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Policy Paper No. 41

Partnering to Push Back the Pandemic

Boosting Capacity to Deliver Covid-19 Vaccinations in Indonesia

by Andree Surianta

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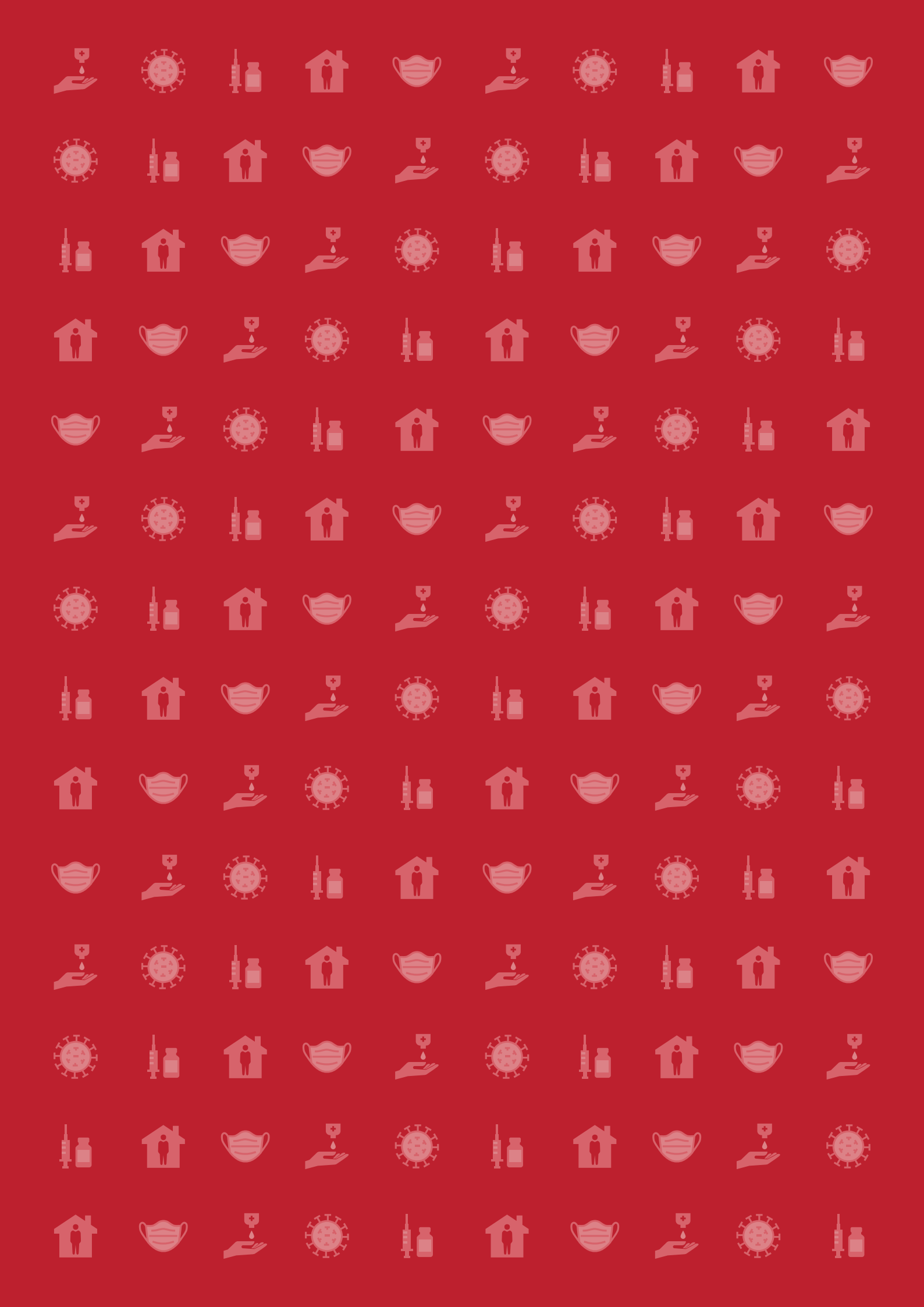

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This paper was finalized on June 30, 2021, just as Indonesia faces a second wave of the COVID-19 pandemic. New policies were coming out rapidly in an effort to stem the growing tide. This also includes the vaccination policy, which went through two revisions and more potential changes in the horizon just in the final week of drafting. The paper has attempted to include these latest updates, however there might be new policies coming online as this paper went to print. Nevertheless, its message remains unchanged: that a long-term strategy is required for the vaccination program and the private sector is a critical component of such a strategy.

EXECUTIVE SUMMARY

Indonesia began its national COVID-19 vaccination drive in January 2021. The Minister of Health (MOH) sets a deadline of March 2022 or 15 months to complete this program. However, the President wants vaccinations done by the end of 2021 by administering one million doses per day. However, this speed remains elusive after six months. The MOH cited global supply restrictions and domestic cold chain infrastructure deficit as the main challenges to this program.

India export embargo slows Indonesia's vaccination drive to the extent that it took six months to deliver the volume that should only take two months. Speed is also highly unequal across provinces with the fastest already completing two-dose vaccinations for 100% of its target population while the slowest ten struggles to even reach 20% coverage. New virus variants and waning immunity threatens to undermine herd immunity further and even heightened breakthrough infection risk among vaccinated healthcare workers.

The mass vaccination campaign started as a government-funded program known as Vaksinasi Program (VP). It evolves in February 2021 when the Minister of Health (MOH) Regulation 10/2021 adds a private vaccination track known as Vaksinasi Gotong Royong or (VGR). After some delays on the implementing regulations, the VGR finally begins in mid-May 2021. Currently, this track allows private organizations to buy vaccines for their staff and household members.

By allowing the corporate VGR, the state hoped to relieve some pressure to its budget. However, it ran into supply issues as well because the supply chain for both VP and VGR is monopolized by a single state-owned enterprise. The budget-saving impact may also be limited because many businesses are hesitant to enroll due to its high price point and uncertain delivery schedule.

Although the most famous, the corporate VGR does not directly address supply or distribution challenges. There are other public-private collaborations that directly address domestic distribution barriers. These include utilizing the cold chain network of private providers and building grid-independent vaccination centers in remote areas. These models directly solve distribution challenges and thus, are more useful in minimizing the risk of a monopolistic distribution policy.

Considering that Indonesia has little leverage over international supply chain issues, this paper proposes a paradigm change in the strategy. Instead of obsessing over speed, the national vaccination drive should be prepared for a sustained push against COVID-19. The private sector is a critical part of this strategy to relieve pressure on government resources which are not designed for a sustained deployment.

The recommendations below represent this strategic shift:

1. The Ministry of Health should begin working with private hospitals on an immunity monitoring and maintenance program for healthcare workers. The program may involve booster vaccinations that should be sourced directly by the hospitals.
2. The Ministry of Health and regional governments should tap into private sector innovation that can expand cold chain capacity to remote areas.
3. The Ministry of Investment should work at removing investment barriers to vaccine manufacturing in the country.
4. The Ministry of Tourism should approach the reopening of Bali with an abundance of caution and work with travel service providers to manage the flow of vaccinated tourists into the island.

A PANDEMIC LIKE NO OTHER

The COVID-19 pandemic has proven to be a formidable foe to global health. The elusiveness and adaptability of the SARS-CoV-2 virus made controlling it very challenging. Its relatively long incubation period allows it to replicate and spread wherever its host goes to before symptoms even appear. Its quick evolution generates new variants of concerns which spreads more aggressively and even seems capable of evading immunity (Nature 2021). So far, the only effective way to stem its spread seems to be either an aggressive testing regime as implemented by South Korea or strict mobility restrictions as adopted by Vietnam (Belluz 2021; Scott and Park 2021). However, such restrictions are costly for governments and unsustainable indefinitely.

