





# Chapter 1

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## Mobilizing All Forces to Accelerate Infrastructure Development in Indonesia

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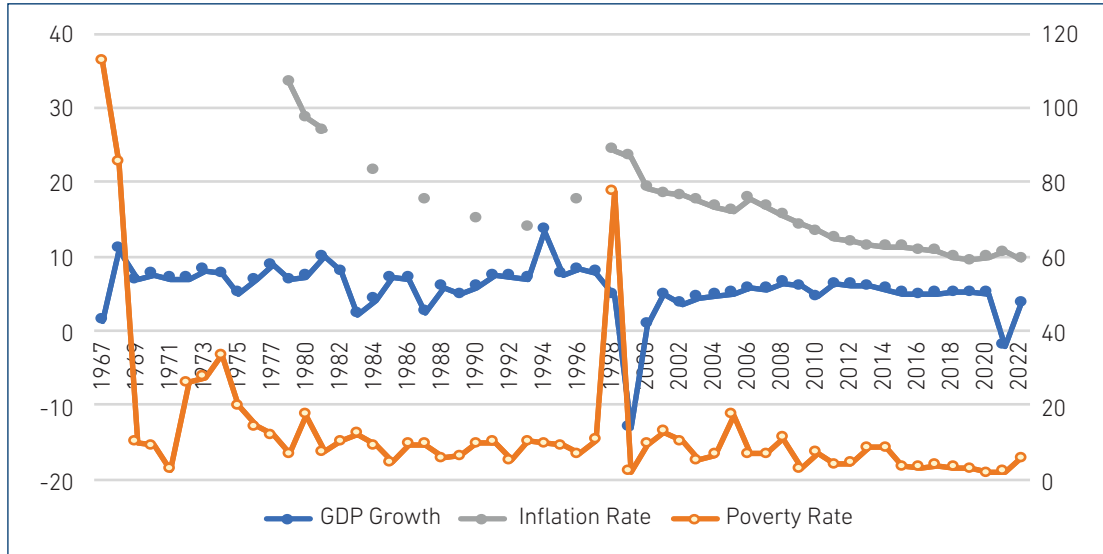
# 1. Indonesia after 78 years of independence

In the Declaration of Independence in 1945, Indonesia's leaders at the time promised, amongst others, prosperity and social justice. Each of the ruling governments post-independence has been mandated to deliver the promise as written in the Constitution. This implies financing consequences. However, the road to prosperity is challenging. Not only has domestic saving been very limited but Indonesia has also faced several crises: the 1965 coup d'état, the 1984 oil crisis, the 1997 Asian financial crisis (AFC), the 2008 global financial crisis, and the 2020 COVID-19 pandemic.

By way of background, in the post-independence era, the old order (Orde Lama) government, governing from 1945 to 1967, struggled to maintain political stability. The economy was characterised by high inflation, stagnant output, poverty, and hunger (Booth, 1998). During the transition between the old order government and the new order government in 1967, several economic reforms were undertaken. The period from 1968 to the mid-1980s was characterised by high and stable economic growth, with an average growth of 7%, partly due to the high oil price. However, the oil price tumbled at the end of the 1970s, and oil revenue was no longer sufficient to support development. The government shifted to an export promotion strategy, which made Indonesia one of the 'Asian miracle' countries (Birdsall et al., 1993).

However, the picture reversed completely when the economy was severely hit by the AFC in 1997, which even led to a political crisis that toppled President Suharto after 32 years in power. The economy contracted by 13.1 % in 1998 and has never returned to its 7% growth trajectory since (Figure 1.1). The financial sector, which was paralysed by the AFC, went through bailout and reform. The economy was not yet fully recovered when the global financial crisis took place 10 years later. With limited exposure to global financial markets and China's strong growth and commodity boom, the economy continued to grow at 6% during the period 2008–2009. The taper tantrum of 2013 and the United States–China trade tension beginning in 2017, however, negatively affected Indonesia. The average growth for the period 2010–2019 was 5.4% (Figure 1.1).

