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# CLIMATE ACTION FOR DEVELOPMENT

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# Preface

The Indonesia Economic Prospects (IEP) is a bi-annual World Bank report that assesses recent macroeconomic developments, the outlook, and risks, as well as specific development challenges for the Indonesian economy. In doing so, the IEP aims to inform the public policy debate and is geared towards a wide audience, including the general public, the government, the private sector, civil society organizations, and other domestic and international stakeholders.

The IEP is a product of the World Bank Jakarta office and receives strategic guidance from an editorial board chaired by Satu Kahkonen, Country Director for Indonesia and Timor-Leste. The report is prepared by the Macroeconomics, Trade and Investment (MTI) Global Practice team, under the guidance of Lars Christian Moller (Practice Manager), Ann Jeannette Glauber (Practice Manager) and Habib Rab (Lead Economist). The report is co-led by Wael Mansour (Senior Economist), Anthony Obeyesekere (Economist), and David James Kaczan (Senior Economist).

Deviana Djalil provided administrative support and coordinated the organization of the report launch event. The dissemination is organized by Gb Surya Ningnagara and Mauliyati N. Slamet under the guidance of Lestari Boediono Qureshi. The report was designed and typeset by Arsianti.

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Part B was prepared by Habib Rab (Lead Economist) and David Kaczan (Senior Economist). Part B is taken from the Indonesia Country Climate and Development Report (CCDR), which was prepared by an extended technical team (see [CCDR](#) for details). Part B benefitted from the comments of Anthony Obeyesekere (Economist), Wael Mansour (Senior Economist), and Stavros Papageorgiou (Senior Natural Resources Management Specialist). Box B.1. was developed by Bambang Sjahrir (Senior Economist). Elisabeth Yunita Ekasari (Program Assistant) and Sandra Sari (Program Assistant) provided administrative support.

This report is available for download in English and Indonesian via: [www.worldbank.org/iep](http://www.worldbank.org/iep)  
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- June 2023: [The Invisible Toll of COVID-19 on Learning](#)
- December 2022: [Trade for Growth and Economic Transformation](#)
- June 2022: [Financial Deepening for Stronger Growth and Sustainable Recovery](#)

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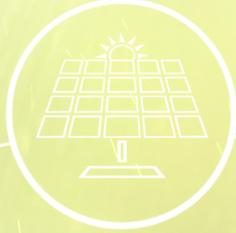
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# Abbreviations

ADB	Asian Development Bank	LCRs	Local Content Requirements
AEs	Advanced Economies	LTS-LCCR	Long-Term Strategy for Low Carbon and Climate Resilience
AFC	Asian Financial Crisis		
BAPANAS	Badan Pangan Nasional	LTV	Loan-To-Valuation
Bappenas	Badan Perencanaan Pembangunan Nasional	MoEMR	Ministry of Energy, Mineral Resources
		MoEF	Ministry of Environment and Forestry
BAU	Bsiness-As-Usual	MoF	Ministry of Finance
BI	Bank Indonesia	MTI	Macroeconomics, Trade and Investment
BLT BBM	Bantuan Langsung Tunai Bahan Bakar Minyak	MSMEs	Micro, Small and Medium-Sized Enterprises
BoP	Balance of Payments	NDC	Nationally Determined Contribution
BPS	Badan Pusat Statistik	NEER	Nominal Effective Exchange Rate
BRGM	Badan Restorasi Gambut dan Mangrove,	NPLs	Non-Performing Loans
CAR	Capital Adequacy Ratio	NTM	Non-Tariff Measures
CCDR	Country Climate and Development Report	OECD	Organisation for Economic Co-operation and Development
CEQ	Commitment-To-Equity	OJK	Otoritas Jasa Keuangan
CGE	Computable General Equilibrium	OPEC	Organization of the Petroleum Exporting Countries
CO <sub>2</sub> eq	Carbon Dioxide Equivalent		
CPI	Consumer Price Index	PLN	Perusahaan Listrik Negara
DTKS	Data Terpadu Kesejahteraan Sosial	Ppts	Percentage Points
EAP	East Asia and Pacific Region	PSIs	Pre-Shipment Inspections
ECM	Error Correction Mechanism	PSO	Public Service Obligation
EMs	Emerging Markets	PV	Photovoltaic
ESG	Environmental, Social, and Governance	RCA	Revealed Comparative Advantage
ETS	Emissions Trading Scheme	ROA	Return-On-Assets
FDI	Foreign Direct Investment	ROE	Return-On-Equity
FOLU	Forest and Other Land Uses	RRR	Reserve Requirement Ratio
FSOL	Financial Sector Omnibus Law	SAL	Accumulated Cash Savings
FX	Foreign Currency	SNI	Standar Nasional Indonesia
GDP	Gross Domestic Product	SPHP	Stabilisasi Pasokan dan Harga Pangan
GFC	Global Financial Crisis		
GHG	Greenhouse Gas	SSE	Sustainable Stock Exchanges
Gol	Government of Indonesia	THL	Tax Harmonization Law
IEP	Indonesia Economic Prospects	VAT	Value-Added Tax
IFPRI	International Food Policy Research Institute	WBG	World Bank Group
		WTO	World Trade Organization
IMF	International Monetary Fund	Yoy	Year-on-year
JCOL	Jobs Creation Omnibus Law	3mma	Three-Month Moving Average
LAR	Loan-At-Risk		
LCDI	Low Carbon Development Indonesia		

# Executive Summary



# Executive Summary

## I. Economic and Fiscal Update

**Indonesia has been successful in navigating the macroeconomic fallout from asynchronous global shocks.** Growth remains resilient, inflation is on a declining trend, and the currency volatility manageable. Nevertheless, the end of the commodity cycle boom and higher-for-longer global interest rates prospects exhibit strong headwinds going forward and limits the macro policy space. As the economy moves into this new normal, structural reforms to boost growth and create jobs gain renewed importance.

**GDP growth remains strong though the economy is yet to fully recover to its pre-pandemic trajectory.** Indonesia has maintained seven consecutive quarters of growth above 5 percent (year-on-year), slowing very moderately to 4.9 percent in Q3-2023 (third quarter of 2023). Much of this activity has been driven by strong private consumption as well as services particularly in the wholesale and retail trade, transportation and tourism, and information and communication sectors. At the same time, output remains below its pre-pandemic trajectory. The country's economy is larger today than at any time before. Yet, it is still 6.9 percent smaller than it might have been had the recovery been strong enough to return the economy to its pre-pandemic trend. This reflects scarring effects from the pandemic.

**This is consistent with labor market trends, which show a recovery in labor force participation and employment but a possible deterioration in jobs quality.** The labor force participation rate rose by 0.9 percentage point (ppt) between 2022-2023 to 69.8 percent, with an additional 4.6 million workers being employed since 2022. Unemployment has been steadily declining to 5.3 percent, converging to pre-pandemic levels (5.2 percent in 2019). However, the prevalence of middle-class jobs has dropped from 14 to 9 percent of total employment between 2019-2022.<sup>1</sup>

Between 2019-2023, the employment shares of both self-employed and informal workers has increased, while the share of the wage-employed declined.

**Inflation has been brought under control following the effects of the energy price shocks in 2022, though new pressures are emerging from food supply risks and renewed oil price rises.** Headline inflation declined for seven successive months to 2.6 percent yoy in October. Nonetheless, the prices of some basic food items (rice, sugar, and chicken meat) have been rising lately owing to a combined effect of supply and feed shortages. Food inflation rose to 5.5 percent in October, despite favorable horticulture harvests. Prolonged unfavorable climatic conditions from El Niño have affected the production of staple crops among others. To contain domestic food prices and soften the impact on the poor, the government of Indonesia (GoI) introduced several price stabilization measures and food aid programs.

**External pressures have risen due to tight global financing conditions, which have triggered capital outflows and currency pressures across emerging markets including Indonesia.** Net portfolio outflows accelerated in the second half of the year and recorded 0.3 percent of GDP in 3Q-23, contributing to the financial account deficit which was sustained for a second consecutive year. These outflows were only partially offset by net foreign direct investment (1.1 percent of GDP). Moreover, there was also added pressure from the current account, which switched into a small deficit of 0.01 percent of GDP, on the back of a softening trade surplus. This signals a potential end to the commodity boom cycle and a return to status quo for Indonesia, which recorded consistent deficits from 2012 to 2019. As a result, FX reserves at Bank Indonesia (BI) dropped from a peak of US\$145 billion in March 2023 to US\$133 billion in October. Reserves remain

<sup>1</sup>Middle-class jobs are those earning a monthly household consumption > 3.5 times the poverty line (Wihardja and Cunningham, 2021).

adequate though and cover 6 months of goods and services imports. The rupiah has also fallen under pressure and depreciated by 8.1 percent against the US dollar year-to-October.

**External pressures prompted more proactive monetary interventions.** From August to November, the authorities combined capital flow measures requiring 30 percent of commodity export earnings to be retained in domestic banks with a 25-bps increase in the policy rate; and introduced new FX-denominated instruments. To balance the impact of higher policy rates on domestic demand, a series of liquidity measures were introduced: (i) reducing the reserve requirement ratio for banks lending to eligible sectors such as mineral downstreaming, tourism, and MSMEs; (ii) extending looser prudential requirements for mortgages and car loans (effective starting January 2024); and (iii) lowering the macroprudential liquidity buffer on IDR-denominated assets for banks. With interest-rate passthrough constrained by a shallow financial sector, BI's use of liquidity tools has proven to be a more effective monetary policy instrument.

**Fiscal policy remains prudent with an acceleration in revenue collection on the one hand and moderation in spending on the other.** Revenues reached 10.6 percent of GDP (January-to-October), one of the highest levels since 2015. This was primarily driven by VAT, following a 1 ppt increase in the VAT rate in April 2022. Primary expenditures remained suppressed despite a notable pick-up in public investment. Total expenditure growth contracted in January-to-October yoy resulting in the lowest spending-to-GDP ratio in at least a decade (10.6 percent of GDP). Interest payments stabilized at 1.5 percent of GDP, in line with rising financing costs. Subsidy expenditures contracted since the 2022 hike in administered fuel and electricity prices. The public debt ratio continued to decline and stood at 37.7 percent of GDP. Most of the debt stock is denominated in domestic currency (72.1 percent of total) and is long-term (87.6 percent). By end-2023, the fiscal deficit is expected to tighten to 2.1 percent of GDP, down from 2.4 percent in 2022.

**Indonesia is projected to post robust growth throughout the outlook, but downside risks are intensifying.** The economy is projected to grow at an annual average of 4.9 percent over 2024-2026, reflecting softer terms of trade and a normalization towards trend growth. Inflation will ease to a 3.1 percent average and remain within BI's revised target band. Challenges to the external position are expected to intensify. The current account deficit will gradually expand to 1.4 percent of GDP by 2026, as lower commodity prices and weaker global growth hamper exports. The outlook is subject to several downside risks. Higher-for-longer interest rates could weigh on borrowing costs and tighten access to external financing. Geopolitical uncertainty and climate change related shocks could disrupt global value chains and induce a sharper decline in the terms of trade, resulting possibly in lower revenues and a tighter fiscal position for Indonesia. Domestically, the elections in 2024 could slow down the momentum for growth-supporting reforms.

**With resilient macroeconomic underpinnings and the end of the post-COVID recovery cycle, the policy focus turns again to the growth agenda.** Indonesia has a credible policy track record of navigating downside risks and maintaining macroeconomic stability. The country's small twin deficits, low public debt, adequate FX reserves, stable external financing, and steady growth performance constitute robust macroeconomic buffers for responding to shocks. Going forward, the challenge is to build on these strong macroeconomic fundamentals to deliver faster, greener, and more inclusive economic growth. A core pillar of such a growth agenda are reforms that address structural bottlenecks in the economy that limit efficiency, competitiveness, and productivity growth. Among those are the complex flagship laws: the jobs creation omnibus, the tax harmonization, and the financial sector omnibus. Ensuring continuity and accelerating the implementation of these reforms, among others, will be essential if Indonesia is to have a chance at achieving its vision of becoming a high-income country by 2045.

## II. Climate Action as a Catalyst for Development

**Part B of the Indonesia Economic Prospects looks at how Indonesia could address climate change while achieving higher GDP growth over the long-term.** Indonesia has made important commitments as well as progress towards meeting its climate and development targets. Actions in the forest and land use (FOLU) sector have significantly reduced greenhouse gas (GHG) emissions, whilst commitments and actions in the energy sector are helping to increase renewables and phase down coal. Fiscal, financial, and other economy-wide reforms are complementing these efforts while also promoting growth. There are signs of relative decoupling between Indonesia's per capita GHG emissions and per capita income growth. Indonesia's low-carbon and climate resilient transition could potentially define the next stage of its economic transformation.

**Indonesia's strong growth and poverty reduction over the past 20 years have moved in parallel with rising GHG emissions, consistent with the country's stage of development.** Expansion of infrastructure, universal access to electricity, urbanization, and non-agricultural employment have contributed to around 5 percent per year growth on average over this period. The poverty rate fell from 19 percent in 2000 to 9.5 percent by 2022. Economic gains have also meant rising emissions. Indonesia's emissions—at 3.5 percent of the global total—are high compared to structural peers<sup>2</sup> in absolute terms, although per capita emissions are in line with those of other large developing economies, and lower than those of developed economies.

**The bulk of Indonesia's GHG emissions come from land-based sources, followed by energy.** Deforestation and fires accounted for about 42 percent of total emissions between 2000-2020.<sup>3</sup> Agriculture and forestry activities such as timber extraction and palm oil cultivation were significant drivers of deforestation, although policy actions have significantly lessened their impacts in recent years. Primary energy supply (i.e., coal, oil, gas) is the second largest source of emissions, accounting for about 39 percent of emissions between 2000-2020. About 93 percent of the primary energy supply comes from

fossil fuels, namely coal (43 percent), oil (31 percent), and gas (19 percent), with coal contributing to a rising share of electricity generation over this period.

**Emissions aside, Indonesia is vulnerable to climate shocks.** Between 1990-2021, Indonesia experienced more than 300 natural disasters—including 200 flooding events affecting more than 11 million people. Climate-related disasters account for approximately 70 percent of the total, and their frequency has increased. These trends are expected to continue. Rising sea surface temperature is associated with greater severity of tropical cyclones, while heavier rainfall will exacerbate floods and landslides. More frequent El Niño events are likely to increase drought, fire, and water supply risks. Important adaptation measures such as a disaster risk pooling fund are being taken in response.

**Indonesia has made important commitments and progress towards tackling these challenges.** In the forest and land use sector, deforestation has slowed from an average of 1.08 million hectares (ha) per year between 2000-07 to an average of 0.11 million ha per year in 2019-2022, the lowest rates since 1990. The Government of Indonesia (GoI) aims to make FOLU a carbon sink by 2030 (i.e., negative net emissions) under its flagship FOLU Net Sink 2030 Plan.<sup>4</sup> On energy, the GoI has committed to transition away from coal. Presidential Regulation No. 112/2022 removed price caps for renewable energy and set out higher prices differentiated by renewable energy technologies, size, and location. It also established competitive principles for procurement of renewable energy technologies such as Solar PV and provides for direct fiscal support for the state-owned electricity company PLN for new renewable capacity.

**While sector-specific policies for mitigation are necessary, they will be most effective if complemented by enabling fiscal, financial, and trade policies.** The *fiscal framework* can be used to address market failures in mitigation and adaptation, raise revenues, and provide buffers during the low-carbon and climate-resilient transitions. The *financial system* can be used to raise and channel savings to

<sup>2</sup> Analysis for this IEP uses a standard set of peers where data is available: Nigeria, China, India, Ukraine, Thailand, the Philippines, Mexico, the Arab Republic of Egypt, the Russian Federation, and Brazil. They are selected based on their statistical similarity in terms of population, GDP per capita, and total GDP. An additional set of aspirational peers is also used when relevant: Republic of Korea, Chile, Poland, and the Czech Republic. In some instances, industrialized countries are also used as comparisons when discussing emissions levels and targets.

<sup>3</sup> Total of forest, land use, and peat fire emissions between 2000-20 as a proportion of total emissions (MoEF 2021 data).

<sup>4</sup> Ministerial Decree No. 168/Menlhk/PKTL/PLA.1/2/2022, the Operational Plan for Indonesia's FOLU Net Sink 2030.

mitigation and adaptation activities, provided that structural constraints and exposure to climate and stranded-assets risks can be alleviated. *Trade policies* can be used to facilitate green exports and imports, move Indonesia toward the green technology frontier, and modify incentives for carbon-intensive commodity production.

**The fiscal framework can be used to increase economic efficiencies and disincentivize fossil fuel use.** Incentives for fossil fuel use are partly a function of taxes and subsidies. While still elevated relative to peer countries, support for fossil fuels as a share of tax revenue in Indonesia has declined, with a sharp drop in 2015. There are opportunities for further reduction of fossil fuel support, which would generate savings that can be redirected to targeted social assistance for the poor and improve the budget position. This outcome was evident in the 2022 adjustments to fuel prices. In addition, further carbon pricing measures, potentially building on the recently established emissions trading scheme among electricity generators, can be used to disincentivize emissions in other emissions-intensive sectors (e.g., industrial processes, other power generators). There are also opportunities to promote greater consistency across fiscal instruments for stronger overall incentives to decarbonize (in some instances, fiscal instruments within the same sector have countervailing effects).

**The financial system can be used to address two interconnected climate-related challenges:**

**a. Managing climate-related risks:** Climate risks can disrupt the financial system, reducing investment appetite. In Indonesia, efforts to address these challenges include the Financial Services Authority's Sustainable Finance Umbrella Policy and roadmaps focusing on green taxonomy, sustainability disclosure, climate risk management, and innovative financing instruments. More detailed guidance and stress-testing can improve the financial sector's ability to handle climate risks.

**b. Mobilizing finance for climate mitigation and adaptation:** The Gol aims to green the financial system through regulations mandating sustainable practices and promoting instruments like green bonds. While Indonesia has raised around US\$6.4 billion through green bonds and loans, private sector involvement remains limited. Challenges include increasing market awareness, reducing issuance costs, and addressing supply-side issues like a lack of assets. A World Bank

survey reveals the need for standards, transparency, and capacity-building in sustainable investing, emphasizing the importance of clear definitions and reporting standards to ensure investor confidence.

**Trade policies can be used to lower the cost of climate actions.** Indonesia maintains low average tariffs on imports of green goods and technologies. However, non-tariff measures (NTMs) pose significant costs, equivalent to an average 20 percent tariff. Import approvals, compliance with national standards, and pre-shipment inspections impact products needed for climate-change adaptation and mitigation, surpassing the impact seen in regional peers. Local content requirements designed to boost local manufacturing, particularly in the renewable energy sector, may hinder short-term adoption due to higher costs and reduced competitiveness against fossil fuels. Yet there are opportunities to benefit from the global low-carbon transition. Green goods exports accounted for 3.6 percent of total goods exports in 2020. There is potential for growth in environmentally preferable products, waste management, recycling, and resource-efficient technologies/products. Enhancing access to green technologies through trade can improve productivity, lower production costs, and enhance international competitiveness.

**Climate action, as analyzed through computable general equilibrium (CGE) modeling, could reduce GHG emissions and promote higher growth.** The modeling presented in this IEP explores three scenarios of increasing climate ambition: the redirection of electricity and fuel subsidies, a Nationally Determined Contribution (NDC) scenario with new policies and a carbon tax, and a more ambitious NDC+ scenario with higher carbon tax rates. Results show that emissions reduction will be driven by combined sectoral and fiscal policies, with Scenario 3 (NDC+) projecting a 63 percent reduction in greenhouse gas emissions by 2040 compared to Business as Usual (BAU). The power sector exhibits substantial emissions reductions across all scenarios, while manufacturing and transport also contribute. The net impact on long-term GDP depends on how carbon tax receipts and reduced subsidies are recycled, with positive effects projected under all scenarios, especially in Scenario 2 (NDC). However, in the ambitious Scenario 3 (NDC+), external financing becomes crucial for sustaining positive impacts beyond 2035. The coal sector faces significant output drops, while other sectors like construction, financial services, hospitality, and retail trade are projected to expand and offset losses in the long term. The modeling

analysis includes specific assumptions and highlights the need for caution in interpretation due to factors like market frictions, fixed money supply assumptions, and potential political economy obstacles to reforms.

### **Building on ongoing progress, the report presents options to advance Indonesia's green transition.**

The IEP focuses on fiscal, financial and trade policy 'enablers', which the analysis suggests provide important opportunities for realizing synergies between climate action and growth. They aim to create favorable conditions for reallocating resources from carbon-intensive to greener sectors and from low to high-productivity areas, while also mobilizing new financing. It is important to note that the list of policy options is thus partial, and the Indonesia CCDR provides additional options covering sectoral reforms and adaptation measures. Options include:

**1. Develop a roadmap to complete transport fuel subsidy reforms.** Rising global oil prices make it politically difficult to eliminate fuel subsidies in the short term, however, planning for reform could begin now in anticipation of more favorable medium-term conditions.

**2. Convert the electricity price subsidy (PLN's PSO) into targeted cash transfers.** This would allow the charging of tariffs that cover generation costs while using cash transfers to compensate the poor and vulnerable for price rises.

**3. Develop an integrated roadmap for carbon pricing.** Develop a roadmap for expanded carbon pricing based on a review of the impact, cost, and feasibility of alternative instruments for sectors beyond 2024.

**4. Develop further guidance on risk management approaches and disclosure requirements for banks.** Guidance would include stress testing and scenario analysis methodologies, risk identification and management approaches, and procedures for disclosure of climate risks.

**5. Further incentivize the use of green bonds.** This could include aggregation and securitization so that green bonds can reach the size that investors are demanding, potentially through standardized contract templates and procedures; and reduced listing requirements for labeled bonds.

**6. Review and streamline NTMs on green goods.** Some NTMs could be simplified such as import approvals and compliance with SNI. Some NTMs could be considered for removal, such as PSIs and port of entry restrictions. Over time, some NTMs could be phased out as a robust national single window and integrated risk management system is developed.

**7. Reduce the stringency of local content requirements (LCR) until demand can sustain local economies of scale.** Reduced LCRs can promote industry development, decrease prices for renewable power investors, and promote international technology transfer.

Through these and other reforms, Indonesia can boost underlying drivers of productivity and efficiency, helping to reduce the short-term costs of emissions cuts and adaptation, while strengthening long-run growth.



