



Asia's Covid-19 Vaccine Race

December 3, 2020

Dear BGA Clients,

This report catalogues the progress of vaccine development in markets across the Indo-Pacific with specific details on potential vaccines in the pipeline, bilateral or multilateral vaccine deals and articulated rollout plans.

As the first year of the global coronavirus pandemic comes to a close, governments in the Indo-Pacific are cautiously awaiting the conclusion of clinical trials to ensure the vaccines they procure are safe for their populations. While many countries hope to secure at least a portion of their required vaccine doses through multilateral arrangements under Gavi, the Vaccine alliance and the COVAX facility, a large share have signed deals with Chinese, Indian, Russian, UK and U.S. pharmaceutical firms as well.

The pandemic has furnished some countries in the Indo-Pacific with opportunities to showcase their strength and capabilities in a time of crisis, as Bangladesh, Korea and Vietnam develop vaccines domestically with varying degrees of success. In response to international criticism for its role in spreading Covid-19, China has embraced vaccine diplomacy to reaffirm its global leadership and status as a responsible stakeholder on the international stage.

In the rush to develop and procure vaccines, governments have been forced to plan around a limited supply of doses and have come up with phased vaccine distribution schedules that prioritize vulnerable segments of the population. Though many of the vaccine candidates are in phase 2 or phase 3 clinical trials, the World Health Organization has yet to approve any of them. Nevertheless, vaccine developers are already gearing up for production, and it is likely that the first vaccines will be ready for use by early 2021.



Best Regards,

Murray Hiebert
Director of Research, BowerGroupAsia



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Australia

Potential Vaccines in the Pipeline

- The Australian government has agreements to secure the Oxford University/Astra Zeneca vaccine, the Novavax vaccine, Australian Queensland University/CSL vaccine and the Pfizer/BioNTech vaccine. All four vaccines require two doses, spaced a few weeks apart. The first doses of vaccines are expected to be rolled out beginning in March 2021. States and territories will be responsible for the rollout of the vaccine, which will be administered in general clinics and dedicated vaccination clinics.

Rollout Plan

- The Australian Technical Advisory Group on Immunization has developed Australia’s rollout plan, which prioritizes vaccinating those with an increased risk of developing severe diseases, those at risk of exposure and those working in critical and essential services. Once enough doses are in stock, all Australians who want the vaccine will be given access on a voluntary basis.



Bangladesh

Potential Vaccines in the Pipeline

- Globe Biotech is the only Bangladeshi firm in the race to develop an effective and safe coronavirus vaccine. Globe’s experimental vaccine, BANCOVID, has been added to the WHO’s draft landscape of candidate vaccines. Globe announced the development of the candidate in July.
- Globe Biotech recently ended a memorandum of understanding (MOU) with the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) on trials of a Covid-19 vaccine candidate developed by the pharmaceutical company, citing an “apparent lack of interest from ICDDR,B in running the trials.” The two organizations had begun working on the trials in August and signed the MOU on October 14. Globe Biotech has claimed that the vaccine is “effective” and “completely safe” after trials on rats.
- Nepal has offered to carry out trials of BANCOVID, and Globe Biotech signed an MOU with a Nepalese company for the sale of 2 million doses. The company is now applying to the Bangladesh Medical Research Council to conduct clinical trials on humans.



Bilateral or Multilateral Deals

- Bangladesh has entered into a deal with the Serum Institute of India (SII) to acquire 30 million doses of a potential vaccine developed by AstraZeneca.
- In November, Chinese biotech company Sinovac withdrew from a planned third-phase trial of its vaccine in Bangladesh after the government rejected the firm's request to co-fund the trial, claiming that was not part of a deal agreed to in July.