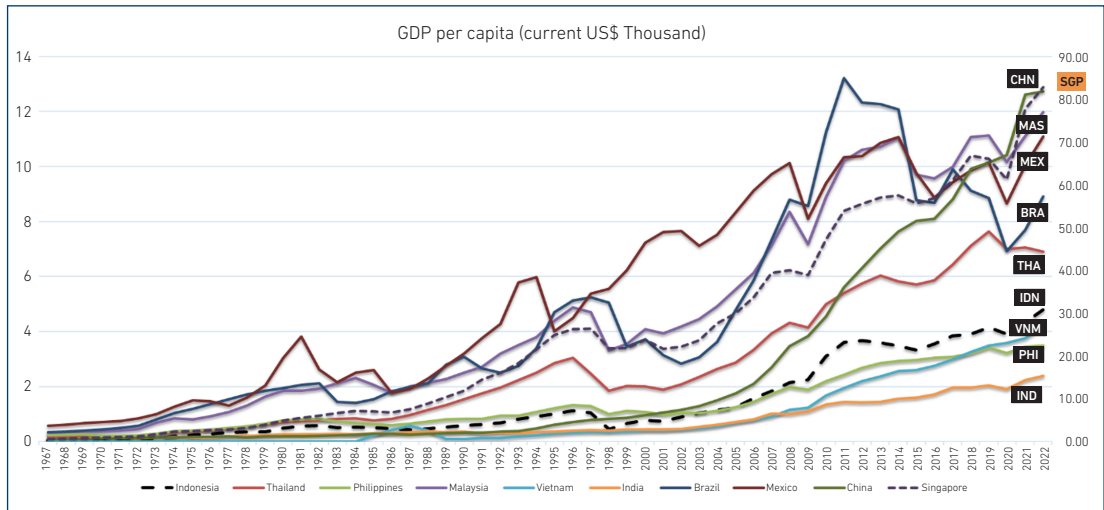
**Figure 1.1. Indonesia's GDP Growth, Inflation, and Poverty Rates, 1967–2022 (%)**



GDP = gross domestic product, RHS = right-hand scale.

Source: Indonesia Central Bureau of Statistics (BPS).

Navigating through several crises, Indonesia became an upper middle-income country in 2019, with a gross national income (GNI) per capita of US\$4,070, 74 years after its independence. Social indicators also improved, with the poverty rate significantly reduced from 60% in 1970 to 9.4% in 2019 (Figure 1.1). Nevertheless, when compared to peer countries, such as Malaysia and Singapore, which also achieved independence around the same time as Indonesia, or China, which got its accession to the World Trade Organization in 2001, Indonesia relatively lags (Figure 1.2).

**Figure 1.2. GDP per Capita in Indonesia and Peer Countries, 1967–2022**

Source: databank.worldbank.org (accessed 17 October 2023).

Indonesia basically needs a lot to catch up to deliver the mandate of its constitution, particularly with the aspiration of becoming an inclusive and high-income country within 100 years of its independence. For this, infrastructure provision is imperative. However, Indonesia has been struggling to provide sufficient infrastructure due to limited fiscal capacity and domestic savings.

In the early 1970s, Indonesia managed to allocate a significant amount of budget for infrastructure due to the favourable oil price and revenue. In the 1990s, however, Indonesia was only able to allocate around 9% of gross domestic product (GDP) for infrastructure (OECD, 2015). After the Asian financial crisis, infrastructure investment collapsed to 2% of GDP in 2001 and continued to be relatively low for several years compared to the average infrastructure investment share of other Asian high-growth economies of 6%–7%, due to the constrained fiscal space and paralysed financial sector post-AFC. To fill the huge infrastructure gap, Indonesia must mobilise resources outside of public funding, optimise the constrained domestic financial market, and seek external resources. This chapter discusses the challenges and how Indonesia addresses the challenges from the perspective of the Ministry of Finance.



## 2. Challenges to Filling the Infrastructure Gap

The root cause of the infrastructure gap in developing countries like Indonesia is the inherent characteristics of infrastructure development that require **substantial investment**, yet often gives **low financial return** and/or **a very long payback period**. Relying on public funding will result in substantial gaps as the government needs to finance many other programmes. Consequently, private sector participation, including foreign investors, is needed to fill the gap. For the private sector to participate, there should be **attractive returns** on investment from the project. The challenge is how to make non-financially viable infrastructure projects attractive to investors.