The arrival of vaccines brings fresh hope of restoring normalcy. Many governments believe that vaccination provides the quickest path to herd immunity and economic recovery. Countries with high vaccination coverage, such as the US and UK have seen its new case numbers drop. However, a recent uptick in UK have renewed concerns on new virus variants outpacing vaccination (Wright 2021). Controlling the pandemic has posed budgetary challenges for many countries as massive resources are needed to track its spread, treat those affected, and protect all from transmission.

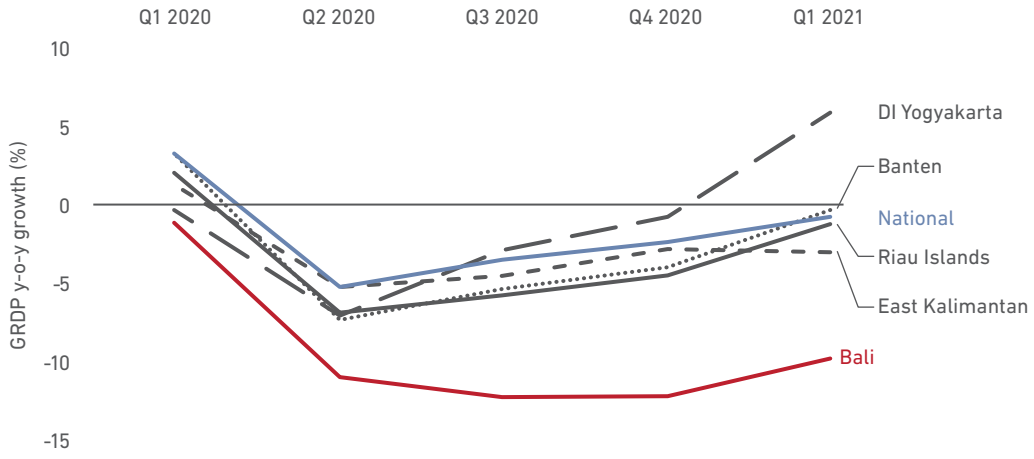
“Controlling the pandemic has posed budgetary challenges for many countries as massive resources are needed to track its spread, treat those affected, and protect all from transmission.”

This paper will focus on vaccination as a key component in building protection. It is not the only tool that should be employed in containing COVID-19, however it is one that many governments have dedicated significant resources on – including Indonesia. Unfortunately, for a country with limited fiscal space, this decision may come at the expense of other pandemic interventions. Tapping into the private sector resources can alleviate some of this budget strain which can then be redirected to bolstering other interventions.

SAVING THE INDONESIAN ECONOMY THROUGH MASS VACCINATION

The COVID-19 pandemic has hit the Indonesian economy hard. Since its early days, President Joko "Jokowi" Widodo decided against strict mobility restrictions for fear of an economic fallout (News Desk 2020). Nevertheless, the economy continues to shrink since the second quarter of 2020 with Bali's economy sinking deepest and recovering slowest (Figure 1). Nearly 30 million people either lost their jobs, were furloughed, or experienced reduced working hours (Akhlas 2020).

Figure 1.
Five Indonesian Provinces with Deepest Economic Contraction in 2020



Source: Statistics Indonesia

When COVID-19 vaccine arrived in January 2021, it was touted as a game changer that can finally turn the seemingly unstoppable tide (Office of Assistant to Deputy Cabinet Secretary for State Documents & Translations 2021b). However, premature vaccine euphoria and pandemic fatigue has turned into complacency in millions of Indonesians choosing to flout a travel ban during the recent Eid (Lebaran) holiday (Yuniar 2021). This mass mobility unfortunately coincides with the emergence of a new, highly aggressive variant which triggers a second wave (Figure 2). Achieving herd immunity have become simultaneously urgent and elusive as the vaccination campaign struggles to keep up with the pandemic.

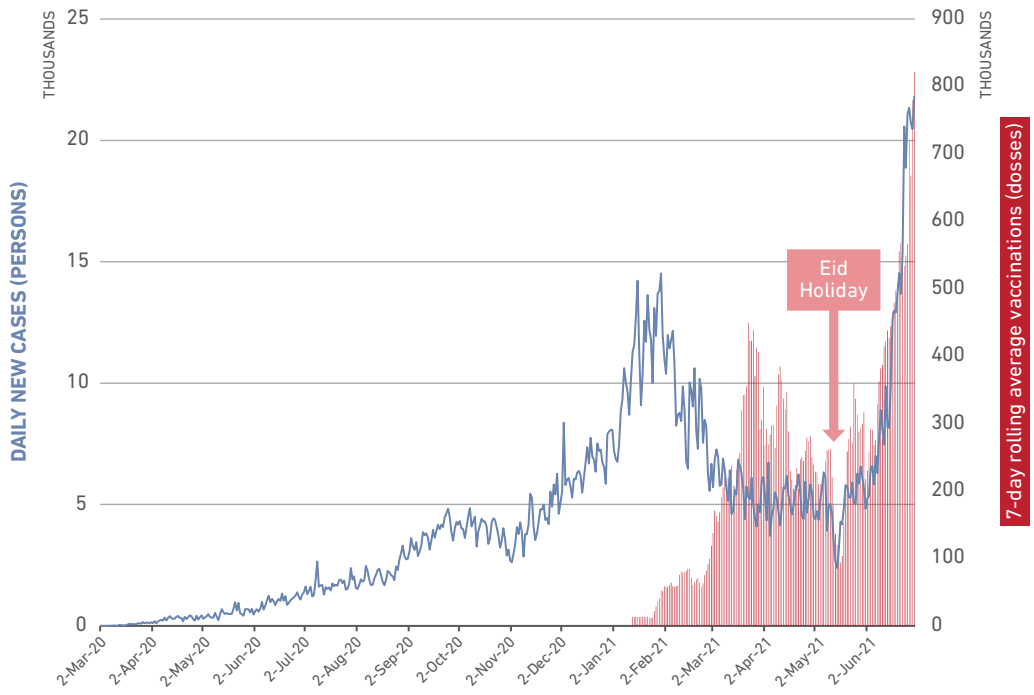
"Achieving herd immunity have become simultaneously urgent and elusive as the vaccination campaign struggles to keep up with the pandemic."

The mass vaccination drive in Indonesia officially kicked off with President Jokowi receiving his first dose of CoronaVac vaccine on January 13, 2021 (Office of Assistant to Deputy Cabinet Secretary for State Documents & Translations 2021c). The campaign is nothing less than ambitious, aiming to vaccinate 70% of the Indonesian population aged 18 and above within 12 – 15 months. The initial plan had phase I and II vaccinating 40 million priority targets which has the

highest infection and mortality risk – i.e., healthcare workers, elderlies, and public servants – by April 2021. However, this has now been pushed back to June 2021 (DPR RI 2021c; Nadia 2021, 14). Phases III and IV covering 141.5 million vulnerable and general population then followed until the March 2022 deadline. Unfortunately, until the final drafting of this paper even the high-priority target of 40 million remains unattainable. The ambitious plan repeatedly ran into problems of restricted supply, limited resources, and a moving target.

Giving out free vaccines for most of the population was not the original plan. Initially, free vaccines will only be available for 32 million people aged 18-59 (Tambun and Lumanauw 2020). However, a joint survey by the Ministry of Health, UNICEF, the Indonesian Technical Advisory Group on Immunization (ITAGI) and WHO (2020) found that only around 20% are willing to pay for a vaccine. The ITAGI later recommends that COVID-19 vaccination should be free of charge for all (Nadia 2021, 12). The President followed this recommendation and announced a day later that vaccines are now free for all target population – approximately 107 million people (Tambun and Lumanauw 2020). This subsequently grows to 181.5 million to include those aged above 59 and has since grown further as children aged 12 – 17 can now be vaccinated (ANTARA News 2021; Prasetiyo 2020). The decision to switch from a mostly-paid to mostly-free campaign has tripled the vaccination budget from IDR 22 trillion (USD 1.5 billion) to IDR 74 trillion (USD 5 billion) (Fauzia 2020).

