



Independent observer
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COVID-19 VACCINATION IN AFRICA: FROM HOPE TO REALITY

Since the start of the pandemic in March 2020, African countries have recorded 2,873,122 coronavirus cases, of which 89% have survived. The most affected countries on the African continent are South Africa with 1,521,068 cases, followed by Algeria, Ethiopia, Kenya and Nigeria.

This is a global health crisis and 'we will not end the pandemic anywhere if we do not end it everywhere', according to Dr Tedros Adhanom Ghebreyesus, Director General of the World Health Organization (WHO). Discussions between WHO, key global health stakeholders and developing countries began in this context, to ensure the poorest countries have access to the COVID-19 vaccine.

Given the prohibitive cost of the first vaccines (Moderna \$37/dose, Pfizer/BioNTech \$20/dose), transportation logistics, vaccine storage and vaccination campaigns, WHO was quick to mobilize global health donors and its partners (including Gavi (the Gavi Vaccine Alliance), and the United Nations Children's Fund/UNICEF) to come up with a system to help make vaccines accessible to the poorest countries.

[COVAX](#) objectives and operations: the vaccine pillar of the ACT Accelerator

The mechanism 'Access to COVID-19 Tools Accelerator' (ACT) was launched at the end of April 2020. This is a new global partnership aimed at accelerating the development and production of, and equitable access to, COVID-19 tests, treatments and vaccines. The ACT Accelerator brings together governments, scientists, businesses, civil society, philanthropic and global health organizations (the Bill & Melinda Gates Foundation, the Coalition for Epidemic Preparedness Innovations (CEPI), FIND, Gavi, the Global Fund, Unitaidd (the Global Health Initiative), the Wellcome Trust, WHO, and the World Bank).

As described in a previous article in the Observateur du Mondes Mondial (ORM), [the COVAX initiative](#) is

the vaccines pillar of the global ACT Accelerator system.

Figure 1 below shows the intention of the COVAX roll-out in the form of a clock. Starting at the 12 o'clock position onwards: End the acute phase of the pandemic by end of 2021; Guarantee fair and equitable access to COVID-19 vaccines to all participants; Offer a convincing return on investment by delivering vaccines as soon as they are available; Support the most diverse and actively managed portfolio of candidate vaccines in the world; and, finally, the aim of being able to Administer two billion vaccine doses by the end of 2021.

Figure 1: COVAX Objectives



Source: WHO, 2021

At the Global Vaccination Summit on 4 June 2020, Gavi launched the COVID-19 Advance Market Commitment programme (COVAX AMC), a new funding mechanism to support the participation of 92 low- and middle-income countries in the COVAX Facility, to ensure access to safe and effective COVID-19 vaccine doses to guarantee the vaccination of at least 20% of the population in target countries.

A list of eligible countries has been drawn up, including the majority of African countries (Box below):

[92 Gavi COVAX AMC-eligible countries and economies \(based on 2018 and 2019 World Bank GNI data\)](#)

- **Low income:** Afghanistan, Benin, Burkina Faso, Burundi, Central African Republic, Chad, Congo, Dem. Eritrea, Ethiopia, Gambia, The Guinea, Guinea-Bissau, Haiti, Korea, Dem. People's Rep., Liberia, Madagascar, Malawi, Mali, Mozambique, Nepal, Niger, Rwanda, Sierra Leone, Somalia, South Sudan, Syrian Arab Republic, Tajikistan, Tanzania, Togo, Uganda, Yemen, Rep.,
- **Lower-middle income:** Angola, Algeria, Bangladesh, Bhutan, Bolivia, Cabo Verde, Cambodia, Cameroon, Comoros, Congo, Rep. Côte d'Ivoire, Djibouti, Egypt, Arab Rep., El Salvador, Eswatini, Ghana, Honduras, India, Indonesia, Kenya, Kiribati, Kyrgyz Republic, Lao PDR, Lesotho, Mauritania, Micronesia, Fed. Sts., Moldova, Mongolia, Morocco, Myanmar, Nicaragua, Nigeria, Pakistan, Papua New Guinea, Philippines, Tomé and Príncipe, Senegal, Solomon Islands, Sri Lanka, Sudan, Timor-Leste, Tunisia, Ukraine, Uzbekistan, Vanuatu, Vietnam, West Bank and Gaza, Zambia, Zimbabwe
- **Additional IDA eligible:** Dominica, Fiji, Grenada, Guyana, Kosovo, Maldives, Marshall Islands, Samoa, Saint Lucia, St. Vincent and the Grenadines, Tonga, Tuvalu.