The long payback period of infrastructure should ideally be financed by long-term financing. Unfortunately, Indonesia's financial sector is relatively shallow, with the financial sector dominated by the banking sector. The relatively shallow financial sector was badly hit by the AFC in 1997/98. The fixed exchange rate with an overvalued rupiah and weak banking supervision made the financial sector vulnerable to currency attacks. Rupiah devaluation, high inflation, and the interest rate increased nonperforming loans. The banking sector, the largest segment of Indonesia's financial sector, basically collapsed, leaving a substantial fiscal burden for the government. The cost of the banking sector bailout was about 60% of GDP. It took a long time for the banking sector to fully recover from the crisis. The banking sector bailout limited the government's fiscal space in the first few years after the AFC.

In the first few years after AFC, the focus of the government was to rescue the banking sector and restore macroeconomic stability. Several reforms were undertaken to restore the banking sector, comprising measures to strengthen prudential regulation: central bank independence, deposit insurance, and government bonds, amongst others. The Financial Sector Authority and Deposit Insurance Corporation were established. Reforms on fiscal management were also introduced with the enactment of Law Number 17 of 2003 concerning State Finance, Law Number 1 of 2004 concerning State Treasury, Law Number 15 of 2004 concerning State Finance Accountability, and Law Number 24 of 2002 concerning Government Debt Securities.

By the time President Yudhoyono came to power in 2004, macroeconomic stability was restored, the financial sector had begun to recover, and the state budget was consolidated (Indrawati et al., 2020). During the period 2004–2014, average economic growth was 5.7% and average annual inflation was at 7% (year-on-year). The government prepared an infrastructure development plan for 2005–2009.

With the state budget consolidated, public funding available for infrastructure increased. The Ministry of Finance started to tag expenditure for infrastructure development. In 2005, the government spent Rp26.11 trillion on infrastructure. In the beginning, capital spending was allocated directly through the spending of the respective ministries. Later, the government adopted public-private partnerships (PPP). In executing infrastructure projects, regulatory and institutional impediments often existed. Several sectoral reforms were also undertaken to make the sectors more attractive to investors, including new electricity, oil and gas, and telecommunication laws.

At the early stage of PPP adoption, the success stories were limited. The infrastructure summits that the government held in 2005 and 2006 did not produce a significant number of deals. Salim and Negara (2018) documented that the limited success stories of PPP in the past were due to several factors: **regulatory impediments, weak project preparation, and incomplete project documentation**. Nevertheless, Salim and Nagara (2018) suggested that during the Yudhoyono presidency, there were significant improvements in infrastructure provision, mainly funded by the government budget.

With the heavy reliance on the government budget and limited private participation, the infrastructure gap remained huge by the end of Yudhoyono's term. The Ministry of National Development Planning (Bappenas) estimated the needed funding for filling the infrastructure gap for the period 2015–2019 at around US\$4796 trillion (approximately Rp959.2 trillion a year) and another Rp6,556 trillion for the 2020–2024 period (approximately Rp1,311 trillion a year). The allocated state budget for infrastructure remained relatively low compared to the projected needed capital. During the period 2015–2019, the government allocated Rp1694.6 trillion for infrastructure, about 35% of the projected needed funding for the same period. For the period 2020–2024, the government allocated Rp1,900.1 trillion, about 20% of the Bappenas projected needed funding for the same period.

### 3. Mobilising Available Resource for Infrastructure Development

During President Yudhoyono's term, learning from the limited uptake of PPP in the past and global best practices, the government established three financial institutions to facilitate PPP in infrastructure, PT Sarana Multi Infrastruktur (SMI), PT Penjaminan Infrastruktur Indonesia (PII), and PT Infrastructure Investment Finance (IIF), with the expectation that the established institutions would facilitate the PPP better.