# A. Economic Update



# A. Economic Update

## 1. Recent Economic Developments

*Amid global uncertainty, Indonesia's growth is resilient, supported by rebounding domestic demand and services, but the economy has yet to return to its pre-pandemic trajectory.*

The world economy is grappling with geopolitical uncertainty, high cost of finance, and renewed pressures on inflation, which weigh on global growth and international trade. While the United States (USA) is growing at a faster pace than anticipated, economic activity remains weak in the euro area and in China. Aggressive monetary tightening to curb inflation has significantly raised the cost of financing and put pressure on portfolio flows and exchange rates in emerging markets (EMs). Recent political tensions in the Middle East have compounded the impact of the OPEC+ oil production cuts on global energy prices, while the climatic effects of El Nino are disrupting global food supply chains. The East Asia and Pacific region (EAP) has so far been more resilient and is growing at a faster pace than other regions, though growth is also beginning to slow. Key drivers of regional economic developments include softening global trade, tightening financial conditions, and structural reforms aimed at raising productivity and reversing the economic scarring effects from the pandemic.<sup>5</sup>

**Indonesia's growth remains resilient in 2023, prolonging its post-pandemic recovery.** After seven consecutive quarters of growth above 5 percent, GDP grew by 4.9 percent yoy in Q3-23. This brings total GDP growth to 5.1 percent in the first three quarters of 2023 (3Q-23). Private consumption was the main driving force, contributing 2.7 percentage points (ppts) to growth so far this year (Figure A.1), and half of all growth over the past two years. Consumer confidence has been elevated, hovering around pre-pandemic levels, and buoyed by declining inflation. Meanwhile, government consumption remains sluggish (4.1 percent of 3Q-23 growth) on the back of slow budget execution. Furthermore, global uncertainty

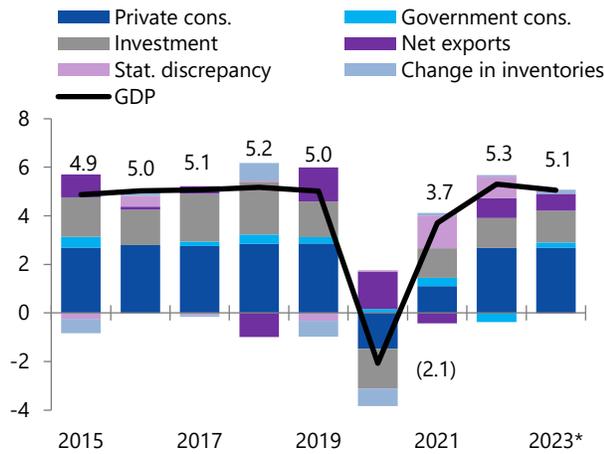
and declining commodity prices have weighed on international trade and softened commodity windfalls to Indonesia throughout the year. As a result, the net export contribution to growth declined to 13.8 percent of 3Q growth, down from 15.2 percent in full-year 2022.

**Investment's contribution to growth has yet to return to its pre-pandemic trend as foreign direct investment (FDI) levels remain stable and concentrated in few sectors.** Investment growth has yet to return to pre-pandemic trends. Between 2015 and 2019, overall investment contributed an average of 1.8 ppts per annum to GDP growth. This fell to 1.3 ppts over 2021-2023, in part due to softer FDI contribution. During the pandemic years of 2020-2021, FDI contracted sharply. It rebounded in 2022, almost solely on account of a sharp rise in manufacturing FDI, which is largely linked to the downstreaming industries. In 10 out of 15 sectors though, FDI contracted in 2022, and declined again in 7 sectors in 3Q-23 (Figure A.2). The softer contribution to growth from foreign activity in the post-pandemic recovery has so far been offset by sturdier domestic investment supported by rising domestic liquidity and private sector credit.

**From a sectoral perspective, manufacturing and services have been the main drivers of growth.** Manufacturing contributed 19.6 percent of 3Q-23 GDP growth, while wholesale and retail trade (13.1 percent), transport (12.4 percent), and information and communications (10.0 percent) were also important. Together, these have accounted for 54 percent of all growth during the recovery years (3Q-2021 to 3Q-2023). The most notable outsized contributor during this period has been the transportation sector, accounting for 13.1 percent of growth from just an initial 3.6 percent share of GDP. The sharp pickup in that sector is attributed to the recent completion of major infrastructure projects like the Jakarta Light Rail Train and the Jakarta-Bandung high speed train, as well as the removal of COVID-era mobility restrictions and the reinvigoration of tourism.

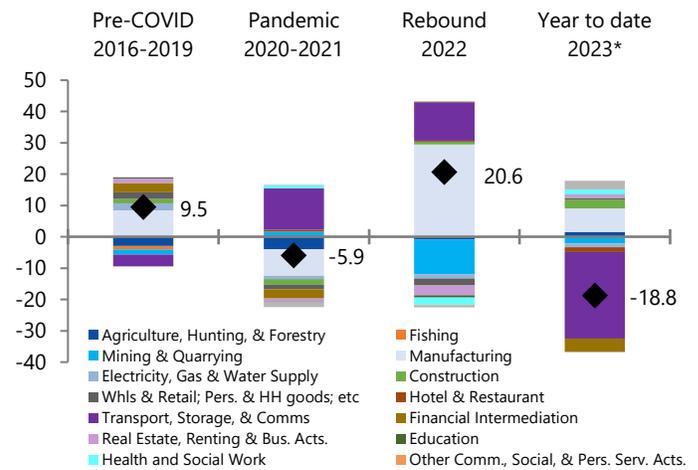
<sup>5</sup> World Bank Services for Development: East Asia and Pacific Economic Update, October 2023.

**Figure A.1: GDP continues to post solid quarterly results, underpinned by a strong household sector**  
(percent, yoy)



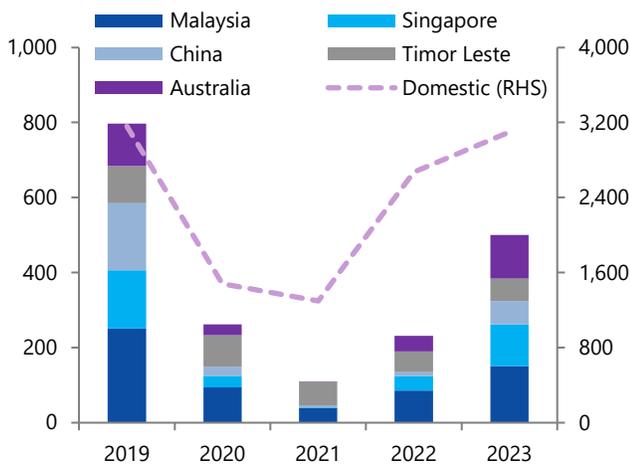
Source: BPS, CEIC, World Bank staff calculations.  
Note: 2023 result is for the first 3 quarters of 2023.

**Figure A.2: Sectoral contributions to net foreign direct investment: before, during, and after the pandemic**  
(percent, yoy)



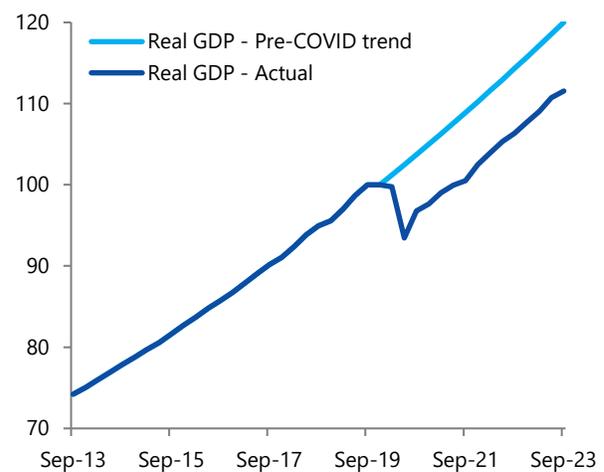
Source: BPS, CEIC, World Bank staff calculations.  
Note: 2023 result is for the first 3 quarters of 2023.

**Figure A.3: Average monthly arrivals by five largest source countries, January-September 2019-23**  
(thousands)



Source: CEIC; World Bank staff calculations.  
Note: Domestic data is total domestic arrivals. International data is only for five largest source countries.

**Figure A.4: Pre-pandemic GDP trend versus actual**  
(index, Q4:2019 = 100)



Source: CEIC, World Bank staff calculations.  
Note: Pre-COVID trend is constructed based on the average growth rate from Q4:2012 to Q4:2019.

**Tourism, an important service sector and source of foreign currency, is gradually recovering but international tourists remain below previous highs.** With overseas border restrictions in place, domestic tourism was naturally the first to bounce back. A solid start in mid-2020 was briefly derailed in mid-2021 by the new COVID-19 Delta strain, but activity rebounded soon after. In recent months, domestic tourists have reached levels seen in 2019—an average of 3.1 million persons per month in January-August 2023 versus 3.2 million per month for the same period in 2019. By contrast, Indonesia was closed to international tourism

until early 2022. While international tourists have rebounded since then—reaching 1.1 million visitors in September 2023—the monthly average for 2023 is still 30 percent below that for 2019 (Figure A.3). This can be largely attributed to reduced arrivals from the top three source countries for visitors: China, Malaysia, and Singapore. Despite these shortfalls, nominal travel services exports are now converging to pre-pandemic levels, while travel services imports have already recovered in full.

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The recovery has seen Indonesia reclaim its status as an upper-middle income country but, like many other countries, the economy has not returned to its pre-pandemic trajectory due to scarring from multiple shocks and ongoing external challenges. The pandemic held back Indonesia's economic growth for over a year. By Q2-21 that GDP finally surpassed its pre-COVID level. Returning to the pre-pandemic growth trajectory will require a structural shift in GDP to help close a 6.9 percent gap between where output is today and where it would have been in the absence of COVID related shocks (Figure A.4). At current exchange rates, this GDP gap translates into an average loss of around US\$360 per person per year. A similar pattern is evident at the provincial level, where 31 out of 34 provinces have fallen behind their pre-pandemic growth paths. Only East Kalimantan, North Maluku, and Papua have successfully caught up and exceeded their pre-COVID trajectories.

**Deviations between an economy's long-term growth path and actual outcomes might point to economic slack that can be redeployed during the recovery.** For instance, during the pandemic, GDP declined as workers were retrenched, worker hours were reduced, factories operated at lower capacity, and businesses temporarily shut their doors. However, this underutilized capacity did not just disappear right away. Under the right conditions, it might be quickly redeployed, providing a sharp boost to GDP. Unfortunately, more than two years into the recovery, the persistent gap with Indonesia's earlier GDP trend path cannot be explained by such economic slack. This report estimates that there is limited idle capacity in the economy at present, with demand-side inflationary pressures anticipated in 2024. Instead, Indonesia's off-trend growth performance likely reflects long-term economic scarring from the pandemic. This may be the result of several factors such as delays in productive investments, declining productivity, and erosion of intangible business and worker capital. Accommodative macro policies, stimulus packages to targeted beneficiaries, and structural reforms to boost productivity could close this gap going forward.

*Labor markets have strongly recovered, but the impact is moderated by fewer middle-class paying jobs.*

The labor market continues to show a strong recovery. The labor force participation rate rose by 0.9 ppt between 2022-2023 to 69.8 percent, with an additional 4.6 million workers being employed since 2022. Unemployment has been steadily declining to 5.3 percent, converging to pre-pandemic levels (5.2 percent in 2019). While not fully recovered, underemployment has also declined from its peak in 2020.

**Nevertheless, the share of jobs paying middle-class wages<sup>6</sup> has dropped over time potential due to rising underemployment in high-earning sectors, especially in services.** The prevalence of middle-class jobs has dropped from 14 to 9 percent of total employment between 2019-2022. Such jobs have been typically concentrated in: (i) manufacturing, (ii) wholesale and retail trade, (iii) finance, insurance, and real estate, and (iv) community, social, and personal services sectors. While most of these sectors recovered after the pandemic, the number of middle-class wage paying jobs in manufacturing as well as community, social, and personal services continued to drop (by 1 and 10 percent, respectively).<sup>7</sup> Underemployment also rose in all of the above sectors in 2022.<sup>8</sup> Moreover, between 2019-2023, the share of self-employed workers rose from 20 to 23 percent, the incidence of worker informality was up from 56 to 59 percent, while the share of the wage-employed declined from 40 to 38 percent. Overall, these point to rising employment in household enterprises and gig work that do not typically create middle-class wage jobs.

**The gendered and urban polarization of middle-class wage jobs has also worsened.** Middle-class jobs have been predominantly located in urban areas, held by males, and accessible to high- and mid-skilled workers. In 2022, the share of middle-class jobs held by women fell from 30 to 27 percent, while the share of such jobs available in non-urban areas fell from 22 to 17 percent. As such, there is rising inequity in access to better-paying jobs.

<sup>6</sup> Middle-class jobs are those earning a monthly household consumption > 3.5 times the poverty line (Wihardja and Cunningham (2021)).

<sup>7</sup> Data on middle-class jobs in 2023 is not available.

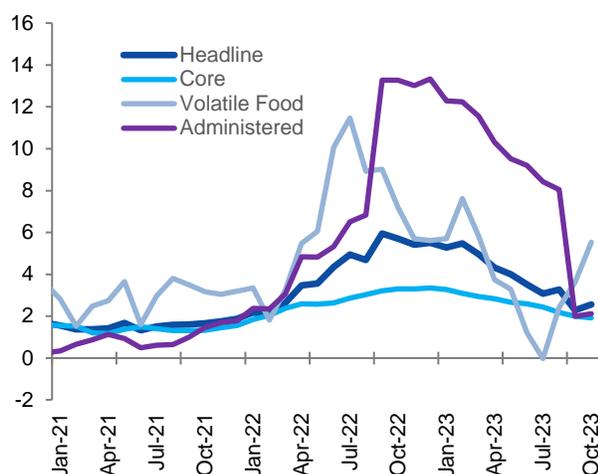
<sup>8</sup> Latest available data. From 20 percent to 23 percent in manufacturing; 21 percent to 26 percent in wholesale retail and trade, 13 percent to 18 percent in finance, insurance and real estate, and 28 percent to 31 percent in community, social and personal services.

The impact of the recovery on worker incomes has been moderated by the slow pace of real wage growth. Real wages fell sharply during the early stages of the pandemic but, since 2021, have been converging towards pre-COVID levels. Despite this improvement, real wage growth has not kept pace with increases in GDP per capita during the recovery, indicating that some of Indonesia's recent economic gains have not transmitted proportionately to labor income.

### Workers experiencing the largest real wage losses during COVID-19, have not yet fully recovered.

During the pandemic, self-employed and informal workers experienced larger decreases in real wages (14 and 12 percent respectively) compared to wage-employed and formal workers (6 percent for both). In 2022, while most workers were on the path to recovery, self-employed and informal workers were still earning, on average, only 92 and 95 percent of their real wages in 2019, respectively. Comparatively, both wage-employed and formal workers were earning 98 percent. A multitude of factors could be driving this outcome including lower-skilled workers returning to employment and driving average wages down or a continued reduction in hours worked. Thus, while the labor market appears to be recovering after the pandemic, there remains a need for policies and programs that can boost the creation of, and access to, more productive middle-class jobs. This includes active labor market, training and education programs from the demand side, and supply-side policies such as those supporting access to finance for SMEs and digital technologies adoption to boost firms' productivity.

**Figure A.5: Inflation remains on a downward trend...**  
(percent change, yoy)



Source: CEIC, BPS, World Bank Commodity Price Pink Sheet, World Bank staff calculations.

Note: IDN rice price is the price of Indonesia's premium rice from Ministry of Trade, which is equivalent to the quality of Thailand's 5% broken rice. World's rice price (i.e Thailand's 5% broken rice) and world's sugar price are from World Bank Commodity Price Pink Sheet.

*Inflation has softened as prices normalize following last year's fuel price hike, but new pressures are emerging notably from El Nino which continues to impact food production.*

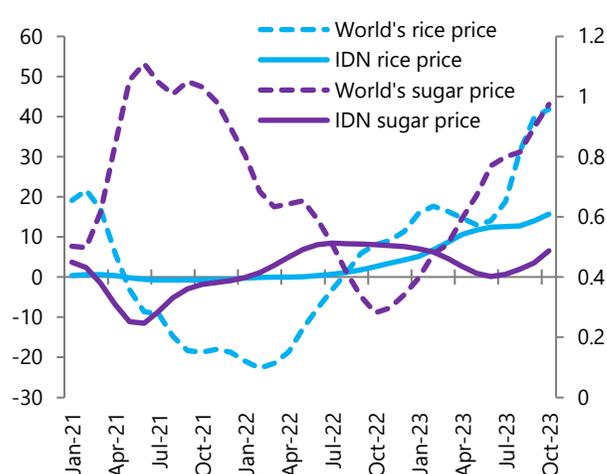
### Inflation softened and returned within Bank Indonesia's (BI) inflation target band.

Headline inflation declined for seven successive months to 2.6 percent yoy in October (Figure A.5). Several categories of goods and services had slower price growth in 2023, particularly food, utilities, fuels, and transport. Unlike in 2022, there were no major hikes in administered fuel or electricity prices this year. This dampened overall inflation and, more recently, limited the passthrough of global oil price pressures. As a result, administered prices subsided to 2.1 percent yoy in October. Headline inflation has now returned within BI's inflation target band of 3 percent  $\pm$  1. With tightening monetary policy, anchored inflation expectations, and normalizing domestic demand, core inflation also eased to 1.9 percent yoy in October.

### Nonetheless, the prices of some basic food items (rice, sugar, and chicken meat) have been rising lately owing to a combined effect of supply and feed shortages.

Food inflation rose to 5.5 percent in October, despite favorable horticulture harvests.<sup>9</sup> Prolonged unfavorable climatic conditions from El Nino have affected the production of staple crops among others, putting pressure on global food supply chains. The situation was aggravated by trade disruptions following export restrictions from major

**Figure A.6: ...but challenged by volatile commodities**  
(percent change, yoy, 3mma)



<sup>9</sup> Improved production of horticulture products—chilies and shallots—were supported by favorable seasons in their production centers in Central Java, Sumatera, and West Nusa Tenggara.

food-producing countries (e.g., India on exports of rice and sugar). As a result, rice prices in Indonesia reached their highest level in five years,<sup>10</sup> while sugar prices also rose (Figure A.6).<sup>11</sup>

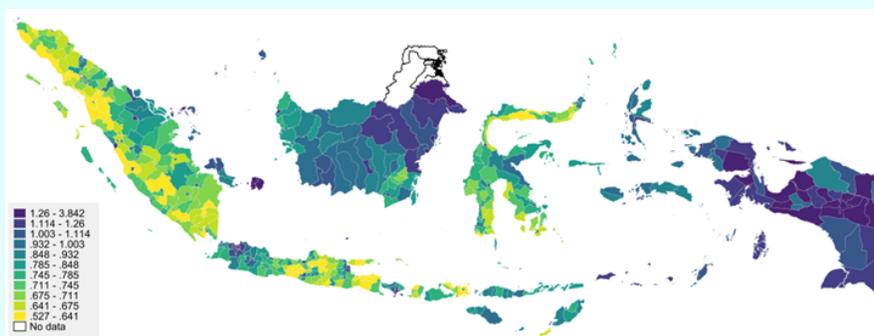
**Food price pressures have prompted price stabilization efforts.** To contain domestic food prices and soften the impact on the poor, the government of Indonesia (GoI) introduced several price stabilization measures. This included: promoting rice and garlic importation,<sup>13</sup> increasing domestic market obligations

of cooking oil,<sup>13</sup> distributing rice to 21.4 million vulnerable households,<sup>14</sup> supplying traditional and modern markets with staple crops in case of shortage,<sup>15</sup> and re-activating price caps for rice and sugar.<sup>16</sup> These measures have been successful so far with food price inflation trending below global and peers' averages. The consequence of inflation is however not felt equally across households as geography, logistics, and policy combine to raise prices in the country's poorest districts (see Box A.1).

### BOX A.1 Indonesia's affordability divide<sup>17</sup>

**A significant gap between Indonesia's most affordable and least affordable districts exists.** The cost disparity of consumer goods and services among regions in Indonesia has grown. In 2022, the cost in less populated areas was calculated to be up to two to three times higher than that of populated regions (Figure Box A.1.1). While this is not a new challenge for Indonesia, globally such large disparities are rare within the same country.

**Figure Box A.1.1: National cost-of-living index, with the national average set as the mid-point**



Source: SUSENAS, World Bank staff calculations.

**The poor feel the consequences of high living costs most acutely.** For every rupiah earned in a typical district of Indonesia, a poor person must earn 1.7 rupiah to escape poverty in the most unaffordable areas. And when it comes to social programs, the impact of each rupiah spent in high-cost districts is offset by expenses.

**Indonesia's geography contributes to the affordability divide. About 60 percent of Indonesians live in Java and Bali.** Together with parts of Sumatra, these areas enjoy much lower costs than the national average. But conditions vary substantially outside of this densely populated core. With more than 17,000 islands spanning over 6 million square kilometers, Indonesia covers a vast territory and is the world's largest archipelagic nation. This raises the risk of market fragmentation, with profound challenges to integrating the economic center together with distant provinces into a single domestic market.

<sup>10</sup> This is also partly due to a seasonal trend of lower domestic rice production following the peak harvest in earlier months of the year.

<sup>11</sup> Sugar is typically used in food processing and hence sugar price increases lead to price rises in many other food items. For example, Indonesia's food and beverage producers expect the sugar price increase will continue next year, thereby raising domestic refined sugar and sugar-sweetened food and beverage prices in 2024 by 10 percent.

<sup>12</sup> The government secured and increased the quantity of imported garlic.

<sup>13</sup> The domestic market obligation for cooking oil was adjusted to 1:4 from 1:6. Thus, local producers can now only export a maximum of four times the amount of cooking oil they supply to the domestic market (instead of six times).

<sup>14</sup> The rice social aid package was first distributed between March and May. The authorities commenced a second round of distribution in September and have extended the program into the first half of 2024.

<sup>15</sup> The stock and market price stabilization or SPHP (Stabilisasi Pasokan dan Harga Pangan) is a government program which ensures that markets are stocked with staple crops like rice and sugar. In case of bottlenecks, distribution to markets occurs through the state.

<sup>16</sup> The National Food Agency (BAPANAS) was authorized to set price ranges for rice and sugar (BAPANAS Regulation #7 and 17/2023).

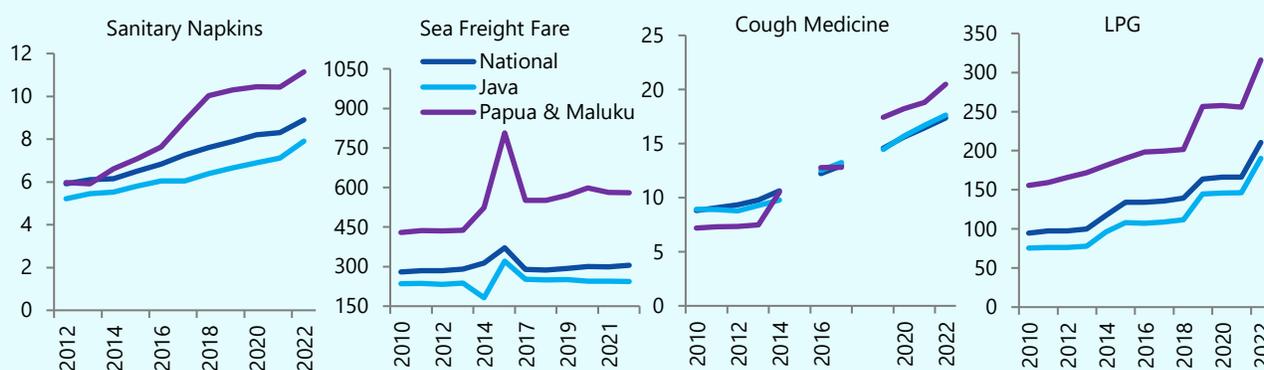
<sup>17</sup> The box is based on World Bank (forthcoming), Indonesia Affordability Divide, World Bank working paper.

### Higher transport costs in the least integrated regions hinder domestic market integration and price convergence.

For many goods and services (including medicines, LPG, and transport costs for instance), prices are consistently highest in Papua and Maluku (Figure Box A.1.2). Costs of air and sea cargo in less-integrated areas can be double that found in Java. Because the cost of trading within the domestic market can be prohibitively high, high prices are not enough to bring in additional supply. Such price anomalies are most common in tradable goods, but in some cases extend to local services as well. For example, in 2022 a standard hospital fee in Papua Barat was 239 percent higher than in Java.

