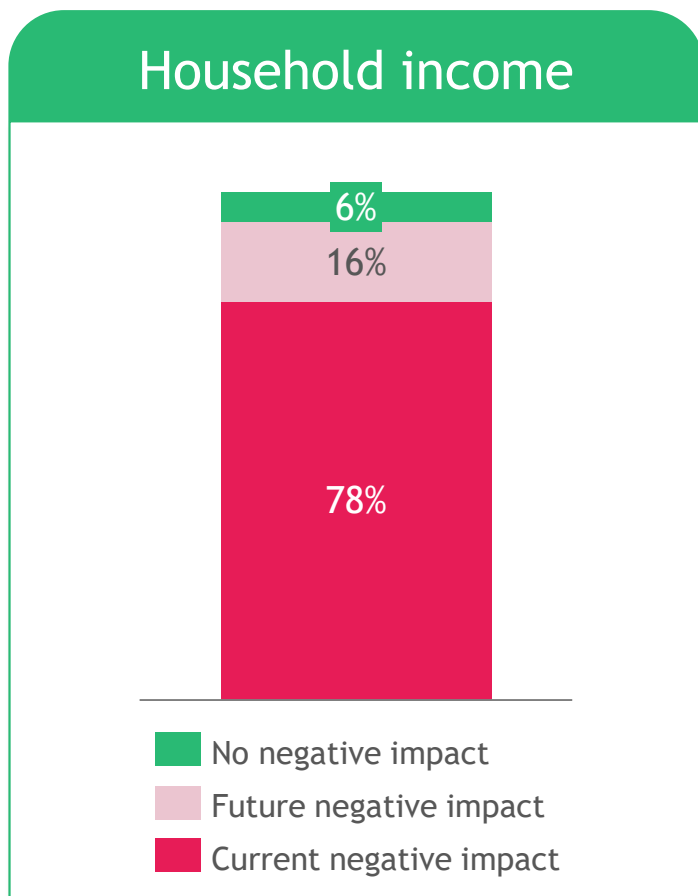
GoK taken balanced approach (i.e. kept operations running with partial curfew)

Global conditions inform restrictions (i.e. no flights to avoid imported cases)
Restrictions also impact demand and supply (i.e. curfew inhibits spending)

GoK restrictions exacerbate impact, particularly for transport & travel, trade, education, hospitality, and arts & entertainment



COVID-19 threatens to derail Kenyan household finances...

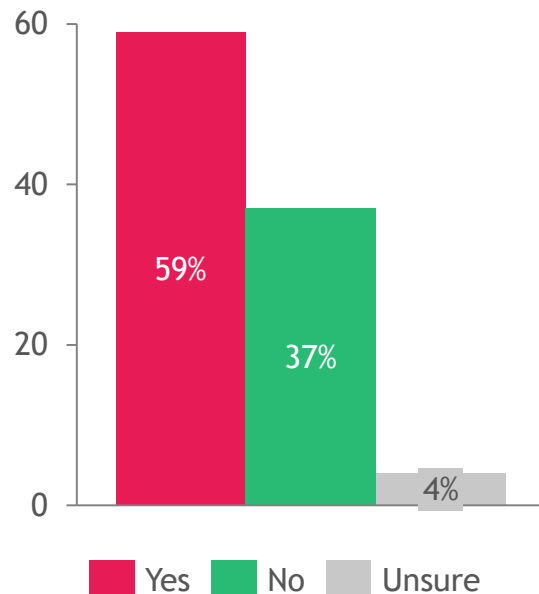


Note: Question text: "Which if the following statements is true for you, when it comes to your household income?" & "Which of the following statements best characterize your feelings on your personal financial situation?" & "How long do you think you will need for your household financial situation to get better if the current virus spread would be contained today and life returns to normal?"

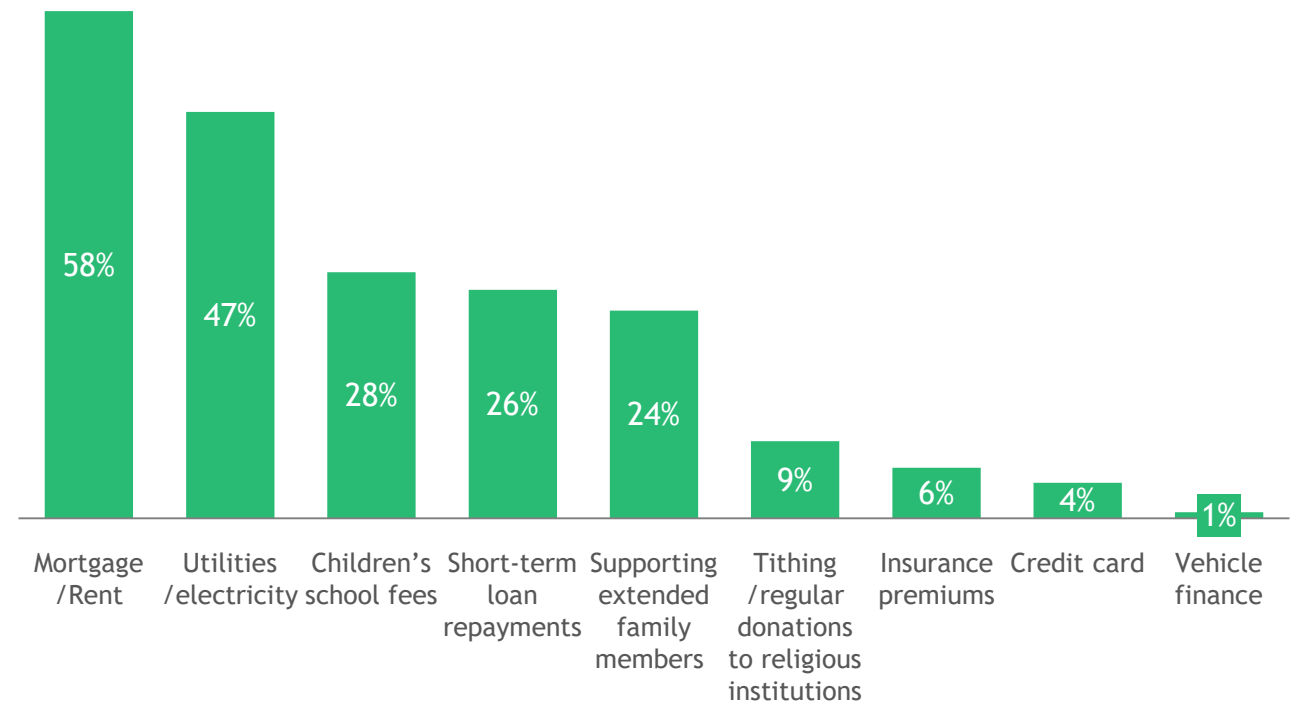
Source: COVID-19 Consumer Sentiment Survey (Kenya), April 17-22, 2020 (N = 502)

...leaving many Kenyans unsure of how they will meet recurrent monthly financial commitments

% respondents concerned about honoring financial obligations vs. those who are not or unsure