PT SMI, a state-owned enterprise under the Ministry of Finance, was established in 2009 to offer financing and investment, consulting services, and project development assistance to the responsible parties of the PPP projects, the *Penanggung Jawab Proyek Kerjasama* (PJPK)<sup>1</sup> from the technical ministries, and/or the local government. To make PPP more attractive, PT SMI provides a Project Development Facility (PDF), Viability Gap Fund (VGF) and Availability Funding. PJPK can use the PDF to develop a project's final feasibility studies and tender documents. With the PDF, PJPK can prepare the project better and potentially lower project costs for prospective investors. The VGF, on the other hand, is capital injection to PPP projects that have demonstrated economic viability but need further financial feasibility. VGF reduces the investor's capital expenditure, hence resulting in lower cost recovery.

PT SMI also offers local governments loans for infrastructure development under the local government authority. Apart from government direct equity injections, PT SMI also manages and channels funding from private, philanthropic, donor, bilateral, and multilateral financial institutions and banking and insurance companies. PT SMI also issues bonds to fund its operations. With a total capital injection of Rp30.52 trillion from the government, since its establishment in 2009, PT SMI has managed to leverage Rp947.86 trillion to support infrastructure projects.

PT PII is also a state-owned enterprise under the Ministry of Finance that was established in December 2009 to extend financing guarantees for infrastructure projects. PT PII provides guarantees for risks associated with government conduct or political uncertainties, such as changes in regulation, which can result in increased costs to investors (first loss absorber). PT PII also provides guarantees to SOEs involved in infrastructure development to secure loans. With PT PII's presence, the government is not directly exposed to contingent liabilities. In its operations, PT PII also assists PJPK with project preparation and transaction help through the Project Development Facility (PDF) and Viability Gap Fund (VGF), particularly through its IIGF Institute.

Following its establishment with a capital injection from the government of Rp9.085 trillion, PT PII currently holds assets close to Rp16 trillion and provides guarantees for 39 infrastructure projects from various sectors. The mobilised investment from these projects is around Rp410.6 trillion and has been supported by the Public-Private Partnership (PPP) and the State-Owned Enterprises (SOEs) direct lending guarantee. Consequently, PT PII's leveraging ratio (i.e. the amount of mobilised investment to the amount of received *Penyertaan Modal Negara* (PMN), stands impressively at 45.2 times.

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<sup>1</sup> PJPK serves as the minister/governor/mayor/head of an institution/director of a state-owned enterprise responsible for infrastructure ownership.



PT Indonesia Infrastructure Finance (IIF) is another financial institution that was established by the Ministry of Finance of the Government of the Republic of Indonesia, the Asian Development Bank (ADB), the World Bank, and several other multilateral organisations for the same purpose as PT SMI, to facilitate PPP in infrastructure. PT IIF provides similar services as PT SMI, focusing on infrastructure projects in sectors such as telecommunications, electricity (renewables and non-renewables), and toll roads, which have long-term resiliency and inelasticity to increases in benchmark interest rates. In 2022, IIF closed a deal of 10 new financing commitments totalling Rp1.67 trillion, expanding its total investment assets by 21% to reach Rp14.82 trillion.

In its practices, IIF has made a commitment to integrating environmental, social, and governance (ESG) principles into its business strategy, including financing social infrastructure projects, such as hospitals, to bridge livelihoods and expand prosperity in society. In November 2022, as part of Indonesia's G20 Presidency, hosted by IIF, Indonesia launched the ESG Framework and Manual for government support and facilities in infrastructure financing. The framework and manual are guidelines for implementing ESG factors in infrastructure financing by optimising the Special Mission Vehicle (SMV) function under the Ministry of Finance through a PPP scheme. The adoption of ESG is expected to ensure that infrastructure provision can generate socioeconomic positive impacts whilst minimising the potential risks (negative impacts) to ESG aspects. The IIF acts as the anchor for the implementation of the framework. Indonesia piloted the implementation of ESG on two PPP housing and water projects receiving PDF in 2022. In 2024, the G20 ESG framework will be applied to all PPP projects.

Reforms to disentangle the impediments to infrastructure development were also undertaken in several other aspects, such as institutional bottlenecks (coordination issues) and land acquisition. The coordination issues were addressed with the establishment of the Committee for Acceleration of Priority Infrastructure Delivery (KPPIP) in 2014. KPPIP is central in decision-making, project preparation, implementation, and monitoring of strategic infrastructure projects. President Joko Widodo launched the National Strategic Project (Proyek Strategis Nasional (PSN)) in 2016 to expedite the development of strategic infrastructure. Infrastructure projects listed in the PSN receive special treatment, e.g. expedited licensing approval, facilitated land acquisition, and fiscal incentives, if eligible.