**Regulations also contribute to Indonesia's affordability gap.** The national cabotage policy—which requires domestic transportation of goods and passengers be undertaken solely by Indonesian-flagged vessels with Indonesian crews—places strict limits on sea logistics capacity. By hindering domestic and international connectivity, the policies add pressure for market segmentation and higher consumer prices. Restrictive cabotage regulations aim to protect domestic shipping operators from competition, but also result in higher consumer prices and weaker integration with global markets. In recognition of similar efficiency costs, both China and India recently lifted their own cabotage restrictions. Restrictions also require the use of domestic shipping services for export of specific strategic commodities (Trade Minister Regulation 40/2020). In addition, targeted regulations limit foreign investment in the shipping and logistics sector, with a cap of 49 percent foreign ownership in marine shipping activities (Presidential Regulation 10/2021).

**Figure Box A.1.2: High-priced goods and services in Maluku and Papua**  
(rupiah, thousands)



Source: World Bank staff calculations.

**Cabotage regulations are especially costly for markets physically distant from the economic center of the country in which they are applied.** This phenomenon has been documented elsewhere in the world (for instance, Hawaii and Alaska<sup>18</sup>). In Indonesia, this effect likely translates into less shipping traffic to the eastern island groups of Papua, the Maluku Islands, and Nusa Tenggara. Between January 2019 and May 2023, Papua accounted for just 3 percent, Nusa Tenggara 3.3, and Maluku Islands 0.6 percent of domestic bulk carrier ship arrivals.<sup>19</sup> Adjusting for population differences, Indonesia's three poorest island groups received the lowest number of bulk carrier ship arrivals per resident over the same period. Compared to a national annual average of 5.3 domestic cargo ship arrivals per million people, 2.8 ships arrived in Papua and Nusa Tenggara, and just 0.5 ships in the Maluku Islands.

**The same three island groups were strongly underrepresented among 'international' arriving cargo ships.** Compared to a national average of 5.6 bulk cargo carrier ships arriving from foreign ports, about 3.8 arrived in Papua, 0.7 arrived in Nusa Tenggara, and no large cargo carrier ships arrived in the Maluku Islands. Compounding the connectivity challenge for these relatively distant island groups is the lack of ports authorized to accept foreign ships. Indonesia had only 17 international connections for container shipping in 2023, fewer than Papua New Guinea and below most peers (such as 70 in Malaysia, 92 in China, and 33 in Thailand). One exception is the Philippines (with just 15), which also maintains cabotage restrictions.

**Pursuing better market integration through improved logistics is critical to raise welfare, especially in Indonesia's poorest areas.** Indonesia has rapidly improved connectivity with better physical infrastructure in recent years. This has brought down logistics costs from 18.6 percent of GDP in 2010 to 14.5 percent in 2021<sup>20</sup>. Yet, logistics remain an impediment to domestic trade. An ADB (2016) simulation of gains from reduced trade costs suggests that a 5 percent reduction in domestic trade costs could generate high returns, boosting by as much as 5 percent.

<sup>18</sup> Grassroot Institute of Hawaii Policy Brief (2020) and Alaska Policy Forum (2021).

<sup>19</sup> As recorded in the Automatic Identification System, a global reporting requirement for ships of significant size.

<sup>20</sup> World Bank (forthcoming), Measuring Logistics Costs in Indonesia, World Bank working paper.

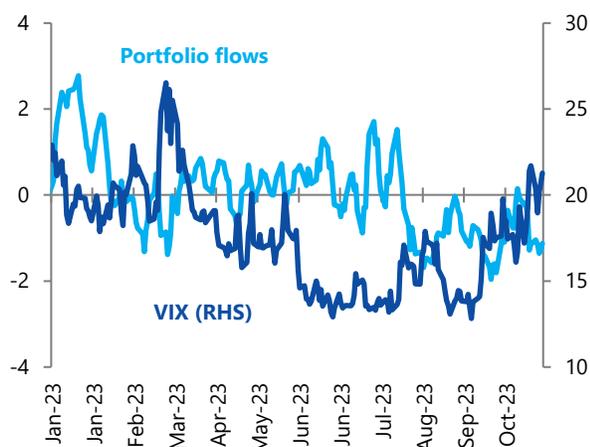
*Worsening global financing conditions are putting renewed pressure on Indonesia's external financing position, foreign currency reserves, and the rupiah.*

The prospect of higher-for-longer interest rates in advanced economies (AEs) has heightened pressure on EM portfolio flows and exchange rates. With core inflation still high and declining only slowly in many AEs, central banks may need to keep monetary policy tighter for longer. In July, the US Federal Reserve, the European Central Bank, the Bank of England, and the Bank of Canada all raised their policy rates. In the following months, although the Fed held its benchmark rate steady, it indicated the possibility of further rate hikes in the future. Rate hikes in AEs, while a necessary response to rising domestic inflationary pressures, have resulted in substantial global financial tightening. In the second half of the year, AEs' government bond yields started increasing sharply. The UST 10-year yields reached a 16-year high of 5 percent in October, rising more than 100 basis points in three months. As a result, global risk sentiment—proxied by the VIX index<sup>21</sup>—has been soaring and EMs have seen broad-based portfolio outflows and pressures on their

exchange rates, Indonesia included (Figure A.7). US financial tightness have slightly unwound in November with yields falling back slightly following the release of recent US labor market and inflation data, however interest rates are still expected to remain high for longer.

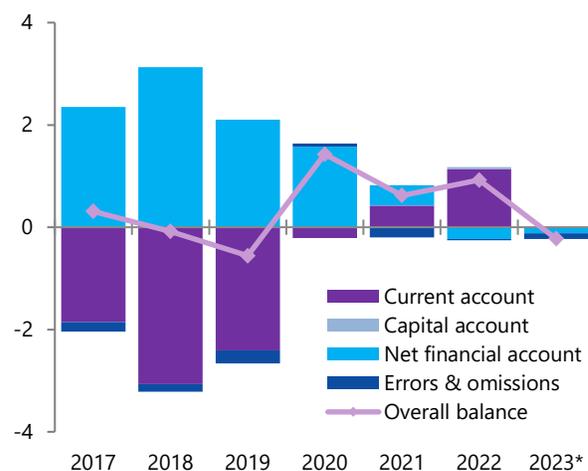
**Global monetary tightening has triggered portfolio outflows turning the financial account into a deficit.** Portfolio capital, which is particularly susceptible to shifts in short-term investor sentiment, changed course in the second half of the year and recorded a net outflow of 0.3 percent of GDP in 3Q-23. This trend accelerated recently, with non-resident investors offloading US\$2.7 billion in Indonesian public debt and US\$1.8 billion in equities between July-October. Other investments<sup>22</sup> also registered a sizeable net outflow of 0.9 percent of GDP. This primarily reflects rising asset purchases abroad by residents as well as local companies deleveraging external debt<sup>23</sup>. Outflows were partially offset by net FDI (1.1 percent of GDP in 3Q-23), which remain a stable long-term financing source for Indonesia. In sum, the overall financial account remained in deficit for a second consecutive year (Figure A.8).

**Figure A.7: Tightening global financial conditions have led to significant capital outflows from EMs**  
(US\$ billion, LHS; index, RHS)



Source: IIF, Bloomberg, World Bank staff calculations.  
Note: Portfolio flows are the 7-day moving average.

**Figure A.8: Outflows from the current and financial accounts have pressured the rupiah**  
(percent of GDP, yoy)



Source: BPS, CEIC, World Bank staff calculations.  
Note: 2023 data is year to date.

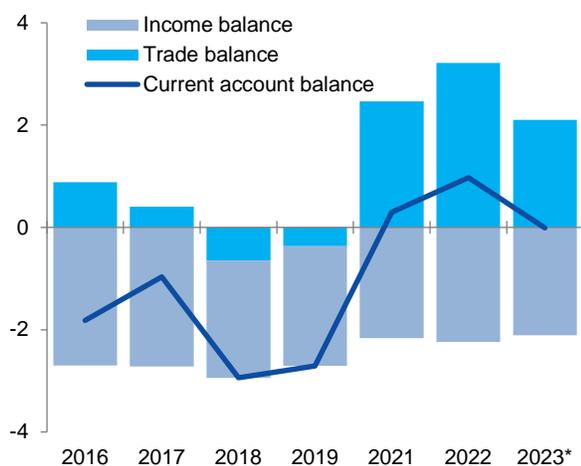
<sup>21</sup>The VIX index, also known as Volatility Index, is a real-time market index that represents the market's expectations of 30-day forward-looking volatility. Derived from the price inputs of the S&P 500 index options, it provides a measure of market risk and investors' sentiments.

<sup>22</sup> Other investments include financial flows such as loan transactions, trade credits, and currency and deposits.

<sup>23</sup> Given rising global borrowing costs, local companies are amortizing foreign currency debt rather than rolling-it over or borrowing more.

After two years of surpluses, the current account balance also switched into a small deficit of US\$107 million, or 0.01 percent of GDP, in 3Q-23 (Figure A.9). This signals a likely end to the commodity boom cycle and the return to status quo for Indonesia, which recorded consistent current account deficits from 2012 to 2019. The reversal is the result of a softening trade surplus, with net income<sup>24</sup> flows remaining in a steady deficit of 2.1 percent of GDP ytd. Primary income<sup>25</sup> deficits are common among resource-rich developing countries. It mostly reflects repatriation of foreign companies' profits especially those in the commodities sector as is the case in Indonesia. With the current account turning into a deficit, albeit small, Indonesia must source additional foreign currency (rising external financing needs) amidst challenging global financing conditions.

**Figure A.9: Weakness in goods trade has flipped the current account into negative territory (percent of GDP, yoy)**



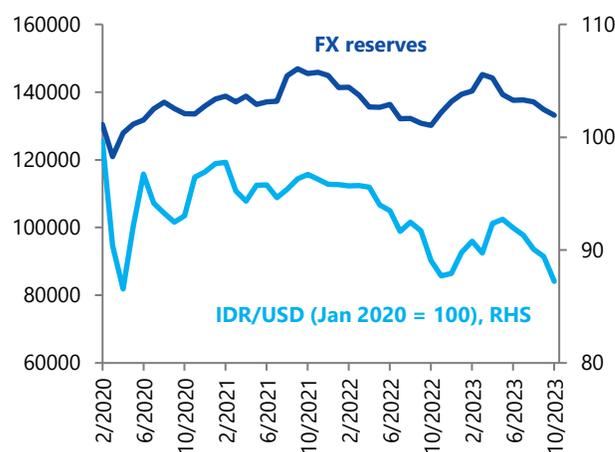
Source: BPS, CEIC, World Bank staff calculations.  
Note: 2023 data is year-to-date.

**Indonesia's trade in goods has been declining amid global uncertainty and moderating commodity prices, while services trade remains more resilient and supportive of growth.**

**Trade in goods growth mirrored the global slowdown.** Weak global demand, slow recovery in China and moderating commodity prices have weighed on Indonesia's trade in goods. Both exports and imports of goods continue to contract, reaching

The balance of payments (BoP) deficit weighs on BI's foreign currency (FX) reserves and on the rupiah. The BoP has turned into a deficit in 3Q-23 (-0.2 percent of GDP). As a result, FX reserves at the central bank dropped from a peak of US\$145 billion in March 2023 to US\$133 billion in October (Figure A.10). Nevertheless, reserves continue to be adequate and cover 6 months of good and services imports. The rupiah has also fallen under pressure and depreciated by 5.9 percent against the US dollar between May and October. However, the nominal effective exchange rate (NEER)—a measure of the rupiah against a trade-weighted basket of currencies—appreciated a modest 0.6 percent over the same period. The stronger NEER reflects the simultaneous depreciation of several other trading-partner currencies against the US dollar, including Asian peers' currencies which have seen sharper declines than the rupiah.

**Figure A.10: ... and have impacted FX reserves (US\$ billion, LHS; IDR/US\$ (Jan 2020=100), RHS)**



Source: Source: Bank Indonesia, CEIC, World Bank staff calculations.

-10.4 and -2.4 percent yoy in October 2023 (Figure 11). As a result, the trade balance in goods has deteriorated but remains positive at 2.7 percent of GDP year-to-date (ytd), supported by relatively stable export volumes of coal.

**Intermediate goods imports have fueled this downward trend as commodity prices and domestic demand normalize.** The growth of imports has been rapidly decelerating, notably those linked

<sup>24</sup> The income account comprises of international flows such as earnings from overseas investments, overseas employment income of Indonesian residents, and current transfers such as remittances, grants and foreign aid.

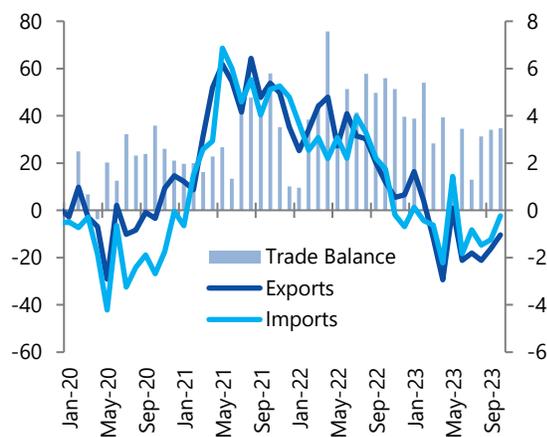
<sup>25</sup> Primary income comprises flows of investment earnings, interest payments on debt, and compensation of non-resident workers.

to raw and processed intermediate goods (Figure 12). This deceleration can be attributed to several factors including the softening of oil imports as prices drop<sup>26</sup>, normalizing domestic demand, softening exports, and sluggish investment recovery. Intermediate and capital goods are pivotal for domestic production and exports. The long-term decline in their imports has been playing into the enduring trend of a limited contribution of trade to Indonesia's overall economic growth (see Box A.2).

**Imports of services on the other hand remain robust and have been gaining importance in trade.** In contrast to imports of goods, services imports experienced substantial growth of 11.8 percent in Q2

23 (yoy). As a result, the share of services trade rose to 15.1 percent of total trade in 3Q-23, up from 10 percent over the same period last year. The increase in imports is primarily driven by travel and tourism, transportation—linked to recent major transport infrastructure projects—and to commercial services such as business, telecom, computer, and information services. These services had benefitted from changing consumer preferences and technology advancements during the pandemic years. Hence, services imports can also help boost competitiveness and have positive benefits on exports and the overall trade balance (goods and services) which remains in surplus at 2.1 percent of GDP).

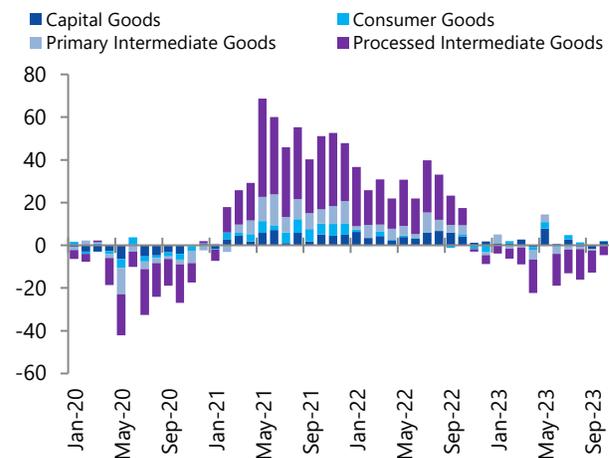
**Figure A.11: Goods trade growth returned to pre-pandemic levels**  
(percent yoy growth (LHS) and US\$ billion (RHS))



Source: BPS and Bank Indonesia; World Bank staff calculations; Ministry of Trade.

Note: Due to data constraints, the distinction between primary and processed intermediate goods for Aug-Oct 2023 is an estimate.

**Figure A.12: Intermediates have contributed little to recent import growth, while capital and consumer goods imports also moderated**  
(contribution to percent yoy growth)



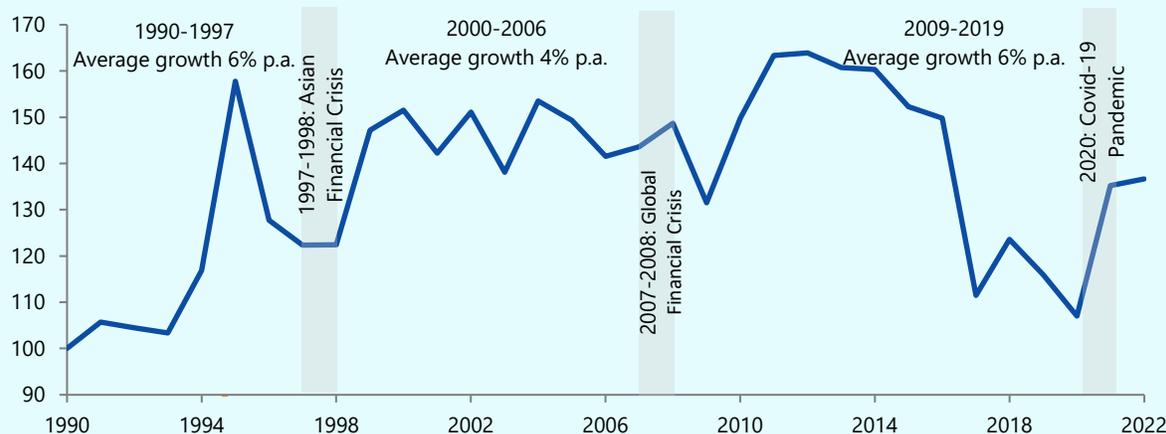
<sup>26</sup> The average Brent crude oil price was on average 106 dollars per barrel in the first six months of 2022 compared to 80 dollars per barrel in the first six months of 2023 (see also World Bank Commodity Markets Outlook October 2023).

## BOX A.2 Growth and Indonesia's declining appetite for imports

**Imports and growth have been largely intertwined in Indonesia.** Periods of strong growth were generally associated with strong imports. Yet, the contribution of trade to overall growth has been on a decline, reflecting structural changes to the economy and the importance to deepen trade reforms.

**Indonesia's trade performance has provided strong evidence of structural reform contributions to trade-led growth. In the 1990s, Indonesia grew at a fast pace of 6 percent per year.** This boosted demand for imports (Figure Box A.2.1), of which a large share was capital and intermediate goods. As a result, lower-end manufacturing activities (e.g., textiles, apparel, footwear) and some higher-end manufacturing (e.g., electronics and automotive) flourished. The Asian Financial Crisis (AFC) was a turning point, leading to several years of relatively subdued imports. Demand for imports grew fast in the early 2010s, followed by a subsequent slowdown towards the close of the decade as well as in recent years.

**Figure Box A.2.1: Share of import volume to GDP**  
(index, 1990 = 100)



Source: World Bank and UN Comtrade.

**Throughout the three decades, there has been a one-to-one relationship between income and import growth.** Estimates of long-run income elasticity of imports—which measure the long-run relationship between imports and income<sup>27</sup>—suggest that a 1 percent increase in real GDP is associated with a 1 percent increase in the total volume of imports. Interestingly, imports of productive assets respond particularly strongly to income changes. A 1 percent increase in real GDP implies a 1.3 percent increase in the volume of intermediate goods imports and a 1.4 percent increase in the volume of capital goods. In contrast, import elasticities for raw materials and consumption goods are only 0.7 and 1.1, respectively. The short-run elasticities for intermediate and capital goods imports are also high, suggesting that an increase in income in the short-run translates to higher imports of productive assets.

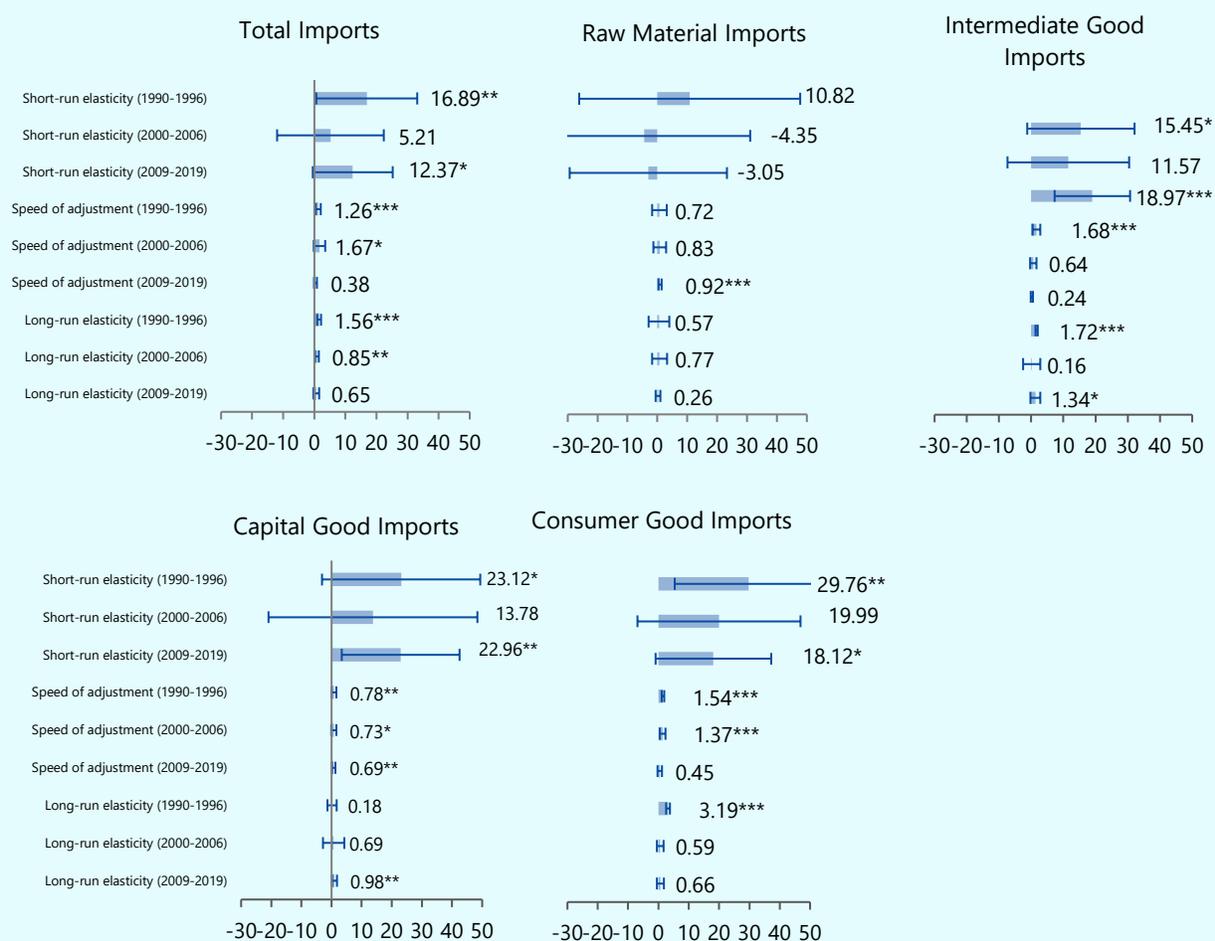
**Nevertheless, the responsiveness of imports to income changes has declined over the years, by more than half since the early 1990s.** The long-run import elasticity was high at 1.6 over the early 1990s (1990-1996), then declined to 0.9 after the AFC (2000-2006) and further to 0.7, though not statistically significant, post Global Financial Crisis (GFC) (2009-2019) (Figure Box A.2.2). On average, the long-run import elasticity for intermediate goods is estimated at 1.7 percent in the 1990s. This figure decreased to 0.16 percent after AFC but not statistically significant. Post GFC, the import elasticity bounced back to 1.3 percent. The long-run import elasticity for consumer goods is the largest though among the type of import goods<sup>28</sup> at 3.2 percent, though only statistically significant in 1990-1996.

