

# PERSPECTIVE

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## **Financing the Green Economy: Options for Indonesia**

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*This picture, taken on 26 October 2021, shows officials taking photos of wind turbines belonging to the state power company in Sidrap, in Sidenreng Rappang - the largest wind power plant in Indonesia with 30 wind turbine generators. Photo: ZUL KIFLI / AFP.*

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**EXECUTIVE SUMMARY**

- Indonesia needs to invest approximately US\$150–200 billion per year, or about 14% of its GDP, between 2021 and 2030 to meet its 2050 net-zero carbon emissions target.
- Financing a transition to renewable energy is a daunting task. Without significant fiscal reforms, Indonesia has very limited fiscal space for climate-related discretionary spending while its financial sector is very shallow, largely dominated by the banking sector. But short-term financing like bank loans does not match the long-term maturity structure of many green projects.
- Conventional sources of funding, such as foreign direct investment (FDI), remain vital, but are either insufficient or unstable and expose Indonesia to external vulnerabilities. Annual FDI flows to Indonesia were less than 2% of GDP over the last five years, a tiny fraction of the amount needed.
- One potential funding source for the green economy is blended finance. This is a structuring approach that brings various actors – including private philanthropists and Multilateral Development Banks and International Financial Institutions – together to invest in a green project while achieving their own goals, be these financial, social or both.
- Pension and insurance funds, which are currently underdeveloped in Indonesia, could play an important role in financing green projects. Both funds and projects are of a long-term nature, and the deepening of the pension and insurance sectors in Indonesia could help generate the much-needed, large-scale financing needed for green projects.

## INTRODUCTION

Indonesia has committed to reaching net-zero carbon emissions by 2050, a deadline brought forward from 2060 last year. Indonesia is the world's fourth-largest emitter of greenhouse gases (GHG), contributing around 4% of total global emissions in 2019.<sup>1</sup> Around 60% of the country's energy comes from non-renewable sources such as coal.

Indonesia's presidency at last year's G20 Summit tabled the green economy agenda as a key driver to achieve the United Nations sustainable development goals (SDG). However, financing a transition towards net-zero carbon emissions and renewable energy is a daunting task. Indonesia has very limited fiscal space for climate-related discretionary spending, while its financial sector is very shallow, and dominated by the banking sector. Furthermore, short-term financing like bank loans does not match the long-term maturity structure of many green projects.

This paper lays out the challenges Indonesia faces in financing its green transformation and recommends financing options by stocktaking Indonesia's current policies and reflecting on global best practices.

## FINANCING NEEDS FOR THE GREEN ECONOMY

In Indonesia's 2022 Enhanced Nationally Determined Contribution, the country committed to reducing GHG emissions by 31.89% by 2030 or 43.2% with international assistance, compared to a business-as-usual scenario. By 2050, Indonesia aims to reach its net-zero carbon emission target. This target was brought forward from 2060 following international pledges of support in the form of the Just Energy Transition Partnership fund, an international cooperation of advanced economies led by the United States and Japan. The Partnership committed US\$20 billion to finance Indonesia's energy transition. With the fund, Indonesia is also increasing its target of renewable energy as a share of Indonesia's total power generation from 11.5% in 2021 to over a third by 2030.

According to a 2021 report by the Ministry of National Development Planning (BAPPENAS), Indonesia needs to invest US\$150–200 billion per year, about 14% of GDP, between 2021 and 2030 to meet a 2060 net-zero carbon emission target.<sup>2</sup> Clean energy accounts for about 60% of this investment need. In total, the amount needed until 2030 amounts to at least 140% of Indonesia's nominal GDP in 2020, while the total assets of Indonesia's domestic financial sector (banking, insurance, stock exchange and pension fund) amount to less than 120% of nominal 2020 GDP. The picture looks worse when we assess the 'green' assets in the financial sector; less than 2% of bonds outstanding in 2021 are green bonds.<sup>3</sup>

Although today, in Indonesia, most of the costs needed to transition to a green economy are borne by the government, renewable energy and other technologies have been attracting foreign investment and financing into the country.<sup>4</sup> But relying on investment and foreign financing, including foreign direct investment (FDI), concessional international lending and

grants to finance Indonesia's green economy, while leaving its domestic financial sector inadequate and too shallow to finance long-term projects, might be precarious. This is because of the very dynamic global economy and post-pandemic fiscal burdens of many advanced economies and traditional creditor nations. It is important to build Indonesia's own domestic capacity to finance its transition towards a greener economy.<sup>5</sup>

Indonesia's President Joko Widodo has issued a presidential regulation (Perpres No. 112/2022) on the acceleration of renewable energy generation and use, early retirement of coal power plants, a carbon tax policy and the Energy Transition Mechanism to finance the transition to renewable energy. This regulation provides vital regulatory framework and assurance of government commitments to transition towards a greener economy and support the development of renewable energy. However, the financing and implementation challenges remain significant.

