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COVID-19: Repurposing Manufacturing to Address Medical-Equipment Shortages in Africa

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Executive summary and overview



Context of this guide

- In their fight against Covid-19, sub-Saharan African countries are struggling to procure essential medical equipment for their front-line health-care workers.
- This guide explores how repurposing could address these shortages while enhancing Africa's industrial manufacturing capability and capacity and saving livelihoods.



Key questions answered

- In addition to imports and donations, why is repurposing needed to address shortages in essential medical equipment?
- How can leaders plan and organise the manufacturing sector for repurposing?
- What are the demand forecasts for medical equipment in the short-term?
- Which African countries are repurposing their manufacturing sector and what has been their experience?
- What policy options should governments employ to accelerate repurposing?

1. Why is repurposing needed and how do you plan for it?



Procurement of essential medical equipment is unbalanced due to high demand, supply shocks, trade restrictions and faulty production

Supply-side challenges

Supply shocks

- **Disaggregation of supply chains** has led to bottlenecks
- **Manufacturing capacity requires ramp-up**
- **Workforce capacity and logistics** have been disrupted

Stockpiling & export restrictions

- **Critical supplies are consolidated in certain markets** (seven countries account for 70% of ventilator exports)
- **Some countries have restricted exports and stockpiled** to ensure pipeline, with procurement being used as a means of diplomacy

Certification & reliability

- **Balancing production flow versus quality assurance** is a critical challenge; some sub-optimal products are being distributed
- **New entrants into supplier markets** induce further demand on regulatory and certification authorities

Demand-side challenges

Demand shocks

- There have been **exponential increases in demand** for medical supplies across product groups (PPE, equipment, infrastructure)
- **Consumers are over-buying** due to fear of shortages

Fiscal constraints

- **Fiscal expenditures are increasingly strained**, balancing economic priorities with public health
- **Developing countries lack liquidity and necessary funds**

Planning & coordination

- **It is difficult to forecast demand** due to limited testing and data, and reduced clarity on priorities (e.g. PPE versus ventilators)
- **There is a lack of G2G coordination and cooperation**





Global medical equipment supply is further constricting due to recent export restrictions adopted by China, the US, and the EU



United States



China



European Union



Trade position

Restricted exports due to increased demand domestically (US has second-largest share of global Covid-19 cases, ~25%)

Limited exports in response to faulty exports by domestic manufacturers (e.g. Spain, The Netherlands and Slovakia returned over 1 million test kits)

Intra-EU exports prioritised in light of increased domestic demand (EU has largest share of global Covid-19 cases, ~50%); **foreign trade permissible**



Recent measures

- **Invoked Defence Production Act** on 3 April and restricted exports of some medical equipment supplies
- **Ordered 3M to temporarily halt PPE exports** to Canada and Latin America
- **Redirected 200K US-manufactured face masks** in transit to Germany
- **DoH seized further supplies domestically to control hoarding** (200K respirators, 130K masks, 600K gloves)

- **China introduced restricted export policies** on 1 April for test kits, face masks, protective clothing, ventilators and infrared thermometers
- **Manufacturers now require NMPA approval**, which can take up to one to three years
- As a result, **effective suppliers have reduced from 100+ to 21**

- The **EU introduced exports controls** on 14 March **requiring exporters to seek member-state approval** for non-EU shipments
- **PPE supplies** (e.g. face masks, **test kits and medical equipment** (e.g. ventilators) **remain available for exports to countries in need** (e.g. Africa) subject to member-state authorisation



Shortages in essential medical equipment will worsen as Covid-19 continues to spread globally and case numbers rise

Every month, frontline health responders around the world need these supplies (and more) to protect themselves and others from Covid-19

- 89 million masks 
- 30 million gowns 
- 76 million gloves 
- 2.9 million litres of hand sanitiser 

Considerations for repurposing

- The WHO warns of global medical equipment shortage as the world braces for coronavirus spread.
- The shortage of medical equipment worldwide and procurement delays for months are complicated by border closures and transport disruptions.
- Ventilators and treatment medications will also have limited availability in Africa, emphasising the importance of domestic production.



Five sub-Saharan African countries – South Africa, Ethiopia, Kenya, Senegal and Ghana – are taking a lead in encouraging and incentivising repurposing of domestic manufacturing supply chains, production lines, and distributional channels to address shortages in essential medical equipment.