Figure 2.
Daily COVID-19 Caseload and 7-day Vaccination Rolling Average in Indonesia as of June 30, 2021



Source: Our World in Data

Racing with the Pandemic

With most COVID-19 vaccines requiring two doses to trigger optimum immunity response, Indonesia needs to prepare 363 million doses to cover its adult vaccination target. Children vaccination requires another 58 million doses which will be covered by multilateral and bilateral aid donations. According to MOH Decree 12758/2020 on Vaccine Types for COVID-19 Vaccination, vaccines produced by seven companies are allowed for use in Indonesia. These are Bio Farma, AstraZeneca, Sinopharm, Moderna, Novavax, Pfizer-BioNTech, and Sinovac. It should be noted that, for now, Bio Farma and Sinovac vaccines are synonymous as the former imports the bulk vaccine from the latter and then reprocess it for distribution. By early 2022, the state-owned pharmaceutical manufacturer is planning to shift production to the locally developed Merah Putih (Red and White) Vaccine once it is cleared for human use (Lukihardianti 2021).

Table 1 shows the original delivery commitments from the four suppliers that the government has signed up with, i.e. Sinovac-Bio Farma, AstraZeneca, Novavax, and Pfizer. Confirmed orders were approximately 266 million doses plus 11 million doses of free vaccines through the multilateral COVAX/GAVI facility (Gavi 2021). On top of these secured commitments, Indonesia has options to order 148 million more. In other words, Indonesia began its vaccination drive with a total of over 426 million doses of vaccines delivered between January 2021 and March 2022. These are timed to align with the Ministry of Health's plan to complete the vaccination drive in 15 months (Nadia 2021, 14).

Table 1.
Original Vaccine Deliveries Timeline to Indonesia

	Sinovac-Bio Farma	Novavax	COVAX	AstraZeneca	Pfizer
Jan	3,000,000				
Feb	7,871,000				
Mar	11,400,000		3,650,400		
Apr	7,600,000		7,855,200	150,000	
May	21,647,000		199,200	150,000	
Jun	18,170,000	4,000,000	6,042,171	1,000,000	
Jul	24,860,000	8,000,000	6,042,171	2,400,000	6,666,667
Aug	24,860,000	8,000,000	6,042,171	7,700,000	6,666,667
Sep	6,096,000	8,000,000	6,042,171	11,900,000	6,666,667
Oct		8,000,000	6,042,172	11,900,000	10,000,000
Nov		8,000,000	6,042,172	11,900,000	10,000,000
Dec		8,000,000	6,042,172	11,900,000	10,000,000
Total 2021	**125,504,000**	**52,000,000**	**54,000,000**	**59,000,000**	**50,000,001**
Jan		8,000,000	8,000,000	11,900,000	8,000,000
Feb		8,000,000	8,000,000	11,900,000	8,496,000
Mar		6,000,000	8,000,000		
Total 2022	**-**	**22,000,000**	**24,000,000**	**23,800,000**	**16,496,000**
Grand Total	**125,504,000**	**74,000,000**	**78,000,000**	**82,800,000**	**66,496,001**

Note: Firm Order / Option

Source: Minister of Health (DPR RI 2021c)

This 15-months deadline also means that the country needs to administer over 24 million doses every month to meet the deadline of March 2022. The President, confident that Indonesia can administer one million doses per day, set an even more ambitious target of concluding the campaign by the end of 2021 (Nugraheny 2021). However, limited logistic capacity and vaccine import delays have put both deadlines at risk.

> "The rollout cannot reach this speed because of two major barriers: domestic cold chain infrastructure deficit and global supply restriction."

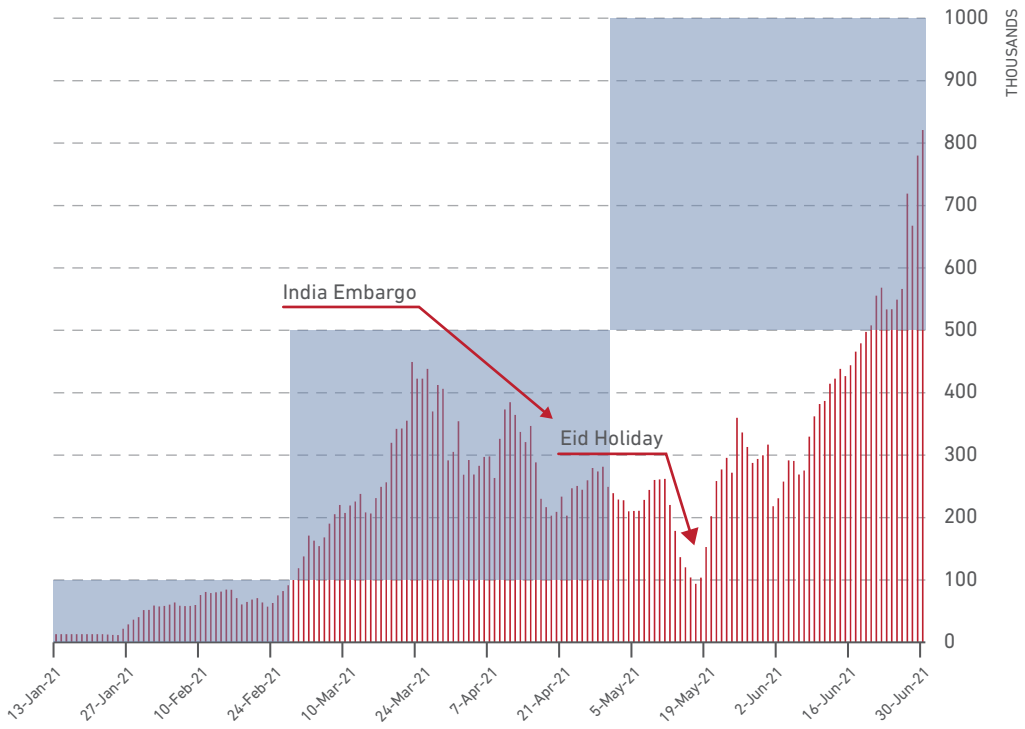
The Ministry of Health vaccination data, tracked by Our World in Data (2020), shows that the rollout is still far from reaching one million doses per day (Figure 3). In two working meetings with the House of Representatives (DPR RI), the Minister of Health (MOH) has warned that the rollout cannot reach this speed because of two major barriers: domestic cold chain infrastructure deficit and global supply restriction. During the first phase of vaccine distribution, eight provinces were unable to receive all doses in a single delivery due to limited cold storage capacity (DPR RI 2021a).

Then a further blow came when COVAX deliveries were delayed (DPR RI 2021c). From the 11 million doses to be delivered by April 2021, only 4.9 million arrived (Gavi 2021). This was caused by India imposing temporary export ban on AstraZeneca vaccines produced by the Serum Institute of India as it faces a devastating second wave (Da Costa 2021). In the global COVID-19 vaccine manufacturing context, this supply disruption was not the first and may not be the last as production capacity is estimated to only catch up with global demand by the end of 2021 (Irwin 2021).

When queried about vaccination speed, the MOH breaks down the target range on a bi-monthly basis (shaded areas in Figure 3). Up to 100,000 doses per day was the target speed in the first two months. Then March – April 2021 supposed to see 100,000 – 500,000 doses per day. This then increase to 500,000 – 1,000,000 daily doses throughout May – June 2021. Finally, 1 – 1.5 million doses per day is expected from July 2021 onwards (DPR RI 2021c). However, as Indonesia braces for a new wave, President Jokowi revises this target to 2 million vaccines per day by August 2021 to chase up completion by the end of the year (Farisa 2021). This is an incredibly ambitious goal considering the program has never reached the maximum speed in any of the target ranges.