Rollout Plan

- SII and Bangladeshi pharmaceutical company Beximco Pharma signed an MOU for priority delivery of vaccine doses. Under the deal, Beximco will purchase 5 million doses of the vaccine per month. SII will supply the vaccine at a price of around \$4 to \$5 per dose. It partnered with AstraZeneca, the Gates Foundation and Gavi, the Vaccine Alliance, to produce 1 billion Covid-19 vaccines for supply worldwide. The acquired vaccine will be provided to frontline workers on a priority basis.

Cambodia

Potential Vaccines in the Pipeline

- The Ministry of Health (MoH) said Cambodia will not produce a Covid-19 vaccine. However, Cambodia belongs to the COVAX vaccine facility, and MoH is coordinating with the WHO and Gavi, the Vaccine Alliance, to develop a distribution plan once a vaccine is available. MoH said it is evaluating eight to nine vaccines for safety and efficiency and hopes to have one ready by mid-2021.

Bilateral or Multilateral Deals

- China's State Councilor and Minister of Foreign Affairs Wang Yi promised Cambodian officials that Cambodia will be one of the first countries to receive a vaccine once one becomes available.
- Russian Ambassador Anatoly Borovik announced in October that he is in discussions with Phnom Penh to share Russian-developed vaccines.

Rollout Plan

- Though Cambodia is a member of the COVAX facility, it has not yet ordered a Covid-19 vaccine. Once a vaccine becomes available, MoH expects to receive enough to vaccinate 3 percent of its population. The vaccine will be distributed in phases.

China

Potential Vaccines in the Pipeline

- China has adopted five technological approaches to developing 14 Covid-19 vaccines. By early December, five vaccines have entered phase 3 clinical trials: three inactive



vaccines from Sinopharm and Sinovac, one recombinant protein vaccine developed by CanSino and one based on adenovirus vectors from Zhifei Biotech.

- Chinese vaccine developers are confident they will reach mass production capacity by the end of 2021. The largest producer, Sinopharm, expects to produce 1 million doses of its two vaccines by the end of 2020 and expand the capacity to 1 billion doses in 2021.

Bilateral or Multilateral Deals

- Multilateral: China formally joined COVAX in October, shifting away from its prior hesitation due to concerns about production capacity. Under the COVAX agreement, China will commit to providing its vaccines as global public goods.
 - As part of its vaccine diplomacy, Beijing has made promises in several multilateral meetings to first supply vaccines to neighboring countries. However, most of these commitments are not paired with concrete distribution plans.
 - In August 2020, Prime Minister Li Keqiang announced that China will prioritize neighboring Laos, Cambodia, Myanmar, Thailand and Vietnam when distributing its vaccines.
 - In the September China-ASEAN foreign affairs ministers meeting, Foreign Minister Wang Yi proposed establishing a “China-ASEAN Vaccine Partnership,” prioritizing Southeast Asian countries.
 - Chinese President Xi Jinping made an oral commitment to provide priority access to Shanghai Cooperation Organization member states: Russia, Kazakhstan, Tajikistan, Kyrgyzstan, Uzbekistan, Pakistan and India.
- Bilateral: With domestic Covid-19 cases shrinking rapidly, Chinese companies are looking to finish clinical trials overseas. At least 16 countries have signed up for phase 3 trials with Chinese vaccine developers. However, only a few Indo-Pacific countries have reached concrete vaccine purchase agreements with China.

Rollout Plan

- Sinopharm submitted an application for market entrance approval in November. The company expects to introduce its vaccines to the public by the end of December 2020. Sinopharm has also started immunization registration in Beijing, Guangzhou and Wuhan for people with international travelling needs.
- Sinovac and CanSino currently do not have schedules for market entrance, and Zhifei is still in the early stages of phase 3 trials.
- Sinopharm vaccines have been approved for use among health care workers, customs officials and public servants at high risk of exposure. The CanSino vaccine, which has been co-developed with PLA Academy of Military Science, gained approval in June for military use.
- Zhejiang is the first province that disclosed rollout schedules and has chosen Sinovac Biotech as the primary emergency vaccine supplier in the region. In December,



Jiangsu announced its purchase plan of three types of vaccines. Vaccine rollout plans for most provinces are still unclear.