How to organise, plan, facilitate and fund repurposing initiatives in the manufacturing sector

Level of complexity	Essential medical equipment	Subsectors that can be repurposed	Estimate required time	Required collaboration	Funding sources
<p>Level of complexity</p> <p>Low</p> <p>High</p>	<ul style="list-style-type: none"> Alcohol-based hand rubs Hand-sanitiser mixers Gloves Face masks Surgical gowns Surgical caps Closed work boots 	<p>Liquid Disinfectant</p> <p>PPE</p>	<p>Beverage, Oil, Distillers & Perfume</p> <p>Garment & Textile</p>	<p>1½ -2 weeks</p>	<ul style="list-style-type: none"> Company internal Suppliers
	<ul style="list-style-type: none"> PCR testing kits Antibody testing kits Chemical reagent Infrared thermometers Oxygen cylinders, flowmeters & regulators 	<p>Diagnostic equipment</p> <p>Clinical Care Equipment</p>	<p>Electronics, Chemical & Tech</p> <p>Electronics & Automotive</p>	<p>2-4 weeks</p>	<ul style="list-style-type: none"> Company internal Suppliers Regulatory approval
	<ul style="list-style-type: none"> ICU beds/stretchers Isolation tents Powered air-purifying respirators Ventilator 	<p>Clinical Care Equipment</p>	<p>Electronics, Tech & Automotive</p>	<p>4-8 weeks</p>	<ul style="list-style-type: none"> Company internal Suppliers Regulatory Approval Cross companies
	<ul style="list-style-type: none"> Drug modules Medical consumables 	<p>Drugs & Consumables</p>	<p>Pharma & Chemical</p>	<p>1-6 months</p>	<ul style="list-style-type: none"> Company internal Regulatory approval
					<ul style="list-style-type: none"> Government purchase agreements Foreign grants Concessional loans Credit lines Private equity investments Impact investments Philanthropic grants Development partner funds

Sources: TBI analysis, WEF, and Kearney

2. What are the demand forecasts, ongoing initiatives and policy options?



Estimated short-term demand for essential medical equipment

Country	Forecasted Essential Medical Equipment Cost Breakdown & Ranges (US\$)					
	<i>Liquid Disinfectant</i>	<i>PPE</i>	<i>Diagnostic Equipment</i>	<i>Clinical Care Equipment</i>	<i>Drugs & Consumables</i>	<i>Total Estimated Costs</i>
 South Africa	440 k – 3 mil	7.5 – 50 mil	3 – 40 mil	331 mil – 1.5 bil	14.5 – 167.5 mil	356 mil – 1.7 bil
 Ethiopia	27 – 270 k	440 k – 4.6 mil	200 k - 2 mil	26 - 203 mil	800 k – 8.8 mil	27.5 – 219 mil
 Kenya	66 – 808 k	1.1 – 13.5 mil	475 k – 8.8 mil	69 – 661 mil	2.1 – 38.6 mil	72.5 – 723 mil
 Senegal	53 – 406 k	860 k – 7.5 mil	470 k – 8.6 mil	37 – 44 mil	2 – 34.5 mil	40.4 – 95 mil
 Ghana	66 – 606 k	1.1 – 10.3 mil	472 k – 8.7 mil	50 – 245.7 mil	2.1 – 36.3 mil	53.6 – 302 mil

- This estimated demand is derived from the WHO's Covid-19 Essential Supplies Forecasting Tool as of 9 April and is intended for near-term planning uses. It is not an epidemiological model and is highly sensitive to the assumptions and inputs used. Please use this only as an indicator of overall cost breakdown and ranges.
- Assumptions and inputs used: Cumulative case estimation method, 'Exponential growth'; doubling rates, infections double 'slow' to 'fast' i.e. 5 to 3.2 days resp.; clinical attack rate, '30% of population infections rate'; testing strategy, 'targeted'; available staff and hospital bed usage based on World Bank and WHO data.