As India export embargo took hold toward the end of March, Indonesia's vaccination speed began to falter. The minimum speed of 500,000 daily doses was never achieved in May and even drops precipitously during Eid holiday season. Even after recovering, the program still struggles to meet its target. Such lethargic speed means that Indonesia took four months to deliver 24 million doses of vaccines instead of completing this much every month (Ritchie et al. 2020). Even until June 30, 2021, only 43 million doses have been administered, leaving approximately 320 million doses to be administered in the 273 days remaining until March 2022 deadline. This amount still excludes children vaccination which may be sourced differently but will still be administered by the same healthcare facilities. This deadline seems difficult to achieve even in ideal condition, much less in the face of global supply volatility and domestic logistical constraints.

Figure 3.
Vaccination 7-day rolling average and target ranges as of June 30, 2021



Source: Our World in Data and Ministry of Health

Stumbling on Regional Inequity

Further complicating the goal of herd immunity is the imbalance of resources at the disaggregated level. COVID-19 vaccine is a weakest-link public good where its usefulness depends on those who has the least resources to do it (Bodansky 2012). In other words, stopping this global pandemic requires overlaps of herd immunity among countries, even in those that cannot afford to buy vaccine. Experience with polio disease shows that failing to vaccinate pockets of remote communities create a situation where it is only contained, instead of eradicated (Thompson and Duintjer Tebbens 2017). "No one is safe, until everyone is" is an apt rallying call to describe the global cooperation needed in COVID-19 vaccine distribution (UN DESA 2020).

However, this principle applies within countries as well. The speed of a national vaccination program is dependent on the sub-national pace. If the national immunization target is March 2022, then all 34 provinces are supposed to finish around this same time. However, this may prove to be very difficult due to uneven healthcare resources distribution. Aside from cold chain issues, some provinces have limited healthcare facilities and human resources. Around 39% of Indonesian hospitals and community health centers (*puskesmas*) are located in the six provinces on Java Island. Nearly half of all healthcare workers in Indonesia is also located in Java (Ministry of Health 2020). Furthermore, the strain on human resources continues to grow as close to 1000 healthcare workers have succumbed to this disease (Widianto and Lamb 2021).

Regional government commitment also plays a big role in vaccine distribution speed. The Ministry of Health vaccine tracker shows that Bali completed its two doses vaccination on June 21, 2021 (Ministry of Health 2021). This was way ahead of the runner-ups – Jakarta and Yogyakarta – which has a two-dose rate of 63% and 57% on that date. Bali's lightning speed likely stems from the urgency of reviving its tourism and hospitality sectors from hibernation. On the other hand, the bottom ten provinces[1] have only managed to administer two doses to less than 20% of their target population.

Even within an island speed differs greatly. Estimation based on healthcare workers distribution shows that there may be as much as a two-years gap between the vaccination drive in DKI Jakarta and West Java (Surianta 2021). The national vaccine dashboard shows that while Jakarta and Yogyakarta have both surpassed 50% on two-dose completion, the other four provinces on Java have not even reached 40% on June 21, 2021. Considering the high mobility between these provinces, speedy Jakarta will not be entirely protected from COVID-19 until its neighbours finishes its vaccination program. At the very least, the virus will still pose a threat to the 30% of Jakarta residents ineligible for the government program.

The gap in completion time also brings another complexity when waning immunity and new virus variants are considered. There are no conclusive data yet on how long vaccine-induced immunity lasts but even the MOH has acknowledged that booster COVID-19 vaccinations might be needed (DPR RI 2021b). If population immunity in one province dissipates before another reaches it, then the former risks reimporting the virus from the latter. Experts warn that herd immunity should be treated as a threshold to maintain, rather than a race to win (Mandavilli 2021). Essentially, whichever province finishes first must continue to monitor its population immunity and be prepared to revaccinate when the need arises.

"If population immunity in one province dissipates before another reaches it, then the former risks importing the virus from the latter."

All these issues highlight the complexity of this nation-wide program. It requires a long-term mindset in planning and management of resources. The Indonesian government has depended on debt instruments to finance much of its pandemic responses (Samboh and Akhlas 2020). While this may be unavoidable given the country's limited fiscal space, such financing policy is unsustainable. The Indonesian government should not depend solely on its own means to handle the situation. Instead, it should consider the private sector as an integral part of the strategy. After all, the corporate vaccination program has proven to provide some relief when it came online just as the government's program falters (Syakriah 2021).

[1] Aceh, North Maluku, West Sumatera, Lampung, East Nusa Tenggara, Southeast Sulawesi, Maluku, Bengkulu, Central Sulawesi, West Kalimantan

ENLISTING THE PRIVATE SECTOR IN COVID-19 VACCINATION

The private sector is an important stakeholder in any health intervention in Indonesia. It operates a significant chunk of the country's healthcare facilities. Ministry of Health (2020) data shows that 60% of the general hospitals and 80% of the specialist hospitals in the country are private. The Indonesian government has acknowledged the necessity of tapping into these vast resources by recruiting some private hospitals to deliver its own COVID-19 vaccination program.

> "The private sector is an important stakeholder in any health intervention in Indonesia. It operates a significant chunk of the country's healthcare facilities"

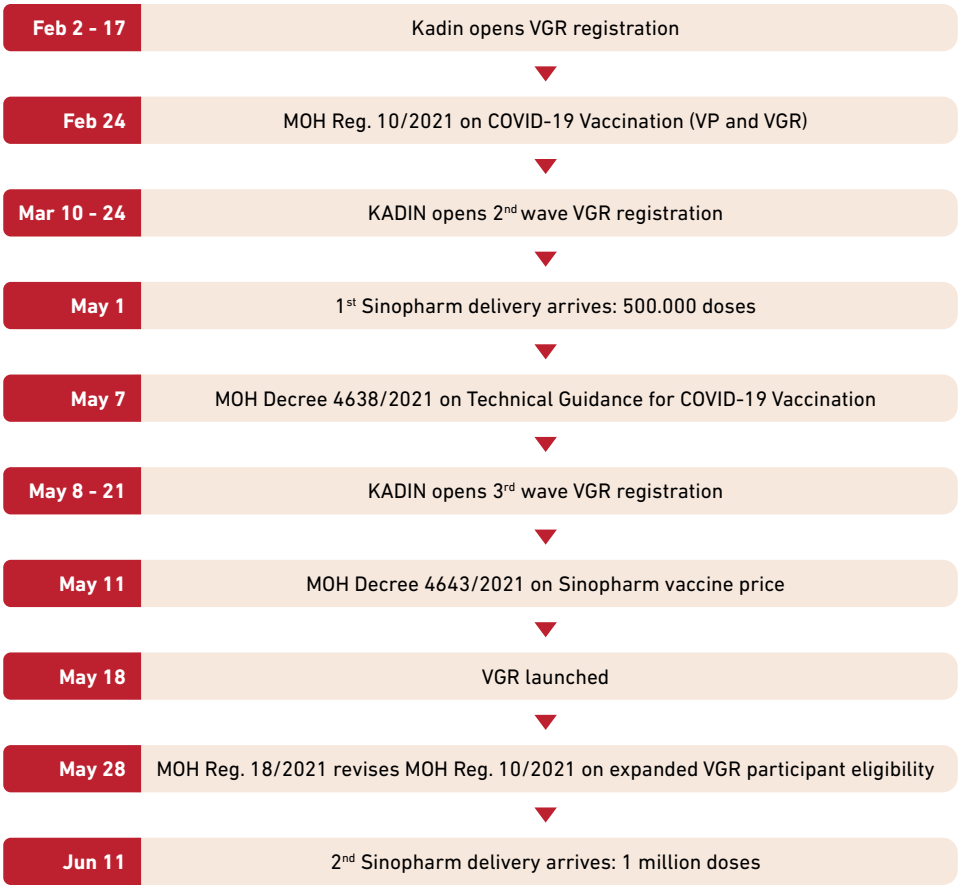
The Indonesian Chamber of Commerce and Industry (KADIN) then proposed another form of collaboration through a corporate-based vaccination option (Maharani 2021). This receives an official nod in February 2021 with the inclusion of the *Gotong Royong* (Mutual Cooperation) Vaccination in MOH Regulation 10/2021 on the Implementation of COVID-19 Vaccination. Albeit being the most famous, it is not the only private sector participation in the country's COVID-19 vaccination drive. Furthermore, Indonesia is not the only country in the world to enlist the private sector for the national vaccination drive, as the next sub-sections will show.