India

Potential Vaccines in the Pipeline

- India currently has five vaccine candidates in phase 2 and 3 trials across the country. These include the indigenous vaccine candidate Covaxin developed by Bharat Biotech and the Indian Council of Medical Research; Zydus Cadila's ZyCoV-D; Oxford-AstraZeneca vaccine candidate Covishield, manufactured by Serum Institute of India (SII); Russia's Sputnik V vaccine; and a vaccine candidate developed by Biological E Ltd.
- It is expected that a vaccine will be available for use by late January or early February 2021. Covaxin and Covishield are undergoing extensive phase 3 trials and are expected to apply for emergency authorization based on the safety and efficacy results from trials.

Bilateral or Multilateral Deals

- The government has approved Russia's Sputnik V vaccine to undergo phase 2 and 3 trials in India. Trials are being conducted in partnership with Dr. Reddy's Laboratories and have begun at four centers across the country.
- The government is in talks with vaccine companies for the procurement of 400 to 500 million doses, to be administered by July or August 2021. The government may also consider Pfizer and Moderna vaccines; however, cold storage requirements may prove to be a hurdle in their distribution.
- At this time, India will likely rely on the indigenous Covaxin and the AstraZeneca vaccine candidate to meet its vaccination needs in the first half of 2021. It is expected that SII will apply for emergency authorization by mid-December. So far, a formal agreement has not been signed with the government on the number of doses to be provided. However, reports indicate the government will be able to procure the vaccine at half the retail price from the company.
- India is also a member of the COVAX group and may receive vaccines through its membership, though there are no indications of a timeline or the number of doses to be received.

Rollout Plan

- The government is expected to vaccinate close to 300 million Indians by July or August 2021. Vaccination will be done in phases, with four categories of individuals identified on priority:
 - 10 million healthcare professionals including doctors, Bachelor of Medicine students (MBBS), nurses and accredited social health activist (ASHA) workers
 - 20 million frontline workers including municipal corporation workers, police and armed forces personnel
 - 260 million people over 50 years of age



- Special group of people below 50 years of age with comorbidities and requiring special care



Indonesia

Potential Vaccines in the Pipeline

- President Joko Widodo said in November that Indonesia will not rush through Covid-19 vaccine procurement, and he has assured that people's safety is the utmost priority. The announcement is in contrast to previous statements suggesting that a vaccine will be available by late 2020.
- A source at the Presidential Staff Office (KSP) said that the government is taking a cautious approach to vaccine procurement in response to recent developments on vaccine clinical trials globally, particularly with some reported cases where the candidate vaccines have not worked.

Bilateral or Multilateral Deals

- Indonesia remains active in trying to secure a vaccine through multilateral and bilateral efforts. In addition to multilateral efforts with COVAX, Indonesia is partnering with some vaccine developers to produce vaccines locally.

Rollout Plan

- One vaccine being jointly developed by Biofarma (Indonesia) and Sinovac (China) is now in the third phase of clinical trials in Bandung. Vaccination rollout is scheduled for February or March 2021.



Japan

Potential Vaccines in the Pipeline

- The government has signed an agreement to receive 120 million doses each from AstraZeneca and Pfizer by the end of June and 50 million doses of Moderna's vaccine through Takeda Pharmaceuticals by the end of September. Results from the AstraZeneca/Pfizer trials are expected to be collected between December and January.

Bilateral or Multilateral Deals

- Japan has not signed any deals with China or Russia, but it will participate in the COVAX scheme led by Gavi, the Vaccine Alliance.

Rollout Plan

- The Ministry of Health, Labor and Welfare has submitted a proposal to change the vaccination law and the quarantine law in the ongoing extraordinary Diet session. This will designate municipalities to administer the vaccines to their residents, and vaccination costs will be subsidized. The extraordinary session will close on December 5, and it is likely that the proposal will pass.