<sup>27</sup> The box computes elasticity estimations using an Error Correction Mechanism (ECM) model in Constantinescu, Matto, and Ruta (2015). A limitation of this model is that it assumes a one-way relationship between real GDP and import volume, despite the fact that both variables influence each other. The estimates should be interpreted as illustrations of the correlation between the two variables, and do not capture the complex and structural relationship between real GDP and imports. The analysis is based on annual data on import volumes and real GDP for the period 1990-2021.

<sup>28</sup> The product categories or type of imports goods are: imports of raw materials, intermediate goods, capital goods, and consumer goods.

**The steady decline in import elasticity points to underlying structural drivers.** The deregulation era of the late 1980s supported a policy shift from import substitution to an era of export promotion (Soesastro and Basri, 2005). These were accompanied by the expansion of intermediate imports, which has been found to be positively related with GDP growth. However, after the AFC, restrictions on trade (mainly tariffs and non-tariff measures) as well as on foreign investments were introduced to encourage domestic industries (Basri and Patunru, 2012). These policies have likely weighed on economic growth. The analysis on the relationship between imports and GDP over time and product categories, mirrors these evolving policy changes. In the past decade Indonesia reversed track and made important gains in infrastructure, poverty reduction, and the business environment. To maximize these gains, the policy debate needs to shift from whether the economy should be more open or closed, to how to leverage trade and investment openness—including more appetite for imports—to enhance competitiveness, raise productivity, and boost inclusiveness.

**Figure Box A.2.2: Relationship between imports and real GDP growth over time periods**



Source: World Bank staff estimates.

Note: \* $p < 0.1$ , \*\*  $p < 0.05$ , \*\*\*  $p < 0.01$  indicate significance at 10%, 5% and 1% confidence level

## 2. The Policy Stance

*The fiscal stance remains prudent with limited spending on pro-growth programs despite rising revenue collections, but pressure is building on debt service.*

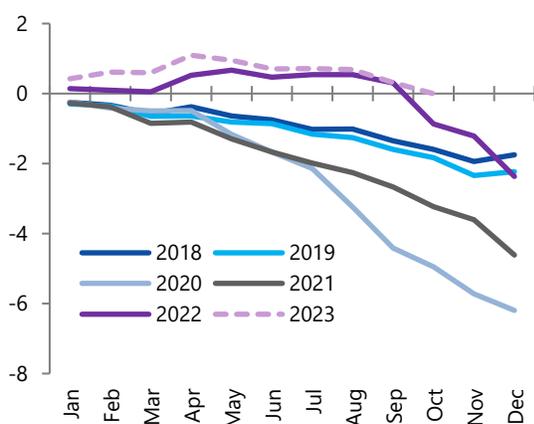
**Fiscal policy remained conservative, with no major spending boost despite relatively high revenues.** Revenue collection remained robust, supported by elevated commodity prices although this windfall is subsiding. Yet, this has not translated into any substantial increase in spending, particularly in priority sectors,<sup>29</sup> with the rate of disbursement returning to pre-pandemic levels. Consequently, the fiscal balance stood at a small deficit of -0.01 percent of GDP in the first ten months of 2023 (Figure A.13). The Gol projects a full-year fiscal deficit of 2.3 percent of GDP—this report's projection stands at 2.1 percent of GDP—well below the legislated fiscal rule of 3 percent, and in line with long-term trends (see Box A.3).

**Revenue collections remained strong despite moderating commodity prices, weakening import values, elevated tax refunds, and the end of the voluntary asset disclosure program.** January-to-October revenue collections expanded 2.7 percent yoy, significantly slower than for the same period in 2022 (up 44.8 percent) when commodity prices were booming (Figure A.14). Nevertheless, revenues reached

9.5 percent of GDP (ytd), one of the highest levels since 2015. Growth in taxes was modest, up 2.3 percent. It was primarily driven by VAT, following a 1 ppt increase in the VAT rate in April 2022, and income taxes on non-oil and gas sectors. International trade taxes contracted by 35.0 percent as both the volume and value of imports and exports declined, particularly in commodity-related sectors. Non-tax receipts grew 3.7 percent (versus 36.5 percent surge in same period last year), mostly supported by growth in natural resources revenues, particularly licenses in the mining sector.

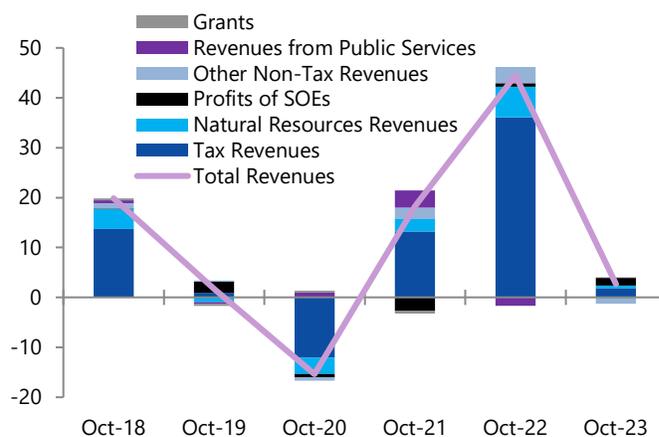
**Primary expenditures including remained suppressed, though capital spending picked up markedly.** January-October total expenditure contracted by 4.7 percent (Figure A.15), resulting in the lowest spending-to-GDP ratio (10.6 percent of GDP) in at least a decade. Capital expenditures contributed the most and rose by 25.3 percent yoy, with Gol boosting spending on defense and security sectors<sup>30</sup> as well as roads and transportation facilities. Meanwhile, while investment financing—which includes capital injections to SOEs, government services units such as hospitals, and other institutions—brought overall public investment to 1.9 percent of GDP (Figure A.16). Subsidy expenditures<sup>31</sup> have contracted since the 2022 hike in administered fuel and electricity prices by 4.0 percent yoy. Social spending on the other hand contracted by 10

**Figure A.13: Constrained public spending despite strong revenues, has kept the budget in surplus (fiscal deficit, percent of GDP)**



Source: Ministry of Finance, BPS, CEIC, World Bank staff calculations.

**Figure A.14: Revenues grew marginally, largely due to high collections already being achieved last year (contribution to revenue growth, ppts, yoy)**



<sup>29</sup> Priority sectors include health, early childhood education, infrastructure.

<sup>30</sup> This reflects mainly maintenance of the equipment for defense and security forces (Alat Utama Sistem Pertahanan/ ALUTISTA).

<sup>31</sup> This includes both components of the subsidy: direct subsidies and compensation payments to Pertamina and PLN.

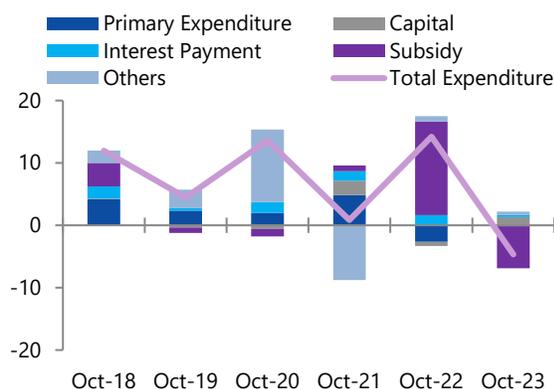
percent reflecting the end of temporary cash transfers that were used to soften the impact of fuel price hikes. Instead, the Gol announced a new food and rice aid program to mitigate the impact from El Nino at a cost of IDR18.6 trillion (0.1 percent of GDP or 12.5 percent of the allocated social spending)<sup>32</sup>. Meanwhile, interest payment rose slightly by 0.3 percent and stabilized at 1.5 percent of GDP despite rising borrowing costs.

**Budget financing needs and the public debt ratio continue to decline as the fiscal balance records a small deficit.** As of October, net fiscal financing reached only IDR168 trillion (0.8 percent of GDP), much lower than last year. As a result, the public debt ratio continued to decline and stood at 37.7 percent of GDP

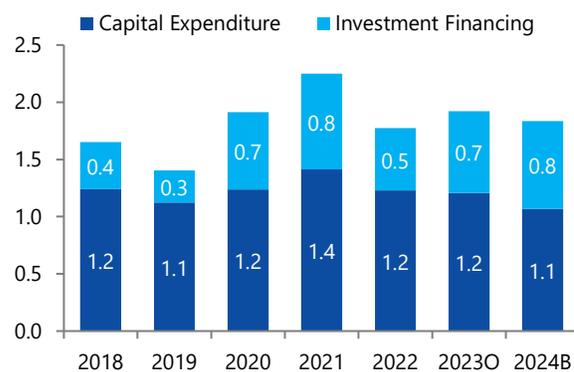
(Figure A.17). Most of the debt stock is denominated in domestic currency (72.1 percent of total) and is long-term (87.6 percent of total). The Gol is planning to spend 2.1 percent of GDP in the last two month of 2023. While this could push both financing needs and public debt up, a large part of the financing will come through accumulated cash savings (SAL) as opposed to new debt issuances originally planned in the budget. Hence, public debt to GDP will remain moderate and below 2022 levels (see Table A.1).

**The Gol continued to primarily rely on financing from domestic investors but has had to offer higher yields amid rising global borrowing costs.** More than 80 percent of government bond ownership comes from

**Figure A.15: Spending growth in the first ten months of 2023 was relatively suppressed**  
(contribution to expenditure growth, ppts, yoy)



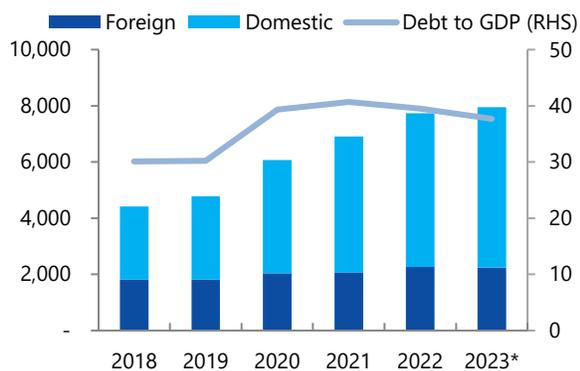
**Figure A.16: Public investment is relatively stable with a notable share financed through SOEs**  
(public investment, percent of GDP)



Ministry of Finance, BPS, CEIC, World Bank staff calculation.

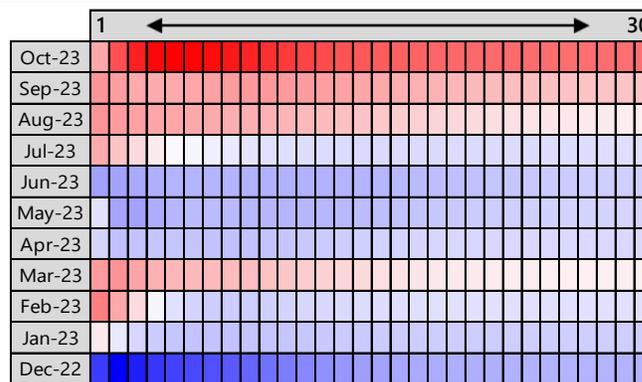
Note: Figure 15: primary expenditures comprise personnel and material expenditures while other expenditures include social expenditure, grants and transfer to subnational government. Figure 16: 2023O refers to 2023 outlook; 2024B refers to 2024 budget.

**Figure A.17: Debt-to-GDP continued to decline, consistent with the tight fiscal stance**  
(total debt stock, IDR trillion (LHS), percent of GDP (RHS))



**Figure A.18: Yields on Indonesia's sovereign debt have been increasing recently**

(change in yield, monthly, tenors 1-30 years; blue indicates a decrease in yield from the prior month; red indicates an increase in yield; darker colors represent bigger changes)



Source: Ministry of Finance, BPS, CEIC, World Bank staff calculations. Note: Figure 17: 2023 data is as of September.

<sup>32</sup> The program started between March and May 2023. See inflation section above for more details.

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domestic investors. Commercial banks hold 29 percent of the total while BI's share is broadly stable at 16-17 percent since the monetary financing program stopped in January 2023. Nevertheless, non-resident investors continue to hold just under 15 percent of Indonesia's public debt. This share declined significantly during the pandemic<sup>33</sup>, but in nominal terms remained stable. Between August and October of this year, non-resident holdings fell by 4.4 percent due to rising interest rates

in AEs. A protracted episode of non-resident capital outflows could squeeze available financing sources and raise the yields demanded for newly issued public debt. Rates across the first 10 years of the sovereign debt yield curve have already been rising and, as of the 1st of November 2023, had reached their highest levels since November 2022 (Figure A.18). This raises the cost of new and rolled-over debt going forward.

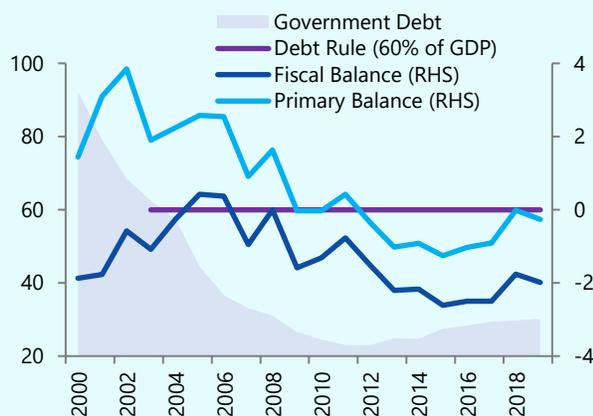
### BOX A.3

#### Review of Indonesia's Long-Term Fiscal Policy Performance

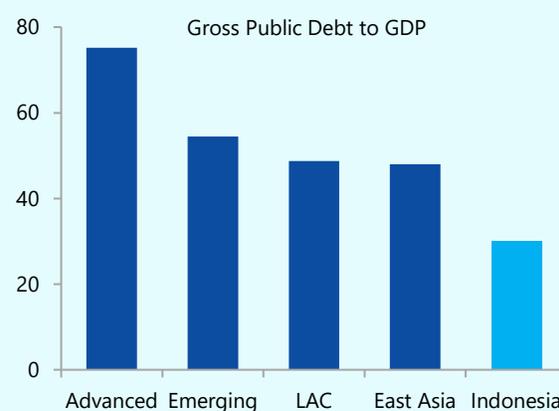
**Over the past two decades, Indonesia has maintained fiscal conservatism, institutionalized by fiscal rules.** The fiscal balance averaged approximately -0.8 percent of GDP per year from 1995 until the 2008 Global Financial Crisis (GFC), and this increased to an average of -1.6 percent per year in the post-2008 period up to 2019. Fiscal rules were introduced in 2003 and 2004 to enhance institutional support and ensure fiscal policy sustainability. While deficits increased following the Global Financial Crisis, the balanced budget rule served as an effective constraint on spending.

**Public debt levels declined steadily from the Asian Financial Crisis period thanks to early fiscal surpluses.** The substantial financial bailouts following the 1998 financial crisis had caused public debt to surge to unsustainable heights, reaching peaks exceeding 80 percent of GDP. Consistent primary fiscal surpluses were important in steadily reducing public debt to around 22 percent of GDP (Figure Box A.3.1). Despite pandemic-era increases in the budget deficit, which led debt to increase to 40.7 percent in 2021, public debt has started to decline again given fiscal consolidation efforts. Nevertheless, this level remains notably lower than in other emerging markets and is well below the country's fiscal limit of 60 percent (Figure Box A.3.2).

**Figure Box A.3.1: Early surpluses helped bring down public debt to sustainable levels**  
(percentage points)



**Figure Box A.3.2: Despite recent deficits, public debt remains low by international standards**  
(percentage points)

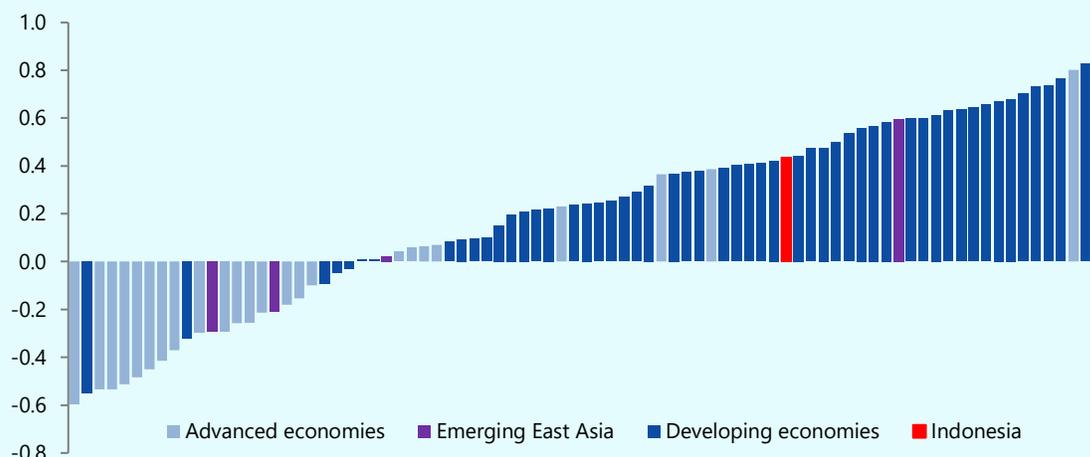


Source: WEO, World Bank staff calculations.

**While being conservative, Indonesia's fiscal policy has also been procyclical.** This means that public spending tends to increase during economic upswings and decreases during downturns, which under certain conditions can increase macroeconomic volatility. While intended to safeguard fiscal sustainability, a budget balance rule can amplify spending procyclicality. Over the whole sample, Indonesia displays levels of procyclicality similar to other emerging and middle-income economies (Figure Box A.3.3). Advanced economies and some regional neighbors like Thailand, Malaysia, or South Korea display countercyclical fiscal policies.

<sup>33</sup> The decline is largely due to BI and commercial banks absorbing the bulk of new issuances as the fiscal deficit expanded beyond the 3 percent of GDP deficit ceiling to accommodate for the COVID-19 stimulus package.

**Figure Box A.3.3: While fiscally conservative, Indonesia's fiscal policy is procyclical**  
(correlation coefficient)



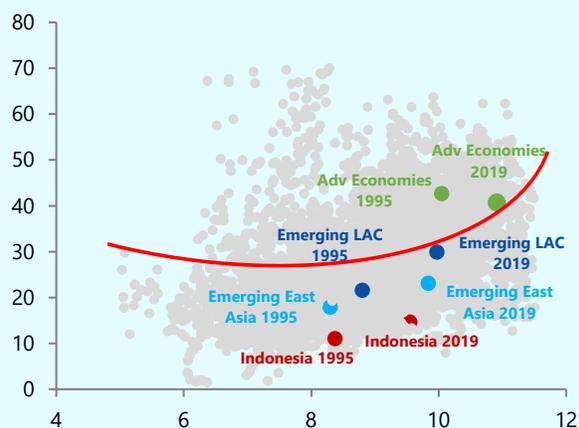
Source: IMF WEO, World Bank staff calculations.

Note: Correlation coefficient between cyclical component (percent difference from trend) of primary spending and the cyclical component of real GDP.

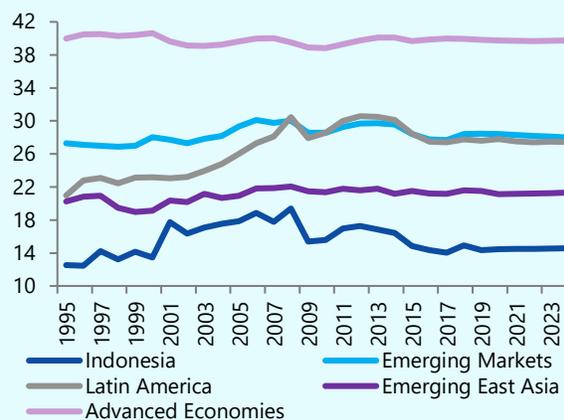
**After accounting for the size of its economy, Indonesia's public sector is significantly smaller than that of its peers.** Figure Box A.3.4 shows a scatter plot of government expenditures against economic development over time for a global sample. Indonesia sustains a public sector that is markedly smaller than in other countries with similar levels of development, despite a small rise in the last two decades. By 2019, Indonesia had more than a 5 ppts gap with its already conservative regional neighbors, around a 12 ppts gap with EMs, and almost a 20-ppts gap with AEs.

**The historically low government spending is likely driven by low and declining revenue collection, and institutionalized in the 2000s by the deficit ceiling.** Figure Box A.3.5 shows that revenue collection in Indonesia has been low compared to other EMs and AEs. While the expansion of public spending should ideally be complemented by public revenue increases, Indonesia presents the opposite trend. From its peak at approximately 20 percent of GDP in 2009, revenues dropped to 15 percent by 2019. This is 25 ppts less than AEs and almost 15 ppts less than other EMs. With lower revenues, the government has no choice but to also constrain spending, to remain within the confines of its deficit ceiling.

**Figure Box A.3.4: While fiscally conservative, Indonesia's fiscal policy is procyclical**  
(primary expenditure, percent of GDP)



**Figure Box A.3.5: Public revenue relative to income in Indonesia has been historically low and decreasing over the last decade**  
(percent of GDP)



Source: IMF, WEO, World Bank staff calculations.

**Fiscal policy could play a more prominent role in achieving Vision 2045.** Fiscal prudence has served the country in ensuring macro-fiscal stability. However, limited revenue has constrained the Gol's ability to provide more public goods and services to boost the country's growth potential. Fiscal policy can play a more significant role by closing the physical and human capital gap, better absorbing shocks by conducting countercyclical fiscal policy, and providing more social insurance. Efforts to increase revenue—such as the reform initiated by the tax harmonization law in 2021—are critical to support long-term growth objectives while ensuring short-term macroeconomic stability.

*Higher-for-longer global interest rate prospects and related external pressures have led BI to prioritize a tight monetary stance.*

**Amid worsening global financing conditions, Indonesia introduced new instruments to boost the supply of FX reserves.** The Gol issued a new regulation requiring that export proceeds remain onshore for longer. Government Regulation 36/2023, which became effective in August, continues to encourage commodity exporters to retain their export earnings<sup>34</sup> and adds a mandate for a retention of 30 percent of these earnings in domestic banks for a three-month period (see Box A.4). Additionally, BI also introduced a new short-term rupiah-denominated debt instrument in September named the SRBI (*Sekuritas Rupiah Bank Indonesia*). This signals the end of BI's 'operation twist'<sup>35</sup>, with the SRBI aimed at attracting liquidity (i.e. portfolio inflows) back into short-term securities.

**Building on the above efforts to attract FX inflows, BI also raised the policy rate and introduced new FX-denominated instruments to the market.** The additional FX supplied by the domestic retention of export proceeds (US\$1.9 billion) and SRBI issuances (US\$0.6 billion) were not sufficient to offset recent capital outflows. As a result, the rupiah depreciated despite BI FX intervention. In response, BI decided to raise its policy rate by 25-bps in October, taking it to 6.0 percent. According to BI, the hike was a pre-emptive and forward-looking measure to mitigate the impact of imported inflation resulting from the rupiah's depreciation. However, inflation and inflation expectations have been on a downward trajectory throughout the year and well within the BI target

band.<sup>36</sup> The policy rate hike is geared more towards managing external pressures, by raising the policy-rate spread against the US Fed Fund Rate after it had reached an all-time low in 2023. For this same objective, BI also introduced two new FX-denominated securities in November, called SVBI and SUVBI.<sup>37</sup>

**In parallel, BI resorted to three liquidity measures to support credit growth and offset the impact of monetary tightening on domestic demand.** First, BI reduced the reserve requirement ratio (RRR) for banks that lend to eligible sectors such as mineral downstreaming, tourism, or MSMEs (Figure A.19). Second, BI extended the permission for 100 percent loan-to-value ratios for mortgages and zero down payments for car loans until the end of 2024. Third, BI lowered the macroprudential liquidity buffer on IDR-denominated assets for conventional banks.<sup>38</sup> These measures are expected to help reverse the deceleration in private credit growth, which fell from 11.4 percent (yoy) in December 2022 to 9.0 percent in September 2023. BI's use of liquidity instruments has proven to be highly effective (see Box A.5).