Land acquisition was a substantial contributor to the infrastructure delay. Often, a project would fail to be executed because one or two residents refused to give up their properties for infrastructure. The parliament enacted Law Number 2/2012 to govern land acquisition for public use. Landowners can take the government to court to settle a land dispute, which can take a long time to settle. The KPPIP was established to handle such issues, including representing the government if the case went to court.

Incongruity in the timing of the budgeting cycle between the ministries responsible for the project and the payment period for the landowners also created complications in the land purchase process. To address the issue, the government in 2016 tasked the State Asset Management Agency (Lembaga Manajemen Aset Negara (LMAN), which operates as a public services agency (BLU) under the purview of the Ministry of Finance to manage funds for land acquisition purposes, particularly for projects classified as PSN. LMAN, as a BLU, has greater flexibility in terms of handling finances than ministries, i.e. it can manage multi-year funding, allowing LMAN to pay landowners even if the land purchase process takes more than a year. The money granted to LMAN from the State Budget is considered government investment. The government has committed Rp144.46 trillion to LMAN for PSN land acquisition compensation as of 30 June 2023, with Rp113.458 trillion already distributed to landowners for a variety of critical infrastructure projects. This has facilitated the expeditious execution of PSN initiatives. Later, based on the Job Creation Law, the government established the Indonesia Land Bank Authority to facilitate investment.

Although the establishment of PT SMI, PT PII, PT IIF and LMAN through their financing role has accelerated infrastructure implementation and private participation, infrastructure financing remains inadequate. Twenty-five years after the AFC, Indonesia's financial sector remains shallow. In 2022, the total assets of the financial sector were Rp13,565.8 trillion, with 78% in the banking sector, which is more suitable for short-term financing. Insurance, pension funds, and other long-term financing instruments are not yet well developed. In 2022, the total assets of the insurance and pension fund were about 9.7% and 8.3% of the total financial sector assets, respectively. Financing institutions were also relatively small, at about 3.4% of total financial sector assets in 2022. If we compare it to peer countries, it is more obvious that Indonesia's financial sector is relatively small. Malaysia's banking sector assets were more than three times higher than Indonesia's in 2021. Singapore's banking sector asset was close to 10 times that of Indonesia's in 2021. Indonesia's average saving ratio in 2010–2019 was around 30%. Post-pandemic, the saving rate was slightly higher, at 34% in 2021 and 37% in 2022. Consequently, the source of funding for infrastructure from the domestic market is rather limited.

The situation is not unique to Indonesia. Infrastructure finance shortages also exist in advanced economies. A parallel endeavour to close the gaps is through the mobilisation of foreign financial resources. In 2021, the government established the Indonesian Investment Authority (INA), a sovereign wealth fund to accelerate investment further. INA facilitates foreign investors to find suitable assets that can give attractive returns. It identifies investment schemes and structures that are mutually favourable and beneficial to both asset owners and investors. INA received a capital injection of Rp75 trillion from the GOI. In 2022, the INA invested in two toll road assets of about 100 km in the Trans-Java corridor (the Kanci-Pejagan Toll and Pejagan-Pemalang Toll) belonging to Waskita Karya worth US\$400 million. Also in 2020, as part of a global consortium, it invested in Traveloka for US\$300 million. Towards the end of 2022, the INA completed the

investment process in PT Kimia Farma Apotek with an investment value of IDR1.9 trillion, with the INA's portion of Rp930 billion. The INA currently manages investment assets of Rp134.6 trillion (equivalent to US\$9 billion), including infrastructure projects.

Parliament and the government had agreed to further reform the financial sector so that Indonesia's financial sector development can be accelerated. The financial reform was established in the form of the Omnibus Law for Financial Sector, Law Number 4/2023. The law aims to improve access to financial services, broaden sources of long-term finance, promote competitiveness and efficiency, and increase the variation of instruments, as well as strengthen risk mitigation and consumer and investor protection. The law includes various reform initiatives, not only in the banking sector but also in capital markets, pension funds, and insurance, which are sources of long-term finance vital for financing economic development, including infrastructure. Therefore, the development of Indonesia's financial sector will not only support the accumulation of long-term funds but also the mobilisation of funding for infrastructure. With the new law, financial institutions can offer a greater variety of instruments that suit investors' risk appetites.