## FINANCING CHALLENGES

### *Global Challenges*

Many emerging and low-income countries have limited budget to invest in green projects – referring broadly to low-carbon and climate-resilient investments – especially after the pandemic. Meanwhile, they also face increasingly high borrowing costs because of the rising interest rates around the world since the war in Ukraine broke out, and the need to manage global runaway inflation. The cost of financing selected green energy generation is also higher in developing countries compared to developed countries.<sup>6</sup> Hence, public financing alone will not be sufficient to help these countries transition to renewable energy.

Financial markets have not been able to sufficiently fill the financial gap either. There are multiple reasons why globally large institutional investors, such as pension and insurance funds, have not invested sufficiently in long-term projects. These include:<sup>7</sup>

1. Regulatory and political uncertainties: Institutional investors face enormous risks from political uncertainties and regulatory and policy changes, as well as market risk (cost and price) and others, when investing in long-term projects with maturity of more than two decades.
2. Lack of appropriate financial instruments: Institutional investors invest because the risk-adjusted benefits outweigh the costs, and they receive predictable cash flows. They do not invest purely because an investment is green. Investors shy away from long-term projects if there are no financial instruments to help them manage and minimise risks. These may include government and multilateral agency guarantees, concessional loans, joint operations, power purchase agreements, and policy support that serves to guarantee predictable revenues and reduced risk.
3. Market failures: Certain policies may disincentivise investment in the targeted sectors. In Indonesia, for example, the carbon tax policy is insufficient to disincentivise pollution, and the government continues to subsidise fossil fuels

and coal power plants, all of which make the prices of renewable energy less competitive.

4. Lack of project pipeline and quality historical data: There is insufficient information about feasible project pipelines for institutional investors to invest in. And even if there were, there is lack of quality historical data to assess associated risks.
5. Lack of experience and knowledge: Many institutional investors, including insurance and pension funds in Indonesia, still have limited experience and knowledge in analysing, underwriting and structuring long-term financing, including green financing, to mitigate long-term risks.

In Annex 1, we present two case studies showing how global institutional investors addressed the challenges of investing in long-term green projects, one in renewable energy in the United States and the second in sustainable agriculture in Brazil.

### *Challenges in Indonesia*

On top of these challenges, there are specific challenges to financing the green economy in Indonesia.

First is a lack of a globally accepted/agreed (or harmonized) definition of ‘green economic activities’ for Indonesia to readily use.<sup>8</sup> The World Bank and International Finance Corporation have come up with their own criteria and definition of green projects.

In 2014, a consortium of investment banks, which has since become the International Capital Market Association, formulated principles for green bonds. However, the consortium did not give any detailed definition of “green”; this is left to the bond issuers.

In Indonesia, the Financial Service Authority (Otoritas Jasa Keuangan) in 2017 enacted a regulation for issuing green bonds. In the regulation, the OJK lists 11 business activities that are eligible for funding through green bonds<sup>9</sup>, and these are in line with the principles formulated by the International Capital Market Association, namely:

- Renewable energy
- Energy efficiency
- Pollution prevention and control
- Management of natural resources and sustainable land use
- Conservation of land and water biodiversity
- Environmentally friendly transportation
- Water and sustainable management of wastewater
- Climate change adaptation
- Products that reduce resource use and generate less pollution (eco-efficient)
- Environmentally friendly buildings that meet internationally recognised standards or national, regional or international certifications
- Other environmentally friendly business activities

However, the regulation does not provide a more detailed taxonomy for a green economy in terms of definition, criteria and coverage of specific economic activities or sub-sectors, and therefore the classification of green bonds remains vague.