Korea

Potential Vaccines in the Pipeline

- South Korea's vaccine makers are lagging behind their global competitors and are still in the early clinical stages. The Korea Disease Control and Prevention Agency (KDCA) said that it is currently in the process of approving a phase 1/2a clinical study of a DNA vaccine developed by Genexine and phase 1 of a DNA vaccine by the International Vaccine Institute.
- SK Bioscience's vaccine, NBP2001, received approval for the first phase of clinical trials on November 23. Meanwhile, Johnson & Johnson is reportedly planning a phase 3 clinical study of its vaccine in South Korea. Currently, five domestic companies are either conducting vaccine clinical tests or are in the process of applying for approvals: Genexine, SK Bioscience, Cellid, GeneOne Life Science and Eyegene. More than four pharmaceutical companies are expected to participate in vaccine development by the end of this year.

Bilateral or Multilateral Deals

- KCDA said on November 30 that it is negotiating terms with five vaccine producers to secure a vaccine supply in advance, and that it will announce the details of the procurement plan as early as the second week of December. The indemnity clauses that the pharmaceutical companies are demanding are an important point of consideration for South Korea.

Rollout Plan

- According to the head of KCDA, the agency will secure various types of vaccines, including an mRNA vaccine, because no vaccine has yet been authorized. The 2021 budget will include KRW 900 billion (\$811 million) earmarked for the purchase of Covid-19 vaccines to inoculate around 44 million people.



Malaysia

Potential Vaccines in the Pipeline

- Malaysia is considering Pfizer's vaccine, for which it has signed a deal, and may also be considering China's vaccine, most likely from Sinopharm.
- Malaysia has set up a special committee on access to supplies of Covid-19 vaccines to be in charge of the Covid-19 vaccine procurement strategy.

Bilateral or Multilateral Deals

- Malaysia signed a deal with the U.S. firm Pfizer for the purchase of 12.8 million vaccine doses.
- Malaysia has also signed a pact with China to further enhance collaboration over the accessibility and development of the Covid-19 vaccines. This agreement gives Malaysia priority access to China's vaccine.
- Malaysia has joined the COVAX facility.



Rollout Plan

- Malaysia aims to vaccinate about 70 percent of the population free, purportedly in the first quarter of 2021. Children below 12 will not receive the vaccine as most vaccine candidates have not been tested on that age group.
- Out of the 70 percent of the population set to be vaccinated free, 20 percent will receive Pfizer's vaccine and 10 percent will be inoculated with vaccines provided under the COVAX plan. The government is still in talks with other vaccine suppliers for the remaining 30 percent of the population.
- Immunization priority targets are as the following:
 - First - front liners (including Ministry of Health staff, police, immigration and prisons)
 - Second - high-risk groups (e.g. the elderly)
 - Third - other adult population



Myanmar

Potential Vaccines in the Pipeline

- Myanmar is looking to acquire a vaccine approved by the WHO for emergency use authorization. As a member country of Gavi, the Vaccine Alliance, Myanmar will receive vaccines from the COVAX facility by April 2021, covering 3 percent (1.6 million) of the country's population of 53 million, with additional coverage for 17 percent expected to arrive by the end of 2021.

Bilateral or Multilateral Deals

- The government has thus far not signed any deals for vaccines with other countries. However, potential candidates are:
 - **China** - During his September 2020 visit to Myanmar, senior Chinese official Yang Jiechi announced that China was willing to prioritize Myanmar in sharing a vaccine.
 - **India** - In October 2020, Indian and Myanmar government officials had a virtual discussion about collaborating on the joint production, distributing and supplying a vaccine. Myanmar has a strong possibility of acquiring India's Dr. Reddy's vaccine, the Serum Institute of India's Covishield or Russia's Sputnik V.