Gotong Royong (Mutual Cooperation) Vaccination

The Gotong Royong Vaccination made Indonesia among the first in the world to have a private COVID-19 vaccination option (Widianto 2021). It began as a corporate-based vaccination program which subsequently evolves into a placeholder for non-government vaccination programs. MOH Regulation 10/2021 specify it as one of the two tracks in the national vaccination campaign, i.e. the *Vaksinasi Program* (VP) and the *Vaksinasi Gotong Royong* (VGR). The former is entirely handled by the government, while the latter allows private organizations and state-owned enterprises to buy vaccines for employees and their families (Minister of Health 2021a).

Participant eligibility was later expanded through MOH Regulation 18/2021 by allowing organizations to register members of their surrounding community (Minister of Health 2021b). This may be expanded further as the second wave emergency prompts a rethink to include paying individuals in the program (Nasution 2021). The Ministry of Tourism also wants to use the framework to offer vaccine vacation packages for foreign tourists to Bali (Wira Widyanti 2021). The VP and VGR are mutually exclusive in terms of financing and administration but overlaps in the procurement channel and recipient handling. VGR remains a corporate-only program at the time of this paper's writing. A timeline of the corporate VGR is shown in Figure 4.

Figure 4.
Corporate Gotong Royong Vaccination Timeline



Source: Author's own compilation

Ensuring exclusivity between tracks is done in several ways. Firstly, the private track is entirely financed by corporations. Secondly, the vaccines used in the two programs must be different. Also, only private healthcare facilities can administer VGR, and this even excludes private facilities currently engaged for the government track. While anyone aged 18 and above can register themselves for VP, recipients of corporate VGR must be registered by organizations. Those receiving vaccination under the private scheme will be excluded from the VP target and vice versa.

For both tracks, the sourcing, importation, and distribution of vaccines are done by Bio Farma. Although the recipients get the jabs for free, private organizations must buy VGR vaccines from Bio Farma at a price determined in an MOH Decree. Currently, MOH Decree 4643/2021 stipulates a price of IDR 321,660 (approximately USD 22.60) for one dose of Sinopharm vaccine, while healthcare providers can charge a fee of up to IDR 117,910 (approximately USD 8.30) per dose for vaccination. Both prices exclude taxes. Registration from private organizations is handled by KADIN, who hands over the data to the Ministry of Health through Bio Farma. State-owned enterprises register directly to Bio Farma. These data is then cross checked with the Single Data COVID-19 Vaccination Information System to avoid duplication between VP and VGR (KPC PEN 2020). Companies then sign a purchase contract and pay a down payment directly to Bio Farma to finalize the order.

By the time VGR began on May 18, 2021 the program was relatively well subscribed with more than 22,000 companies registering approximately 10 million recipients (Office of Assistant to Deputy Cabinet Secretary for State Documents & Translations 2021a). Around 57% of these companies are located in Jakarta (KADIN 2021b). In its most recent update, KADIN's VGR registration website shows that 165,000 people have been allocated vaccines through VGR in June and 300,000 more shall follow in July 2021 (KADIN 2021a).

In much of the discourse on VGR, vaccinating workers is promoted as more efficient than regularly testing workers for COVID-19 and a way for companies to return to full capacity (Kadin Medan 2021). These benefits were also cited by a major business group which registers 365,000 participants, adding that protecting workers through vaccination will also help the corporation reduce its overall spending for supporting infected workers and their families (FMB9 2021).

Unfortunately, some of these beliefs are misguided and even risk undermining the broader pandemic control efforts. There seems to be a misconception that vaccinated individuals are completely immune to the virus and testing and social distancing can be discontinued. However, a recent case of breakthrough COVID-19 infection among hundreds of fully vaccinated healthcare workers shows otherwise (Widianto and Lamb 2021). Indeed, current vaccines are not yet trialed to prevent transmission but only to reduce the disease's severity (Hunter 2021). So, companies may indeed see lower hospitalization rate amongst staff, but testing and preventive measures must be maintained. Indonesia is still far from reaching herd immunity and complacency threatens to roll back any achievement already made in pushing back the pandemic.

Furthermore, the VGR seems to be beset by transparency and timing issues. Questions have emerged on price-setting process and various associations report dropouts due to price (Florentin 2021; Kompas Team 2021; Naufal 2021; Sulistiyawati 2021; Theodora 2021). Companies have to go through multiple iterations of registration and data clean-up before finalizing their orders with a down payment, but even this does not guarantee their delivery schedule. This lack of supply clarity has worked against the program (Naufal 2021; Sulistiyawati 2021). With VGR coming online only two weeks before VP is open for all population, some corporations may encourage staff to get the government's free vaccines instead (Ihsanuddin 2021). The possibility of individual purchase may further dampen corporate interest. Lastly, there does not seem to be a readily accessible tracker for VGR aside from KADIN's VGR registration website and so it is difficult to gauge the realization of the claimed 10 million registrants.

> "Another potential bottleneck in this program is the supply monopoly by a single state-owned enterprise, who is also tasked to supply the government's program."

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Another potential bottleneck in this program is the supply monopoly by a single state-owned enterprise, who is also tasked to supply the government's program. This is likely done to improve oversight as Indonesia has faced fake vaccine scandals in the past (Hasnida, Kok, and Pisani 2021). However, this also means that the speed of both tracks depends squarely on Bio Farma. Expanding VGR to include paying individuals and foreign tourists in the midst of limited global supply will stretch its supply chain even further, increasing the risk of disruptions to both tracks.

The corporate vaccination drive proves to be a useful complement to the government's effort when it faces supply constriction. However, in its current form, the contribution to acceleration and equity seems limited. It is also more flexible than VP since it is not financed by taxpayer money. However, plans to expand it may be driven by urgent needs instead of careful long-term planning. Rushing the modification of VGR may create confusion and even risk infiltration of fake vaccines. In the end, measuring its impact will be difficult without open and regular reporting of vaccinated numbers. Nevertheless, the corporate-based VGR is not the only private sector contribution to the national vaccination program that is ongoing now.

Other Public-Private Collaboration in Indonesia's Vaccination

Although the corporate VGR is the most publicized public-private collaboration, there are other equally important forms of cooperation already in place. These are mainly on distribution as it is the biggest domestic challenge to VP. Early on in the campaign, the MOH approached Unilever which operates the second largest cold chain network in Indonesia for its ice cream business (Prasetyo 2021; PT Capricorn Indonesia Consult 2019). However, so far the cooperation seems to be limited to donation of refrigeration cabinets (Jatmiko 2021).

Another, more extensive, public-private cooperation is the vaccine distribution contract between Bio Farma and Enseval (Kalbe Farma 2021). Enseval is the owner of the largest cold storage capacity in the country and a logistics subsidiary of Kalbe Farma, the largest private pharmaceutical producer in Indonesia (PT Capricorn Indonesia Consult 2019). Currently, Enseval is contracted to handle the distribution of VGR's Sinopharm to seven provinces (Elvira 2021). Kalbe Farma itself is collaborating with a South Korean biopharmaceutical research and development company to trial a COVID-19 vaccine in Indonesia (DPR RI 2021c). The company is also contemplating investment in an end-to-end vaccine manufacturing facility, which – if materializes – would be the second in the country after Bio Farma was established over a century ago (Arief 2020).