Second, significant regulatory uncertainties hinder investment in Indonesia.<sup>10</sup> The most recent example relates to the Omnibus Law on Job Creation (Law No. 11/2020), which was ruled as “conditionally unconstitutional” by the Constitutional Court. The court ordered the government to revise it and to ensure sufficient public consultation on the changes. The issuance of a Government Regulation in lieu of the Law, known as Job Creation Perppu No. 2/2022, was passed on 30 December 2022, close to the eve of New Year, which caught many stakeholders off guard. The issuance drew criticisms as lacking meaningful public consultation and was again challenged by a group of Indonesian citizens as being unconstitutional.<sup>11</sup>

Indonesia’s upcoming presidential election in 2024 will mark the end of President Joko Widodo’s ten-year era. It also means that many investors will hold off until the new President is elected before committing to large, long-term funding. Indonesia’s large population, 26% of which is under the age of 15, in stark contrast to ageing East Asia, has much to offer to foreign investors, but Indonesia’s unpredictable swings in the political, business and financial cycle, which are of particular concern in relation to long-term investment projects, has often deterred private sector participation.

Third, the government is constrained by its fiscal inflexibility in its spending choices and low tax-to-GDP ratio (tax revenues account for less than 10% of GDP). Indonesia’s large fuel subsidies along with other mandatory spending and the COVID-19 fiscal stimulus leave little room for climate-related discretionary spending without significant fiscal reforms. Currently, the central government spends around 3.7% of its total budget on average on climate-related spending between 2016 and 2021.<sup>12</sup> This is dwarfed by the amount spent on fuel subsidies, which is around 13 percent of the 2022 central government’s budget. Moreover, the government is constrained by the strict budget deficit rule according to which the annual budget deficit and accumulated public debt cannot exceed 3% and 60% of the nominal GDP, respectively.<sup>13</sup>

It is necessary therefore to boost non-government financing. Indonesia’s financial market alone will not be sufficient to fill the financial gap without further deepening. It is shallow with 75% of the total financial sector assets being dominated by the banking sector.<sup>14</sup> However, bank loans like other short-term maturity financing run into a maturity mismatch when it comes to financing long-term green projects.

Fourth, Indonesia has distortionary policies and incentives that adversely affect prices, risk-taking and asset allocation, including huge fossil fuel subsidies, subsidies for coal power plants, an absence of regulations that *disfavour* environmentally damaging projects (regulations such as carbon tax and pricing) and the presence of regulations that *favour* environmentally damaging projects. Indonesia has, for example, removed coal pollution from its list of hazardous industrial emissions since March 2021<sup>15</sup> and provides fiscal incentives for nickel smelters, which are largely powered by coal generation. This makes investment in renewables in Indonesia less attractive and may create market failures, which lead to a suboptimal welfare outcome.



Last, the advanced economies have not fulfilled their financial commitments to help developing and low-income countries, including Indonesia, in climate change mitigation and adaptation.<sup>16</sup> The advanced economies had committed in 2009 to collectively raise US\$100 billion by 2020 and annually until 2025 under the Global Climate Fund initiative. But this commitment has not been fulfilled.

Global cooperation in supporting the green energy transition of developing and low-income countries has not been as strong as needed. International financial institutions have also been criticised for not doing enough to finance global public goods, including climate change mitigation and adaptation.<sup>17</sup>

## **THE LONG-TERM GREEN FINANCING OPTIONS FOR INDONESIA**

We explore some financing options to support Indonesia's green energy transition, namely foreign direct investment, blended finance, and pension and insurance funds, and discuss some key challenges of each financing option.

### *FDI and the Role of Sovereign Wealth Funds*

Direct investment remains the natural route to finance the green transition. Attracting FDI has been the primary aim of recent reform initiatives in Indonesia, including those under the Joko Widodo administration. Along with other foreign capital investments, FDI has been financing Indonesia's frequent annual current account deficits.

One of the common potential risks from FDI and any other foreign-source financing is that they potentially lead to current account pressure, in the form of primary account payment. In principle, any foreign financing needs to be paid back, both the capital and potential returns, such as profit remittances to the country from which the debt originated. Between 2017 and 2019, Indonesia paid on average more than US\$1 billion annually to service debt repayments. Moreover, the inability of the domestic investor base to provide sufficient long-term financing exposes the country to external vulnerabilities, where changes in the macroeconomic policies abroad, such as an interest rate increase in the US, impact the macroeconomic stability at home.<sup>18</sup>

The Omnibus Law on Job Creation, which was revised as Job Creation Perppu No. 2/2022, introduced many measures to ease investment licensing and expand the list of sectors and the extent to which foreign investors may participate in, mostly by reducing or removing foreign equity limits. Among the key breakthroughs of the Omnibus Law was the plan to set up a national sovereign wealth fund, to be known as Indonesia Investment Authority (INA);<sup>19</sup> this was established in 2021.<sup>20</sup>

The INA is targeting investments in renewable energy and waste management, among others, to support the country's transition towards low-carbon emissions and more sustainable development. The expansion of the asset under the management of INA is expected to supplement the annual FDI into Indonesia in financing Indonesia's economic development.