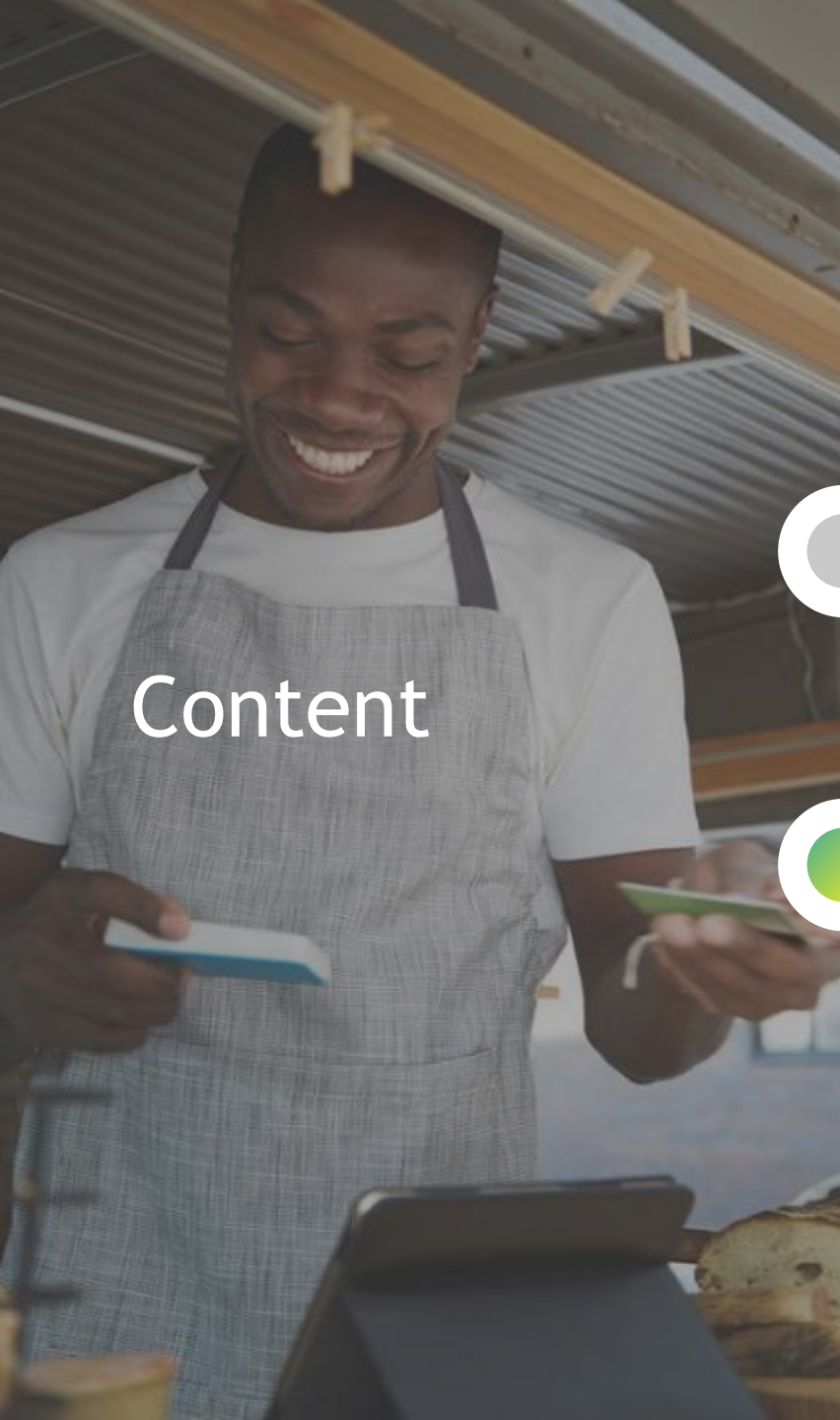


% respondents concerned about honoring financial obligations by type



Note: Question text: "Are you concerned about your ability to honour your current/regular financial commitments?" & "Which financial commitments are you concerned about in your ability to honour?"

Source: COVID-19 Consumer Sentiment Survey (Kenya), April 17-22 2020 (N = 502)



Content

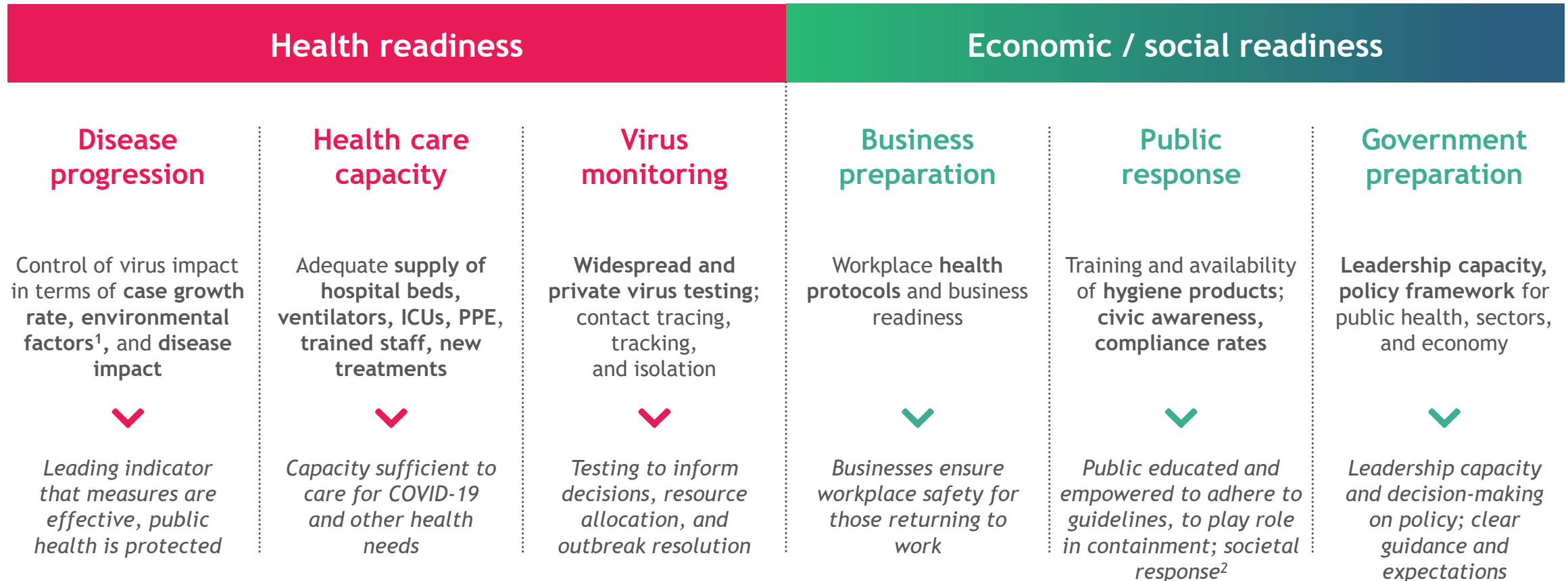


Restrictions implemented in Kenya and impact on health, economy, and society



Potential data-driven restart strategy, based on learnings from other countries

Countries need to continuously monitor health, economic, and social preconditions in order to restart













1. Environmental factors: population density, demographics (age, health conditions), weather, etc.; mixing from other localities

2. Societal response: physical distancing, gatherings, intergenerational living, mass transit usage, shopping behavior, etc.

Countries stage restart by sector (i.e. retail) and type (i.e. small retail spaces)

As of 4 May

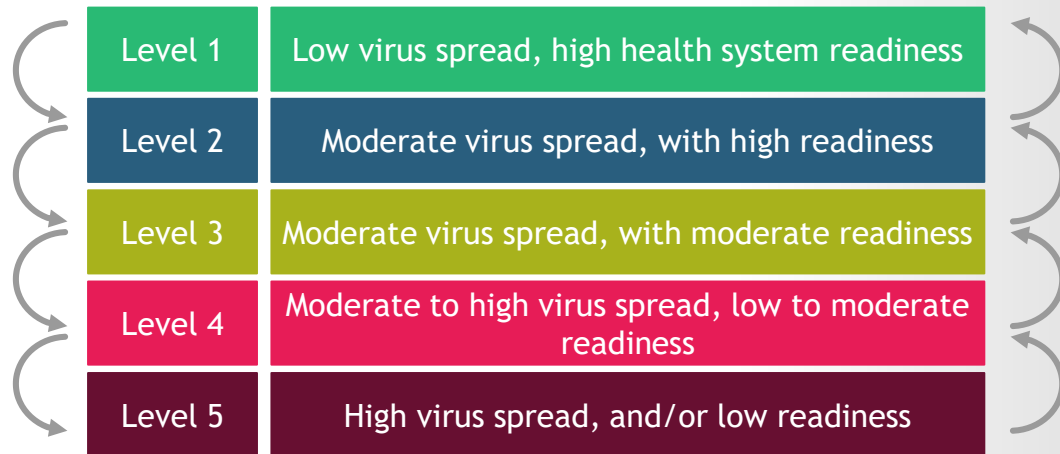
	Risk level			
	Stage 1	Stage 2	Stage 3	Stage 4
China 	<ul style="list-style-type: none"> PPE production (Medical clothing, N95 masks, Medical goggles) Epidemic control services (Ambulances, Related medicines) 	<ul style="list-style-type: none"> Epidemic control activities Medicine Energy supply Transportation Logistics Food 	<ul style="list-style-type: none"> Manufacturing Construction and real estate Trade Commercial services Retail 	<ul style="list-style-type: none"> Restaurants Hotels Education Nursing homes Farmers markets
Czech Republic 	<ul style="list-style-type: none"> Non-essential shops Open-air sports facilities 	<ul style="list-style-type: none"> Farmers market; social Universities 	<ul style="list-style-type: none"> Larger shops Education (Secondary and university) 	<ul style="list-style-type: none"> Restaurants, primary schools Museums, hotels, events, stores
New Zealand 	<ul style="list-style-type: none"> Services 	<ul style="list-style-type: none"> Education (yrs 1-10) Businesses; transport 	<ul style="list-style-type: none"> Sports; travel Public venues; health services 	<ul style="list-style-type: none"> Public gatherings Travel; transport
Austria 	<ul style="list-style-type: none"> Small shops and craft services Hardware and garden stores Education (limited) 	<ul style="list-style-type: none"> All retail shops and beauty salons Education (elementary, secondary, middle, special ed) 	<ul style="list-style-type: none"> Staggered opening of hotels, bars/restaurants Church services 	<ul style="list-style-type: none"> Education (upper, vocational, polytechnic)
Israel¹ 	<ul style="list-style-type: none"> Tech and finance Import/export (some) Public transportation Education (spec. ed, preschool) 	<ul style="list-style-type: none"> Commerce Retail stores Education (elementary) 	<ul style="list-style-type: none"> Cafes, restaurants, hotels Education (non-university) 	<ul style="list-style-type: none"> Leisure and entertainment Culture, sports Large shopping malls Flights
Germany² 	<ul style="list-style-type: none"> Education (childcare, universities with exam) Retail 	<ul style="list-style-type: none"> Education (secondary, final year of primary) Sector services 	<ul style="list-style-type: none"> Education Office operations 	<ul style="list-style-type: none"> Large events
USA³ 	<ul style="list-style-type: none"> Large venues Elective surgeries (outpatient) Gyms 	<ul style="list-style-type: none"> Schools / youth activities Elective surgeries (in-patient) Bars Non-essential travel (for employers) 	<ul style="list-style-type: none"> Visits to senior care facilities / hospitals All staffing 	<ul style="list-style-type: none"> N/A
	Governance:	Conditions met? 	Conditions met? 	Conditions met? 