Rollout Plan

- The Health Ministry has started collecting names of health care workers for the vaccine rollout, which will be covered with the COVAX vaccine. So far, no plans have been announced for non-health care workers.
- Private health care and pharmaceutical companies have been trying to secure vaccines on their own. AA Medical Products, a well-established private local firm, is pushing to sign a U.S. vaccine deal, though to no avail until now.



Nepal

Potential Vaccines in the Pipeline

- President Bidya Devi Bhandari endorsed on November 18 an ordinance to amend the Drug Act 1978, facilitating the use of emergency medicines and vaccines for Covid-19 that are tested and approved in other countries. The government has sent diplomatic notes to India, China, Russia, the United Kingdom and the United States seeking their support for early availability in Nepal.
- Indian Foreign Secretary Harsh Vardhan Shringal assured Nepal that it would be a priority once India releases a vaccine.
- The Health Ministry has said the government is looking to procure vaccines developed by the University of Oxford and AstraZeneca for its compatibility with the existing storage system of the country.
- Vaccines produced by Russia and China are also being considered once they are certified by the WHO. The government of Nepal is waiting to receive vaccine donation from Gavi, the Vaccine Alliance. The government is expecting a supply of 20 percent of its vaccines from COVAX in April 2021.

Bilateral or Multilateral Deals

- The government has not signed any deals or made any agreement on the procurement of a vaccine. The Ministry of Health stated that no deal would be made until the existing vaccines are fully tested. Trinity Pharmaceuticals, a private Nepali pharmaceutical firm, signed a deal with the Russian Direct Investment Fund (RDIF), Russia's sovereign wealth fund, to procure 25 million doses of the Sputnik V vaccine. The company is waiting for the government's approval of the vaccine.

Rollout Plan

- The government is working on a plan to import vaccines in February and March as most of the vaccines are expected to be available in the market by January. Nepal is expecting a supply of 20 percent its vaccines from COVAX.
- The government plans to vaccinate its population in blocks: 3 percent in the first phase and 10 percent in the second, including vulnerable groups, particularly senior citizens and patients suffering from serious ailments. The remaining population will be vaccinated in the third phase. According to the Ministry of Health, 72 percent of Nepal's population needs to be vaccinated, while 28 percent of the population are children under 14 who cannot be immunized.



New Zealand

Potential Vaccines in the Pipeline

- New Zealand's Ministry of Health is aiming to have a portfolio of vaccines to deliver, and, so far, two vaccines have been confirmed from Pfizer/BioNTech and Janssen. The government has said that the Pfizer/BioNTech vaccine could be available in New Zealand in March 2021 and that it has purchased enough doses for 750,000 people. The Janssen vaccine is expected to be ready by September 2021.



Rollout Plan

- The government is still finalizing plans on vaccine rollout, but border workers, frontline health staff, essential workers and elderly New Zealanders are likely to be first in line.



Pakistan

Potential Vaccines in the Pipeline

- Pakistan has agreed to support phase 3 clinical trials of the Covid-19 vaccine Ad5-nCoV, which CanSinoBio and Beijing Institute of Biotechnology developed with local pharmaceutical company partner AJM and the National Institute of Health (NIH).
- Collectively, trials sites are targeting 10,000 volunteers. Pakistan is among seven countries that will carry out the phase 3 trial in compliance with national and international ethical and regulatory guidelines.

Rollout Plan

- The government hopes to procure a vaccine in the first quarter of 2021. The Economic Coordination Committee of the federal cabinet recently allocated \$150 million to acquire a Covid-19 vaccine. The vaccine will be administered to the Pakistani population in stages: frontline healthcare workers will be the first priority; followed by the elderly, vulnerable and health care workers; and finally, the remaining population.



Philippines

Potential Vaccines in the Pipeline

- The Philippines does not have a vaccine in the pipeline at this time.