## 4. Future Challenges

### Centennial Aspirations

Indonesia will celebrate 100 years of independence in 2045. Indonesia's leaders aspire to make the country a high-income and more inclusive economy by then. Bappenas (2019) stated Indonesia's aspiration to become the fifth-largest economy with per capita income of US\$23,199 in 2045. However, another blow to the economy came in early 2020 when the COVID-19 global pandemic hit. The pandemic was not only a health crisis but also a socioeconomic crisis that paralysed the global economy. The severity of the pandemic and its impacts on Indonesia have been discussed extensively by Indrawati et al. (2022), Witoelar and Utomo (2022) and Ing and Basri (2022). In short, the economy contracted by 2.07% in 2020 following an average of 5.3% growth in the previous decade. The pandemic brought Indonesia back to the low-middle-income country category in 2020. The poverty rate increased from 9.22% in September 2019 to 9.78% in March 2020.

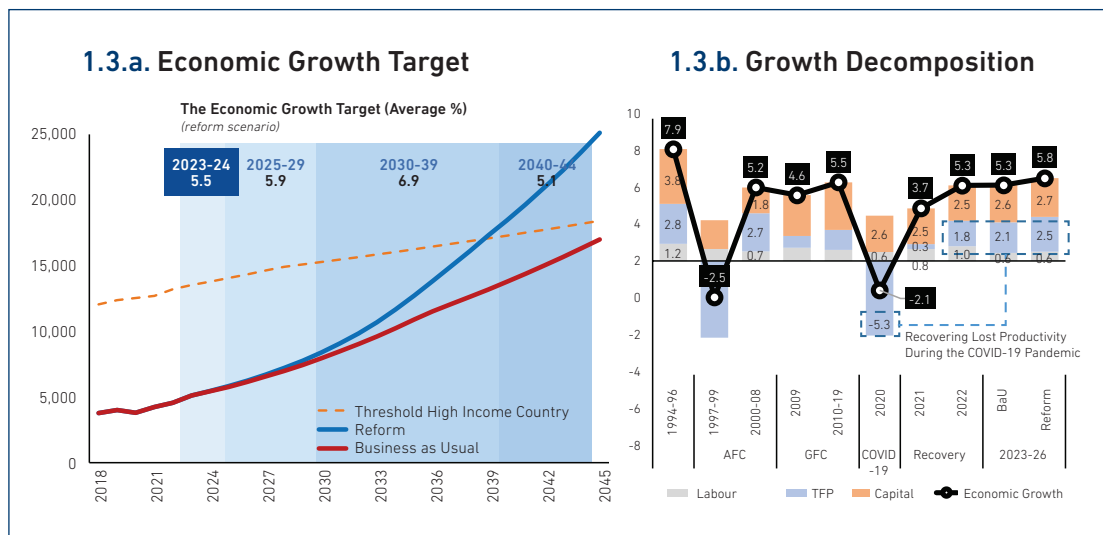
Indonesia recovered and returned to its positive economic growth trajectory in 2021 and was back in the high middle-income country category in 2022 with a GNI per capita of US\$4,580, despite the global economic uncertainties of 2022 resulting from the Ukraine war.<sup>2</sup> Social indicators also improved as the economy recovered. In 2022, the poverty rate was 9.54% and continued to decline to 9.36% in March 2023. The careful handling of the pandemic and its impact and coordinated monetary and fiscal policies were amongst the success factors for the quick recovery.

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<sup>2</sup> The threshold for an upper middle-income country in 2022 was US\$4,466.

Without the COVID-19 pandemic, Indonesia was projected to achieve the stated target by 2045 with an average growth of 5.7% during the period 2016–2045. With the COVID-19 pandemic and its consequential effects, Indonesia needs to work harder for the aspiration. The Ministry of Finance (2023) projected that it will require an average annual economic growth of 6% for the period 2023–2045 (Figure 1.3a). Not only additional labour and capital but improvement in productivity is also needed for accelerated growth (Figure 1.3b). Nevertheless, the challenges continue to mount, from the war in Ukraine, the Israel-Hamas war, rising protectionism, and the pressure of high interest rates in developed countries, including the United States, for a longer time.