Public-private partnership (PPP) has also brought innovative solutions to vaccine distribution for remote areas. Solarkiosk, supported by funding from the Swiss Re Foundation, is delivering two solar-powered COVID-19 testing and vaccination centers to Lampung (Solarkiosk Solutions 2021). They are completely independent from the main electricity grid and use solar power instead to run vaccine refrigerators and COVID-19 testing equipment (T. Rieger, personal communication, June 9, 2021). It uses prefabricated building technology, so it takes less than a week to build a vaccine and testing center once the shipment arrives on site.

"Public-private partnership (PPP) has also brought innovative solutions to vaccine distribution for remote areas."

The system was initially developed as a solar-powered PCR testing facility to support COVID-19 preparedness and response in Africa. That project itself was a PPP combining the company's technology and the United Nations Institute for Training and Research (UNITAR)'s capacity building and training modules (Solarkiosk Solutions 2020). The system is modular and lightweight enough to be transported in areas where roads are not available. An installation in Ethiopia used donkeys to transport the prefabricated panels and equipment to the final site (T. Rieger, personal communication, June 9, 2021).

These examples show how the private sector has been contributing to the national campaign. The VGR initiative has potential, but it is currently Jakarta-centric and not aimed at overcoming distribution barriers. More should be done to boost the collaboration between the public and private sector in this space. Tapping into the private sector resources and networks can widen the campaign's reach and help achieve the goal of acceleration and equity. As it turns out, Indonesia is not the only country in the world that enlists the private sector into their COVID-19 vaccination efforts.

> "Tapping into the private sector resources and networks can widen the campaign's reach and help achieve the goal of acceleration and equity."

Private Covid-19 Vaccination in Other Countries

Indonesia is not unique in its attempt to involve the private sector for its COVID-19 vaccination drive. Other countries with budget and infrastructure constraints also tries to tap into the capacity and flexibility of the private sector to close gaps in their program. The involvement of businesses in other countries ranges from corporate-based to vaccine tourism.

Southeast Asia

The Philippines has a similar program to Indonesia, where corporations buy vaccines for their employees. A slight difference here is the tripartite supply agreement between corporations, the vaccine producer, and the Philippine's Department of Health (Congress of the Philippines 2021). Some corporations donated half of the vaccines they purchase to the government (Venzon 2021).

Thailand allows its private hospitals to source and sell vaccines to close the gap in the government's vaccine procurement (Bangkok Post 2021). A similar effort to the VGR is also underway with the Federation of Thai Industries soliciting interest from their members on procuring Sinopharm vaccines for staff (Apisitniran 2021). Both programs must purchase the vaccines through a Government Pharmaceutical Organization.

Despite some similarities, the discourse on private vaccination in Thailand and the Philippines are rather different than Indonesia. These countries transparently acknowledge that private sector capacity is needed to fill the gap left by limited public sector resources. On the contrary, Indonesia tries to distance the two and views the private program as an alternative to the government's efforts.

South Asia

In India, private hospitals were initially allowed to charge a service fee of INR 250 (approximately USD 3.40) for administering the free vaccines provided by the central government. Realizing a second wave was underway, the central government then allow regional governments and private hospitals to buy vaccines directly and sell it at market price. Some private hospitals are charging INR 800 – 1,300 (USD 11 – 17.75) per dose (BQ Desk 2021). Pakistan faces a similar emergency and its paid vaccine option costs almost four times that of India due to very high demand clashing with limited supply (Yeung and Saifi 2021).

These South Asia examples show the importance of anticipating demand surge when planning for supply. Both started their COVID-19 vaccination relatively early but were caught off-guard by the new wave. India, fortunately, have built a large vaccine production capacity over the years. This is one of the reasons for the large difference in vaccine prices between the two next-door neighbours. Accelerating vaccination in the face of a renewed outbreak is reasonable but should not be the only strategy when a country is dependent on a global supply chain which is highly constrained.

Other countries

On the other end of the supply spectrum, countries with abundant supply are exploring ways to turn global vaccine demand into tourism income. The US is a favourite destination for "COVID-19 vaccine vacation" (Rebaza 2021). United Arab Emirates and Cuba are actively courting long-term visitors and holidaymakers by using vaccine as a sweetener (Ledsom 2021). Maldives plans to launch a 3V tourism, which stands for "Visit, Vaccinate and Vacation", once all of its 550,000 residents are vaccinated (Hardingham-Gill 2021). As explained earlier, Bali have sought to emulate these strategies as well.

"Accelerating vaccination in the face of a renewed outbreak is reasonable but should not be the only strategy when a country is dependent on a global supply chain which is highly constrained."

These cross-country examples show that Indonesia is not unique in its private vaccination strategy. As much as other countries may be inspired by the corporate VGR in Indonesia, it also seemingly adopts ideas from other countries to expand the program. To explore this further, CIPS invited various experts and stakeholders for a discussion on a vaccination PPP in Indonesia. The summary of this discussion is presented in the upcoming section.

EXPERT OPINIONS ON A VACCINATION PPP IN INDONESIA

CIPS convened a focus group discussion (FGD) to explore gaps in the national vaccination drive which can benefit from private sector involvement. It should be noted that this FGD took place right before daily caseloads began rising rapidly in Indonesia. Participants include representatives from the Ministry of Health, academia, pharmaceutical and medical devices corporations, health-focused think tanks, legal advisors, logistic service providers, and bilateral aid programs. A list of participants can be found in Appendix A.

All participants agree that private sector involvement is needed in the national vaccination drive. However, participants from the Cochrane Collaboration and Hasanuddin University emphasize that private sector involvement must not become a distraction or competition to the government's program (T. H. Sasongko and Irwandy, FGD, May 27, 2021). This sets the tone for the subsequent discussion where ideas on private sector "entry points" revolve around closing the gaps identified in the current drive. Expanding distribution was most often cited, followed by financing. Then, there were equal mentions of deepening community outreach, improving information system, and alleviating supply constraints.

Many participants compliment the usefulness of privately-operated vaccination centers in expanding the last-mile vaccine delivery. The official from the Ministry of Health notes how such centers helped government vaccination in Bali, Semarang, and Solo (P. Yosephine, FGD, May 27, 2021). Participant from the Center for Indonesia's Strategic Development Initiatives (CISDI) also cites Halodoc and Gojek vaccination centers as examples of the above (O. Herlinda, FGD, May 27, 2021). GlaxoSmithKline (GSK) Indonesia representative further suggests that industry-specific business associations can be recruited as a partner to establish vaccination centers for their members (R. D. Gisriani, FGD, May 27, 2021).

CISDI further points out the importance of private healthcare facilities in accelerating vaccine distribution and delivery (O. Herlinda, FGD, May 27, 2021). This is echoed by participants from the Center for Health Policy and Management – Gajah Mada University (CHPM UGM) who believe that the private sector should be involved in distribution considering the wide network of private healthcare facilities with their cold storage capacity (A. Meliala and S. Dewi, FGD, May 27, 2021).

Enlisting the private sector should not just help with acceleration but also alleviate state budget pressure (T. H. Sasongko, FGD, May 27, 2021). Contributor from ThinkWell believes that PPP can be an alternative source of financing for the vaccination program, but further notes that Indonesia only has regulations for PPP on asset-based infrastructure projects, not on service delivery without assets (R. R. Nugraha, FGD, May 27, 2021). On alternative financing, another suggestion is to include philanthropic donations and religious endowments in the private funding strategy (S. Dewi, FGD, May 27, 2021).