The challenge, however, is that the INA may only invest in the domestic market, particularly government infrastructure projects, which may limit its ability to win the maximum returns, including from investing globally.

The Covid-19 pandemic contributed to an alarming fall in FDI from an average of more than US\$21 billion between 2017 and 2019, to US\$19.2 billion in 2020. Though this did increase a little in 2021 and 2022, the total sum of FDI and funds under the management of the INA remains far below the level needed for the green transition. The annual FDI flows to Indonesia are less than 2% of GDP over the last five years, but an average of 14% of 2020 nominal GDP is needed annually between 2021 and 2030 to meet the country's carbon emission reduction target alone, as indicated earlier.

### *Blended Finance*

To complement the role of FDI in generating sustainable economic growth, the blended-finance approach has gained popularity globally, even among G20 members. Blended finance is a structuring approach that brings various actors together to invest in a project while achieving their own goals – whether it is financial, social or both.<sup>21</sup> The drive for blended finance can be attributed to the United Nations 2030 Agenda for Sustainable Development, a vision for achieving development and prosperity for people and the planet.<sup>22</sup> Signed by world leaders in 2015, the 2030 Agenda calls for the engagement of both public and private actors, including private philanthropists, as well as multilateral development banks (MDB) and international financial institutions (IFI), in the pursuit of sustainable development.

By drawing in various actors to invest alongside each other, blended finance reduces investment risk and hence, crowds in greater funding.<sup>23</sup> MDB and IFI play a key role in creating innovative blended financing structures to make the risk-return profile for green projects more attractive to private investors. For example, they could agree to be the first to endure losses in green financing and hence increasing the expected risk-adjusted return for private investors.<sup>24</sup> They could also play the role in surveillance, capacity development, risk assessment, and climate diagnostic tool. An example of such initiatives is the Resilience and Sustainability Trust fund<sup>25</sup> managed by the International Monetary Fund with US\$ 50 billion in pledges to help increase the resilience of low- and middle-income countries to long-term shocks such as climate change.

Besides MDB and IFI, impact investors and philanthropic sources, including global and regional charitable organisations, are also important actors in blended finance.<sup>26</sup> Impact investors have the goal of making positive environmental, social and development impacts, along with financial returns. They are usually willing to provide the heavy up-front funds and absorb initial losses until other investors earn their expected returns. Meanwhile, the public actors have the role of setting up the regulatory framework and ensuring friendly investment climate, good governance and sound policies, including regulatory sandboxing and climate policies such as carbon pricing.

The challenge with blended finance is to find a balance among the various objectives of the actors. For example, while the public actors may primarily target development outcomes, the private actors may mainly seek financial returns, profits and market access.



*Pension and Insurance Funds*

Pension and insurance funds potentially play an important role in financing green projects worldwide, and in Indonesia.<sup>27</sup> They have matching long-term asset-liability maturities. In the green economy, pension funds usually look for long-maturity, low-risk investments with inflation-adjusted, steady income streams, perhaps in the mature technologies of wind and solar power energies, rather than unproven and untested technologies.<sup>28</sup> The latter are usefully funded by venture capitalists.

Although there are three main asset classes through which pension and insurance funds could access green investments, namely equity, fixed-income securities (e.g., bonds) and alternative asset classes (e.g., real estate and infrastructure funds), green bonds could be a more common financial vehicle to direct pension and insurance funds towards green investments. A 2022 OECD report on pension markets shows that 49.8% of Indonesia's retirement savings plans are invested in bills and bonds, while 27.2% are in cash and deposits, and 9.7% in equities.<sup>29</sup> Similarly, bills and bonds remain the dominant financial instruments for OECD countries to invest their retirement savings plans in (41.6%).