**Figure A.19: RRR incentives initiated in October**  
(*ppts of cut in RRR, by priority sector*)

Lending in selected sectors	Maximum incentives (%)
Priority sectors (downstreaming, housing, tourism)	2.0
Credit to MSMEs	1.0
Ultra-micro credit	0.5
Green property or vehicle credit	0.5
Total of max. incentives	4.0

Source: Bank Indonesia.

<sup>34</sup> This new regulation effectively replaced an existing regulation i.e., Government Regulation 1/2019.

<sup>35</sup> Under operation twist, BI sold short-term and purchased long-term government securities. This was aimed at increasing short-term market rates (in line with monetary tightening) and lowering long-term rates.

<sup>36</sup> Median inflation expectation hovered around 3.7 percent during August to October according to a survey of expert economic and financial forecasters in Indonesia by Consensus Economics Inc.

<sup>37</sup> Essentially, these are the FX counterparts of SRBI. Unlike SRBI securities that are denominated in IDR, SVBI and SUVBI are denominated in US\$. SVBI refers to conventional securities, while SUVBI denotes sharia-compliant securities.

<sup>38</sup> From 6 to 5 percent of liquid assets denominated in IDR.

## BOX A.4

### Earnings retention requirement for Indonesian commodity exporters

**The GoI recently introduced a partial export earnings retention requirement for commodity exporters.** This measure requires commodity exporters to retain 30 percent of their foreign exchange earnings with the domestic banking sector for three months, with the goal of supporting the rupiah exchange rate and boosting available foreign reserves in Indonesia. There is no requirement to convert such foreign exchange earnings into Rupiah. However, GoI announced that non-compliance with the rule will be sanctioned by suspension of export activities. Exporters usually prefer parking earnings in offshore bank accounts, and some have expressed concerns of the effect of such rules on capital mobility and cost of operation.

**Globally, surrender/expatriation requirements are an unconventional form of capital flow management and have been used sparingly by various countries during periods of stress.** According to IMF classification, requirements to domestically retain export earnings are considered part of the capital flow management toolkit targeting outflows. Since 2000, there have been 15-20 instances of these requirements being deployed by a variety of countries such as Argentina, The Bahamas, Congo, Iceland, Liberia, Malaysia, Sri Lanka, and Türkiye. These requirements were usually deployed during periods of macroeconomic instability, capital outflows, inadequate foreign reserves, and a rapidly depreciating exchange rate.

**These measures come in different intensities and have different impact.** The fraction of export earnings under such requirements varies and is sometimes coupled with the requirement to convert these export earnings into local currency. There is scant evidence on the effectiveness of these requirements due to their unconventional nature. However, studies of classical capital controls and related macroprudential measures have found some effects on volume and composition of flows and financial stability. There is a caveat though that these effects are not unequivocal, and evasions of controls could take many forms. It is usually advisable to withdraw such requirements once the perceived macroeconomic imbalances and external pressure have subsided, and many countries have indeed only used such requirements as temporary measures.

**Bank Indonesia has been absorbing these retained export earnings through transaction mechanisms between BI, designated banks, and exporters.** Exporters would open an account specifically for managing foreign exchange proceeds of exports at one of the 34 designated banks and place funds at BI in the form of FX term deposits through one of these banks. BI offers several incentives to attract fund placements, including FX interest rates, easing of macroprudential requirements for banks, as well as agent fees for banks. While it is unclear whether this action will affect the level of money supply, and hence entail sterilization costs, offering competitive interest rates relative to offshore bank accounts already entails costs for BI. As of October 2023, FX term deposits worth US\$1.9 billion have been recorded from 120 exporters and 16 banks, a small amount relative to the size of official foreign exchange reserves.

**It is important to address the root causes of exporters' preference to hold export earnings abroad, which could include underdevelopment of the domestic financial sector.** Indonesia lacks a deep and liquid market to hedge against interest rate and exchange rate fluctuations. Various legal and tax features also prevent the development of these hedging instruments. Therefore, domestic banks may find it difficult to manage currency mismatches on their balance sheet and are unable to offer attractive returns to FX deposits. Exporters may also find the lack of FX hedging options an obstacle to bringing export income back into the domestic financial system. The GoI has signaled a willingness to offer tax and interest rate incentives for exporters' deposits in domestic banks. This could make the retention requirement more palatable for corporates. Nevertheless, over the medium term, tackling the root causes of the underdevelopment of the domestic financial sector will be important in attracting export earnings back to Indonesia. The implementation of the financial sector omnibus law is a major step towards this objective.

## BOX A.5

## Multiple monetary instruments to balance inflation, growth, and external stability

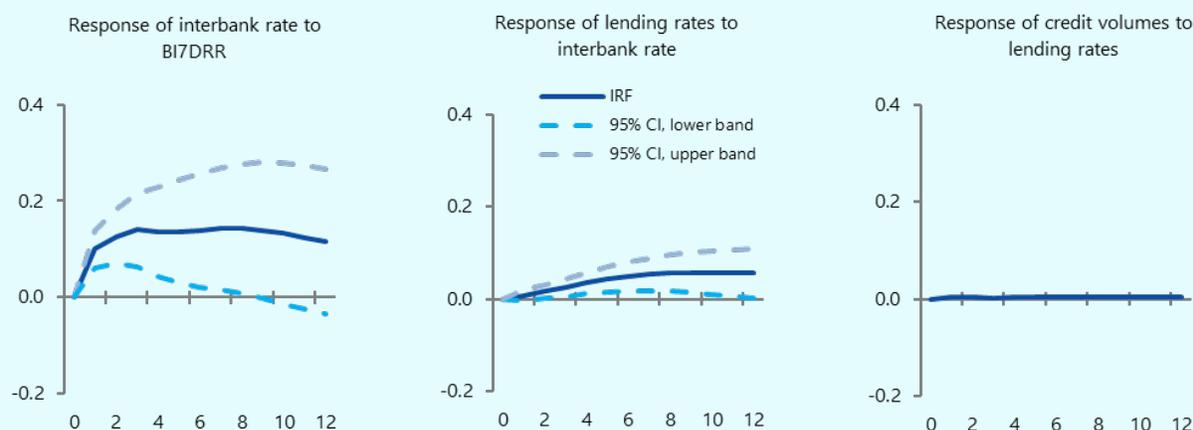
**BI has used multiple instruments since last year to influence money supply.** Before launching the series of rate hikes in August 2022, BI had raised the reserve requirement ratio for banks by 550 bps over February–September 2022. BI had also performed reverse repo transactions that withdrew about IDR 36.6 trillion (0.4 percent of the broad money) from banking system liquidity in 2022. This year, the announcement of RRR discounts and the SRBI as the new monetary sterilization instrument also came before the October rate hike.

**After the pandemic, BI needed to absorb the liquidity created from temporary monetary financing of the budget deficit.** During the pandemic, BI and the Ministry of Finance collaborated on a special burden-sharing mechanism involving BI's purchases of government securities (SBN) in the primary market. The underlying objective was for the central bank to expand the monetary base ('printing money') to finance the larger fiscal needs during the COVID-19 downturn. Between 2020 and 2022, BI's SBN purchases in the primary market amounted to IDR 973 trillion (5.9 percent of GDP). Consequently, BI's assets also expanded by the same size, from 27.7 to 33.5 percent of GDP. This also translated to a rise in broad money (M2), from 38.8 percent to 43.5 percent of GDP. The economic recovery and the surge in inflation globally prompted BI to stop monetary financing and gradually mop-up excess liquidity post-COVID.

**Liquidity management tools complement Bank Indonesia's policy rate decisions to influence borrowing, spending, and foreign investor decisions.** The monetary transmission channel refers to how changes in the policy rate affect bank lending rates. For example, as the policy rate is reduced, bank lending rates are expected to decline as well, which should, in turn, stimulate private borrowing and investment growth. Ideally, changes in the BI 7-day reverse repo rate (BI7DRR)—as the policy rate—will be transmitted to the overnight interbank rate<sup>39</sup>, then further transmitted to bank lending rates.

**However, empirical evidence indicates that there are constraints to interest rate passthrough in Indonesia.** While policy rate changes are completely passed on to the interbank rate, banks adjust their lending rates much more slowly (longer than six months) and partially (Figure Box A.5.1). As a result, credit volumes are found to be far less sensitive to changes in policy rates.

**Figure Box A.5.1: The response of interest rates and lending volumes to a change in the policy rate**  
(vector autoregression (VAR) impulse responses, monthly observations)



Source: Bank Indonesia and World Bank staff calculations.

Note: VAR model uses monthly data between August 2016 (the start date of BI7DRR as the policy rate) to June 2023. Interest rates are nominal levels, credit volumes are in natural log. Lending rates are the weighted average of rates for working capital loans, consumer loans, and investment loans. Lag order selection: 3 months. IRF = impulse response function.

<sup>39</sup> The interbank rate serves as the operational target of monetary policy, as the money market is the first link in the chain of monetary transmission. This analysis uses the Overnight Jakarta Interbank Offered Rate (O/N JIBOR) as a proxy for short-term money market rate.

### The slow and partial interest-rate passthrough speaks to the importance of improving financial intermediation.

Indonesia's banking system has had historically high intermediation costs when compared to emerging market peers. Net-interest margins (NIMs)<sup>40</sup> of commercial banks, a commonly used measure of intermediation efficiency, are structurally higher in Indonesia than in peer countries. Between 2019–2021, Indonesia's NIMs hovered around 5.1 percent, higher than the average of EAP peers at 3.5 percent. Similarly, interest rate spreads<sup>41</sup> in Indonesia have remained relatively high by international standards (see IEP June 2022). Lack of competition, weaknesses in the institutional environment, and operational inefficiencies are likely to contribute to the weak intermediation efficiency. To strengthen the intermediation efficiency, factors such as competition, institutional environment and operational efficiencies could contribute better when they are improved. Further, for the effectiveness of interest instruments, informality needs to be reduced and MSMEs access to credit to be strengthened.

*Banking sector vulnerabilities remain low, liquidity buffers adequate, and profitability fully recovered thanks to growing lending to the private sector.*

### Banking sector asset quality remains high, and banks have enough buffers to withstand adverse shocks.

The system-wide non-performing loans (NPL) ratio stands at 2.4 percent as of September 2023 (Figure A.20). The banking sector has adequate buffers to withstand adverse shocks. The capital adequacy ratio (CAR) is 27.4 percent, well above the Basel III minimum requirement of 10.5 percent. The level of provisioning is 206.3 percent of NPLs (August 2023), also providing ample loss-absorption capacity. Notably, the system-wide loan at risk (LAR) ratio—a forward-looking indicator of bank asset quality<sup>42</sup>—has been trending downwards since the pandemic years and stands only at 12.1 percent in September. Only one out of the nine largest banks has a LAR ratio of more than 20 percent. Although a limited set of forbearance measures are extended until March 2024, the report estimates that any vulnerabilities that remain hidden due to these measures can in principle be contained and are unlikely to be systemic for the overall banking system. These measures affect only a small portion of the loan portfolio and any potential increase in NPLs is small relative to the buffers.

### Banking sector profitability has fully recovered as lending growth continues to pick up.

Bank profits have been recovering since late 2021 and have now recovered all lost ground. Return-on-assets (ROA) and return-on-equity (ROE)—common indicators of bank profitability—stood at 2.7 percent as of September 2023 and 15.0 percent as of August, respectively, surpassing pre-pandemic levels. The recovery in profitability

occurs in tandem with the recovery in bank lending. Growth of lending to the private sector recorded 9.0 percent yoy in September (Figure A.21). Although the double-digit credit growth numbers seen between June 2022 and February 2023 are not expected to be sustainable given normalizing domestic demand and BI's tightening of monetary policy, the banking sector is still providing healthy support to the economy. Furthermore, as of August, lending to MSMEs stood at IDR 1,412 trillion and accounted for 21 percent of all bank lending. This is an increase from the lower baseline of 18 percent observed during the pandemic. These developments suggest that the banking sector has clearly moved away from the state of low profit, weak lending, and excessive liquidity seen during the COVID-19 period.

### System-wide funding and market liquidity<sup>43</sup> are ample from a supervisory perspective, although funding liquidity has declined in tandem with rising bank lending.

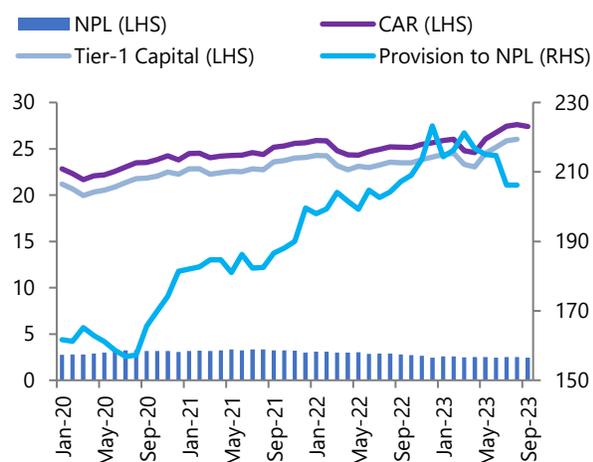
The liquidity coverage ratio and the net stable funding ratio, designed to gauge bank liquidity conditions in times of stress, stood at 230 percent and 136 percent respectively in June 2023. Both are above the 100 percent regulatory minimum. Furthermore, the government bond market is functioning properly. While the loan-to-deposit ratio remains stable at 83.9 percent, the liquid asset to deposit and short funding ratio has seen a consistent decline since 2021. It reached 17.9 percent in August 2023, below EAP peer countries. These developments indicate that funding and market liquidity remain ample. The decline in the liquid asset ratio, while reflecting banks' increasing willingness to lend instead of hoarding excess liquidity, warrants close monitoring for potential funding stress in the event of an adverse shock.

<sup>40</sup> Defined as banks total interest income minus total interest expenses divided by total assets.

<sup>41</sup> Defined as interest income as a proportion of loans minus interest expenses as a proportion of deposits.

<sup>42</sup> LAR is defined as the sum of NPLs, restructured loans, and special mention loans.

<sup>43</sup> Funding liquidity concerns the banking sector's ability to repay deposits and other short-term liabilities and is inherent to maturity transformation. Market liquidity refers to the ability of the banking sector to sell assets in a timely fashion with significant loss of value.

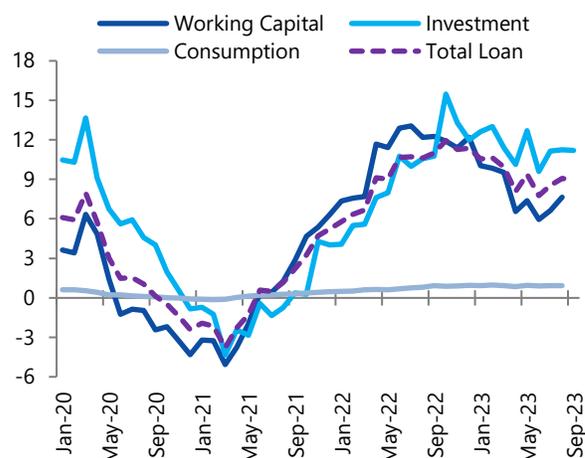
**Figure A.20: NPL, CAR, Tier-1 capital and provisioning (percent)**

Source: The Financial Services Authority (OJK).

### 3. The Outlook and Risks

**Indonesia is projected to post robust growth throughout the outlook period, though easing a little as the commodity boom loses steam.** The economy is projected to grow by 5.0 percent in 2023, before easing slightly to an average of 4.9 percent over 2024-2026, reflecting softer terms of trade and a normalization towards trend growth (Table A.1). Private consumption will be the primary driver of growth supported in 2024 by election-cycle spending. Public consumption growth will account for a planned civil servant salary raise in 2024 and will continue to be supported in subsequent years as the new administration programs get underway. Investment is expected to pick up pace over the outlook on the back of earlier reforms and new government projects. Exports and imports are expected to grow only modestly, as volumes are already elevated following very strong growth over 2021-2022.

**Inflation is projected to decline further and remain within BI's revised target band.** Headline inflation is projected to average 3.7 percent in 2023 and ease further to 3.2 percent in 2024 (Table A.1). This remains well within BI's inflation target band, which is being revised from 3.0 percent  $\pm 1$  to 2.5 percent  $\pm 1$  in 2024. Correspondingly, inflation expectations are expected to remain well-anchored within this range. Falling inflation reflects broader softening in commodity prices and normalizing domestic demand, notwithstanding some continued upside pressure on food prices due to El Nino effects. Moreover, with the output gap estimated to close in 2024, the authorities remain committed to

**Figure A.21: Lending to the private sector is healthy (percent)**

keeping inflation within their target range. Looking ahead, inflation is projected to average 3.0 percent during 2025-2026.

**The external position is expected to become more challenging due to slowing trade and global financing pressures.** Services exports will benefit though from a continued recovery in tourism. The current account is expected to record a small deficit in 2023 and gradually expand to -1.4 percent of GDP by 2026, as lower commodity prices and weaker global growth hamper exports (Table A.1). FDI will remain the largest source of external financing as competitiveness reforms yield results and recent industrial downstreaming efforts attract new projects. BI's monetary stance will continue to be geared towards guarding against rapid or excessive capital outflows. It will have lesser leeway though with the tighter revised inflation targets. Consequently, foreign currency reserves are projected to remain adequate and above 6 months of imports.

**The fiscal stance is expected to remain conservative with additional spending financed by revenues gains.** The fiscal deficit is projected to average 2.3 percent in 2024-2026 (Table A.1). Total revenues to GDP will slowly pick up as the effects of tax reforms materialize, despite remaining below pre-pandemic levels (averaging 12.6 percent of GDP for 2024-2026). Non-tax revenues are expected to ease in line with lower commodity prices. At the same time, spending is expected to remain tight but gradually return to pre-

pandemic levels, averaging 14.8 percent of GDP for 2024–2026. The subsidies bill is forecast to continue decreasing as assistance shifts towards more targeted social spending. Public investment—including investment finance—is expected to pick up after the election year with the new administration likely pushing to make a mark through infrastructure projects. Gross fiscal financing needs will decline and average 4.5 percent of GDP yearly. They are expected to be broadly met through the domestic market, but at a rising cost. Given global prospects of higher-for-longer borrowing costs, interest payments are therefore forecast to rise on average by 6.0 percent yearly between 2024–2026, accounting for 13.4 percent of the total expenditures.<sup>44</sup>

**The outlook is subject to several mostly external downside risks.** Higher-for-longer interest rates could weigh on global demand, elevate borrowing costs, and tighten access to external financing. Deteriorating global conditions—including geopolitical uncertainty and climate change related shocks—could disrupt global value chains and induce a sharper decline in the terms of trade, resulting possibly in lower revenues and a tighter fiscal position for Indonesia. A hard landing of the US economy at the end of its current monetary tightening cycle would likewise dampen commodity prices but could also see capital flows swing back

to EMs. While a reinvigorated Chinese economy could temper recent trends in global supply-chain diversification and sap the momentum from the recent manufacturing resurgence in Indonesia. Domestically, with a changing administration in 2024, there is risk of losing momentum in the implementation of competitiveness-boosting structural reforms, which can impact growth.

**With resilient macroeconomic underpinnings and the end of the post-COVID recovery cycle, the policy focus turns again to the growth agenda.** Indonesia has a credible policy track record of navigating downside risks and maintaining macroeconomic stability. The country's small twin deficits, low public debt, adequate FX reserves, stable external financing, and steady growth performance constitute robust macroeconomic buffers for responding to shocks. Going forward, the challenge is to build on these strong macroeconomic fundamentals to deliver faster, greener, and more inclusive economic growth. A core pillar of such a growth agenda are reforms that address structural bottlenecks in the economy that limit efficiency, competitiveness, and productivity growth. This will be essential if Indonesia is to have a chance at achieving its vision of becoming a high-income country by 2045.

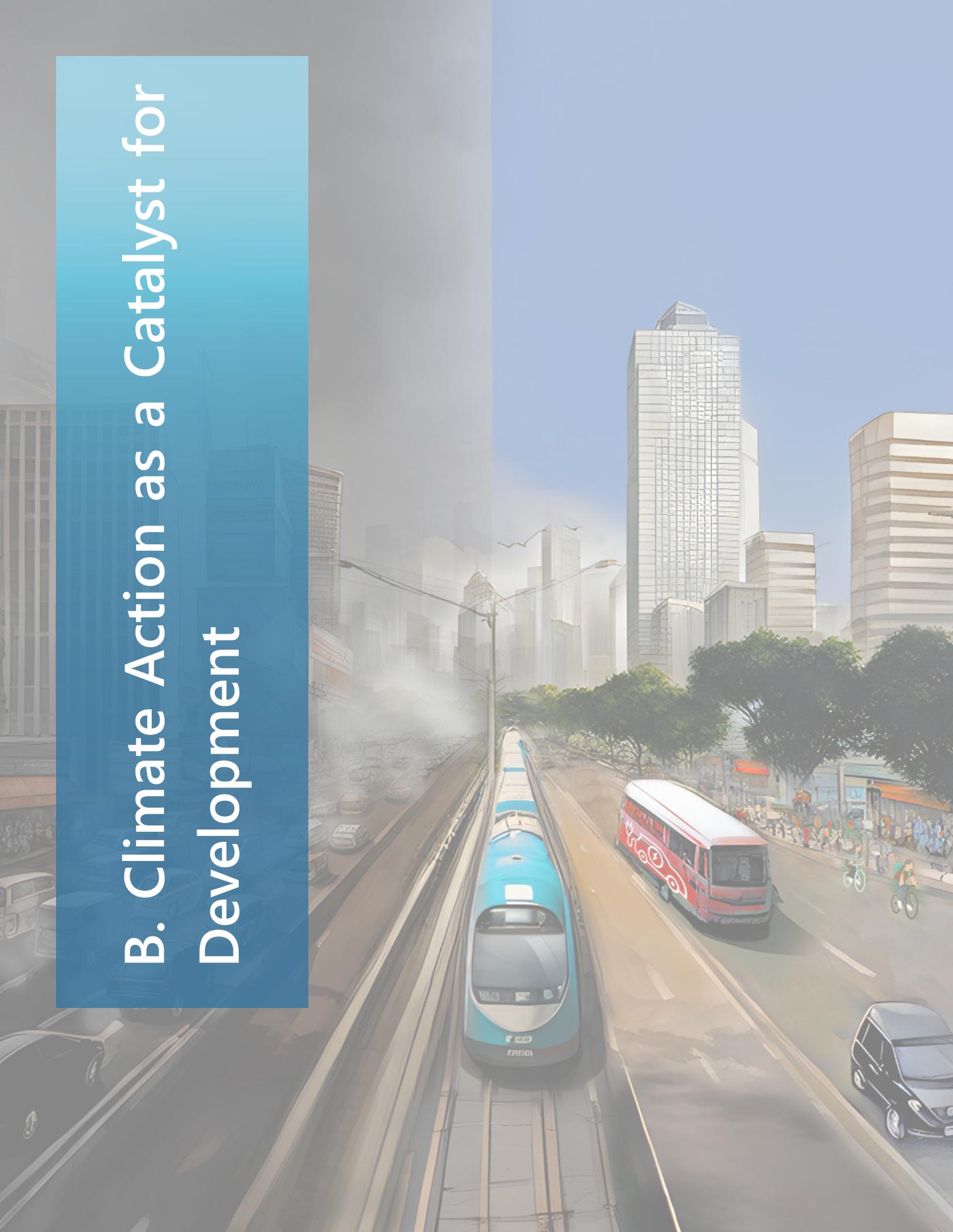


<sup>44</sup> This is up from an average of 9 percent in 2010–2019. The share has been increasing since 2014.