Source: TBI analysis and WHO; Ranges show the bands from slow to fast doubling of cases over the next four weeks



How sub-Saharan African countries are repurposing domestic manufacturing

Country	Essential Medical Equipment					Repurposing Initiatives
	Liquid Disinfectant	PPE	Diagnostic Equipment	Clinical Care Equipment	Drugs & Consumables	
 South Africa	●	●	●	●	●	Department of Trade and Industry is mobilising and assessing business proposals from local manufacturers to address shortages in essential medical equipment.
 Ethiopia	●	●	●	●	●	Agreements in place between the Ethiopian Investment Commission and domestic manufacturers in and outside of industrial parks to produce some medical supplies to combat Covid-19.
 Kenya	●	●	●	●	●	Government through business association such as Kenya Association for Manufacturers and Kenya Private Sector Alliance are mobilising and encouraging members to repurpose their manufacturing to produce critical medical supplies.
 Senegal	●	●	●	●	●	Foreign manufacturers, development partners and government are working together to produce and distribute testing kits and PPE, in particular masks and surgical gowns and caps.
 Ghana	●	●	●	●	●	Manufacturers are exempted from the lockdown and are allowed to produce sanitising products and PPE. The government is engaging the local garment manufacturers to reorganise and reposition by sewing fabrics like scrubs, gowns and masks.
	● Not started	● Leads identified	● Repurposing in progress			



South Africa's repurposing initiatives

Equipment	Initiative	Impact
<p data-bbox="78 462 271 496">Ventilators</p> 	<ul data-bbox="360 422 1075 586" style="list-style-type: none"> • The government established the National Ventilator Project to mobilise and assess call for proposals (CFP) from local manufacturers for the design, development, production and procurement of ventilators. 	<ul data-bbox="1131 365 2042 636" style="list-style-type: none"> • Producing 1,500 units in May and 10,000 units in June will ensure more rapid response to critical medical needs and reduces dependency on foreign suppliers. • Plans to scale production to 50,000 units in the medium term mean the project has the potential to also address regional demand. • CFP stipulating the use of components readily available or made domestically to produce the units enhances the capacity of local companies in the manufacturing value chain.
<p data-bbox="37 772 312 848">Protective Face Shields</p> 	<ul data-bbox="360 729 1075 936" style="list-style-type: none"> • Ford Motor Company SA, a car manufacturer, commenced production of protective face shields and plans to ramp up production by securing medical-grade materials from Trek Plastics and enhancing distribution channels with South African logistics providers Trans-Atlantic and DSV. 	<ul data-bbox="1131 694 2042 965" style="list-style-type: none"> • 57,000 units being produced currently with plans to ramp up to 500,000 units in the near term reduces exposure to price hikes caused by global shortages in face shields. • Developing strategic partnerships with local suppliers and logistics providers strengthens and ensures sustainability of local supply chains, production lines and distributions channels. • Ramping up production will increase revenues for suppliers and reduce job losses in the industry.
<p data-bbox="43 1090 306 1166">Alcohol-Based Chemicals</p> 	<ul data-bbox="360 1100 1075 1200" style="list-style-type: none"> • Sasol, an energy and chemical firm, partnered with government to produce hand sanitisers by developing a blend of alcohol-based chemicals. 	<ul data-bbox="1131 1051 2042 1250" style="list-style-type: none"> • Producing 8 million litres of alcohol-based chemicals to manufacture hand sanitisers helps to address the 400% increase in local demand for alcohol-based products and, as a result, stabilises prices. • Increasing production further strengthens the value chains and generates much-needed revenues for SMEs.



Other impactful repurposing initiatives in Africa

Equipment	Initiative	Impact
<p>Testing Kits in Senegal</p> 	<ul style="list-style-type: none"> Mologic, the UK diagnostics company, is partnering with Diatropix, a Senegalese manufacturer, to produce 10-minute tests in Senegal. UKAID provided a grant of approximately GBP £1 million to support the joint venture. 	<ul style="list-style-type: none"> Planning to produce 8 million rapid diagnostic kits per year at less than US\$1 per unit significantly ramps up testing capacity and in turn enables the country to conduct mass testing and screening. Scaling production increases the potential of exporting kits to other African countries. Jointly manufacturing with a local company boosts the country's medical services and equipment production capability and capacity.
<p>Face Masks in Ethiopia</p> 	<ul style="list-style-type: none"> Four garment manufacturers in Ethiopia – Everest, Shirts, Almeda and Calzedonia – installed capacity to produce and supply face masks with support from the government. 	<ul style="list-style-type: none"> Total combined production being more than 150,000 masks per day reduces the average unit cost and enables the country to potentially adopt widespread usage of masks. Plans for further scaling production reduces job losses in the garment industry, enhances industrial capacity and generates revenues for SMEs in the value chain.
<p>Hand Sanitisers in Kenya</p> 	<ul style="list-style-type: none"> Two multinational firms based in Kenya – Unilever and Diageo – pledged to repurpose their supply chains, production and distribution channels to enable production of hand sanitisers. 	<ul style="list-style-type: none"> Both multinationals partnering with local manufacturers to produce close to 150,000 litres of hand sanitiser addresses the rising demand and reduces average costs per unit. Working with local firms in the value chain saves jobs, generates revenues and bolsters the country's industrial capacity.