However, until now, Indonesia's public pension fund (excluding pension funds for civil servants and the military and police) remains underdeveloped at only 2.73% of the nominal GDP in 2020, much lower than other emerging countries, such as India (7.2%), Thailand (12.74%), Brazil (14.97%) and Malaysia (61.42%). Similarly, in 2020, the share of insurance company assets to GDP in Indonesia was 4.61% compared to 22.22% for Malaysia, 10.76% for the Philippines, 23.72% for Thailand and 63.73% for Singapore.

Indonesia could develop its pension and insurance sector to increase the availability of funds for long-term green investments. Among many of the challenges facing the development of the pension fund and the insurance sector is the limited availability of long-term investment assets in the domestic market to manage the asset-liability structures and risk exposures. On their investment returns, both pension and insurance funds rely heavily on the yields of the 10-year sovereign bond of the country as the long and liquid investment option. The long-maturity structures of the green projects will therefore help plug the yawning gap for the longer-term and investment-grade assets. Reciprocally, the deepening of the pension and insurance sectors will generate much-needed large scale financing for the green infrastructure projects.

The Government of Indonesia recently passed a new law, namely Law on the Development and Strengthening of the Financial Sector, known as P2SK Law of 2023. One of the chief objectives is overhauling the insurance and pension fund sectors, which is timely and necessary for building Indonesia's domestic financing capacity so that the country can meet its global climate change commitment.

**CONCLUDING REMARKS**

To sum up, Indonesia needs global and domestic financing to meet its net-zero carbon emission targets. While conventional sources of funding such as FDI remain vital, they are insufficient

and expose Indonesia to external vulnerabilities, especially amid both the rising frequency of global financial and non-financial shocks. Recent reform efforts, particularly Job Creation Perppu No. 2/2022 and P2SK Law of 2023, are expected to boost the attractiveness of the Indonesian economy for foreign investors, and also to drive the development of other key domestic sources of funding, in particular the pension and insurance sectors, which will be needed to finance its transition towards a greener economy.

## ANNEX 1

### Case Study 1: Direct investment in Solar Photovoltaic Power by Insurer, MetLife

In 2012, the world saw remarkable demand and growth in solar photovoltaic (PV) installation as prices for PV modules had been falling sharply (prices fell almost 50% in 2011 alone) driven by competition in the international market, particularly from low-cost Chinese producers and an oversupply of panels following the scaling back of solar subsidies in parts of Europe. The sharply declining prices for solar modules triggered significant corporate distress in solar manufacturing.

Despite the distress in the manufacturing side, investment in solar energy technology companies by venture capitalists and private equity investors peaked in 2008 but remained robust until 2011. Unlike venture capitalists and private equity investors, institutional investors are seeking predictable cash flows that could be guaranteed by long-term power-purchase contracts extending for two decades or more.

In 2007, Austin City Council set a target for renewable power of 30% by 2020, with 100 MW of that power capacity coming from solar energy. Since 2011, Austin Energy has increased these targets to 35% by 2020, with 200 MW of solar development by 2015. In February 2012, the global insurer MetLife (an institutional investor) and Longsol Holdings US Inc (a private owner and operator of solar projects in the US and Europe) purchased the 30 MW Webberville solar power plant in Texas from SunEdison. The US\$100 million project was made possible in part because the publicly owned Austin Energy committed to buy all of the facility's power for the next 25 years (an example of long-term power-purchase contract).

Lessons learned from this case study include:

- Government's long-term renewable energy goal and commitment reduce the political and regulatory risks and uncertainties, especially because higher-cost electricity generation such as solar PV (compared to fossil-fuel alternatives) is still policy-dependent.
- Institutional investors could work with specialized investors and operators of solar parks, like Longsol Holdings, who have the technical expertise in the area.
- The long-term power-purchase contract agreements enables institutional investors to earn predictable cash flows, which similarly function as a long-term fixed-income.

*(Source: Kaminker et al., 2013)*

**Case Study 2: Investing in sustainable farmland in Brazil by TIAA-CREF, a retirement and investment fund**

Investment in agriculture is predominantly by farmers and only a very minor share of investment is by institutional investors. In 2012, institutional investors owned less than 1% of US\$2 trillion global farmland market. Farmland is an attractive asset class due to increasing demand for fuel and biofuel, the opportunity to diversify portfolio. However, despite these advantages, institutional investors are not large holders of farmland assets due to historically high barriers to entry such as limited access, low liquidity, limited market information and research, and a large number of off-market transactions.

