

Covid vaccines: African countries need to fix their distribution chains

Sub-Saharan Africa still has too few vaccines for too few people. Delivering more inoculations to the region deserves top priority. But there is another hurdle to overcome to successfully deploy vaccines: the region's poor trade and logistics quality. Logistics are a network of services that support the physical movement of goods both within and across a country's borders.

By Jonathan Munemo ^{9 Feb 2022}



Source: [via freepik](#)

No journey is more critical in determining the fate of a pandemic than the distance a vaccine must travel from the production line to a person's arm. In sub-Saharan Africa, the last mile of this race is all-important.

The World Bank's [Logistics Performance Index](#), a good proxy for transport and distribution logistics, puts Africa at [2.5 on average](#). The score ranges from 1 to 5, the highest score being an indicator of better performance.

Africa's score trails all major regions of the world in six key categories of logistics performance, including timeliness and tracking. For more than a decade, its negative impact on the region's trade has been well [documented](#). For instance, delays at customs are estimated to add [10%](#) to the cost of imported goods, which is higher than the average impact of tariffs in some cases.

But it is also now becoming clear just how much poor transport logistics could derail already slow attempts to vaccinate the region's population. Once fully thawed, some vaccines have a short shelf life. This raises the risk of destroying perfectly good doses when the region's logistics challenges are factored in.

Looking closer at the reasons cited for vaccine destruction, the common thread is poor logistics and transport infrastructure. In Malawi, for instance, health authorities [cited](#) the short time between delivery and expiration of vaccines and the need to reduce hesitancy as the rationale for incinerating close to 20,000

doses of AstraZeneca vaccine.

Addressing vaccine hesitancy is critical to a successful mass vaccination campaign. But overcoming logistics challenges also plays a large role. Bringing vaccine manufacturing closer to Africa to speed up supply is important for building capacity in the region. But it matters less in the short term whether vaccines are shipped from Germany or South Africa to, say, the Democratic Republic of the Congo (DRC) if, at the last mile, the distribution chain is broken by gaps in transport and logistics.

Logistics at a glance

Before Covid-19 vaccines were deployed globally, a World Health Organisation (WHO) [assessment](#) shows that Africa has an average preparedness score of 33% for the Covid-19 vaccination programme. This is far below the desired benchmark of 80% in key areas, including logistics quality and performance.

Emerging data (see graph below) appear to confirm that logistics performance quality is positively correlated with the Covid-19 vaccination rate across Africa. It is interesting to compare vaccination rates of countries with a relatively low Logistics Performance Index (such as the DRC) with those that have a relatively higher index (such as South Africa).

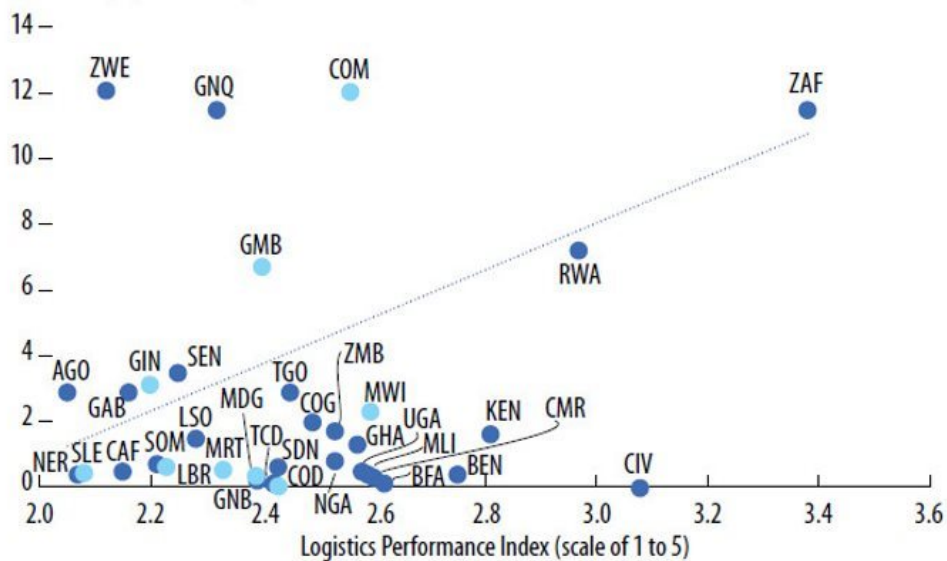
The DRC's low score of 2.43 reflects its problem with a very poor transport network. This has made the delivery of vaccines to remote areas difficult and in part explains why close to zero percent of the population is fully vaccinated. In addition, the DRC and the other landlocked African countries are naturally challenged by geography and economies of scale when it comes to connecting to global supply chains. This has led to logistics-induced delays in transportation and distribution, leaving Malawi, South Sudan, and the DRC unable to deploy and administer vaccines on short notice.