Table A.1: Selected Macroeconomic Indicators

	2019	2020	2021	2022	2023	2024	2025	2026
	Actual				WB projection			
<b>Real GDP growth and inflation, percent change</b>								
Real GDP	5.0	-2.1	3.7	5.3	5.0	4.9	4.9	5.0
Consumer Price Index (CPI) (average, %)	2.8	2.0	1.6	4.2	3.7	3.2	3.0	3.0
Consumer Price Index (CPI) (end of period, %)	2.6	1.7	1.9	5.5	2.7	3.3	2.8	2.7
Private Consumption	5.2	-2.7	2.0	4.9	4.9	4.9	4.8	4.9
Government Consumption	3.3	2.1	4.2	-4.5	5.0	4.3	3.5	3.5
Gross Fixed Investment	4.5	-5.0	3.8	3.9	4.6	4.5	5.4	5.9
Exports	-0.5	-8.4	18.0	16.3	1.2	4.1	3.9	3.5
Imports	-7.1	-17.6	24.9	14.7	-0.3	2.1	3.0	3.5
<b>Fiscal accounts, central government, percent of GDP</b>								
Revenues	12.4	10.7	11.8	13.5	12.6	12.4	12.6	12.7
of which Tax Revenue	9.8	8.3	9.1	10.4	10.0	10.1	10.3	10.4
Expenditures	14.6	16.8	16.4	15.8	14.7	14.6	14.8	15.0
Primary Balance	-0.5	-4.1	-2.5	-0.4	-0.1	-0.3	-0.3	-0.4
Fiscal Balance	-2.2	-6.1	-4.6	-2.4	-2.1	-2.3	-2.3	-2.3
Central Government Debt <sup>(a)</sup>	30.2	39.4	40.7	39.5	38.7	38.1	37.8	37.3
<b>Balance of Payments, percent of GDP unless indicated otherwise</b>								
Current Account Balance	-2.7	-0.4	0.3	1.0	-0.1	-0.7	-1.2	-1.4
Exports, Goods and Services	17.9	16.8	20.8	23.9	21.4	20.7	20.5	20.2
Imports, Goods and Services	18.2	15.1	18.3	20.7	19.5	19.1	18.9	18.9
Net Foreign Direct Investment	1.8	1.3	1.5	1.1	1.0	1.3	1.5	1.5
Gross Reserves (months of imports of goods and services)	9.7	7.5	6.4	6.3	6.0	6.1	6.2	6.4
Terms of Trade (index, 2018=100)	95.8	97.8	106.4	108.0	101.0	98.3	96.9	95.6
<b>Memorandum items</b>								
Nominal GDP (IDR trillion)	15,833	15,443	16,977	19,588	21,449	22,902	24,531	26,361
Per Capita GDP (US\$)	3,877	3,757	3,856	4,021	4,182	4,347	4,521	4,709

# B. Climate Action as a Catalyst for Development



# B. Climate Action as a Catalyst for Development

## 1. Preface

**Indonesia has made important commitments as well as progress towards reaching its climate and development targets.** Indonesia has a strong track record of growth and poverty reduction. However, development gains have also contributed to rising greenhouse gas (GHG) emissions. In response, Indonesia has set out a new path in its Long-Term Strategy for Low Carbon and Climate Resilience (LTS-LCCR) 2050 (Republic of Indonesia, 2022).<sup>45</sup> As stated in the Low Carbon Development Initiative, Indonesia is looking for ways to “maintain economic and social growth through development activities with low GHG emissions and minimizing the exploitation of natural resources” (Bappenas 2021). In line with these plans, ongoing efforts are helping to slow GHG emissions while maintaining economic growth and strengthening resilience.

**Part B of the IEP explores options for Indonesia to further progress towards its climate targets whilst achieving higher GDP growth over the long-term.** Based on the World Bank’s Country Climate and Development Report (CCDR) for Indonesia,<sup>46</sup> the IEP first presents a framework that links the supply of carbon-intensive resources (such as land and primary energy) to the demand for those resources by the major drivers of growth (for example, electricity, industry, transportation, urban expansion, agriculture, and forestry). Policies to reduce the supply of, and demand for, carbon resources will be necessary for the low-carbon transition. Yet in addition to such sector-specific efforts, the transition requires economic

policies that enable and incentivize firms and workers to participate in a greener economy. Such ‘enabling’ actions are key underlying drivers of productivity and allocative efficiency. Analysis suggests that these can help to reduce the short-term tradeoffs between emissions cuts and economic growth, while also help to boost the long-run growth rate of the Indonesian economy. They include reforms to:

- *The fiscal framework*, which can help address market failures in mitigation and adaptation, raise revenues, and provide buffers during the low-carbon and climate-resilient transitions.
- *The financial system*, which can help raise and channel savings for mitigation and adaptation and lessen financial uncertainty.
- *Trade policies*, which can help facilitate green exports and imports, move Indonesia toward the green technology frontier, and modify incentives for carbon-intensive commodity production.

Following a description of these enablers, the IEP presents modelling which demonstrates growth-enabling possibilities from the low carbon transition. The IEP concludes with a set of policy options that could support reforms. The IEP does not take a position on what Indonesia’s climate targets should be. It acknowledges the principle of common but differentiated responsibility<sup>47</sup> and assesses options for Indonesia to efficiently meet its own targets while also furthering its development goals.

<sup>45</sup> In the context of the international Paris Agreement on climate change, a long-term strategy is a formal document a country uses to communicate its plans for long-term low-emission development.

<sup>46</sup> World Bank Group (2023). Indonesia Country Climate and Development Report. Washington, D.C. ([link](#)).

<sup>47</sup> The common but differentiated responsibilities principle is formalized within the United Nations Framework Convention on Climate Change (UNFCCC). It recognizes that all countries have a shared obligation to address climate change but that responsibility for addressing the issue differs between countries, given different capabilities and historical contributions.

## 2. Climate and Development in Indonesia

### 2.1. Development Transitions and Carbon Emissions

**Indonesia has experienced important development transitions over the past 25 years involving rapid and positive change in a short period of time.**

Since 1997, Indonesia has seen rapid change in its physical capital stock; access to electricity (67 percent of the population in 1995 to 99 percent in 2021); urbanization (36 percent of the population in 1995 to 58 percent in 2022); and non-agricultural employment (57 percent of employment in 2006 to 71 percent in 2021). There are many other examples, including the major political and governance changes of *reformasi* and decentralization. Economic growth over this period averaged five percent per year—contributing to income convergence relative to peer countries<sup>48</sup> that accelerated rapidly since 2009. The poverty rate concurrently fell from 19 percent in 2000 to 9.5 percent by 2022.<sup>49</sup>

**Indonesia’s transition to a low-carbon and climate-resilient economy is a transformation that could define the next phase of economic growth and poverty reduction.** Historically, economic gains have meant rising GHG emissions. Indonesia accounts for about 3.5 percent of global emissions.<sup>50</sup> Indonesia has the 4th largest population and the 16th largest economy, and accounts for 1.25 percent of the world’s gross domestic product (GDP). Indonesia’s emissions—1,495 million tonnes of carbon dioxide (CO<sub>2</sub>) equivalent (MtCO<sub>2</sub>eq) annual average in 2018-2020—are high compared to structural peers in absolute terms, although per capita emissions in recent years have been in line with those of other large developing economies, and lower than those of developed economies (Figure B.1). The challenge for Indonesia and other large developing economies is how to decouple growth and GHG emissions. No country has transitioned to high-income status while also reducing emissions, yet this is the challenge implicit in the low-carbon transition.

**Historically, much of Indonesia’s GHG emissions came from land-based sources, which have slowed**

**considerably in the past 7 years.** Deforestation and fires accounted for about 42 percent of total emissions between 2000-2020 (Figure B.2).<sup>51</sup> Agriculture and forestry activities were the primary drivers of deforestation, notably export-oriented timber extraction, and pulp and paper plantations which expanded rapidly from the 1980s-90s, and oil palm, which followed in the 1990s-2000s (Tsujino, et al. 2016). These activities impacted carbon-rich ecosystems such as peatlands—partially flooded lowland areas with carbon-rich soils.<sup>52</sup> More recently, deforestation has slowed considerably thanks to government policies such as the permanent moratorium on the clearing of primary forest and peatland, and investments in peatland rewetting and reforestation, among other measures (MoEF, 2022). Deforestation fell from an average of 1.08 million hectares (ha) per year between 2000-2007 to an average of 0.11 million ha per year in 2019-2022, the lowest rates since 1990 (Figure B.3).

**Primary energy supply (i.e., coal, oil, gas) is the second largest source of GHG emissions.** Energy accounted for about 39 percent of emissions between 2000 and 2020. About 93 percent of the primary energy supply comes from fossil fuels, namely coal (43 percent), oil (31 percent), and gas (19 percent). The share of coal in Indonesia’s energy mix increased over the two decades to 2019. About 80 percent of Indonesia’s coal is exported, three quarters of which is to India, China, Japan, the Philippines, and Malaysia. The share of renewables was low (10-15 percent) over most of the past two decades but has increased slightly in the past six years. Expansion of the grid has supported electrification and the development of the manufacturing sector (which accounts for about 40 percent of Indonesia’s total energy demand; Setyawan, 2020). Growth in manufacturing and the grid’s increasing emissions intensity contributed to increase the sector’s overall emissions. However, there are also clear trends toward greater energy efficiency in manufacturing which have helped mitigate larger potential increases in emissions.

<sup>48</sup> Analysis in this IEP uses a standard set of peers where data is available: Nigeria, China, India, Ukraine, Thailand, the Philippines, Mexico, the Arab Republic of Egypt, the Russian Federation, and Brazil. They are selected based on their statistical similarity in terms of population, GDP per capita, and total GDP. An additional set of aspirational peers is also used when relevant: Republic of Korea, Chile, Poland, and the Czech Republic. In some instances, industrialized countries are also used as comparisons when discussing emissions levels and targets.

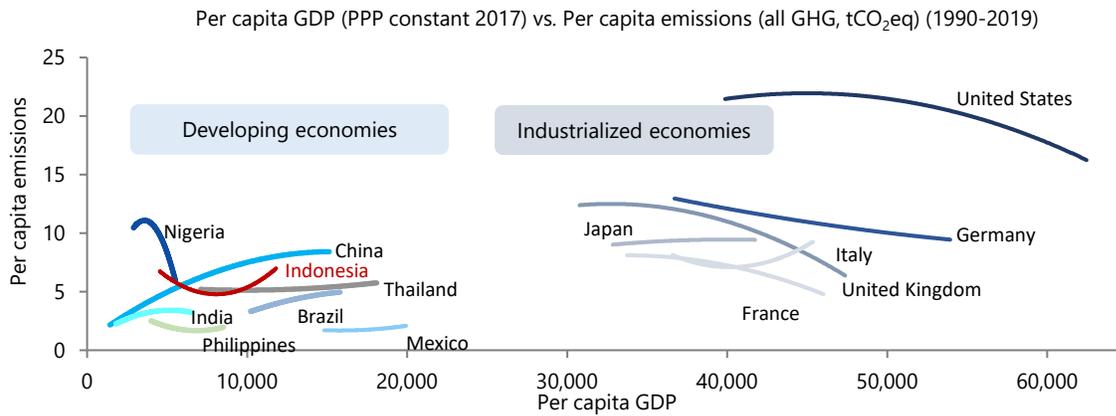
<sup>49</sup> National (government) poverty rate in March, 2022. Other statistics as per World Bank databank ([link](#)).

<sup>50</sup> Climate Watch. “Data Explorer.” Emissions values are for 2018 and include forestry and land use, and all major greenhouse gases ([link](#)).

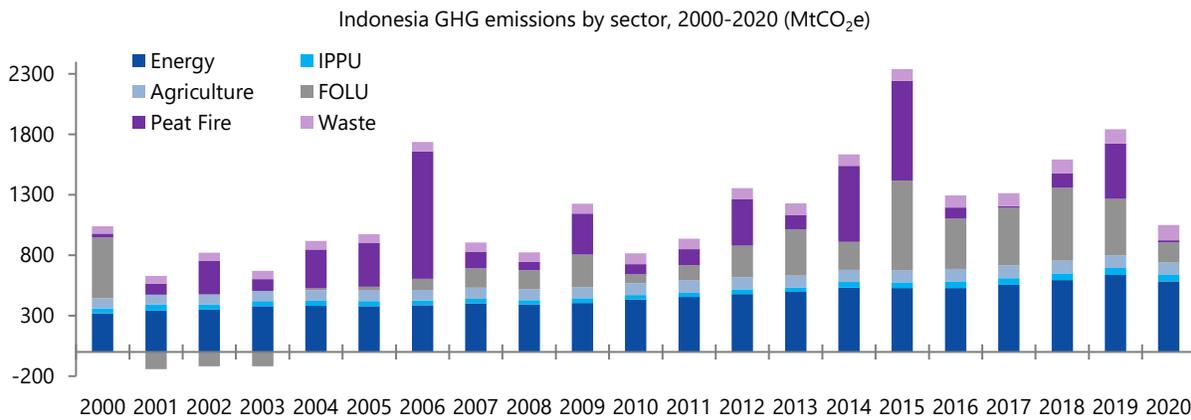
<sup>51</sup> Total of forest, land use, and peat fire emissions between 2000-20 as a proportion of total emissions (MoEF 2021 data).

<sup>52</sup> Carbon stored in Indonesia’s peatlands is estimated at 13.6 to 40.5 billion tons of carbon, one of the largest biological carbon stores on Earth. Clearing vegetation on peatlands and draining their waterlogged soils causes fires and also allows carbon soil stocks to oxidize, releasing carbon dioxide.

**Figure B.1: Per capita emissions remain below those of major industrialized economies and in line with developing country peers**

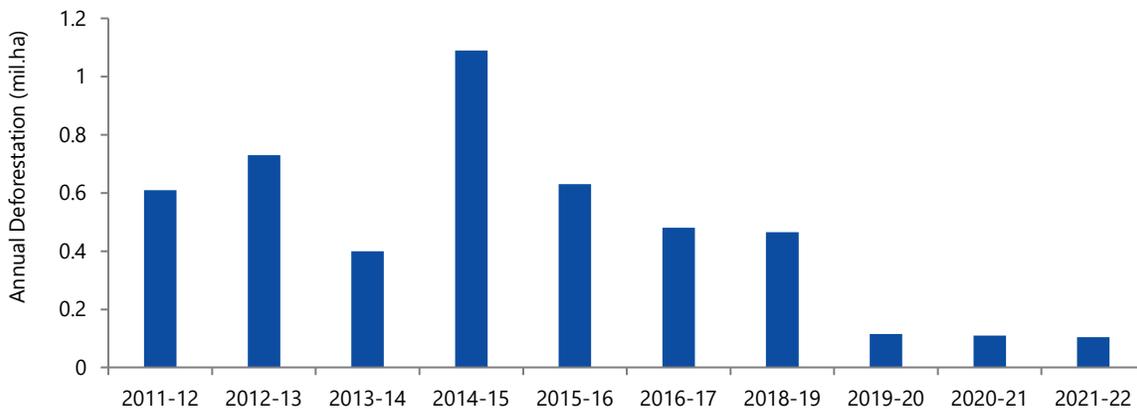


**Figure B.2: Forest and peat-related emissions historically accounted for about 42 percent of emissions and are slowing**



Source: MoEF 2021 emissions data.  
 Note: FOLU = Forestry and Other Land Uses; IPPU = Industrial processes and product use.

**Figure B.3: The rate of deforestation has fallen in recent years**



Source: MoEF 2022 data, figure compiled by WBG staff, based on years for which annual data is available.

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## 2.2. Decarbonization and Adaptation to Deal with Climate Change and Shocks

**Building resilience through adaptation capacity is also critical given the rising incidence of climate shocks, as recognized in the authorities' climate strategies.** The global nature of climate change means that adaptation measures will be necessary (irrespective of mitigation efforts), to avoid large drops in economic output and household welfare. Between 1990-2021, Indonesia experienced more than 300 natural disasters—including 200 flooding events affecting more than 11 million people. The frequency of these disasters is increasing (Figure B.4)—with climate-related disasters accounting for approximately 70 percent of the total. These trends are expected to continue. Rising sea surface temperature is associated with greater severity of tropical cyclones, while heavier rainfall will exacerbate floods and landslides. More frequent El Niño events are likely to increase drought and fire risks for Indonesia's agriculture and forestry sectors (although Indonesia has made significant progress on fire prevention<sup>53</sup>). The Government's Disaster Risk Pooling Fund (*Pooling Fund Bencana*)—which helps to cover contingent liabilities from disasters—and an expanded social protection system, are some of several measures that will help increase national resilience at a systems level.

**Key impacts of climate change and climate shocks include water scarcity and agricultural productivity.** Intensification of both rainfall and drought are expected—with parts of Sumatra and Kalimantan 10-30 percent wetter by 2080 from December to February, and islands below the equator anticipating a 15 percent decline in precipitation.<sup>54</sup> In a context of increasing water demand<sup>55</sup> the net effect will be one of scarcity: by 2050, 31 percent of Indonesia's districts will

no longer record months of surplus water,<sup>56</sup> more than double the number in 2010. Overall, a lack of water availability is projected to result in 2.5 percent lower GDP by 2045 in the absence of adaptation measures (World Bank 2021a). Meanwhile, agriculture is also vulnerable, with implications for food and nutrient security. At the national level, rising temperatures and shifting rainfall are projected to reduce yields of several production systems key to poverty reduction and food security—including rice (-0.72 percent by 2030), maize (-7.1 percent) and palm oil (-1.21 percent), according to modelling by IFPRI, Bappenas, and ADB (2019). Yield-enhancing measures and investments in climate-resilient agriculture will help offset these declines.

**At the same time, the transition to a low-carbon economy also poses challenges.** Indonesia aims to balance a phase-down of coal use with rising electricity demand. International coal demand and prices have risen since the start of the war in Ukraine, while tightening global monetary policy impacts the cost of financing the low-carbon energy transition. Increased protection of forests and peatlands will constrain some forms of agriculture—requiring a boost to yields and a shift of production toward already degraded land to allow for continued growth. Real sector impacts will affect the banking system given that almost three-quarters of Indonesia's bank loan portfolio comprises sectors that will be impacted by decarbonization policies (Figure B.5). These challenges are magnified by the relatively small size of Indonesia's financial sector in terms of its total assets and private credit relative to GDP (World Bank 2022).

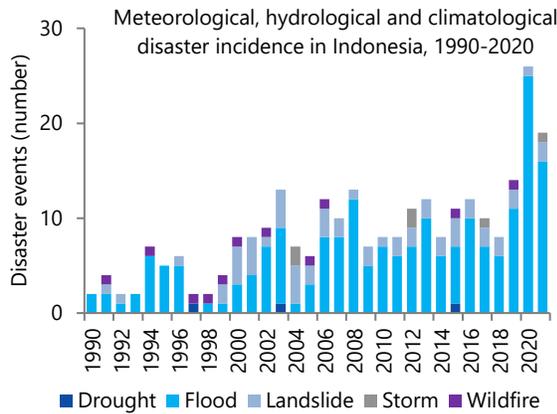
<sup>53</sup> Indonesia has made significant progress on fire prevention through reduced deforestation, zero-fire land clearing policies, extensive peat rewetting, and faster deployment of emergency funding in recent years. Fire incidence was much lower in 2020 and 2021 than in 2018 and 2019 (MoEF data, Forest and Land Fire Early Warning and Detection System). Longer timeseries (MODIS Burned Area satellite data) also shows a declining trend in fire extent (2001-2021).

<sup>54</sup> World Bank Climate Change Knowledge Portal: Mean Climate Projections ([link](#)).

<sup>55</sup> Water demand is projected to increase by 31 percent between 2015 and 2045. See World Bank 2021a.

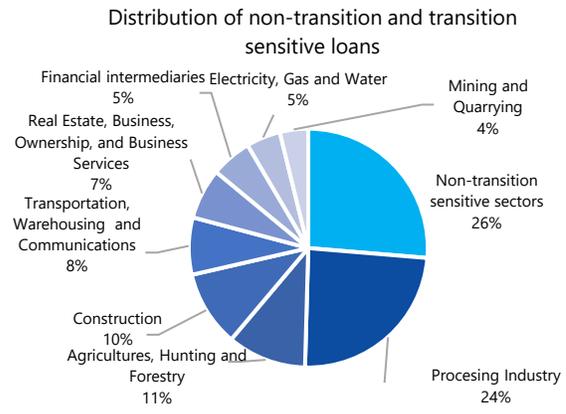
<sup>56</sup> Months of surplus water is a key indicator of water scarcity and refers to excess water available in a system. See WBG and ADB 2021.

Figure B.4: Rising incidence of climate-related disasters



Source: Data from the international Emergency Events Database (EM-DAT), figure compiled by WBG staff.

Figure B.5: Lending exposure of Indonesian banks to transition-sensitive sectors is high



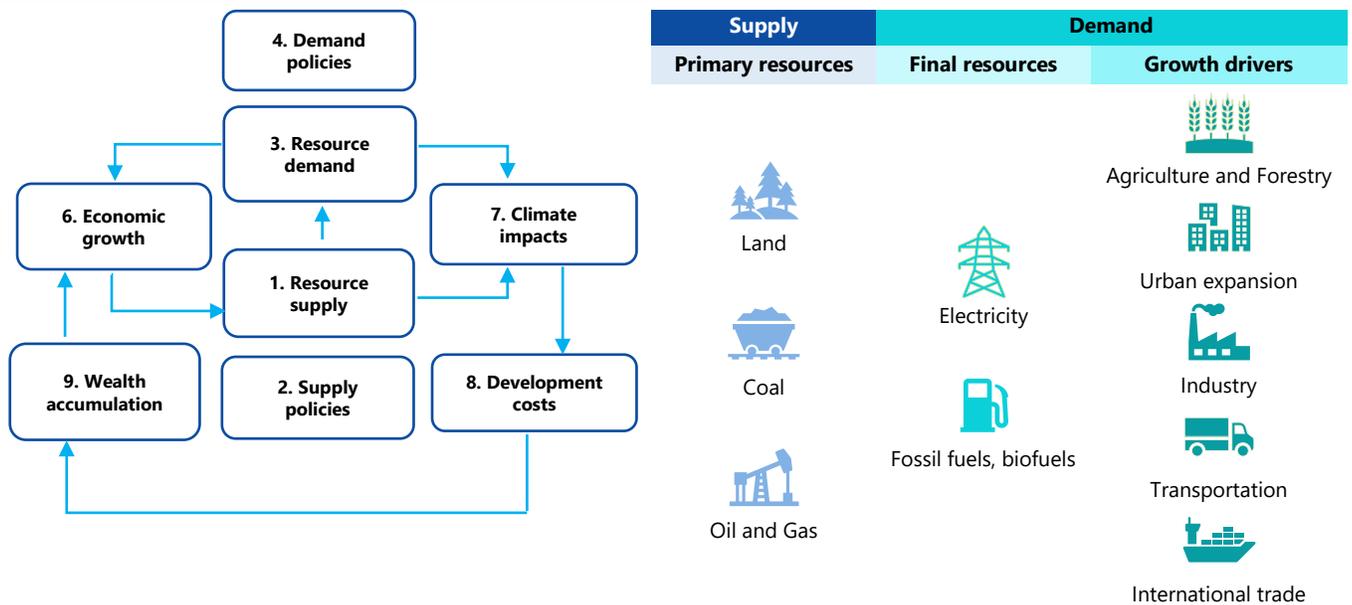
Source: IMF Climate Change Dashboard (2021).  
 Notes: Transition-sensitive sectors are those with either high absolute emissions, high emission intensities, high exposure to emission-intensive sectors, or are expected to be directly affected by climate policies.