Policy options to accelerate repurposing of manufacturing supply chains, production lines and distribution channels

Supply

- 1 Address immediate **forex requirements** with central, local and international banks.
- 2 Assess and facilitate **input financing or working capital** required by the companies, e.g. dedicated lines of credit via the banks.
- 3 Permit, ease and expedite **logistical and customs** processes for importing raw materials.
- 4 Facilitate discussion and support **negotiations with global suppliers of raw materials** via the WHO and Global Fund.

Production

- 5 Set **minimum skills requirements** and run recruitment/training programmes.
- 6 Develop **standards and regulations** for manufacturing to ensure safety, functionality, efficacy and quality of products. Set up a **working group with manufacturers** for regular feedback.
- 7 Implement a streamlined and **accelerated certification** process.
- 8 Issue **letter of intent** and/or guaranteed **purchasing agreements** to facilitate investments needed for scaling production.
- 9 Support **fundraising efforts** with investors to ramp up production.

Distribution

- 9 Mobilise the most efficient and shortest government and private-sector operated **local distributional channel**.
- 10 Provide government-owned **storage, transport and equipment** required to distribute products.
- 11 Enhance **digital platforms** to place orders and **online and mobile banking** to make payments.

Where to get support:

Many development partners like the United States DFC, DFID's Manufacture Africa, IFC, Germany's Compact for Africa, China Aid, Trade Mark East Africa, the UK CDC, AFDB, AfriExim, AFD & UNIDO should be approached with a clear ask on sector development or investment projects.

Appendix 1 – Global Case Studies



How the textile and garment sector is repurposing around the world

Repurposing to address PPE shortages



H&M started production of N95/FFP2 face masks for hospital staff in China.
100,000 planned to be produced by 2 April.



The Government of Zimbabwe made available USD1.3 million in seed capital for technical universities to produce PPE to meet local demand of clinics and hospitals. Chinhoyi University of Technology (CUT) involved in producing between 2500-3,500 masks/day.



Inditex (owner of Zara SA) converted textile manufacturing capacity in Spain to produce masks.



Gap and Eddie Bauer shifted production lines to manufacture face masks and gowns.

Success factors

- The garment industry is less capital- and more labour-intensive, making production lines more easily repurposed for manufacturing PPE.
- AFNOR, ISO and the European Committee for Standardization (CEN) offered standards needed to manufacture PPE free of charge.

Lessons learned & recommendations

- African garment industries can play an important role in supporting governments facing PPE shortages.
- In turn, governments need to map and engage local apparel companies by offering guaranteed purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.
- Governments should also mobilise local technical universities, hubs and research institutions and offer incentives (fiscal and non-fiscal) allowing them to manufacture PPE.



How the automotive sector is repurposing around the world

Repurposing to address ventilator shortages



General Motors partnered with Ventec Life Systems, and Ford with GE Healthcare, to produce 10,000 ventilators per month by repurposing a GM electronics factory in Indiana.



Indian carmakers plan to ramp up ventilator production from 5,000 units per month to 50,000 units by May. Initiative led by a consortia of leading tech firms and automobile makers – Skanray Technologies BEL, BHEL and Mahindra group.



Consortium of French industrial and automotive companies (including PSA and Valeo) plan to manufacture 10,000 ventilators by mid-May.

Success factors

- Intra-industry strategic partnerships between health, tech and automotive firms are needed to develop design and ramp up production of highly complex ventilators.
- An industrial sector with abundant investment and human capital is essential for adapting production lines and capacity to address shortages in ventilators.