In contrast, South Africa, with a score of 3.38, stands out as the top performer. This is thanks to its large economy (which allows for economies of scale in supply chain connections), superior and much wider network of health services, access to the sea, and proximity to major transportation hubs.

Cause and effect

Countries with poorer logistics performance generally have lower vaccination rates.

(percent of population fully vaccinated)



Source: Share of people fully vaccinated is from Our World in Data (<https://ourworldindata.org/coronavirus#coronavirus-country-profiles>). Logistics Performance Index data are from World Bank, *World Development Indicators*.
Note: Countries that have destroyed or given away vaccines because they were unable to administer them fast enough are indicated in dark blue. Data labels use International Organization for Standardization (ISO) country codes.

Logistics performance quality and the COVID-19 vaccination rate across Africa. [Eugene Bermpong Nyantakyi and Jonathan Munem](#)

On the other hand, Zimbabwe, Equatorial Guinea, and Comoros have relatively better vaccination rates but lower Logistics Performance Index scores. This suggests that other factors contribute to the uptake of vaccines in Africa.

For instance, when authorities in Zimbabwe [announced](#) that those who refuse COVID-19 vaccines could be denied public sector jobs and services, the vaccination rate increased significantly in big cities. It made Zimbabwe one of the African countries with the highest vaccination rates despite its poor logistics performance.

Plugging the gaps

After addressing the issue of vaccine supply, closing gaps in logistics performance is critical to changing the course of the pandemic in Africa.

In the short term, measures to substantially increase vaccine delivery and uptake are essential. Useful lessons can be found within the region. For example, when Côte d'Ivoire started its [vaccination drive](#), centres equipped to vaccinate 300 people a day were struggling to inoculate 20 a day. Then the government deployed mobile clinics and medical buses that travelled to the busiest areas to vaccinate people, albeit at a significant cost. There are now fixed or mobile vaccination centres across 113 districts, and nearly all are operating close to capacity. Ghana has done the same. This could be replicated across the region in the short term with support from development agencies.

The region can also leverage digital platforms for registration and information about vaccine availability - drawing lessons from [South Africa](#). A new e-appointment system allows citizens to schedule their own Covid-19 vaccination appointments at a convenient time and at a centre close by.

In the medium term, it is critical to develop the infrastructure inputs to the supply chain that affect logistics performance, particularly in cold-chain capacity. The Covid-19 vaccines require special treatment and handling in transit and when being administered. The AstraZeneca vaccine can be stored safely in refrigerated conditions for up to six months. Both the Pfizer and Moderna vaccines require temperatures of 20 degrees Celsius or less.

It is therefore quite concerning that a WHO [survey](#) of 34 countries found widespread gaps in cold-chain refrigeration capacity in Africa. About 30% of countries surveyed have gaps in cold-chain refrigeration capacity in more than half of their districts. Only 28% of health facilities in sub-Saharan Africa are estimated to have access to a reliable power supply. Addressing these structural issues should be a development priority in the medium term.

Poor-quality transport and distribution logistics stifle trade and competitiveness and, as is now apparent, will also be a major impediment to pandemic vaccination once the current supply constraints are resolved. The Covid-19 crisis presents Africa with an opportunity to leverage financial assistance for investment in infrastructure and trade facilitation measures that support strong logistics performance. These investments will also improve trade and competitiveness and strengthen health systems to deal with current and future shocks.

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