### 3. A Virtuous Cycle of Decarbonization, Resilience, and Growth, Building on Existing Reforms

Indonesia’s ongoing and future reforms could support a just and affordable transition through positive climate and development dynamics (Figure B.6). A reduction in the supply of carbon-intensive resources (land and non-renewable energy) can be supported through policy and institutional reforms, some of which are already in place or underway.

This will require a reduction in demand for those resources (for electricity, agriculture, urban expansion, transport, industry, and trade) that require reforms to incentivize more efficient use of resources (for example, through carbon pricing and spatial planning) or alternative resources (for example, renewable energy). Complementing these measures with

Figure B.6: Dynamics between resource supply and demand, emissions, and growth



Source: Figure compiled by WBG staff.  
 Note: The left-hand side illustrates the interactions between resource supply and demand and how these influence climate and development outcomes. The supply of carbon-rich resources (1) is influenced by supply-side policies (2). The demand for those resources (3) is influenced by demand-side policies, such as carbon pricing (4). Use of these resources drives economic growth (6) as well as emissions (6). They also contribute to factors which pose costs on development, such as air pollution (7). The net effect determines wealth accumulation (8), which is critical for long term economic growth. The right-hand side presents key economic sectors that supply and demand land and energy.

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enabling economic policies—the focus of the next section—can help allocate resources to greener and more productive parts of the economy. A combination of these measures could help decouple growth from carbon emissions which could strengthen the economy’s resilience to a rising incidence of climate impacts (that is, higher temperatures, sea level rises, and flooding). This could help reduce the development costs of climate shocks (for example, physical damage, human capital loss).

**This virtuous cycle could help accelerate growth in Indonesia’s national asset base, which includes human capital, physical capital, and natural capital.**

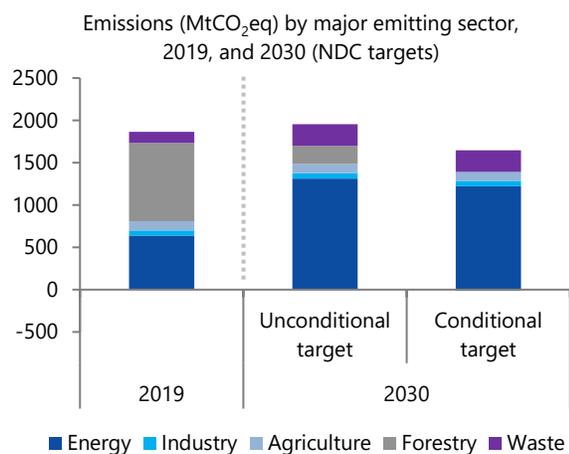
Total wealth increased between 1995 and 2018 through a buildup of human and physical capital (World Bank, 2021b). However, comparison to structural peers suggests that there is scope to accelerate overall wealth accumulation and thus to accelerate wealth convergence with high income countries. The natural capital stock has increased over this time but has involved a reduction in the stock of renewable resources on the one hand (like forests) and increased dependence on non-renewable resources on the other (like coal). The accumulation of human capital stock also has scope to accelerate. Accumulation of capital stocks, including productive natural resources, human resources, and physical infrastructure are long-term determinants of economic growth. Actions which contribute to capital accumulation, including many of those which are embodied in Indonesia’s mitigation

and adaptation plans, could thus support Indonesia’s transition from a middle- to high-income country.

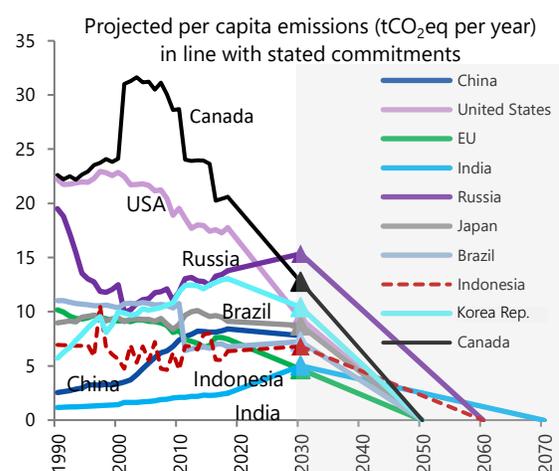
**This cycle is consistent with the government’s policy and institutional reforms program.** Indonesia has committed to cutting emissions as part of its NDCs under the 2015 Paris Agreement. Indonesia’s Enhanced NDC, released in September 2022, sets out an unconditional 31.9 percent reduction in emissions against business-as-usual (BAU) projections by 2030, and up to a 43.2 percent reduction conditional on international support (Figure B.7).<sup>57</sup> It proposes actions across the economy, including for energy, agriculture, industrial, waste, and FOLU sectors. Estimated per capita emissions under the Enhanced NDC’s unconditional target are projected to be 6.5 tCO<sub>2</sub>e per year in 2030, lower than most other large economies including Brazil, China, Japan, and the United States (Figure B.8).

**The government’s plans further include longer-term emissions trajectories toward a net-zero target by 2060 or earlier.** The LTS-LCCR is a detailed roadmap that demonstrates the technical feasibility of a low-carbon trajectory, reaching 1.61 tCO<sub>2</sub>e per capita emissions by 2050 under its low-carbon strategy scenario (aligned with the Paris Agreement).<sup>58</sup> While the NDC is a quantitative commitment, the LTS is a longer-term vision that demonstrates possibilities and pathways. The net-zero vision—and pathways toward it—are further mapped out by the government’s LCDI (Bappenas 2021a).

**Figure B.7: Conditional and unconditional 2030 NDC targets**



**Figure B.8: Per capita emissions of major economies under stated targets**



Source: Indonesia Enhanced NDC and MoEF data (2022). Figures compiled by WBG staff.

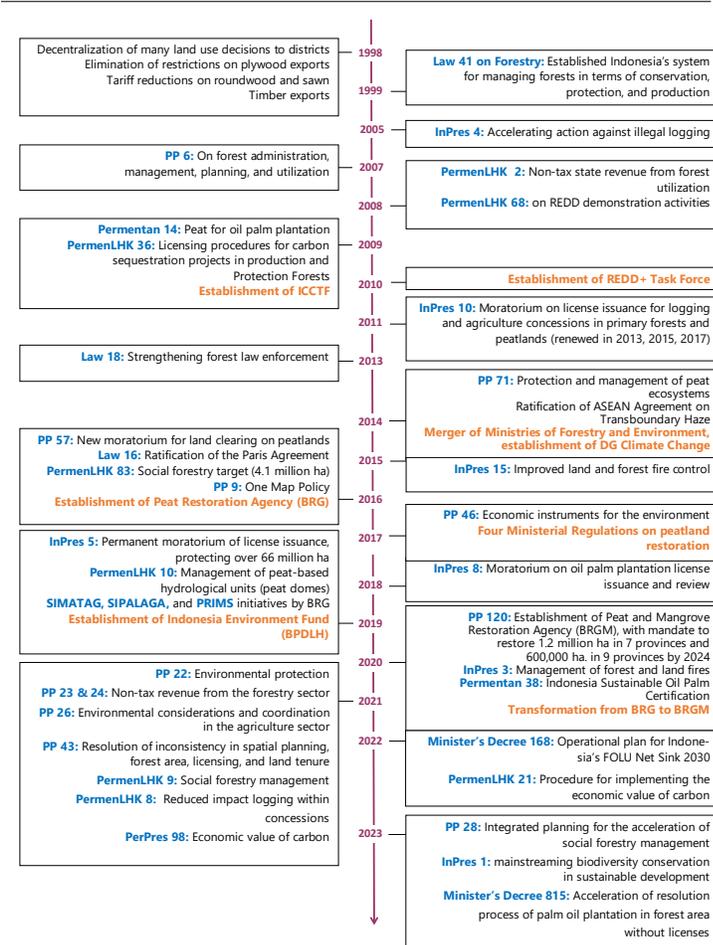
<sup>57</sup> The Ministry of Finance (MoF) estimates the required international support at about US\$114 billion. See Ministry of Finance (2021).

<sup>58</sup> LTS-LCCR extends the unconditional 2030 commitment through three scenarios: (i) current policies, where emissions will continue to increase after 2030; (ii) transition, where emissions will decrease but are insufficient to reach the 2050 target; and (iii) low-carbon, where emissions will decrease rapidly after 2030. See Republic of Indonesia 2021.

These targets are supported in the short term through ambitious action in the FOLU sector (Figure B.9). The government aims to make FOLU a carbon sink by 2030 (i.e., negative net emissions) under its flagship FOLU Net Sink 2030 Plan.<sup>59</sup> Stipulated actions to achieve these goals include restoring 2.7 million hectares (ha) of peatlands, rehabilitating 5.3 million (ha) of degraded forestlands, and continuing recent progress in reducing deforestation and forest degradation rates (see Figure B.3. above). MoEF revoked 3.1 million (ha) of forest concession licenses in 2022 and required concessionaires to protect high conservation value forest areas. Restoration of 1.3 million (ha) of peatlands has been undertaken by Government's Peat and Mangrove Restoration Agency (*Badan Restorasi Gambut dan Mangrove*, BRGM) to date. Approximately 5.3 million (ha) of social forestry access had been granted by March 2023, ensuring legal and sustainable use of forest lands by more than one million households.

The GoI has also established a more favorable pricing scheme for renewable technologies and committed to a transition away from coal. While renewable investment was previously dampened by relatively low price caps on the purchase price of renewable energy, Presidential Regulation (PR) No. 112/2022 sets out higher prices differentiated by renewable energy technology, size, and location. It also established competitive principles for procurement of renewable energy technologies, such as Solar PV, and provides for direct fiscal support for the state-owned electricity company PLN (PT. *Perusahaan Listrik Negara*) to be compensated if the development of new renewable capacity increases its average generation cost. At COP26 in 2021, Indonesia committed to the 'Global Coal to Clean Power Transition Statement', signaling its transition away from coal.<sup>60</sup> It has further implemented a legally binding restriction on building coal-fired power plants connected to the country's electricity grid in PR No. 112/2022.

Figure B.9: The Land Use Policy Framework: A Chronology



Source: Figure compiled by WBG staff.

Notes: PP = *Peraturan Pemerintah* (Government Regulation); PerPres = *Peraturan Presiden* (Presidential Decree); InPres = *Instruksi Presiden* (Presidential Instruction); UU = *Undang Undang* (law), Permen LMK = Ministerial Regulation (MoEF); BRG = *Badan Restorasi Gambut* (Peat Restoration Agency); ICCTF = Indonesia Climate Change Trust Fund.



<sup>59</sup> Ministerial Decree No. 168/Menlhk/PKTL/PLA.1/2/2022, the Operational Plan for Indonesia's FOLU Net Sink 2030.

<sup>60</sup> Over 40 countries supported the statement in whole or in part. Like some other countries, Indonesia excluded the third point of the statement which requires no further issuance of new permits for the construction of unabated coal-fired power plants. Indonesia has stated a willingness to consider accelerating the coal phase-out into the 2040s, conditional on additional international financial and technical assistance.

## 4. Economic Policy Foundations for a Low-Carbon and Climate-Resilient Future

**Yet these sector-specific policies are not the only building blocks that can underpin Indonesia's climate goals.** For a transition that also delivers on Indonesia's development ambitions, 'enabling' policies can be used to complement sector-specific measures and accelerate growth. These enablers aim to raise and allocate financial, physical, and human resources for climate action. They are also important foundations for capital accumulation and efficient resource allocation and thus underpin long-term economic growth. Specifically, the *fiscal framework* can be used to address market failures in mitigation and adaptation, raise revenues, and provide buffers during the low-carbon and climate-resilient transitions. The *financial system* can be used to raise and channel savings to mitigation and adaptation activities, provided that structural constraints and exposure to climate and

stranded-assets risks can be alleviated. *Trade policies* can be used to facilitate green exports and imports, move Indonesia toward the green technology frontier, and modify incentives for carbon-intensive commodity production.

**These enabling policies and institutions are interrelated and mutually reinforcing.** The fiscal framework helps to set price signals and protect investments. In doing so it affects the cost and availability of financial capital for green investments. The financial system raises and allocates resources for firms to invest. Meanwhile, trade policies support firms' access to green inputs and markets—facilitating green investments. These interactions further determine the incentives and opportunities for firms and workers to participate in the green economy.

### 4.1. Fiscal Policy for the Climate and Development Challenge

**The fiscal framework can be used to increase economic efficiencies and disincentivize fossil fuel use.** Incentives for fossil fuel use are partly a function of taxes and subsidies. Support for fossil fuels as a share of tax revenue in Indonesia has declined, with a sharp drop in 2015 (Figure B.10). This drop was driven by ambitious transport fuel subsidy reform in 2014-15, as well as a decline in the price of crude oil. Transport fuels receive around one-half of total fossil fuel support. This has declined in the 20 years to 2020. Cuts in total support (from 3.9 percent of GDP in 2000 to 1.8 percent in 2020)<sup>61</sup> created space for higher spending on health, infrastructure, and social assistance. Social assistance, for instance, increased from 0.3 percent of GDP in 2004 to 1.5 percent in 2021.

**There are opportunities for further reduction in fossil fuel support that could enhance economic efficiencies and welfare (Box B.1).** Most fossil fuel support is targeted to consumers rather than producers. This results in low petrol end-user prices (Figure B.11) designed to assist households; however, benefits accrue more to the better-off households as they are larger consumers of fuel than the poor. In the power sector, electricity tariffs are set below cost recovery under a public service obligation (PSO) arrangement (Figure B.12). Although efforts have been made (especially between 2015 and 2017) to reassign consumers to non-

or less-subsidized tariff classes through means testing, many relatively better-off households still receive the benefit of the PSO tariff. Approximately 45 percent of the PSO is used to subsidize households that do not fall within the database for poor and vulnerable households. Continued reductions in fossil fuel support can help provide fiscal space for increasing targeted welfare support, increasing the efficiency of public spending, while also improving economic efficiency by incentivizing lower carbon activities.

**While the current economic environment creates challenges for the reduction of fossil fuel subsidies, there are steps that can be taken to help gradually move the process forward.** Many governments choose fuel price subsidies over targeted transfers when energy prices are high because: (i) poor households may not receive adequate social transfers to compensate for higher fuel prices; (ii) price controls may shield businesses from higher input costs; and (iii) price controls may help keep inflation expectations and unanticipated price shocks in check. These issues require sustained efforts by Governments globally to strengthen the delivery infrastructure for social protection and to devise transfers that are consistent with political imperatives—such as timebound transfers to affected households.

<sup>61</sup> As per the 2020 national budget. This includes reported direct subsidy spending and estimated implicit subsidies accruing as payment obligations to Pertamina, the state-owned oil and gas enterprise.

Figure B.10: High but decreasing fossil fuel support

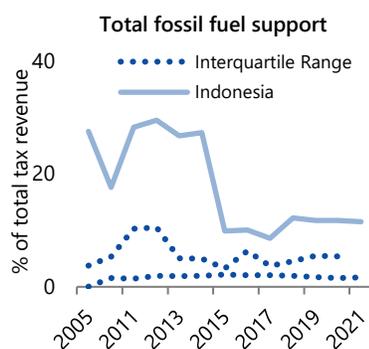


Figure B.11: Low petrol end-user prices

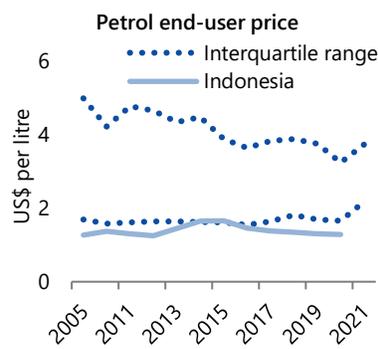
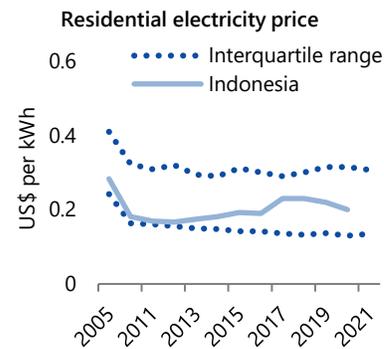


Figure B.12: Low residential electricity prices



Sources: OECD Green Growth Data, figures compiled by WBG staff.  
 Note: Interquartile range refers to equivalent data for the 25th and 75th percentile of structural peers.

### BOX B.1

#### Retargeting energy subsidies: consequences of the September 2022 fuel price hike<sup>62</sup>

Indonesia's subsidies for transport fuel and electricity have been reduced over the past decade. Prior to 2022, 46 percent of fuel subsidies went to the richest 20 percent of the population while 18 percent of benefits went to the poorest 40 percent, according to World Bank analysis (Figure Box B.1.1). Nonetheless, energy accounts for a significant part of consumption among the poor. Fuel subsidies amounted to 4 percent of the market income of households in the poorest decile, twice that of the richest 10 percent (who received 2 percent of their market income). Poor and vulnerable populations are thus disproportionately affected when energy subsidies are eliminated.

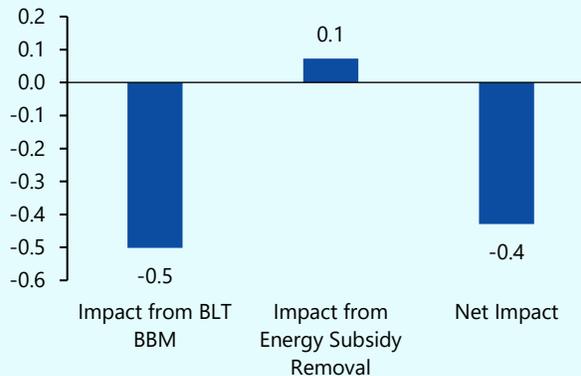
At the same time, the surge in global commodity prices in 2022 made energy subsidies more expensive and put pressure on the budget. Between 2021 and 2022, international crude oil prices increased by 44 percent while the Indonesian rupiah depreciated by 9.3 percent against the US dollar during the same period. This led to a rise in energy subsidies from 1.7 percent of GDP in 2021 to 2.8 percent in 2022 (IDR 551.2 trillion). In response, the government introduced several policy measures to address these growing costs, starting with the phasing out of low-octane gasoline (Premium) and compensation for price increases in higher-octane gasoline (Pertalite) in the budget between March and April 2022. In September of 2022, the government increased the price of subsidized diesel and gasoline by 30 percent.

Figure Box B.1.1: Fuel subsidies tend to be poorly targeted (before September 2022 fuel price hikes) (benefits as % of market income of each decile)



Source: World Bank staff estimates using Commitment-to-Equity (CEQ) methodology based on Susenas March 2019 data.

Figure Box B.1.2: Estimated impact of the September 2022 fuel price hikes on poverty (percentage points of International Poverty Line of US\$3.20/day, 2011 PPP)



Source: World Bank staff estimates using CEQ methodology based on Susenas March 2019 data.  
 Note: the estimated impact is not an absolute increase but relative to a counterfactual in which the subsidies are remained.

<sup>62</sup> The box is based on World Bank (forthcoming), Indonesia Energy Subsidy Reform Note, World Bank working paper.

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**Analysis suggests that the costs of these reforms to poor and vulnerable households was offset by the Gol's expanded social assistance, while simultaneously yielding net fiscal gain.** The Gol accompanied the fuel price increase in September with a targeted cash compensation scheme (*Bantuan Langsung Tunai Bahan Bakar Minyak*, BLT BBM). Fiscal savings generated by the September 2022 fuel price increase were estimated at 0.2 percent of GDP in 2022.<sup>[1]</sup> The fuel price hikes alone would have increased the poverty rate by 0.1 percentage points in 2022.<sup>[2]</sup> This is because increased fuel prices are estimated to negatively affect the consumption of the bottom 40 percent of households by 0.2 percent of their market income. The targeted cash compensation, however, offset the potential negative impact on poverty (Figure Box B.1.2) while still yielding an estimated 0.1 percent net fiscal gain.<sup>[3]</sup> Further reform can be expected to deliver similar gains.

<sup>[1]</sup> The small savings are in part because the price adjustments were partial and introduced only in the last quarter (Q4) of 2022. Without price hikes, fuel subsidy spending would have been 0.2 percent of GDP higher than the actual (2.2 percent of GDP).

<sup>[2]</sup> This is not an absolute increase but measured by consumption loss relative to a counterfactual in which the subsidies remained. This reflects 200,000 people falling into poverty (that is, below the international poverty line of US\$3.20 per day, 2011 PPP).

<sup>[3]</sup> The cost of the targeted cash compensation and expanded social programs is 0.1 percent of GDP in 2022 (Rp. 24.2 trillion) ([link](#)).

### Fiscal instruments could be used to disincentivize emissions in other emissions-intensive sectors.

Several fuels and sectors currently lack direct fiscal incentives to increase carbon efficiency, including oil and gas, industrial processes and product use, and residential electricity. The forestry sector and plantation agriculture are subject to licenses and export levies—forms of fiscal instruments. A further step could be differentiating between production on land associated with high emissions and production on more suitable areas, given the very large emissions differential across soil types.<sup>63</sup>

### There are opportunities to promote greater consistency across fiscal instruments for stronger overall incentives to decarbonize.

In some instances, fiscal instruments within the same sector that have countervailing effects could be addressed over time:

(i) *Coal sector*: Coal policies encourage the use of coal, such as the domestic market obligation and price cap,<sup>64</sup> and zero-royalty policy on coal used for domestic value added-activities. This is partially offset by coal royalties and an emissions trading scheme (ETS) covering grid-connected coal-fired power plants, which discourage the use of coal.

(ii) *Agricultural sector*: Fertilizers account for over 10 percent of agriculture-related emissions, implicitly encouraged through fertilizer subsidies. A crude palm oil export levy aimed at boosting domestic supply implicitly discourages emissions from the palm oil sector (the second largest consumer of fertilizers in agriculture), yet expenditure of the levy's proceeds on subsidizing biofuels may be increasing production and potentially emissions.

(iii) *Residential sector*: Emissions are encouraged by electricity subsidies provided by below-cost retail prices and a commitment to compensate PLN for losses. At the same time, carbon pricing will raise PLN's cost for supplying electricity, but not the administered retail prices—thereby creating a need for larger government subsidies.

(iv) *Transport sector*: Provincial government taxes on transport fuels discourage emissions but are counteracted by central government subsidies on diesel and a popular brand of low-quality, high-emission gasoline. The net effect of fiscal policy is to promote transport emissions (representing approximately 25 percent of energy-related emissions).

<sup>63</sup> The emissions footprint of one tonne of crude palm oil varies spatially by a factor of 35 (0.7–26.0 tCO<sub>2</sub>eq-1). See Lam et al. 2019.

<sup>64</sup> Under the domestic market obligation and domestic price cap, miners are required to sell 25 percent of their output domestically, at a price capped at a maximum of \$70 per tonne for power generators (scaled according to quality) and \$90 per tonne for other industrial uses.