The mechanism funds advance purchase guarantees with specific vaccine manufacturers prior to licensing, and provides long-term demand guarantees to all manufacturers on the market. Once vaccines are licensed and prequalified by WHO, market guarantee funds are used to purchase doses for the 92 countries which are eligible for overseas development assistance (ODA). These guarantees are meant to inspire manufacturers to ensure that enough doses are produced for AMC economies, collectively

representing nearly half of the world's population. To make this possible, Gavi managed to raise \$2 billion in seed funding as early as December 2020, and much of that was spent on advance purchase agreements with manufacturers, to secure supply agreements for AMC doses.

The first deliveries to African countries arrived through various purchasing channels

Rwanda is the first country to have started vaccinating healthcare workers on 14 January 2021, thanks to the self-funded purchase of a first batch of 1,000 doses of the American vaccine developed by Moderna. To date, more than 348,000 people have been vaccinated thanks to the COVAX facility.

Morocco launched its vaccination campaign on 28 January, having announced an order of 65 million doses of the British AstraZeneca and Chinese Sinopharm vaccines at the end of December. It recently received its first deliveries. The vaccination campaign will be rolled out in stages, and will benefit all Moroccan citizens and residents aged 17 and over ? around 25 million people.

The governments of Côte d'Ivoire and Ghana were the first COVAX beneficiaries to launch their COVID-19 vaccination campaigns to protect health workers on 1 March 2021. Campaigns in both countries followed, with deliveries made at the end of February in both countries: Ghana received 600,000 doses on 24 February and Côte d'Ivoire 504,000 doses two days later. Both countries received the AstraZeneca/Oxford vaccine licensed and manufactured by the Serum Institute of India (SII).

Since then, WHO data from 8 March show that countries whose vaccination plans were approved first have started to receive vaccine doses through the COVAX facility: Democratic Republic of Congo, Djibouti, Ethiopia, Kenya, Liberia, Malawi, Mali, Mozambique, Nigeria (the most populous country in Africa with 205 million inhabitants), Rwanda, Sao Tome-and-Principe, Senegal, Sudan, Togo and Uganda. Other African countries, such as Benin, Burkina Faso, Central African Republic, Chad and Niger are expecting deliveries before the end of the first [quarter](#).

The COVAX Initiative and vaccine acquisition challenges for African countries

Funding the COVAX programme

A serious cause for concern is that WHO estimates \$5 billion will still be needed to acquire the doses required to vaccinate 35% of the African population. This is far from the African Union's objective of vaccinating 60% of the continent's population. This does not include additional costs of 15 to 20% for injecting equipment and vaccine delivery, which requires trained health personnel, a supply chain and community mobilization. In 2020, COVAX managed to raise around \$2 billion and continues to raise funds from [donors](#). Since Joe Biden came to power in January, the United States has pledged to contribute \$4 billion in 2021. During the G7 meeting held on Friday 19 February, the European Union announced the doubling of its contribution to the Facility, bringing it to €2 billion, or \$1.2 billion. Meanwhile, the United Kingdom has pledged to contribute \$760 million.

With funding only being made available progressively, it is difficult to keep ordering from suppliers at a steady pace and to negotiate with rich countries. In addition, transportation, storage and vaccination campaigns costs are not covered, forcing countries to borrow from financial institutions (World Bank, IMF, Africa Development Bank, Regional banks) and take on new debt to cover these costs. Finally, some countries have already diverted resources usually devoted to other activities, in particular from vaccination programmes against polio or measles, to co-finance Gavi grants or prepare COVID-19 vaccination campaigns. In contexts that have already been weakened by the interruption of some routine activities, these competing emergencies make it more difficult to tackle increased [mortality rates](#) that have already been observed or modelled. Indeed, we know that the interruption or slowing down of vaccination campaigns, mosquito net distribution (cut by 50% in 2020), chronic treatments for people living with HIV,

diabetic or cancer patients, and the reduction in the number of treatments for pregnant women and children under five, will have disastrous effects. According to modelling undertaken by several scientific teams, a decrease in maternal and child health activity from between 18 to 50%, depending on scenario severity, would lead to the additional deaths of 1,157,000 children and 56,700 pregnant women and excess patient mortality due to the three pandemics.