1. Israel must maintain conditions for 2 weeks before moving on to next stage; 2. Virus reproduction rate to be evaluated every 2 weeks; 3. Cases must be decreasing for 14 day period
 Notes: Unless otherwise indicated, duration of stage is not specified as of date of research



Case study | South Africa announced five-level alert system, with clear governance and health monitoring

Alert system for data-driven decision making



- *Easing restrictions to allow more economic activity may lead to disease resurgence*
- *Need clear, responsive way to ease and/or impose more stringent restrictions, on a sub-national level paired with mass communication (i.e. SMS)*

Governance: Determined by National Command Council, with recommendation from MoH and Industry, nat'l to district-level

Universal preconditions: Need testing, monitoring, hygiene protocols, prevention plan from MoH, Employment, and others

Universal restrictions: Maintain below restrictions at all levels

- Facilities closed (e.g. hotels, bars, religious venues, sports)
- No gathering of >10 people
- Mandatory masks, regular sanitisation of transport, etc.

Data-driven approach: Assess 3 factors to sequence sectors

- Transmission risk: Score risk against 9 criteria (i.e. demographics, ability to remote work or distance)
- Economic value at risk: Assess GDP and job contribution, % operational, export exposure, % MSMEs, economic linkage
- Impact of continued lockdown: Assess payroll, workforce retrenchments, likely bankruptcy

Unclear whether Kenya is ready for restart given uncertainty around health care capacity and testing

	Metrics (selected examples)	Status in Kenya as of May 7 th											
Disease progression	<ul style="list-style-type: none"> New cases (absolute, % growth, per million) Geographic concentration Deaths (absolute, % growth, per million) 	<ul style="list-style-type: none"> ✗ Accelerating: New cases increasing >40 per day, clear evidence of community transmission ⚠ Geographically concentrated: outbreaks concentrated in specific areas e.g. Eastleigh, Mombasa Old Town ⚠ Impact: Number of deaths rising, but lower than other countries at similar stage 	<p>Daily new cases</p>										
Healthcare capacity	<ul style="list-style-type: none"> ICU beds per thousand people Ventilators per thousand people PPEs per thousand people % usage of hospital capacity % usage of ICU beds 	<p>? No publicly released, quality checked data is available for real time monitoring</p>											
Virus monitoring	<ul style="list-style-type: none"> Test completed (absolute, per million) Testing capacity (tests per day) Tracing procedures in place Digital tracing in place 	<ul style="list-style-type: none"> ✗ Low # of tests completed: Most countries re-opening at 10-20 tests / confirmed case; Kenya at 42 ? Total testing & monitoring capacity is unclear (but countries opening doing x20 daily tests) ✓ Test and trace methodology in place ✗ No digital tools/tracing in use 	<p>Test completed per million people</p> <table border="1"> <thead> <tr> <th>Country</th> <th>Test completed per million people</th> </tr> </thead> <tbody> <tr> <td>Kenya</td> <td>483</td> </tr> <tr> <td>Rwanda</td> <td>2,792</td> </tr> <tr> <td>Ghana</td> <td>4,182</td> </tr> <tr> <td>South Africa</td> <td>4,530</td> </tr> </tbody> </table>	Country	Test completed per million people	Kenya	483	Rwanda	2,792	Ghana	4,182	South Africa	4,530
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Case study | South Africa's alert system enables business and social activity to resume, dependent on status of the epidemic

← *Ease restrictions if conditions met* →
← *Make more stringent if disease resurges*

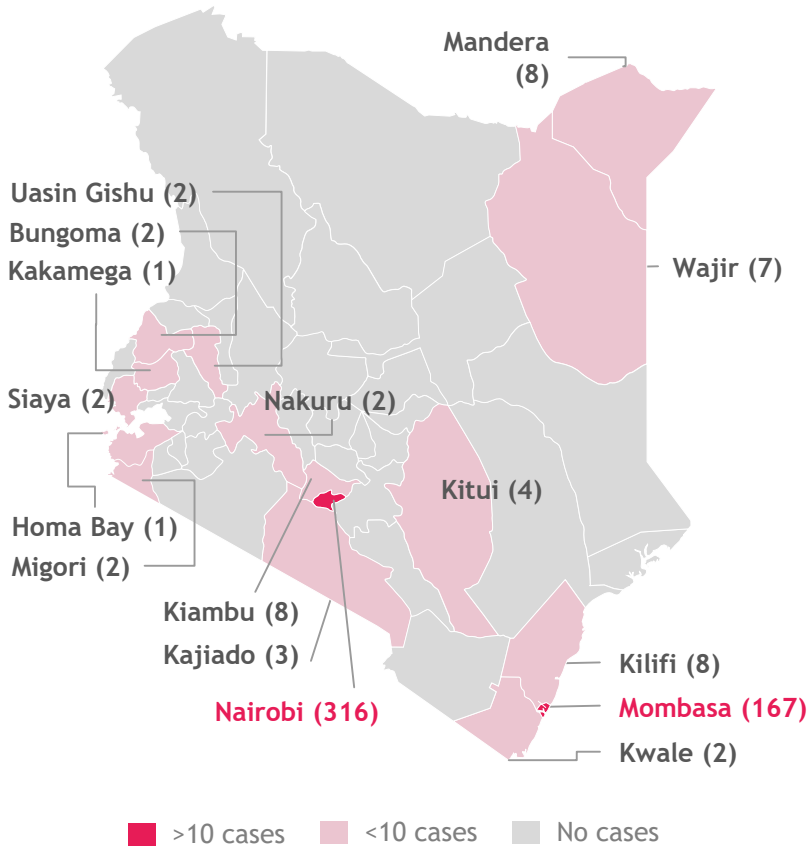
	Level 5	Level 4	Level 3	Level 2	Level 1	...
Status of epidemic	High virus spread, and/or low readiness	Moderate to high virus spread, with low to moderate readiness	Moderate virus spread, with moderate readiness	Moderate virus spread, with high readiness	Low virus spread, high health system readiness	
Business activity allowed	<ul style="list-style-type: none"> Essential services only 	<ul style="list-style-type: none"> Agriculture Mining Mfg: forestry All professional services: finance, ICT, postal... 	<ul style="list-style-type: none"> Govt services (select) Food take-away Retail: hardware, clothing, books, personal electronics Mfg: textile, auto, chemicals, cement, machinery, bottling 	<ul style="list-style-type: none"> Govt services: all Retail: all Mfg: all, incl. construction Domestic work Installation, repairs and maintenance 	<ul style="list-style-type: none"> All except following: [Unclear if following OK]: Sit-in restaurants, bars Hotels Entertainment venues Sporting events Religious, social gatherings 	
Restriction of movement	<ul style="list-style-type: none"> Stay at home order No inter-province movement excl. cargo 	<ul style="list-style-type: none"> Dusk-to-dawn curfew No inter-province movement excl. cargo 	<ul style="list-style-type: none"> Free movement in province (?) No inter-province movement excl. cargo 	<ul style="list-style-type: none"> Inter-province movement for provinces at L1-L2 	<ul style="list-style-type: none"> No domestic restrictions International travel restriction 	