**Figure 1.3. Indonesia Growth Trajectory, 2018–2045**



AFC = Asian Financial Crisis, GFC = Global Financial Crisis TFP = total factor productivity  
Source: Ministry of Finance (2023).

The abundance of natural resources and human capital will be Indonesia’s source of growth. Indonesia is the largest producer of nickel, an important material for EV batteries, and is also abundant in bauxite, an important material for packaging. Indonesia is the largest producer of palm oil, a potential source of green energy. The country is also labour-abundant, which offers a demographic bonus. In the 2030s, Indonesia will reach the peak of its demographic bonus, when 68% of its population will be of productive age. By 2045, the total population of Indonesia will reach 319 million people, with 70% of the population in the middle affluent-class category. The government has set pathways towards its aspirations in its medium-term and long-term economic planning by filling the existing human capital gaps, institutional gaps, and infrastructure gaps. More investor-friendly PPP will be needed.

## Climate-resilient Infrastructure

Another challenge comes from climate change. In 2015, parties pledged in the Paris Agreement to keep the global temperature rise to below 2°C above pre-industrial levels and preferably to limit the increase to 1.5°C, meaning that global emissions must reach a peak before 2025 and global emissions reduced by 43% by 2030.

As we have passed the middle of the timeline between 2015 and 2030 this year, and there will be the first global stocktake at COP 28 at the end of 2023, the global temperature has risen 1.1°C. This means that to achieve the 1.5°C limit, we have only a 0.4°C increase left and need a far more aggressive strategy. Even achieving the 2°C target would be challenging from the current trajectory. It implies the need for a more ambitious effort to transform all sectors, starting from the highest emitters, such as energy, and highest carbon sequestration sources, i.e. forests, to the use of carbon capture for fossil-related sectors and cutting methane emissions, especially in the agriculture sector.

The challenge comes at a time with more fragmented global economies, heightened geopolitical tensions, and more inward-looking industrial and trade policies that could hamper global growth recovery. At the same time, countries are still facing challenges after the COVID-19 pandemic, with more limited fiscal space and rising interest rates to control inflation, which could hamper efforts to boost growth whilst at the same time creating additional challenges in external debt dynamics.

Climate has the characteristics of a public good, being nonexcludable and nonrivalry, which creates a strong global free-riding problem as the abatement cost of action is higher than the benefit for a certain country, corporation, or individual. Without strong global collective actions, there will always be weaker political willingness than necessary to be able to mobilise enough financing and effort to achieve the goal.

Similarly, the COVID-19 pandemic is also a global public good but has managed to gain more public attention because it has impacted people directly in a short period, unlike climate change. Fiscal spending during the two years of the pandemic reached US\$9 trillion (excluding tax deferral, social security contributions, and government provisions for loans and equity and government guarantees), whilst the need for achieving net zero is around US\$4 trillion per year for the transition to clean energy, according to the International Energy Agency.

The nature of a global public good could also explain the challenge for the global North to fulfil the US\$100 billion per year pledge by 2020 or the heated discussion on Article 2.1c, which discusses the financial flows consistent with the pathway towards the Paris Agreement target. The world needs more financing for climate action from now until 2030, around US\$1 trillion per year by 2025 to US\$2.4 trillion by 2030 for emerging economies, excluding China, according to Songwe, Stern, and Bhattacharya's note that was published during COP27.

In addition to financing for the new low-carbon economy, countries undergoing transition will also need to 'pay' for the lost opportunity of the stranded asset. According to the International Energy Agency, US\$90 billion of existing fossil-based energy facilities could be stranded and reach up to \$400 billion by 2050. Emerging markets and developing economies will face a higher cost of stranded assets as most of these assets are younger than comparable assets in the global North.