This broadening of "private" definition also colors the discussion on outreach. Several discussants point out that community and civil society organizations are excellent partners for

public communication and community education (O. Herlinda and S. Dewi, FGD, May 27, 2021). Abbott Indonesia representative then comments that limited supply and complicated registration process is a shared problem of VP and VGR, and these need to be solved first (W. Harahap, FGD, May 27, 2021). However, if private sourcing of vaccines is allowed, then the government must monitor it closely to prevent corruption and fraud. There seems to be more optimism on the latter problem as participants believe that the private sector has strong information systems capability that can help the government manage the campaign and prevent fraud (S. Dewi and O. Herlinda, FGD, May 27, 2021).

Another topic which invokes some mixed reaction is vaccine tourism. Bali is vaccinating very quickly because it wants to reopen for international tourists in August 2021; so, attracting them to be vaccinated in Bali is indeed a possibility (P. Yosephine, FGD, May 27, 2021). In fact, domestic tourists may also be interested in getting a jab while holidaying on the island (R. D. Gisriani, FGD, May 27, 2021). However, supply constriction must again be considered in designing such a program (W. Harahap, FGD, May 27, 2021).

> "The discussion shows that vaccinating Indonesia is a mammoth task that should not only depend on government resources, but also businesses and community groups"

The discussion shows that vaccinating Indonesia is a mammoth task that should not only depend on government resources, but also businesses and community groups. Participants identified distribution as the main channel of private sector contribution to the effort. There are also views on private sector financing, but this may require crafting new regulations. Other suggestions vary from solving communication issues, improving data handling, and finding alternative source. Finally, while reviving tourism through vaccination is an exciting idea, it should be planned carefully in light of restricted supply and the risk of accidentally reviving the pandemic at the same time.

THE GAP IN INDONESIA'S CURRENT VACCINATION STRATEGY

The Indonesian government has shown a remarkable initiative when it comes to COVID-19 vaccination. It is among the first in the world to start its national vaccination drive and a pioneer in allowing the alternative corporate-led track. It also displays willingness to adjust the regulations when needed. However, its obsession over speed ignores two important facts: global supply is limited and domestic distribution is challenging. Enlarging demand pipeline while supply pipeline remains constricted risks worsening accessibility and equity. Especially when all these supplies must enter Indonesia through a single channel only.

Blockages along vaccine supply chain presents the biggest risk to the campaign. With limited influence over international supply and the earliest domestic production probably happening only in 2022, the government should move away from being preoccupied with speed. A strategy that accounts for potential disruptions must be prepared. The paradigm on herd immunity should shift from one that look at it as a race into one that view it as a leaking vessel that must be refilled continuously.

"The paradigm on herd immunity should shift from one that look at it as a race into one that view it as a leaking vessel that must be refilled continuously."

As such, acceleration should not be the sole focus. The current strategy must be complemented with efforts to expand and sustain protection. Building herd immunity as fast as possible is important, however equity across regions is also critical. If it is difficult to ensure simultaneity across regions, then regional pockets of immunity must be maintained until a national herd immunity is formed. Even then, the national herd immunity must be maintained until the global herd immunity is achieved. This approach aims to create a sustained push against the pandemic advance under a constrained resources flow instead of trying to outrun it but constantly tripping over a lack of resources.

The private sector involvement is critical for this strategy. The Indonesian government has poured resources into the national vaccination program, but it cannot continue doing so for extended periods. Tasking the small public health system to deliver such a massive program will stretch it to the brink. Depending on a single entity to procure and distribute all vaccines is also risky. Resources from the private sector should be embraced to help alleviate the pressure on government's resources, making it available for other equally critical interventions such as improving public communication and boosting testing, tracing, and treatment capacity.

Private sector resources can be leveraged to improve delivery at multiple links of the vaccine supply chain. The wide network of private hospitals is indispensable for the immunity maintenance effort. Cold chain barrier in remote areas can be solved by tapping into private sector innovation. Private investment in vaccine manufacturing should be encouraged. Reviving tourism, albeit urgent, should be done with an abundance of caution. All these possibilities will be discussed further in the recommendation section.

POLICY RECOMMENDATIONS

> "The government should continue working on stabilizing supply flow while the private sector concentrates on expanding access and maintaining immunity."

We recommend that the public-private partnership in vaccination focuses not just on doing things as fast as possible but also on preparing for a protracted battle with the pandemic. The government should continue working on stabilizing supply flow while the private sector concentrates on expanding access and maintaining immunity. The recommendations listed here are not exhaustive but illustrate how the private sector's resources can contribute to sustaining progress and expanding access to COVID-19 vaccines in Indonesia.

Below are some areas that can benefit from a deeper engagement with the private sector:

i. Sustaining immunity among healthcare workers

Healthcare workers are critical in fighting the pandemic and so they were among the first to be vaccinated in Indonesia. However, this also means that they will be among the first to lose antibody protection; a serious risk factor if the pandemic drags on. Since most hospitals are private, the Ministry of Health should work closely with them to monitor and maintain population immunity amongst their staff. If booster COVID-19 vaccinations are needed, then these should be sourced, financed, and administered directly by the hospitals. Allowing hospitals to source their own vaccines will also help build linkages with vaccine suppliers worldwide. This approach can also help hospitals prepare their COVID-19 vaccine supply chain for a broader expansion when the time comes for the general population to be revaccinated.

ii. Adopting micro-PPP to boost rural vaccination

Rural communities are at risk of being left behind in the vaccination drive due to a lack of cold chain infrastructure. Such infrastructure usually requires stable electricity connection that is often absent in rural areas. The example of the solar-powered vaccination-and-testing center shows that innovative solution from the private sector is available. However, rather than waiting for donations, the Ministry of Health and regional governments should proactively work out a PPP model for such centers. In a way, these centers are micro-health infrastructures, so the current infrastructure PPP model should be adjusted to cater for smaller and faster projects. Quick decision making should be the focus of this adjustment, considering the urgent need and relatively low fiscal risk posed by these smaller projects.

iii. Encouraging private investment in vaccine manufacturing

As capable as Bio Farma is, Indonesia needs to grow and diversify its vaccine manufacturing capacity to reduce disruption risks. Continued dependence on a single producer is very risky as a huge capacity is needed to produce COVID-19 vaccines for years to come on top of the other vaccines. The Ministry of Investment should began identifying regulation roadblocks that stops pharmaceutical investors from setting up their manufacturing facilities in the country, especially for vaccines. Kalbe Farma can serve as the first test case for this effort. Helping Kalbe Farma realize its vaccine manufacturing investment will increase the vaccine production capacity in the country, reduce the risk of disruption, and help regulators identify barriers to Indonesia's broader participation in the pharmaceutical global value chain.

iv. Minimizing risk while reviving tourism through a "second-dose vaccine vacation"

The Ministry of Tourism's decisions to delay welcoming foreign visitors to Bali and reinstating PCR test requirement for domestic visitors are prudent, however the vaccine vacation program should be designed more carefully. Bali should only welcome tourists who have received, at least, one dose of vaccine. The private sector here, i.e. travel agencies, should not just be tasked with monitoring tourist flow but also act as gatekeepers who check each tourist's vaccination status – much like checking for visa status in the past. All tourists should still undergo a diagnostic PCR testing on-arrival and be quarantined until their test result is out. Tourists cleared by a negative test result can then get their second dose at a Balinese hospital. This may result in a lower number of tourists but necessary to minimize the risk of importing the virus from other provinces or countries.

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APPENDIX A

Focus Group Discussion (FGD) on Public-Private Partnership for Vaccination in Indonesia

The FGD was convened on May 27, 2021. Participants were sent an email invitation with the meeting details and a softcopy of the MOH Regulation 10/2021 for reference. Participants confirmed their attendance by replying to the invitation email. Out of 26 registered participants, 20 were present in the FGD. This excludes the moderator and three other CIPS staffs which were present to provide technical and note-taking support.