Situation in Kenya today

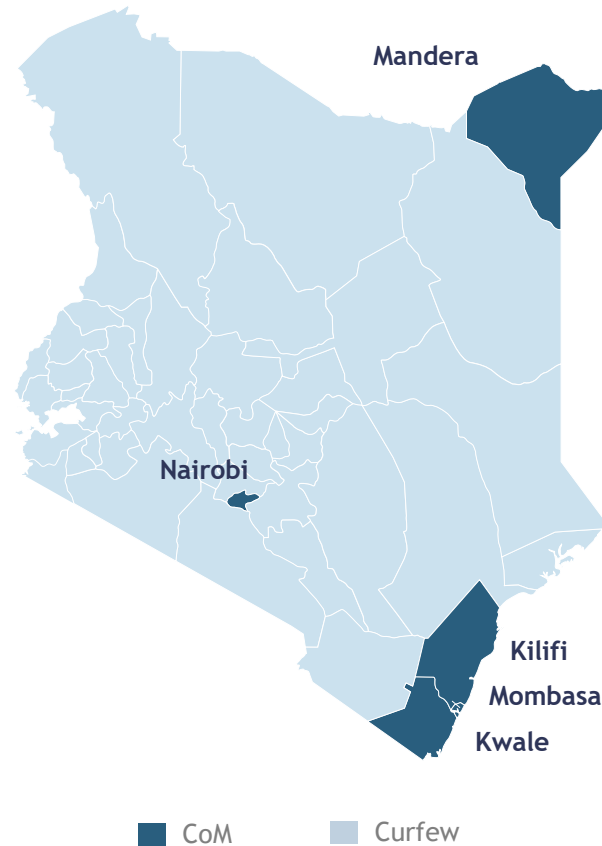
Source: Government of the Republic of South Africa, SABC news

Restart strategy to consider heterogeneous disease situation across Kenya

Cases identified so far in 16 counties, two counties with +10 cases



Nationwide dusk-to-dawn curfew, five counties under cessation of movement



As of May 5th

- 66% of counties (31 counties) have no identified cases; currently also under dusk-to-dawn curfew
- 3 counties (Kilifi, Kwale and Mandera) have <10 cases; currently under cessation of movement
- Nairobi and Mombasa, two counties with overwhelming majority of cases, remain mostly operational with some restriction of movement (dusk-to-dawn curfew); all business are allowed to operate within curfew and some guidelines



Immediate objective

To develop Kenya's plan for easing restrictions, enabling businesses and individuals to prepare for restart

Overarching goal

To stimulate aggregate demand and supply, ensuring Kenya rebounds stronger and more competitive in the global economy

Private sector requests GoK to consider four key actions

- 1 Develop and articulate restart plan**

Define stages of re-opening, and clarify activities permitted and protocols required for businesses and individuals by stage (i.e. per South Africa's five-level alert system)

Allows businesses to scenario plan, based on when certain activities may be expected to resume
- 2 Clarify data being monitored for decision-making**

Identify clear health, economic, and social data / metrics to be tracked for decision-making (i.e. to move stages)

Ensures accountability, enables preparation (i.e. between stages), and instills public confidence (i.e. compliance)
- 3 Ramp up testing capacity significantly**

Develop plan to scale and coordinate testing across public and private health sector, to ensure data-driven decisions

Testing is a critical enabler of all economic and social activity (i.e. pre-requisite for allowing domestic and international travel); need to mobilize and prioritize limited resources
- 4 Allow for local differentiation**

Ensure efficient and effective national, county, and local coordination, given differences in disease situation

Enables economic and social activity in some areas to resume sooner in data-driven way, without jeopardizing overall country

Appendix

Announced restrictions allow Kenya to stay partially operational; dusk-to-dawn curfew vs. 24-hour curfew in other countries



International travel and international trade control

- All international flights, except cargo flights, have been suspended since March 25th
- Land transportation (trucks) can continue, but screened for COVID-19 at borders
- Port of Mombasa has left only essential employees at the port (loading/offloading)



Restrictions on internal movement

- Dusk-to-dawn nationwide curfew is in place (7pm-5am), except for essential services
- Cessation of movement (in/out) for people on selected counties and areas within counties, but cargo can still circulate through the territory



Workspace and public spaces closure

- No formal order mandating WFH, but corporations encouraged to do so
- All GoK/state agencies encouraged to work from home, excl. essential services; may paralyze certain agencies closed to the public (e.g. courts & land registry scaled down activities)
- Factories can operate complying with social distancing & curfew (may entail 24h shift rotation)
- Eateries and restaurants can be opened under strict guidelines; pubs cannot
- Golf clubs and club houses must close, but open sporting clubs may remain open
- In Eastleigh and Mombasa Old Town only: eateries and markets to remain closed



Cancel public events

- Church, mosques and other religious gatherings are suspended (including weddings, funerals)
- Gatherings have been suspended



Close public transport

- Public transport can operate under health and social distancing guidelines (skip over seats)



School closing

- Schools and higher learning institutions have been closed

****Anything not explicitly announced may be assumed allowed*

Back-up | Detailed list of interventions that can impact businesses (I/II)



International travel and international trade control

- Feb 03 | Surveillance and screening at JKIA and ports of entry
- Feb 13 | Recommendation against non-essential travel (not mandatory)
- Mar 15 | Suspension of all incoming travel for affected countries (excl. citizens)
- Mar 25 | Suspension of all international flights (excl. cargo flights)
- Apr 19 | Screening of truck drivers entering and operating in Kenya
- Apr 26 | Screening of truck drivers at all border points (later done at Mombasa to avoid queues)
- May 06 | Reduced employees at Port of Mombasa from 6.2k to 4k (only loading/off-loading cargo)



Restrictions on internal movement

- Mar 13 | Recommendation to stay at home for symptomatic people
- Mar 15 | Recommendation on avoidance congressional meetings and malls
- Mar 25 | Dusk-to-dawn curfew nationwide (daily) except for essential services (7pm-5am)
- Apr 06 | Cessation of movement (in/out) in Nairobi, Kilifi, Kwale and Mombasa (excl. cargo)
- Apr 22 | Cessation of movement (in/out) in Manderu (excl. cargo)
- May 06 | Cessation of movement (in/out) in Eastleigh and Mombasa Old Town



Workspace and public spaces closure

- Mar 15 | Recommendation to work from home when possible
- Mar 20 | Reduced business hours (until 7.30pm) for entertainment, bars & social spaces
- Mar 20 | Establishment of social distancing requirements in bars, restaurants, supermarkets
- Mar 20 | Establishment of social distancing requirements for factories (through 24h shift rotation)
- Mar 22 | Closure of all bars until further notice, restaurants to remain open only for take-away
- Mar 25 | Recommendation for state agencies to WFH, at-risk public officers to take leave/WFH
- Apr 07 | Closure of golf clubs and club houses, open sporting clubs can open w/ social distancing
- Apr 25 | Reopening of eateries and restaurants (not pubs) under strict guidelines, from 5am to 4pm
- May 06 | Closure of eateries and markets in Eastleigh and Mombasa Old Town

Back-up | Detailed list of interventions that can impact businesses (II/II)



Cancel public events

- Mar 06 | Ban on all meetings, conferences and events of international nature
- Mar 13 | Recommendation on suspension of public gatherings, meetings, etc.
- Mar 22 | Suspension of church, mosques and other religious gatherings (incl. weddings, funerals...)
- Apr 06 | Ban on gatherings in public places