Lessons learned & recommendations

- Government should proactively mobilise and stimulate private sector in repurposing their production lines.
- Next, governments should facilitate strategic partnerships between automotive, tech and health-sector companies.
- Finally, governments need to map and engage companies by offering guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs .



How the beverage, oil, distillery and perfume sectors are repurposing around the world

Repurposing to address liquid disinfectant shortages



The British Honey Company plans to use spare capacity of its distillery in Worminghall to produce hand sanitiser.



Sasol Ltd. Is producing alcohols for hand sanitisers and disinfectants, and prioritising local supply to help contain the Covid-19 pandemic.



LVMH (Givenchy, Christian Dior and Guerlain) plans to manufacture and provide hand sanitiser to the French health authorities.

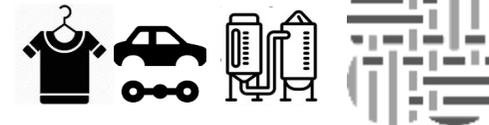
Success factors

- Most countries have distilleries, beverage producers and chemical plants with the capacity to repurpose their production lines to manufacture liquid disinfectants.

Lessons learned & recommendations

- Governments should map and approach all in-country chemical plants, distilleries and beverage producers to repurpose their production lines to produce liquid disinfectants.
- In turn, governments need to map and engage companies by offering guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.

Portugal's extensive repurposing measures



Repurposing national industries to address critical shortages

- Fan 3d, a 3D printing company, is producing protective visors for health professionals.
- DGA, auto parts manufacturer, is producing 4,000 visors.
- Hovione is producing disinfectant gel, with a goal to produce 40 tonnes per week.
- The National Association of Clothing and Garment Industries are redirecting their capabilities to produce PPE.



Success factors

- The different branches of industry are working together with support from the government in mobilising supply chains, bolstering production lines and expanding distribution channels.

Lessons Learned & recommendations

- African governments should facilitate and connect local companies with 3D printing firms in Europe, Asia and North America to obtain the 3D printing coding and processes needed to produce PPE.
- Governments should map and approach all in-country engineering and tech firms with capacity to adopt 3D printing to repurpose their production lines to produce PPE and ventilators.
- Governments should also engage companies by offering guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.

Appendix 2 – Sub-Saharan Africa Case Studies



South Africa repurposing initiative case study – Ventilators

Initiative	Opportunity	Bottleneck	Policy Options
<ul style="list-style-type: none"> • The South African government has launched an urgent call for proposals (CFP) for the design, development, production and procurement of ventilators. • According to the CFP of “The National Ventilator Project” (NVP), the proponents shall comply with the following production schedule: <ol style="list-style-type: none"> 1. Providing a minimum of 1,500 units by the end of May 2020 2. Providing a minimum of 10,000 units by end of June 2020 3. Ability to scale manufacturing to 50,000 units or more if required 	<p>For the government :</p> <ul style="list-style-type: none"> • Availability: Local manufacturing ensures a rapid-response availability, reducing import requirements. • It also means less exposure to a possible shortage of ventilators in the global markets. <p>For the private sector:</p> <ul style="list-style-type: none"> • The CFP calls for the manufacturing of ventilators using only components readily available in SA, or made locally, which enhances local companies’ value chains. • Production capacity can be adjusted to demand. • It creates a surplus with high export potential. 	<ul style="list-style-type: none"> • Availability of inputs/raw materials in the national market. • Difficulty in complying with the required tight production schedule. • Sustaining large-scale production to ramp up production to 50,000 ventilators. • Ensuring that the prototype design is 100% fully functional. • Training health professionals throughout the country to use the new equipment correctly. 	<ul style="list-style-type: none"> • Map national product suppliers to understand if there is enough capacity to provide/fabricate inputs, the timeline, and what support is needed. • Governments need to provide risk-mitigation solutions to support manufacturers in securing raw materials and financing, and production and distribution costs. • Public Tender/Contract (RFP) with attractive financial clauses and payment schedule. • Implement strict design validation/ verification of the proposed design. • Include in the proposal a nationwide programme training health professionals in the new equipment.