The FGD was done virtually using Zoom platform. During the opening of the session, participants were informed that the session will be recorded for internal transcription purpose. Participants were also informed that the participant list and discussion contents will be included in a CIPS policy paper on vaccination. Participants were advised that after the FGD, they can submit more comments and choose to not be fully attributed in the paper by filling up a Google Form that was provided by a post-meeting email.

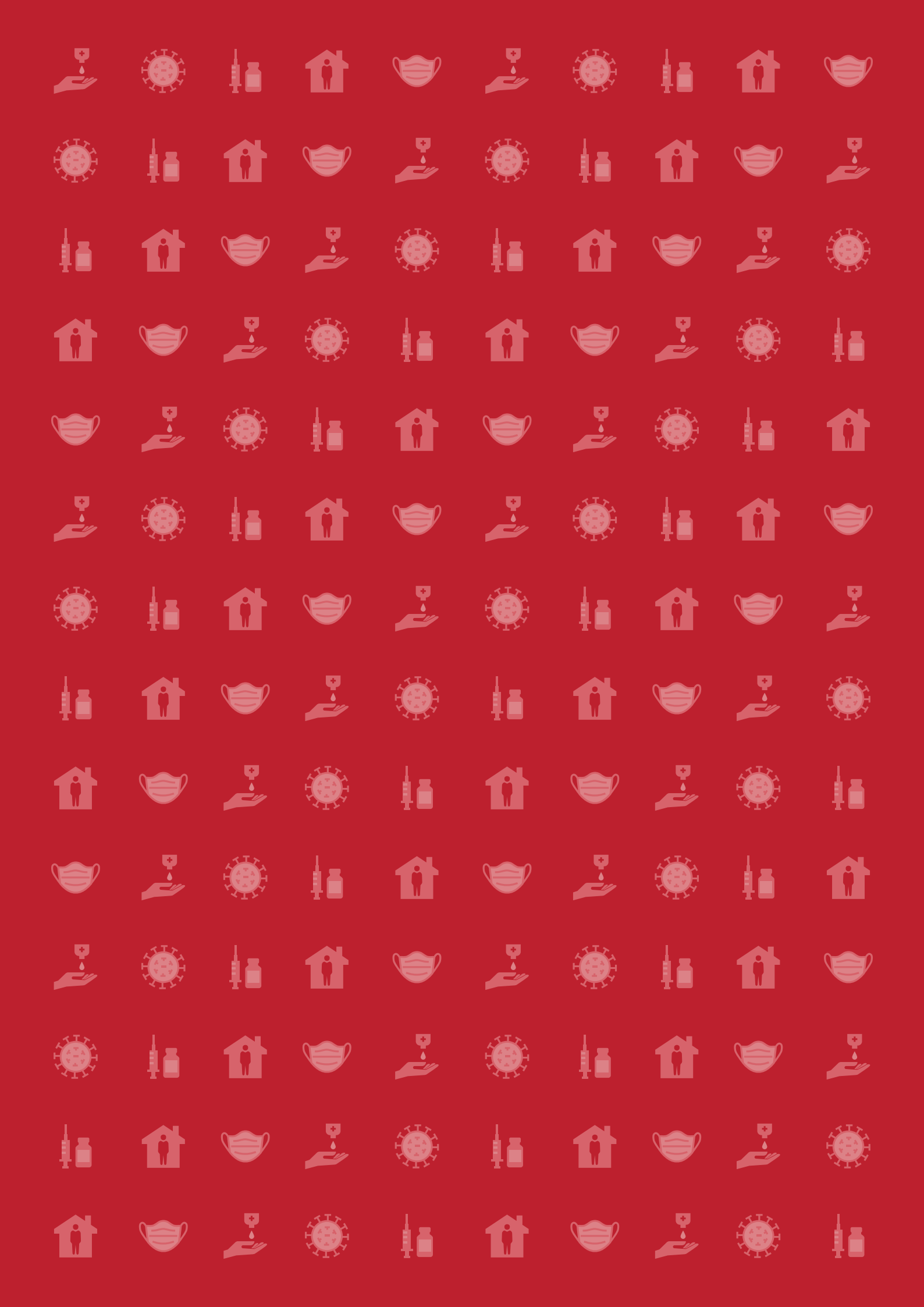
The FGD began with a short presentation by the author who acted as the moderator of the discussion. The presentation contains background information, such as the current state of the vaccination campaign, outline of VP and VGR in MOH Regulation 10/2021, update on the VGR, private vaccination in other countries, and current PPP model in Indonesian infrastructure. The discussion follows with three trigger questions posited to the participants. The discussion went for approximately one hour and ended with a summary of the comments by the moderator.

Three questions were asked to trigger the discussion. These are:

1. Does the private sector role need to be expanded in the vaccination?
2. How should the PPP format be for more efficient vaccination?
3. Are there any lessons we can learn from VGR so far and infrastructure PPP?

The list of participants is available in the next page.

Participant #	Name	Title	Organization
1	Andreasta Meliala, Dr. dr. DPH., MKES, MAS	Director	Center for Health Policy and Management, Gajah Mada University
2	Asmylawati	Office Manager	Vriens and Partners
3	Astrid Isnawati	Communication Specialist	Sanofi Indonesia
4	Cheryl Nazik Cosslett	Senior Associate	Vriens and Partners
5	Dwi Lestari Pramesti Ariotedjo	Co-founder	Wecare.id
6	Enny Indrayanti	HR & Corporate Communication Director	Braun Medical
7	Irwandy, SKM, M.ScPH, M.Kes.	Head of Hospital Management Department, Faculty of Community Health	Hasanuddin University
8	Kristian Sabitzki		a. hartrodt Indonesia /PT. Panah Perdana Logisindo
9	Nadia Febriana		Prospera
10	Olivia Herlinda	Policy Director	CISDI
11	dr. Prima Yosephine, MKM	Director of Surveillance and Health Quarantine	Ministry of Health of the Republic of Indonesia
12	Ratna Dewi	Director	a. hartrodt Indonesia/PT. Panah Perdana Logisindo
13	Reswita D. Gisriani	Director of Communication and Government Affairs	GlaxoSmithKline Indonesia
14	dr. Ryan Rachmad Nugraha, MPH		USAID/Think Well
15	Shita Dewi	Head of Public Health Division	Center for Health Policy and Management, Gajah Mada University
16	Dr. Teguh Haryo Sasongko		The Cochrane Collaboration
17	Wanda Harahap	Government Affairs Director	PT Abbot Indonesia
18	Yanto Sihotang	Head of Operations	PT Capsugel Indonesia
19	Yudha Suryana	EHSS, Real Estate & Facilities Lead	GlaxoSmithKline
20			Center for Health Policy and Management, Gajah Mada University



ABOUT THE CENTER FOR INDONESIAN POLICY STUDIES

Center for Indonesian Policy Studies (CIPS) is a strictly non-partisan and non-profit think tank providing policy analysis and practical policy recommendations to decision-makers within Indonesia's legislative and executive branches of government.

CIPS promotes social and economic reforms that are based on the belief that only civil, political, and economic freedom allows Indonesia to prosper. We are financially supported by donors and philanthropists who appreciate the independence of our analysis.

KEY FOCUS AREAS:

Food Security & Agriculture: To enable low-income Indonesian consumers to access more affordable and quality staple food items, CIPS advocates for policies that break down the barriers for the private sector to openly operate in the food and agriculture sector.

Education Policy: The future of Indonesia's human capital need to be prepared with skills and knowledge relevant to the 21st century. CIPS advocates for policies that drive a climate of healthy competition amongst education providers. Such competition will drive providers to constantly strive to innovate and improve education quality for the children and parents they serve. In particular, CIPS focuses on the improvement of operational and financial sustainability of low-cost private schools who serve the poor.

Community Livelihood: CIPS believes that strong communities provide a nurturing environment for individuals and their families. They must have the rights and capacities to own and manage their local resources and to ensure healthy and sound living conditions for the development and prosperity of the community.

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