Close public transport

- Mar 15 | Establishment of hygiene standards in public transportation
- Mar 20 | Establishment of social distancing requirements for public transport (limit passengers)



School closing

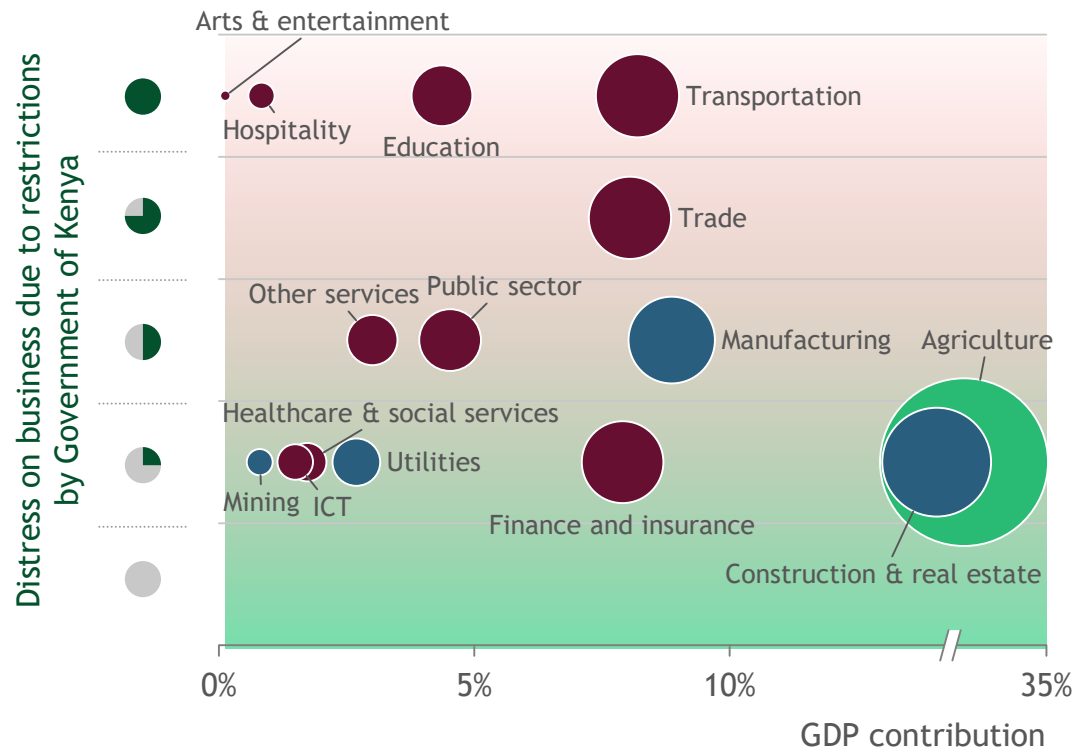
- Mar 13 | Suspension of inter-school events (schools remain open)
- Mar 20 | Closure of schools and higher learning institutions

Other

- Mar 13 | Suspension of prison visits
- Mar 15 | Mandated self-quarantine for 14 days for incoming travelers
- Mar 22 | Mandated quarantine for 14 days at govt' facilities for travelers at their expense
- Apr 05 | Requirement to wear face-masks by citizens in public places
- Apr 19 | Upon breakage of curfew, mandated quarantine for 14 days
- May 06 | Mandated quarantine for 14 days will now be free of charge

Back-up | GoK restrictions exacerbate economic fallout for some sectors including trade, a significant contributor to both GDP and jobs

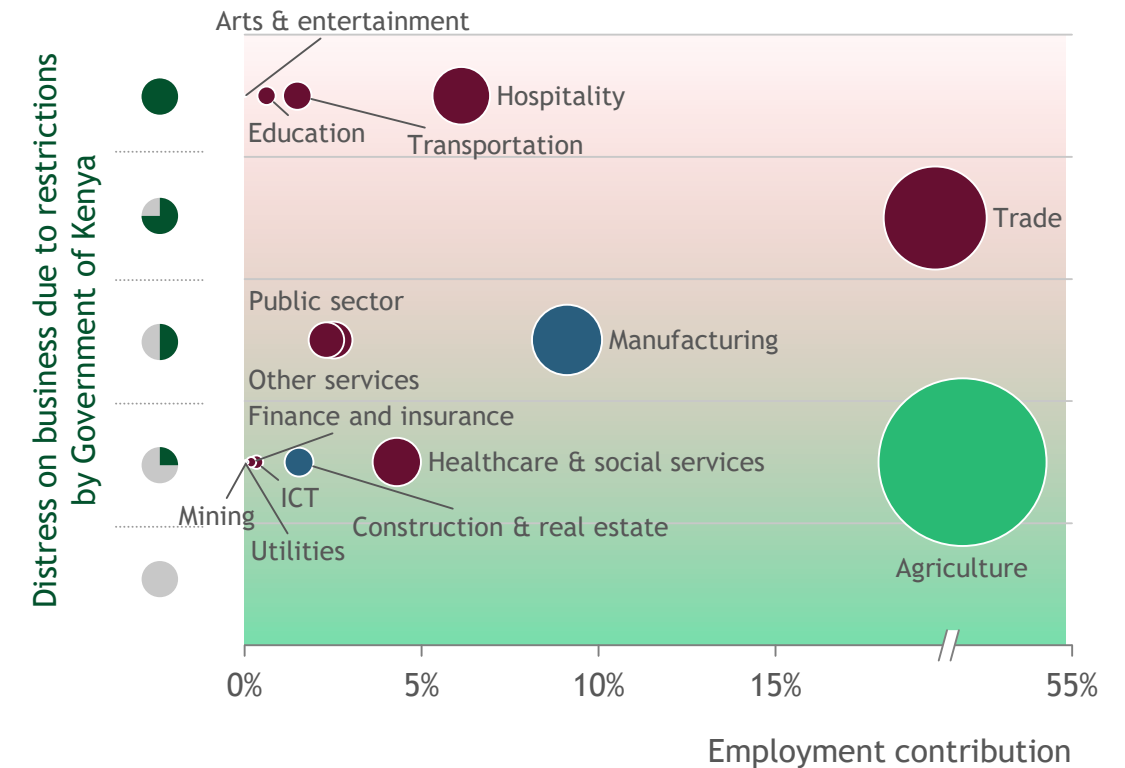
Contribution to GDP by sector relative to distress from interventions by GoK



● Agriculture ● Industry ● Services

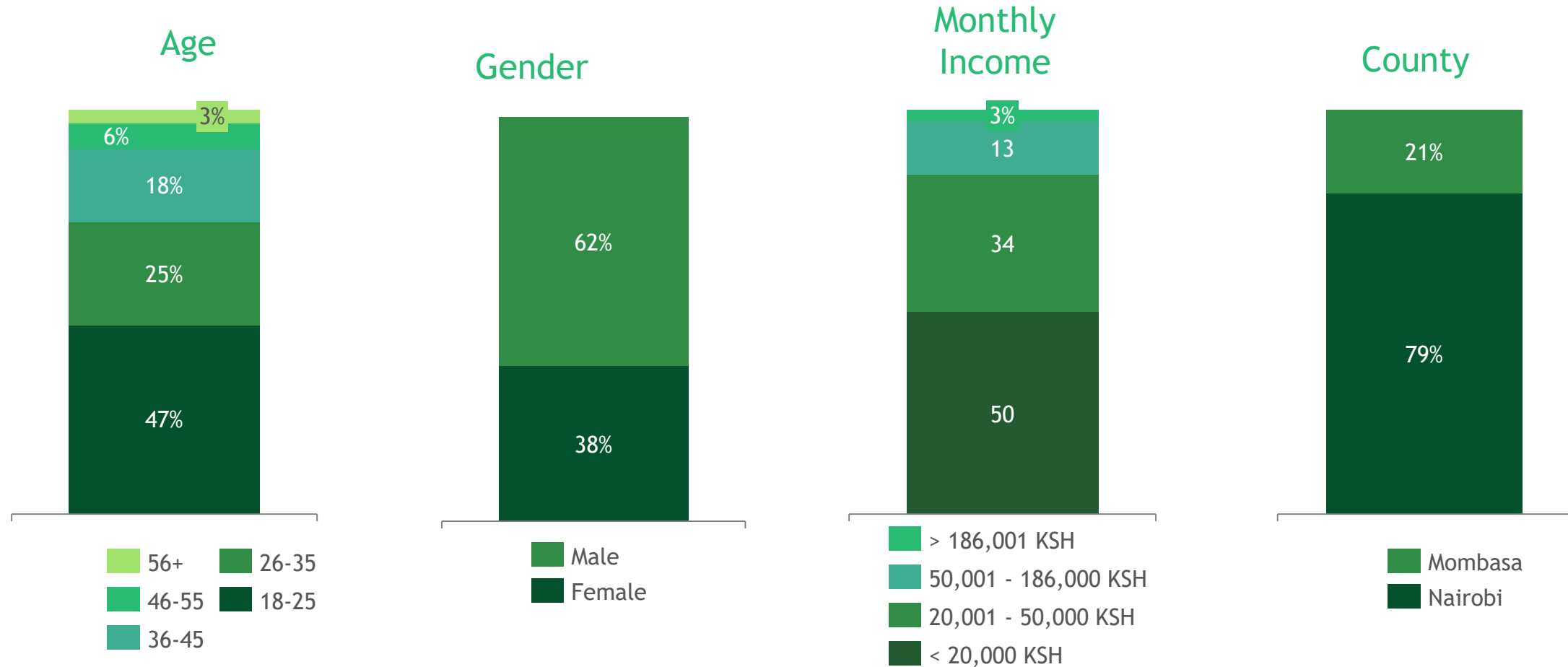
Minimal or no impact on business operations due to interventions ● ● ● ● Interventions make business impossible or close to impossible to continue