Bilateral or Multilateral Deals

- On November 27, Manila signed a tripartite agreement with the private sector and UK-based pharmaceutical company AstraZeneca for the supply of 2.6 million doses of its Covid-19 vaccine to the country next year.
- Around 30 private sector representatives signed the agreement, including the largest Philippine conglomerates such as International Container Terminal Services, Inc., Metro Pacific Investments Corporation and Ayala Corporation).

Rollout Plan

- On November 5, General Carlito Galvez Jr, the vaccine czar and chief implementer of the Pandemic National Action Plan, proposed the "Philippine National Vaccine Roadmap," which President Rodrigo Duterte approved. It comprises seven stages, namely: scientific evaluation and selection; access and acquisition; procurement and financing process; production, shipment and storage; distribution and deployment; implementation and nation-wide vaccination; and assessment, evaluation and monitoring.



Singapore

Potential Vaccines in the Pipeline

- A 14-member committee comprising experts in infectious diseases, immunology and other relevant fields was appointed on October 5 to make recommendations on Singapore’s Covid-19 vaccination strategy to the government. The committee is closely monitoring the global vaccine development landscape as the government is looking to secure a portfolio of Covid-19 vaccines catering to different segments of the population.

Bilateral or Multilateral Deals

- Singapore has not yet signed any deals with other countries or companies for vaccines but is in discussion and ongoing negotiations with three companies to secure vaccines early. The government is also investing heavily in a homegrown vaccine candidate that Arcturus Therapeutics is developing with the Singapore’s Economic Development Board which is pumping in SGD 60.5 million (US\$45 million) to manufacture the vaccine.

Rollout Plan

- When these vaccines become available, Singapore plans to roll it out progressively, with frontline health care workers likely to get first priority, followed by vulnerable groups who may develop more severe symptoms as a result of infection. Depending on the nature of the approved vaccine, the government may not intend to vaccinate the entire population.



Thailand

Potential Vaccines in the Pipeline

- Thailand is considering AstraZeneca’s vaccine, for which it has signed a deal, and has made a vaccine reservation from COVAX and other pharmaceutical companies. The National Vaccine Institute and Chulalongkorn University have been developing Thailand’s own mRNA vaccine, which is based on the similar approach and technology as Pfizer/BioNTech's.

Bilateral or Multilateral Deals

- Thailand signed a deal with AstraZeneca to produce and supply the experimental Covid-19 vaccine AZD1222, which Oxford University developed.
- A budget of THB 6 billion (\$197 million) was approved to reserve 26 million doses of the AstraZeneca vaccine. Each dose is estimated to cost no more than THB 151 (\$5).
- The AstraZeneca vaccine is expected to cover 13 million people, or around 20 percent of the Thai population, by the end of 2021.

Rollout Plan

- As Thailand aims to cover 30 million people or 50 percent of the population by 2021, the Department of Disease Control (DDC) plans to supply 20 percent through COVAX,



20 percent from AstraZeneca and 10 percent from other sources, which may include Pfizer.

- DDC is gathering data to prioritize the use of the Covid-19 vaccine. Doctors and medical staff will be included in the first round of vaccinations.
- The National Vaccine Institute has been tasked to draft a memorandum of understanding (MOU) with government agencies and business sectors that are capable of developing Covid-19 vaccines. The MOU includes a budget obligation to advance market commitments of the potential vaccine. DDC is in charge of the procurement process.



Vietnam

Potential Vaccines in the Pipeline

- Vietnam is currently developing four domestic vaccines. Hanoi estimates that its first vaccine will be ready for human clinical trials by December 2020, and vaccines may be available for distribution after one year.

Bilateral or Multilateral Deals

- Though the Vietnamese government has discussed the purchase of vaccines from companies in the United States and Russia, it has not signed any deals so far.

Rollout Plan

- Vietnam has not yet articulated a rollout plan and is waiting for the completion of human clinical trials.