TIAA-CREF is one of the largest managers of retirement and investment funds in the US. In 2012, TIAA-CREF established a US\$2 billion agricultural company (TCGA), which looks to invest in the major growing regions of the world including Australia, the United States and Brazil. TCGA is made up of institutional investors who have made capital contributions to the investment entity and in return receive periodic capital distributions as the portfolio matures.

One problem faced by TCGA in Brazil is the poorly defined property rights. Through massive research, TCGA settled land ownership disputes in Brazil, enabling farmers to secure credits and develop their business. This has unlocked under-utilised land for development, increasing farm investment, productivity and output.

Lessons learned from this case study include the following:

- When institutional investors invest in agriculture, they must work with local farmers or other organisations because they generally do not have the knowledge or experience to manage farms and market the crops.
- The role of the government in creating an enabling framework for green growth investment is key. Brazil has made progress towards creating a stable, investment-grade business environment where investors can be confident that the rules of doing business will not rapidly change.
- Settling land disputes allows capitals to flow into productivity-enhancing investment.

*(Source: Kaminker et al., 2013)*

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## ENDNOTES

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<sup>1</sup> Data source: [Greenhouse gas emissions - Our World in Data](https://ourworldindata.org/greenhouse-gas-emissions?country=), <https://ourworldindata.org/greenhouse-gas-emissions?country=>

<sup>2</sup> BAPPENAS, 2021; This report was published before the 2060 deadline was brought forward to 2050.

<sup>3</sup> Siregar and Prabowosunu, 2022

<sup>4</sup> BAPPENAS, 2021

<sup>5</sup> Adrian et al (2022) shows that globally the present value of benefits of phasing out coal is larger than the present value of costs of it by US\$85 trillion, or about 1.3% of the world GDP. The question is,



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however, less about the net benefits of a greener economy but more about how to manage and finance the costly transition.

<sup>6</sup> Basri and Riefky, 2023

<sup>7</sup> Kaminker et al., 2013

<sup>8</sup> Under the G20 Sustainable Finance Working Group, a marked progress was made last year in developing and adopting standards and taxonomies for identifying ‘sustainable’ activities.

<sup>9</sup> Siregar and Prabowosunu, 2022, Exhibit 13

<sup>10</sup> See, for example, Fajari and Negara, 2022

<sup>11</sup> Asmara and Harsono, 2023; Herlinda and Janti, 2023

<sup>12</sup> Basri and Riefky, 2023

<sup>13</sup> Basri and Riefky (2023) provides detailed recommendations on how Indonesia could mobilise its domestic resources to finance its green transition including through carbon tax, phasing out from ‘dirty sector’ subsidies, fossil fuel excise, plastic excise, and green tax incentives.

<sup>14</sup> Basri and Riefky, 2023

<sup>15</sup> Gokkon, 2021

<sup>16</sup> Timperley, 2021

<sup>17</sup> The World Bank identifies global public goods as climate, health and security.

<sup>18</sup> World Bank, 2022

<sup>19</sup> The INA is modelled more on India’s National Investment and Infrastructure Fund (Habir, 2021) than traditional sovereign wealth funds that are usually funded by commodity export revenues, trade surpluses or foreign-exchange reserves. The INA aims to attract domestic and foreign investment to government infrastructure projects, rather than being funded by internal revenues. So far, the INA, largely funded by the state budget, has mostly been used to purchase infrastructure assets, such as toll roads, from heavily indebted state-owned enterprises (similar to privatisation of heavily indebted government assets).

<sup>20</sup> The government of Indonesia injected a total of US\$5 billion as INA’s initial capital (US\$2 billion in cash and US\$3 billion as shares of two state-owned enterprises). By the end of 2022, INA has around US\$ 6.8 billion under its asset management, and the target is to further increase the total fund to US\$20 billion in the near future.

<sup>21</sup> Sulser, 2021

<sup>22</sup> United Nations, 2015

<sup>23</sup> Li et al, 2022

<sup>24</sup> *ibid*

<sup>25</sup> <https://www.weforum.org/agenda/2023/01/imf-resilience-and-sustainability-fund/>

<sup>26</sup> Sulser, 2021

<sup>27</sup> Della Croce et al, 2011

<sup>28</sup> *ibid*

<sup>29</sup> Statistical Table in: <https://www.oecd.org/finance/private-pensions/pensionmarketsinfocus.htm#:~:text=10%2F06%2F2022%20%2D%20A,on%20preliminary%20data%20for%202021.>

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