Contribution to employment by sector relative to distress from interventions by GoK

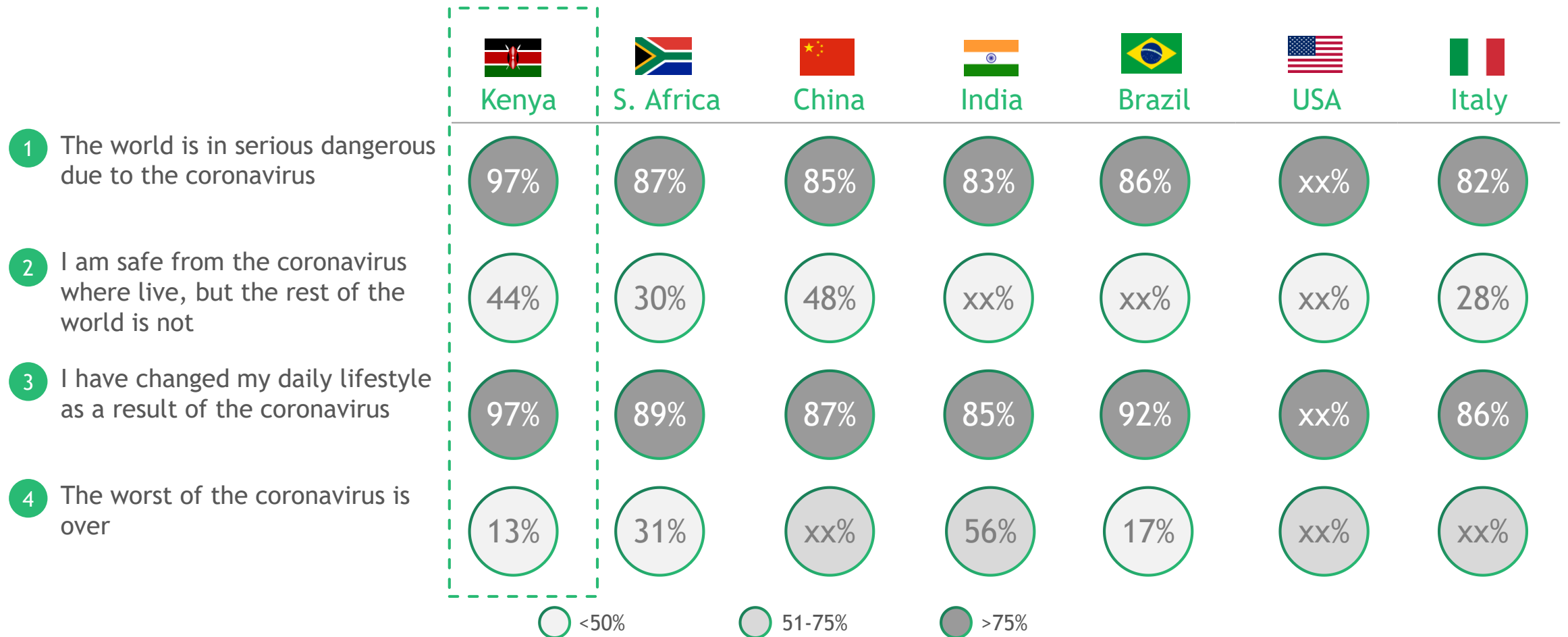




Back-up | Kenya survey demographics

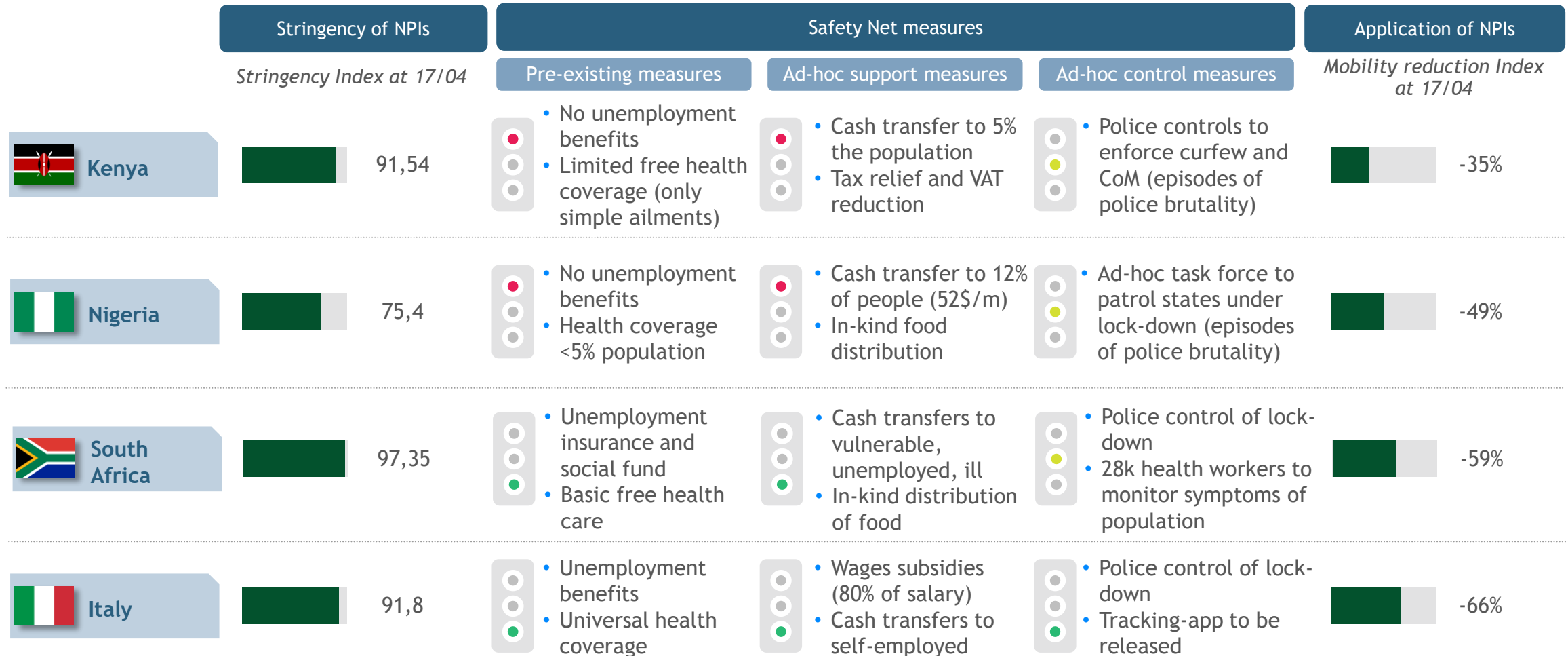


Back-up | Kenyan consumers are as concerned about COVID-19 as consumers in markets with higher infection rates