South Africa repurposing initiative case study – PPE

Initiative	Opportunity	Bottlenecks	Policy Options
<ul style="list-style-type: none"> • Ford SA has commenced production of 57,000 protective face shields for donation to frontline medical and essential services personnel. • Ford SA has also approached its suppliers and partners to ramp up production to a minimum of 500,000 units. • Trek Plastics has begun supplying the medical-grade materials to Ford at a discounted rate, with a capacity for producing 15,000 kits per day. • Two of Ford's transport service providers, Trans-Atlantic and DSV, have agreed to waive the transport costs to help with distribution to hospitals, clinics , etc. 	<p>For the government:</p> <ul style="list-style-type: none"> • Availability: Local manufacturing ensures an immediate availability, reducing import requirements. • Less exposure to critical shortages of face shields in in the global markets. • It reduces the average unit cost. <p>For the private sector:</p> <ul style="list-style-type: none"> • It enhances local companies' value chains. • It builds strategic partnerships between Ford and component suppliers. Business partners are important to minimise the damage from an abrupt demand breakdown. • It results in new product lines post-Covid-19. 	<ul style="list-style-type: none"> • Supply of inputs and raw-materials supply. • Need to direct production and distribution to target priority users (health workers, police, etc). • Need to sustain this large-scale ramp-up in production and value chain over the time. 	<ul style="list-style-type: none"> • Government could provide support in logistics and distribution operations by identifying the priority target groups for the use of masks, while also creating specific distribution channels for each one. • Governments could facilitate strategic partnerships between automotive, input suppliers and transport, logistics companies. • Governments should provide risk-mitigation solutions, for example offering upfront guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.



South Africa repurposing initiative case study – Liquid Disinfectant

Initiative	Opportunity	Bottlenecks	Policy Options
<ul style="list-style-type: none"> • Chemical and sugar companies respond to country needs: Sasol and Illovo Sugar. • Sasol's unique blend of alcohol faced spike in demand for sanitiser. • Sasol delivered 8 million litres of the alcohol blend over past weeks. • Illovo adjusted its business plan to quickly respond to sanitiser-producing companies. 	<p>For the government:</p> <ul style="list-style-type: none"> • Stabilise local price for sanitiser by reducing pressure on supply, demand side and imports. • Increase supply security by coordinating production and orders plan with producer or clusters of producers. • Ensure sanitiser distribution for health workers and target groups. <p>For the private sector:</p> <ul style="list-style-type: none"> • Expand sales to local sanitiser producer. • Celebrate mid-term agreements. • Encourage improved cleanliness behaviour and develop new products. 	<ul style="list-style-type: none"> • Low quality/sub-standard of labour for mass products competing in the market. • Company's financial capacity to order inputs at large scale. • Current sanitiser producer's capacity to sustain large-scale production to face high demand in the mid- to long-term. • Price hike on retail. 	<ul style="list-style-type: none"> • Governments should strictly regulate the quality of and market for sanitisers. • Provide risk-mitigation solutions, for example offering upfront guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs. • Facilitate soft loans for input financing and working capital needs. • Implement incentives packages (fiscal and non-fiscal) to support new manufacturers in securing raw materials and financing production and distribution costs. • Put in place free distribution for mapped target groups and vulnerable population.



Ethiopia repurposing initiative case study – PPE

Initiative	Opportunity	Bottlenecks	Policy Options
<ul style="list-style-type: none"> • Ethiopia's garment industry has installed capacity to produce and supply a relevant portion of domestic mask demand. More than three companies started manufacturing face masks with combined capacity of >150,000 masks per day: <ol style="list-style-type: none"> 1. Everest Textile and Garment: 500,000 face masks per week 2. Shints ETP Garment PLC: leading 30,000 masks per day 3. Almeda Textile: 50,000 masks per day 	<p>For the government:</p> <ul style="list-style-type: none"> • Availability: Local manufacturing ensures an immediate availability, reducing import requirements, and leaves country less exposed to a possible shortage of masks in the global markets. • Generalised mask usage: Masks manufactured in-country might be key to adopting a widespread use-of-masks strategy (e.g. China, Hong Kong, Japan, South Korea, Taiwan, Czech Republic). • Allows creation of a centralised distribution focused on health workers. • Reduces average unit cost. <p>For the private sector:</p> <ul style="list-style-type: none"> • Enhances local companies and value chains 	<ul style="list-style-type: none"> • Supply of inputs and raw materials. • Lack of foreign currency available. • Logistics and mass-distribution infrastructure. • Companies' financial investment capacity to order inputs on a large scale. • Need to direct production to target priority users (health workers, police, etc). • Need to sustain large-scale production to implement an eventual generalised mask-usage strategy. 	<ul style="list-style-type: none"> • Governments should map raw-material suppliers in the region and facilitate the transactions (prioritise forex for importing inputs for essential medical supplies) between national companies and suppliers. • Identify the priority target groups for the use of masks and create specific distribution channels for each one. • Create exception regimes to reduce import time and bureaucracy. • Provide risk-mitigation solutions, for example offering upfront guaranteed purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs. • Incentivise the population to engage in mask wearing and production.