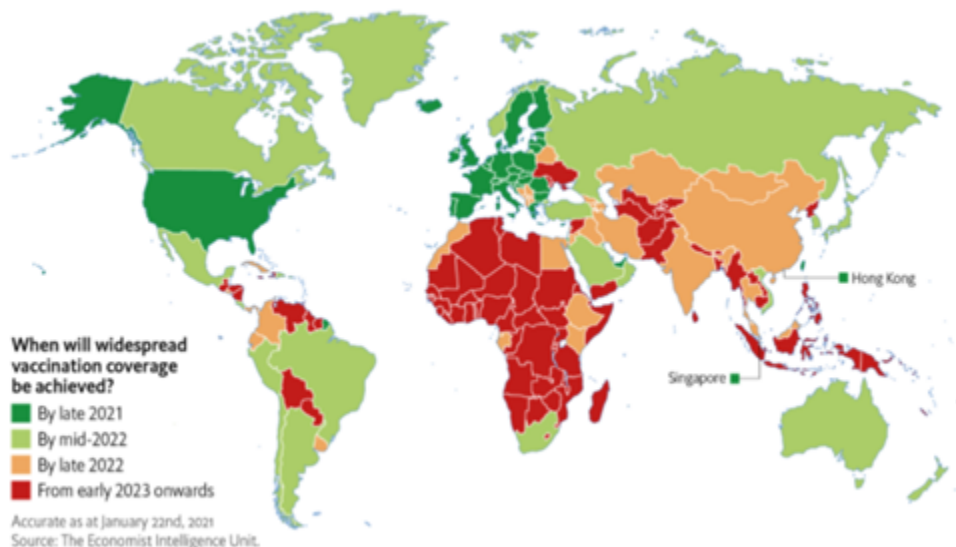
The slow delivery of vaccines to countries

All countries face difficulties in obtaining the number of vaccine doses needed to vaccinate their populations within the timeframe initially envisaged. [Global production is failing to meet orders flooding in from around the world](#), prioritising the richest countries, which are ordering vaccine doses far exceeding their needs. “Companies are starting to report shortages of essential raw materials, and even equipment, needed to manufacture vaccines”, declared Mr. Hatchett after the vaccination summit organised by the British organisation Chatham House.

Several factors explain this slow response for the African continent: on the one hand, the pace at which countries have been able to submit their vaccination plans to the COVAX Initiative, which places them in a more or less favourable position. On the other hand, competition to purchase vaccines, with rich countries buying up most of the supply, in particular those who helped finance research. Despite the secrecy surrounding negotiations between countries and laboratories, anonymous sources also confirm that many discussions remain contentious, as laboratories protect themselves from liability on several crucial matters: delivery dates and quantities, the potential side effects, dispute resolution (not in national courts but in special international arbitration tribunals),

Some experts point their fingers at this monopoly on patents and price negotiations in the context of a global pandemic, the severity of which should have led to greater cooperation and transparency. [The Economist's Intelligence Unit estimates](#) have taken into account parameters such as vaccine stock availability, announced production rate, confidence in the vaccine, availability of health personnel to vaccinate and population size; and produced the map presented below. If this analysis is correct, African countries will not be able to envisage a massive vaccination campaign before 2023.

Figure 2: Provisional calendar of COVID vaccination campaigns around the world



Storage and transportation challenges

The simplest vaccines in terms of storage and administration were prioritised early on. Most African countries still accessed WHO's support to help them assess their supply chain to verify their ability to vaccinate under the required conditions. The approval of the Johnson & Johnson vaccine requiring only

one injection and remaining highly effective against the South African variant, further facilitated the decision-making process. However, storage and maintaining the cold chain are real challenges, and WHO estimates that only 33% of countries are ready. In 2017, Ghana, Liberia, Mozambique, Nigeria, South Africa, Swaziland and Tanzania took advantage of 'Project Last Mile', using Coca-Cola refrigerators to deliver vaccines to the most remote areas. It is not known whether this experience will be repeated in the context of COVID-19. Some countries such as Rwanda have used army helicopters and police personnel to distribute vaccines to remote areas. As for innovative solutions, using drones to deliver millions of doses throughout Africa is still an embryonic notion.

Finally, the lack of digital patient records and unique identifiers in many African countries is another barrier which is difficult to overcome quickly: how to effectively monitor the number of vaccines used and the number of patients vaccinated to match-up information and ensure adequate monitoring of the vaccination campaign?

Africa's options

To speed up access to vaccines, the African Union has announced plans to pool procurement arrangements for the continent's 55 countries. Africa's leading mobile network provider MTN has donated \$25 million to this plan, providing around seven million COVID-19 vaccine doses for healthcare workers on the continent. The African Union still intends to mobilise \$12 billion by relying on three main donors: the African Export-Import Bank, the World Bank and the COVAX Facility. At present, the organization has reserved 670 million vaccine doses for the African continent. The first orders placed with the COVAX Facility were for 270 million doses: 50 million Pfizer doses, 100 million AstraZeneca doses and 210 million Johnson & Johnson doses. Other orders were placed with SII (400 million AstraZeneca doses).