Note: Question: "How much do you agree with each of the following statements about the coronavirus?"
 Source: COVID-19 Consumer Sentiment Survey (Kenya), April 17-22, 2020 (N = 502)

Back-up | Relationship between safety net measures and application of restrictions



Note: Mobility and stringency index at 17/04/2020 except for USA (11/04) and Morocco (7/04). Mobility calculated at average of various mobility indicators including parks, workplace, shop centers, etc. Residence indicator is not taken into account
 Source: Google Mobility; (2020) Oxford COVID-19 Government Response Tracker, Blavatnik School of Government; press search

Back-up | Three broad restart strategies emerging across countries



Crush & Contain

Primary
Levels

Extreme focus on **limiting interactions**, with secondary focus on **ensuring safer interactions and testing, tracing & quarantine**

Restart
Implications

Open economy in walled (fractal) society: preventing any new cases from entering. Fully restored economy within walls

Required
Conditions

- Strict border control
- Societal adherence to lockdown (e.g., groups staying within fractals)
- High volumes of testing and contact tracing

Empirical
definition

- Max stringency control levels have been reduced
- <1 new case per million inhabitants



Most common approach to-date



Flatten & Fight

Pull all levers in concert, hoping to avoid having to limit interactions due to high cost

Progressive lifting of restrictions and reopening of economy without surpassing health system limits

- Ability to increase health capacity
- Ability to increase virus monitoring
- Adherence to safety protocols during period of gradual reopening

- >1 new case per million inhabitants
- >60/100 maximum Stringency Score on COVID-19 Gov. Response Tracker¹



? *Initial actions suggest this approach (i.e. restaurants), but full restart strategy unclear / not yet public*



Protect & Provide

Focus on **protecting the vulnerable** with limited or no lockdown

Prolonged isolation of vulnerable population. Economy resumes activity w/ few restraints, but continued health precautions (e.g. PPE)

- Ability to isolate, support socio-economic wellness of the vulnerable population
- Economic, political, or social realities prevent costly infrastructure investment

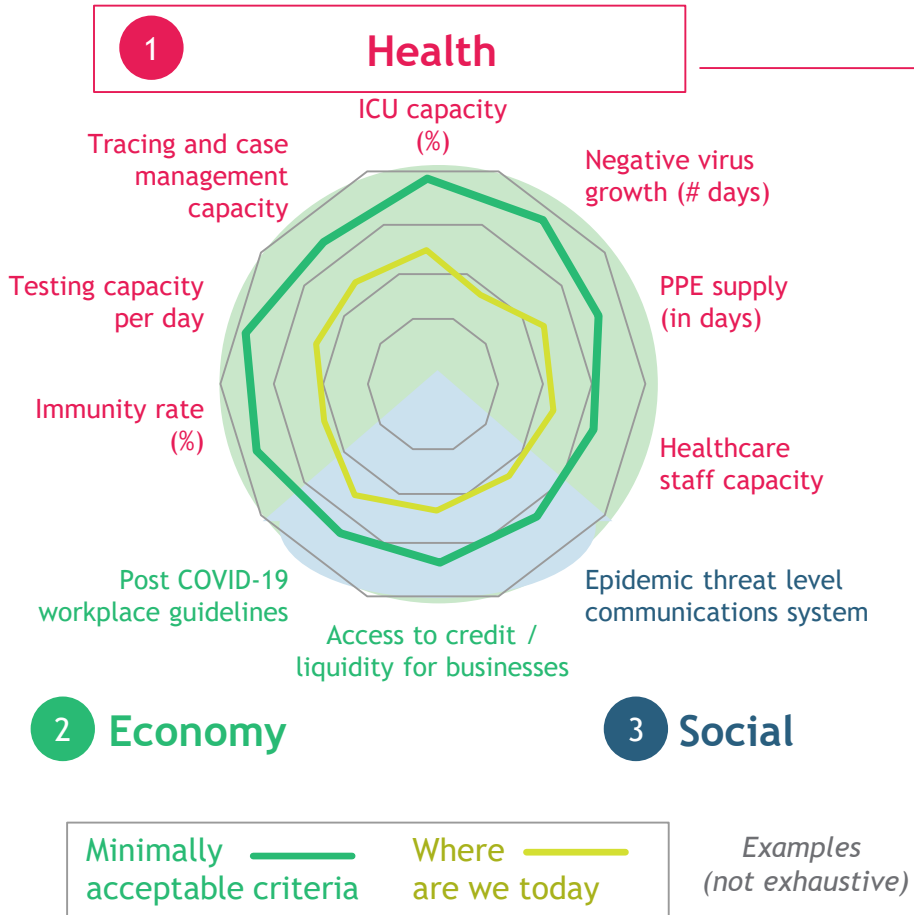
- >1 new case per million inhabitants
- <60/100 maximum Stringency Score on COVID-19 Gov. Response Tracker¹



1. Oxford's COVID-19 Government Response Tracker creates an additive, composite score countries' COVID-19 policies across seven indicators (school, workplace, and public transit closings, public event cancellations and info campaigns, restrictions on internal and international travel); 4. Countries with scores <60 are in the 10th percentile (or lower) in government stringency across indicators. Source: Oxford University COVID-19 Government Response Tracker