Given these challenges, Indonesia continues to have a robust commitment, with the ambition to achieve net zero by 2060 or earlier, with an enhanced nationally determined contribution (NDC) for 2023 of 31.89%, or 43.20% with international support. The two major sectors for mitigation are forestry and energy, with 500 and 358 megatonnes of CO<sub>2</sub>-equivalent, respectively, accounting for more than 90% of Indonesia's target. However, there are differences in the abatement cost amongst sectors, with the abatement cost for the energy sector much higher than that for forestry.

We need a robust financing mechanism for green and transition activities, including a bottom-up approach, such as developing bankable projects ready for financing. Lowering the financing cost will require a greater mix of global concessional financing, especially from the multilateral development banks (MDBs). Concessional financing from the government and MDBs can help crowd-in the much-needed private investment and leverage private capital through innovative financing, such as equity investment. Expanding the role of the MDBs and, hence, MDBs' reforms for climate financing is timely.

At the country level, the government has prepared the right policy, instruments, and institutions needed for transition. Indonesia has established the Energy Transition Mechanism country platform to facilitate energy transition projects using blended financing, which will include de-risking instruments to crowd-in private investment.

In addition, Indonesia is currently developing the carbon market and carbon exchange to put a price on carbon and internalize externalities and, hence, impact carbon emissions through a pricing or market mechanism. President Jokowi announced the Indonesia Carbon Exchange in September 2023, right before the finalisation of this book.

At the global level, Indonesia helped push the development of transition finance, and during Indonesia's G20 Presidency, the Sustainable Finance Working Group agreed on the definition of and need for energy transition financing. The ASEAN Taxonomy for Sustainable Finance was also improved during Indonesia's ASEAN Chairmanship to include transition activities, such as coal phase-out.

Beyond this, further work on the transition finance ecosystem is needed, for example by creating credible disclosure and reporting needed for transition finance, as well as an internationally accepted verification body that is interoperable to ensure smooth transition financing flows globally.



The escalating risks posed by climate change necessitate concerted endeavours towards enhanced mitigation and adaptation strategies. Infrastructure has a crucial role in both mitigating and adapting to the challenges posed by disasters and climate change. It serves as a key component in enhancing resilience and facilitating the capacity to cope with disaster risks. Additionally, infrastructure also contributes to carbon emissions, further emphasising its significance in the context of climate change mitigation. According to Thacker et al. (2021), the majority of global greenhouse gas (GHG) emissions, specifically over 79%, may be attributed to infrastructure. Consequently, the implementation of suitable infrastructure has the potential to contribute to the reduction of GHG emissions.

The financing of climate-resilient infrastructure presents difficulties due to a discrepancy between the substantial initial investment required and the unobserved long-term intangible benefits. Intangible advantages may include increased resilience, reduced or avoided interruptions during catastrophic occurrences, fewer fatalities, damages, and productivity losses, as well as any other indirect socioeconomic benefits.

Although many calculations and practical evidence suggest that the advantages of resilient infrastructure outweigh the costs, private investors cannot include them as income streams in their business plans. Government intervention is required to choose between a climate-conscious infrastructure project and a business-as-usual infrastructure project.

Indonesia also issued green *sukuk*, a subset of sustainable bonds, to finance climate-adaptive infrastructure. The government launched its first worldwide green *sukuk*, worth US\$1.25 billion, in March 2018. This offering was oversubscribed by 2.5 times. In the years that followed, Indonesia continued to issue green *sukuk*, with the government assuming the role of the primary issuer. It issued both domestic retail (denominated in rupiah) and international (denominated in US dollars) green *sukuk*. Other issuers, in addition to the government, supplied green bonds. By the end of 2020, the government owned US\$3.1 billion of the total US\$5.0 billion in outstanding green bonds.

The utilisation of risk structuring in blended finance schemes can also be applied to the structuring of the risks and returns associated with a climate-resilient infrastructure project. Concessional loans, grants, government funds, and philanthropic donations may be utilised to sustain intangible risks and returns that private investors would not assume. Whilst private funds finance the components that generate cost-recovery cash flows. The incorporation of targeted sustainable or climate-focused funds, such as climate funds and Just Energy Transition Partnership (JETP), may also be appropriate. Hence, resilient infrastructure can be developed by collective finance from multiple investors. Indonesia is committed to providing support for the advancement of many financial schemes aimed at enhancing and augmenting the development of robust infrastructure.

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