Kenya repurposing initiative case study – Liquid Disinfectant

Initiative	Opportunity	Bottleneck	Policy Options
<ul style="list-style-type: none"> Unilever East Africa has started local production of hand sanitisers through joint ventures to meet growing demand: production capacity 200,000 units (50 ml) per month. HACO industries has partnered with East African Breweries Limited (EABL) to manufacture Amara Antibacterial sanitisers. 	<p>For the government:</p> <ul style="list-style-type: none"> Availability: Local manufacturing ensures an immediate availability, reducing import requirements. Reduction of external dependency and less exposed to a possible shortage of the product in the global markets. Reduces average unit cost. <p>For the private sector:</p> <ul style="list-style-type: none"> Enhances local companies' value chains. Strategic partnerships between local companies and large industry players 	<ul style="list-style-type: none"> Low quality/sub-standard of labour for mass products competing in the market. Supply of inputs and raw materials supply. Logistics and mass-distribution infrastructure. Company's financial investment capacity to order inputs on a large scale. Sustain large-scale partnership/production to face high demand. 	<ul style="list-style-type: none"> Governments should map raw material suppliers in the region and facilitate the transactions between national companies and suppliers. Create exception regimes to reduce import time and bureaucracy. Strictly regulate the quality of and market for sanitisers. Governments need to provide risk-mitigation solutions, for example offering upfront guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.



Senegal repurposing initiative case study – Testing Kits

Initiative	Opportunity	Bottleneck	Policy Options
<ul style="list-style-type: none"> • Rapid diagnostic kits manufacturing unit in Senegal: Diatropix • Diatropix: new manufacturing unit, founded by the Pasteur Institute of Dakar • Mologic: leading developer of rapid diagnostic technologies – USD 1.2m funded by UK government to develop Covid-19 tests; partnering with Diatropix • To manufacture 8m diagnostic kits (10-minute tests) per year in Senegal 	<p>For the government:</p> <ul style="list-style-type: none"> • Availability: Manufacturing testing kits in Africa ensures their availability. • Mass testing: Rapid testing manufactured in-country might be key to ramp up the current testing capacity, following a mass testing and screening approach (e.g. South Korea), which is key to contain the virus. • Cost affordable: The 10-minute coronavirus test that costs less than \$1. <p>For the private sector:</p> <ul style="list-style-type: none"> • Pan-African strategic partnerships arising in this context might open synergies for African companies in the pharmaceutical and health-equipment manufacturing markets. 	<p>Production Capacity: DiaTropix along with Mologic are planning to produce 8m tests/year, but a production ramp-up might be needed to have enough tests to supply a national/regional mass-testing approach.</p> <p>Product Financial Viability: Given that the test kits will be made available at cost with no commercial approach and with UK Aid financing, capacity might be constrained to scale up the required production.</p> <p>Pending Trial Validation: The test will begin the validation process in Senegal and it could be rolled out by June if the trials are successful.</p> <p>Logistic and Distribution: A mass-production strategy to supply a national and regional mass-testing approach will require a prioritisation and heavy efforts in logistic and distribution processes.</p>	<ul style="list-style-type: none"> • Cross-government regional cooperation: If the trial validation is successful, a regional collaboration partnership should take place to decentralise the production and facilitate the distribution. • Industry confidentiality agreements should be made to share the testing-kit industrial process. • Governments should map and engage local companies with capacity to repurpose the production lines to produce the testing kits and offer guaranteed-purchasing agreements/orders and incentives packages (fiscal and non-fiscal) to support manufacturers in securing raw materials and financing production and distribution costs.