Back-up | Achieve health preconditions for restart, then monitor continuously

Build a set of constraints under which government will consider restart



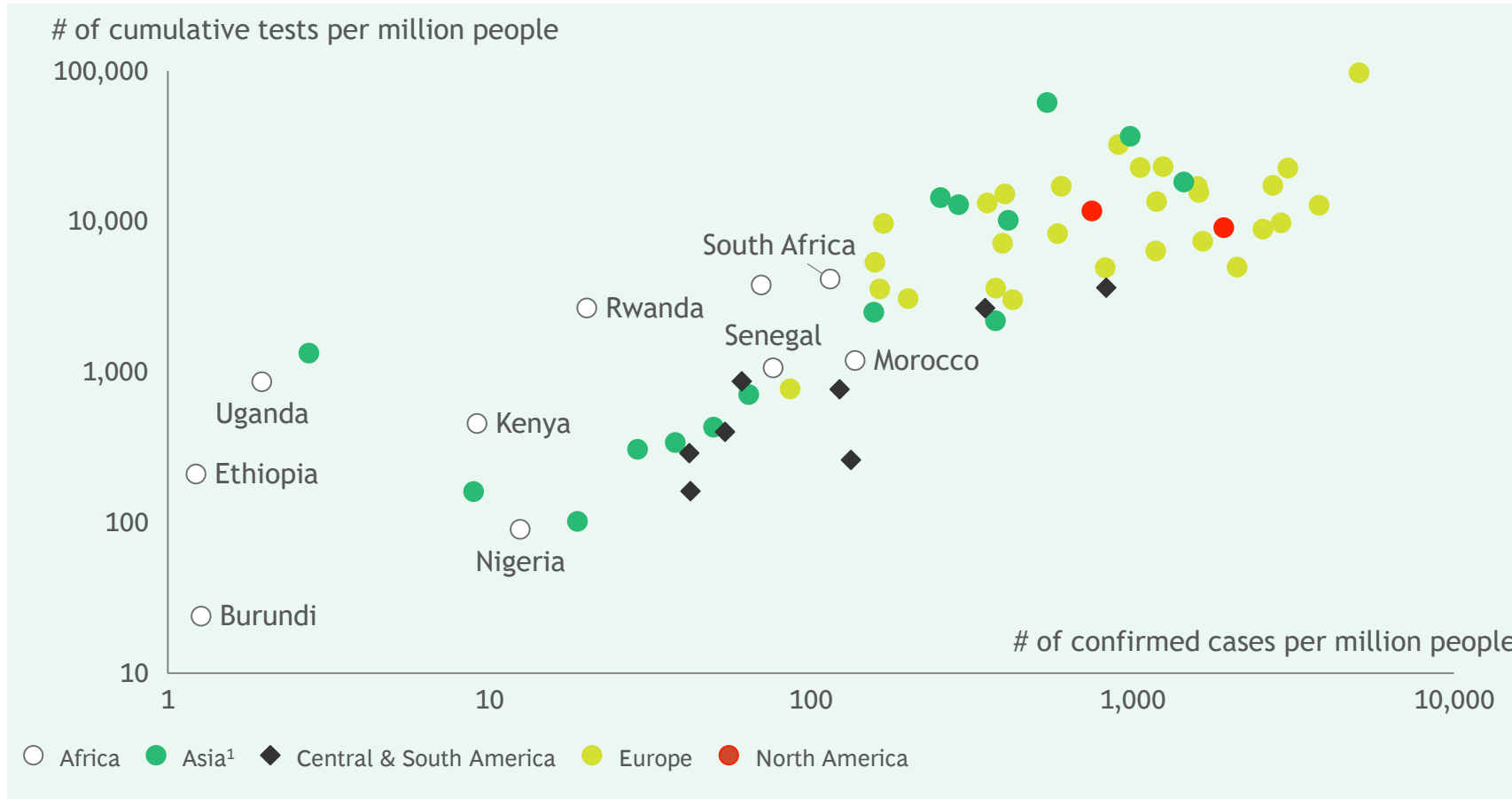
Examples: Medical Preconditions

Illustrative data

Virus	Negative virus growth	Decreasing daily growth in new cases in days <ul style="list-style-type: none"> E.g., 14 days of decreasing daily growth rate in new cases
	PPE	Days inventory outstanding of critical items <ul style="list-style-type: none"> E.g., at "COVID burn rate", 45 days of PPE supplies plus security of supply
Healthcare capacity	ICU capacity	% of ICU beds empty <ul style="list-style-type: none"> E.g., 30% of COVID-19 ICU beds empty
	Immunity penetration	% of population (in region) that is immune <ul style="list-style-type: none"> E.g., immunity of population over 45% changes degree of restrictions required
	Healthcare staff capacity	% of ICU staff available <ul style="list-style-type: none"> E.g., 30% of ICU staff available
Virus monitoring	Viral genome testing capacity	Volume of testing capacity / day <ul style="list-style-type: none"> E.g., enough tests to test all symptomatic individuals plus contacts; 100-200k tests capacity per day
	Contact tracing capacity	Tracing of all confirmed-cases within X time <ul style="list-style-type: none"> E.g., Can trace all lab-confirmed cases in 1 day; need to enable with digital
	Case management capacity	Number of cases that can be managed / day <ul style="list-style-type: none"> E.g., Capacity to manage 10,000 active cases; need to enable with digital

Back-up | Kenya levels are ~10x lower in Kenya vs. South Africa and Ghana

EA Africa data as of 4 May
RoW data as of 15 Apr



Data as of 6 May

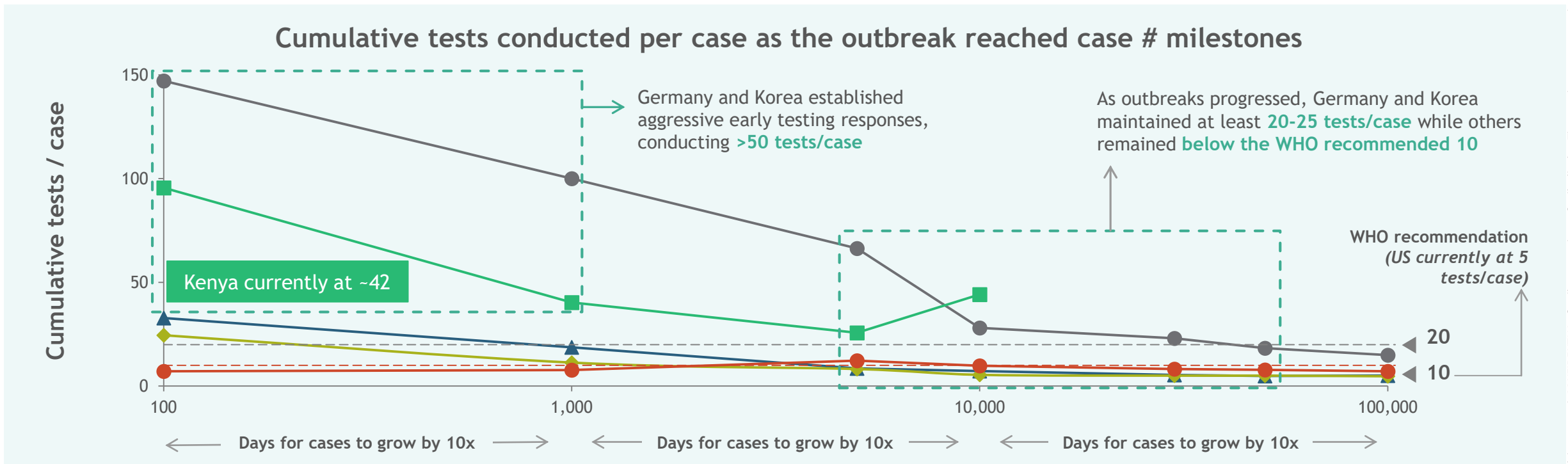
	Tests/M pop.	Cases/M pop.
Kenya	483	11
Ethiopia	232	1
Uganda	970	2
Rwanda	2,792	20
Burundi	24	1
Tanzania	n/a	8
Somalia	n/a	49
S. Sudan	112	5
S. Africa	4,530	128
Ghana	4,182	88
Nigeria	103	14
Morocco	1,438	147
Senegal	1,138	86

Countries with lower testing capacity tend to report fewer cases; risk of hidden outbreaks

1. Includes Middle East

Note: Africa data from 27 April or next available; RoW data from 15 April. Source: World Bank, Worldometers.info, Our World in Data, Johns Hopkins

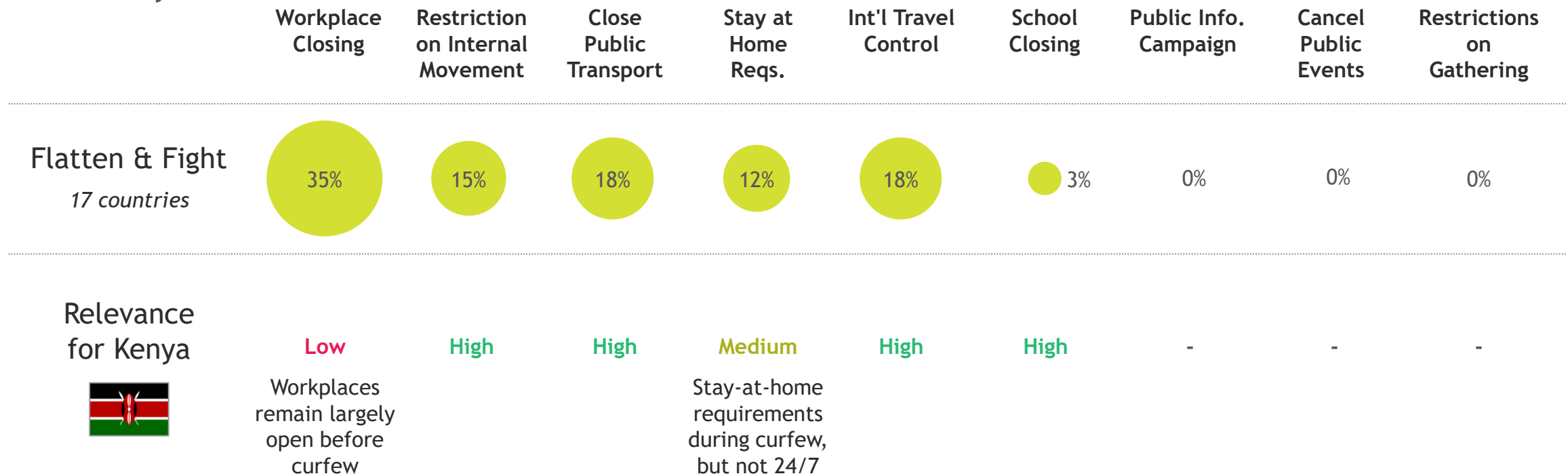
Back-up | Countries beginning to re-open economies with testing ratios of ~20+ tests / confirmed case



Back-up | Many countries first ease workplace closure, if disease is controlled

Percent of countries that relaxed each containment measure first, assuming disease is controlled

As of 1 May



Note: Data includes 28 countries that have reduced their Stringency Index after reaching a maximum and excludes 118 countries currently at their maximum Stringency Index; many countries reduced multiple restrictions at the same time; Data from 4/30; Oxford's COVID-19 Government Response Tracker creates an additive, composite score countries' COVID-19 policies across seven indicators (school, workplace, and public transit closings, public event cancelations and info campaigns, restrictions on internal and international travel; Source: Oxford University COVID-19 Government Response Tracker

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