As was the case for masks and personal protective equipment (PPE), some countries have also used their diplomatic relations, which have naturally veered towards vaccines produced by China (Sinopharm vaccine), the United States (Moderna or Johnson & Johnson) or Russia (Sputnik-V). Senegal received 200,000 doses of the Chinese vaccine to start its vaccination campaign. Botswana, Democratic Republic of the Congo and Seychelles also ordered doses from China, while Algeria, Egypt and Guinea chose the Russian vaccine. Hence French President Emmanuel Macron's proposal for a stronger European vaccine solidarity policy with the African continent, seen as a way of countering China and Russia's influence: "If we, Europeans, Americans, know how to deliver these 13 million doses as quickly as possible, that is worth our credibility", he argued: "then the West will be considered in Africa". On the other hand, "if we announce billions today to deliver doses in six months or a year, our African friends will buy doses from the Chinese and the Russians", he is [reported to have declared in Munich at the last G7 summit](#).

WHO's approval of these vaccines is also an issue: despite waiting for approval from WHO and the European Health Authority, they are already being sold all over the world, thereby questioning WHO's role and credibility in the approval process.

Finally, several countries are also considering African-based production: Morocco is going to benefit from a technology transfer allowing it to manufacture the vaccine. The AstraZeneca laboratory adopted this technology transfer strategy with the [Indian Institute of Technology](#), which will produce vaccines for developing countries.

Algeria pursues the same ambitions of producing the Russian vaccine. On 8 December, Russian Ambassador to Algiers, Igor Beliaev, [declared](#) that his country was ready to cooperate with Algeria to start local production of the Sputnik-V vaccine: “The Russian Direct Investment Fund offers various forms of cooperation, namely direct acquisition, technology transfer, joint production and participation in Phase III clinical trials”, said the diplomat, adding: “These are the [cooperation] mechanisms we have proposed to the Algerian party”. Russia would also be prepared to collaborate with other countries, especially Egypt.

Finally, South Africa also aims to set up a local production chain. The continent’s worst affected country has launched its COVID-19 vaccination campaign. The country has pre-ordered 11 million doses from Johnson & Johnson, as well as 20 million doses of the Pfizer vaccine, to expand the campaign to those at risk and key workers from the end of April. For now, more than 100,000 healthcare workers have received a dose of Johnson & Johnson, [after abandoning the AstraZeneca vaccine](#), which local research found to be less effective against the variant. But the process will need to be accelerated to reach the target set by the Ministry of Health to vaccinate 67% of the population, or 40 million people, by the end of the year. Hence discussions around local production, especially as the country anticipates a third coronavirus wave which could arrive as early as April. Initial negotiations on technology transfer have started between the Biovac Institute and Pfizer, who are already partners in the production of Prevenar 13.

Sustainable transformation of the global vaccine landscape?

Partnerships between innovative companies and developing countries for vaccine production had already started before the onset of COVID-19, with technology transfer being at the heart of these agreements. But nobody had anticipated that this transfer would have to take place so rapidly, nor on technologies as advanced as those developed by [messenger RNA](#). “This is the biggest upswing in the manufacturing industry the world has ever seen” said Thomas Cueni, Director General of the International Federation of the Pharmaceutical Manufacturers and Associations (IFPMA). “I have to admit that if you had asked me the question three months ago, I would have said that there is no additional production capacity. Everyone is already doing their best. But in the last few weeks, we’ve seen new players come in, with pharmaceutical manufacturing experience. We have also seen an incredible amount of collaboration between production units, for example, between innovative manufacturers and manufacturers in developing countries”.

This seems to indicate that this health crisis is generating a major shift in the vaccine production landscape, responding to the African Union Action Plan that aims to establish a regulatory mechanism and supportive environment for the supply of quality medicines and technologies. The ambition of the African continent is embodied in the Pharmaceutical Manufacturing Plan for Africa (PMPA), born out of the 2005 African Union Summit. In 2012, the African Union Commission (AUC) detailed the Action Plan intended to establish ‘a viable pharmaceutical industry in Africa’. The document states that ‘vaccines are the cornerstone of any primary health care programme and an essential tool for disease prevention’. A study on the manufacture and purchase of vaccines in Africa (VMPA) was launched in 2015 without generating concrete results. The COVID-19 crisis may provide the impetus needed to re-launch this plan to relieve African countries from their dangerous dependency in purchasing drugs (80% depend on imports, in particular from China and India) and vaccines.

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