**Notwithstanding the near-term challenges of high energy prices, the eventual expansion of carbon-pricing, when economic conditions allow, will complement the above fiscal reforms.** In October 2021, the government enacted legislation that provides a legal basis to introduce carbon-pricing instruments—including the ETS<sup>65</sup> and a carbon tax<sup>66</sup>. Carbon-pricing instruments shift the costs associated with GHG emissions from society to emitters and help incentivize investments in low-carbon options.

**The ETS in the power sector is an important step forward and provides a useful foundation for gradually increasing the coverage of carbon pricing.** Building on the experience of a voluntary cap-and-trade system introduced in 2020 (covering 84 coal-fired power plants), the Ministry of Energy and Mineral Resources (MoEMR) launched a mandatory ETS in 2023 for the grid-connected coal-fired power plants (specifically, facilities with a capacity of more than 100 megawatts, or around 86 percent of coal-fired power plants). An MoEMR regulation introduces an ‘emissions cap’ for these plants, tiered by their capacity at the unit (plant) level. By the end of the reporting year, units with emissions exceeding their cap need to either purchase allowances from other units or through carbon offset credits (from energy efficiency or renewable energy projects), although the former will be prioritized. Over time, this could be expanded to other sectors as well as power plant categories not

## 4.2. Deepening the Financial System for Climate and Development Action

**All countries’ financial systems must respond to two important climate-related challenges:** (i) the management of climate and environmental risks to the financial sector; and (ii) the mobilization of financial capital for mitigation and adaptation investments. The two are interrelated. Climate-related risks, if not well-managed, can cause shocks to the financial system that reduce the appetite for investments, whether green or not. Fiscal policy, as discussed above, is constrained in its ability to protect against such shocks. On the positive side, measures to expand green finance also address factors that may otherwise impede the depth, efficiency, and reach of the financial sector more generally. These measures are crucial for long-term efficient capital allocation and thus economic growth.

currently covered (such as those not connected to the grid or burning other fossil fuels). Offset mechanisms (limited to set portion of total credits<sup>67</sup>) could be used to directly finance emissions reductions in uncapped sectors, such as forestry, while lowering the cost of compliance on capped firms.

**Indonesia is harnessing other forms of carbon pricing, including results-based payments and carbon credits trading.** The government launched a carbon market in September 2023, for the exchange of carbon credits. Indonesia is also harnessing international emissions reduction payments from development partners to incentivize jurisdiction-wide actions in Jambi and East Kalimantan provinces. This could be scaled to other provinces, provided international support is forthcoming. There are emerging opportunities to utilize other international payment mechanisms such as voluntary carbon credits to incentivize private sector actions. In practice, these enable an environmentally-conscious overseas business—such as one that is responding to shareholder pressure to mitigate its climate impacts—to pay an Indonesian business to undertake emissions mitigation activities that are independently verified. Such transactions do not need to involve corresponding adjustments at the official national level against respective countries’ emissions reduction goals, and so can ensure that Indonesia’s NDC progress is not compromised.

**As is the case in many countries, the financial sector’s capacity to monitor and manage climate-related risks is nascent, however, there has been recent progress.** The Financial Services Authority (*Otoritas Jasa Keuangan*: OJK) released a Sustainable Finance Umbrella Policy in 2017, including regulations requiring banks to develop procedures for monitoring and managing environmental, social, and governance (ESG) risks. OJK has also launched two roadmaps on sustainable finance.<sup>68</sup> These outline priorities including: (i) a green taxonomy; (ii) sustainability disclosure requirements; (iii) a climate financial risk management framework and risk-based supervision; (iv) innovative green financing instruments; and (v) a National Taskforce on Sustainable Finance. Over time,

<sup>65</sup> Presidential Regulation No. 98/2021 on Economic Valuation of Carbon.

<sup>66</sup> Law No. 7/2021 on Tax Harmonization.

<sup>67</sup> Most offset programs limit the total portion of carbon offsets that may be used to ensure the incentive for within-sector mitigation is not diminished. Offsets can be used for a maximum of 5 percent of total credits in China’s emissions trading scheme.

<sup>68</sup> Indonesia Sustainable Finance Roadmap Phase I (2015–19) and II (2021–2025).

detailed guidance to financial institutions will help assess, manage, and price climate risks. This could be complemented by capacity building to conduct detailed climate-risk assessments, including on data and modelling.

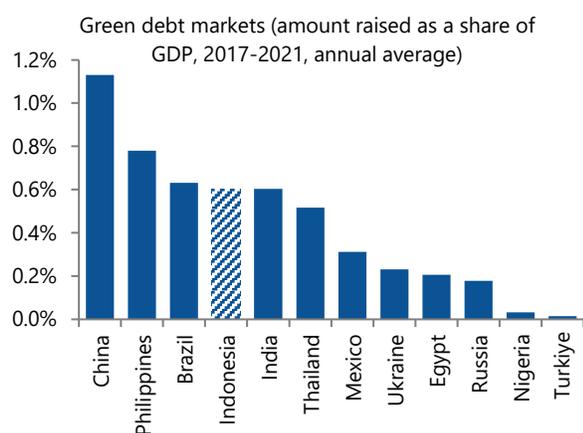
**Climate-risk management challenges aside, the government is working to catalyze a broader greening of the financial system.** An important step forward was the issuance of the OJK Regulation on the Implementation of Sustainable Finance in 2017, requiring financial institutions to incorporate sustainable practices in their business operations. OJK's Sustainable Finance Roadmaps and the Green Finance Taxonomy are promoting the development of financial instruments such as green bonds or *sukuk* (Islamic bonds), along with the technology and information infrastructure to ensure the integrity of the green bond market and build capacity for industry's participation. OJK has mandated financial institutions to publish sustainability action plans to raise awareness of ESG issues among investors and issuers, and the Indonesian Stock Exchange joined the Sustainable Stock Exchanges (SSE) initiative in 2019 to strengthen its commitment to ESG issues.

**Indonesia's green financial markets can contribute to the country's climate ambitions if sufficiently scaled.** Approximately US\$6.4 billion, or about 0.6 percent of GDP, has been raised by Indonesia through

green bonds and syndicated loans since their first issuance in 2018. The country ranked 42nd in terms of amount raised (as a share of GDP) over the 2017-21 period and compares favorably to structural peers (Figure B.13). Bonds accounted for 92 percent of the amount raised. Issuances by the government and government-backed entities accounted for a significant fraction (almost 70 percent)—a contrast to structural peers where corporations were the dominant issuers.<sup>69</sup> Indonesia has issued Sovereign and Retail Green sukuk amounting to approximately US\$3.9 billion between 2018 to 2021 (the largest issuance of any country). Nevertheless, private sector involvement is limited, and total corporate green bond issuance remains low at US\$1.7 billion.<sup>70</sup>

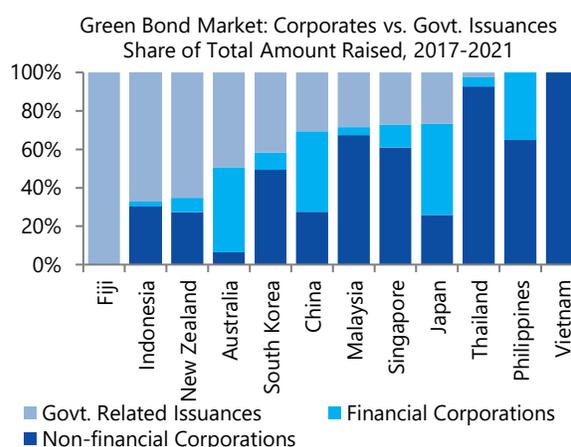
**Indonesia's green finance system has both demand (that is, borrower) and supply-side (that is, investor) challenges.** On the demand side there is a need to: (i) increase market awareness and local knowledge of green and sustainable projects and the applicable financing instruments; (ii) reduce the high cost of issuing green bonds<sup>71</sup>; and (iii) increase the availability of longer-term credits. Challenges on the supply side include a lack of assets and projects to invest in, and reputational risks (Orbitas 2021). Greater transparency will be required within the financial sector and within sectors targeted for green investment to increase the size of the pipeline.

Figure B.13: Green debt market size



Source: WBG staff analysis using Climate Bonds Initiative data.

Figure B.14: Types of green debt



<sup>69</sup> Corporations issued 80 percent or more of green bonds in Brazil, Mexico, Philippines, Thailand, and Ukraine, and about 70 percent in China and India. Indonesia has one of the lowest numbers of corporate issuers among peer countries.

<sup>70</sup> Asian Development Bank Asia Bonds online database (link).

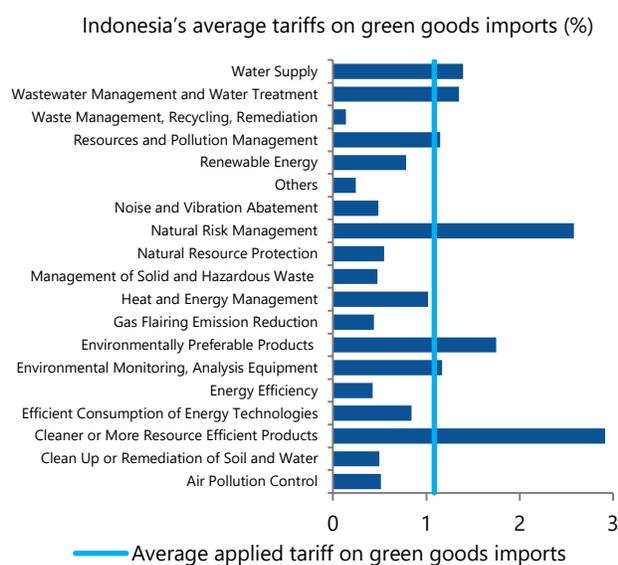
<sup>71</sup> Issuances of less than US\$100 million have costs above those of a comparable-sized loan from conventional sources (Climate Bonds Initiative 2019).

**A World Bank survey<sup>72</sup> of Indonesian financial institutions affirmed the need for standards, information transparency, and capacity-building.** Three-quarters of respondents considered laws and regulations requiring financial institutions to review ESG risks being the most important drivers of sustainable investing. For about one half of the respondents, integration of ESG principles is driven by the perception that they are: (i) good for profits; (ii) mandates from the board or top management; and (iii) provide the potential for reputational gains from

### 4.3. Trading in Green

**Trade policies can also contribute to Indonesia's decarbonization objectives.** Indonesia has low average tariffs on imports of green goods and technologies, although non-tariff measures (NTMs) continue to pose costs. At an average of 1.1 percent, Indonesia's tariffs on green goods are lower than aggregate average tariffs on all imports (Figure B.15). World Bank analysis, however, finds that NTMs on green goods have been growing in number (Figure B.16) and impose costs equivalent to an average 20 percent tariff, higher than those on 'non-green' goods (Figure B.17). Among NTMs, import approvals, compliance with Indonesian national standards (*Standar Nasional Indonesia: SNI*), and pre-shipment inspections (PSIs), have impacts on products critical to climate-change adaptation and mitigation (Figure B.18). Their impact in Indonesia exceeds that seen in regional peers.

**Figure B.15: Tariffs on green goods are low**



sustainable investing. Nevertheless, only 35 percent of the respondents believed that ESG investments would drive effective change in recipient firms. Regarding climate investment opportunities more broadly, asset managers and banks reported the range of opportunities to be limited. Lack of information and insufficient expertise were considered the most binding constraints for sustainable investing. This highlights the need for clear, consistent, and globally accepted definitions, reporting and disclosure standards, and analytics, to reduce uncertainty and the risk of greenwashing.

**While local content requirements (LCRs) may provide incentives for local manufacturing, they impact short-term uptake of renewable energy technologies.** LCR regulations set the level of domestic components for solar modules at a minimum of 40 percent. Domestically-produced solar panels are still more expensive, and their efficiency is lower than those available in foreign markets (Institute for Essential Services Reform 2021). These incremental costs also negatively weigh on the competitiveness of renewable energy generation vis-à-vis fossil fuels. LCRs may also act as barriers to international public procurement—thereby reducing the attractiveness of major renewable energy sector public procurement projects.

**Figure B.16: But NTMs can be burdensome**



<sup>72</sup> The CCDR surveyed 750 firms to gather information on firm-level emissions, environmental management practices, and drivers of, and constraints to, green practices. The sampled firms cover large and medium manufacturing firms based in Java (which accounts for more than 75 percent of all manufacturing firms in Indonesia). The survey was carried out for firms in six industries that have a high share of electricity and fuel in both output and the energy mix. These are the firms that will be most disrupted by the low-carbon transition and where environmental management practices will, therefore, be most relevant.

Figure B.17: Contributing to higher import costs

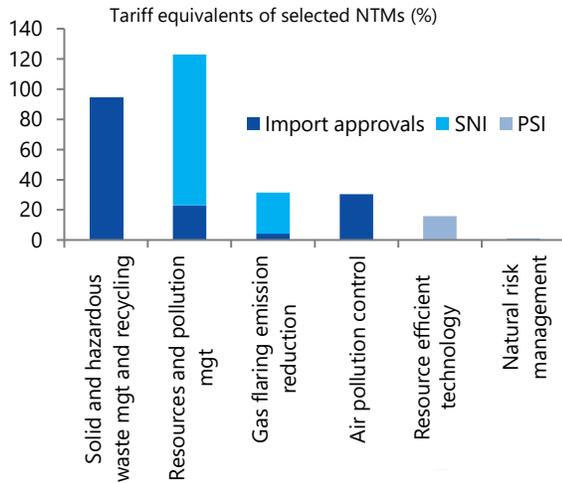
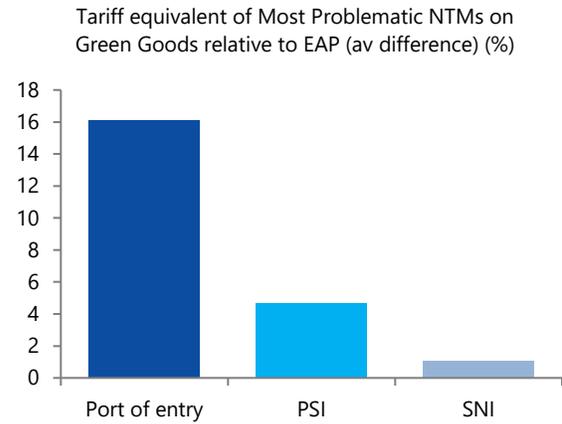


Figure B.18: And loss of competitiveness



Source: WBG staff calculations based on the World Bank Jakarta NTM database and Green Transition Navigator list of green goods.  
Note: SPS: Sanitary or phytosanitary; TBT: Technical barriers to trade; EAP: East Asia and the Pacific.

**Green goods imports represent an important source of access and transmission of new green technologies.** Trade is a channel of diffusion for innovation—including through imports and trade in technology. Trade policies such as liberalization of both tariff and non-tariff barriers is, therefore, a key channel for improving green production capabilities and realizing technology spillovers. Green goods tend to be intensive in medium and high-tech products, with 74 percent of imports containing such products (relative to 64 percent of green good exports). More broadly, Indonesia's green goods trade has higher technology-intensity than Indonesia's overall trade in goods. Access to technologies through green imports will help to improve productivity, lower production costs, and improve international competitiveness.

**To position itself to benefit from the global transition to a low-carbon economy, Indonesia can adjust its export capabilities to growing sources of international demand and cultivate new green industries.** Indonesia has potential for greater exports of green goods. With exports of green goods of US\$5.8 billion (3.6 percent of total goods exports) in 2020, Indonesia is below the global and East Asia and Pacific (EAP) average at 12 percent and 9 percent, respectively. World Bank analysis finds that exports of Environmentally Preferable Products; Waste Management, Recycling and Remediation; and Cleaner or More Resource Efficient Technologies/Products are the green product categories that exhibit the highest Revealed Comparative Advantage (RCA) for Indonesia, while at the same time being the closest to current production facilities (proximity). This makes them ideal potential export growth areas.



## 5. The Impacts and Side-Effects of Climate Actions

**Climate action through sector and enabling policies could reduce GHG emissions and promote higher growth.** The IEP provides illustrative scenarios of possible outcomes based on computable general equilibrium (CGE) modeling of various climate actions (e.g., reducing supply of land and fossil fuels or reducing demand through fiscal policies like carbon taxes). The impacts of policy reforms are difficult to predict because they partially depend on factors like technological change and global conditions. The modeling results do not, therefore, prioritize a particular outcome above all other possibilities. The intention is to help think through possible interactions between policies and economic outcomes, with a focus on the implications of emissions mitigation.

**The modelling scenarios are based on climate action of increasing ambition; from actions that enable Indonesia to internalize benefits through to those that could even benefit other countries.** Clarifying how much Indonesia can internalize the benefits of its climate actions is important to understanding what the country should do on its own and what it might do if international support is forthcoming. The modelling exercise, therefore, looks at three levels of climate actions for Indonesia:

**(i) Redirection of electricity and fuel subsidies:** Targeted rather than general subsidies lead to more efficient government spending. No additional land or energy policies are assumed in this scenario. This scenario is considered under two different sets of assumptions on the use of fiscal savings from the elimination of subsidies: first, transfers to compensate the bottom 40 percent of the population; and, second, no transfers but investment instead. The latter is only illustrative as Indonesia is required by law to provide subsidies to protect the poor from rising energy prices.

**(ii) Nationally Determined Contribution (NDC):** This includes redirection of subsidies, new land and energy policies, and a carbon tax that reaches US\$40.00/tCO<sub>2</sub>eq by 2040. The carbon tax is applied to all sectors and greenhouse gas emissions except for agriculture. Revenues from the carbon tax are used

for investment—including in low-carbon equipment. It is assumed that replacing stranded fossil fuel assets accounts for 25 percent of the new investment.

**(iii) Nationally Determined Contribution Plus (NDC+):** This includes all the actions from the NDC scenario, but also includes a much higher carbon tax rate, reaching US\$200.00/tCO<sub>2</sub> by 2040. This could reduce emissions twice as quickly as in the NDC scenario. This is a more ambitious scenario that would involve higher net costs for Indonesia while also reducing global externalities. To help compensate for the costs and positive externalities, a sensitivity analysis is added to this scenario with an increase in foreign investment specified to be equivalent to 1 percent of GDP in Indonesia throughout the projection period.<sup>73</sup>

**The modeling analysis is based on specific assumptions—which suggests caution in interpreting the results.** First, the modelling of the power sector focuses only on generation connected to the electricity grid managed by PLN.<sup>74</sup> Second, the CGE model assumes that markets work efficiently<sup>75</sup> and that the economy always operates at full capacity. There are however many frictions that prevent markets from clearing: the model assumes that agents know of all technological options and that there is an instant adjustment, but it takes time to adopt new technologies, so outcomes may take longer than predicted. Fourth, the model assumes a fixed money supply, so additional investment in low-carbon equipment will either crowd out other investment or require higher savings and reduced consumption. Fifth, the carbon tax assumptions are only used to illustrate the range of possible economic outcomes, they are not recommendations for the carbon tax rate in Indonesia. Finally, there are political economy factors that may impede progress on reforms. The full CCDR contains further details on the scenarios modelled.

**The modeling results show that progress on GHG emissions reduction will be driven in large part by combined sectoral and fiscal policies.** Scenario 1 (redirection of energy subsidies) is expected to reduce emissions by 3-4 percent, but the effects are limited

<sup>73</sup> The LCCR target is to reach 540 MtCO<sub>2</sub>eq total emissions by 2050 (LTS-LCCR 2050). The CCDR's NDC+ scenario is less ambitious. Under the NDC+ scenario trends, Indonesia could reach 540 MtCO<sub>2</sub>eq by 2060. This is, however, just an illustrative scenario, not a prediction. Much will depend on technological progress, reforms, and investments.

<sup>74</sup> In 2020, this represented 64 GW of a total installed capacity of 70 GW. As a result, the modelling does not cover, for example, coal-generation in captive power plants or in off-grid systems.

<sup>75</sup> Although the CGE does assume labor market frictions.

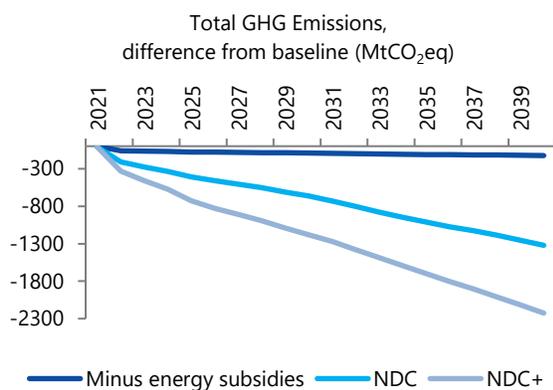
once subsidy redirection is completed (Figure B.19). The increased sectoral policies and carbon prices are projected to have a more substantial impact, with continued emissions reduction as the carbon prices are increased. By 2030, GHG emissions under Scenario 2 (NDC) could be lower by 27 percent compared to BAU; this reduction would help meet Indonesia's conditional NDC target. Under Scenario 3 (NDC+), GHG emissions are 47 percent below BAU by 2030 and 63 percent below BAU by 2040. Beyond land, the power sector shows the biggest emissions reductions in all scenarios, because of the availability of technologies that can reduce emissions to near-zero levels. There are also substantial emission reductions from manufacturing and transport.

**The net impact of climate actions on long-term GDP depends, in part, on how increased carbon tax receipts and reduced subsidies are recycled.** In all scenarios, if savings from lower subsidies are recycled through transfers, then GDP could be slightly lower than in the BAU during initial years. On the other hand, if they are channeled to investment, there could be a small initial reduction followed by an increase in GDP that is sustained throughout the projection period. In Scenario 1 (redirection of energy subsidies to transfers), the difference in output compared to BAU is projected to be positive (Figure B.20). This reflects the removal of the distortionary effects of the subsidies, and possibly additional indirect air quality effects. Scenario 2 (NDC) has a stronger positive impact on GDP (assuming carbon tax receipts are channeled to investment rather than transfers). This result is driven by the removal of economic distortions from energy subsidies, higher investments financed out of carbon tax receipts, an increase in agricultural productivity, and enhanced labor productivity through improved air quality.

**In the more ambitious Scenario 3 (NDC+), the availability of external financing could play an important role in determining the long-term economic growth path.** Scenario 3 is projected to have a positive impact on GDP up to 2035. Beyond 2035, the distortionary effects of the carbon tax, which is much larger than in Scenario 2, outweighs these positive effects. A higher carbon tax could reduce the use of fossil fuels more quickly (thereby reducing growth) than the economy can offset through adoption of new technologies (which would otherwise accelerate growth). It could also disincentivize investment due to higher cost from carbon tax on the one hand and domestic financing constraints on the other. These constraints could be alleviated through external financing. An additional 1 percent of GDP financing could lead to a positive impact on GDP (Figure B.21). This financing could be facilitated through continued reforms to the business investment climate, trade, financial and fiscal policy, building on recent efforts.

**There will be gains and losses across sectors.** Sectors that are likely to be most directly affected by carbon pricing and other emissions reduction measures (e.g., energy, power, transport, waste) are likely to experience the sharpest drops in output (Figure B.22). The coal sector accounts for significant export earnings that have financed important developments in the real sector. Other sectors, which make up large shares of GDP (e.g., construction, financial services, hospitality, wholesale and retail trade) and where the impact of transition policies is not as direct, are projected to expand and offset losses in the long term.

Figure B.19: Achieving decarbonization objectives



Source: WBG staff analysis using the MANAGE CGE model.

Note: "Minus energy subsidies" refers to scenario 1 (redirecting of electricity and fuel subsidies).

Figure B.20: With potential positive growth payoffs

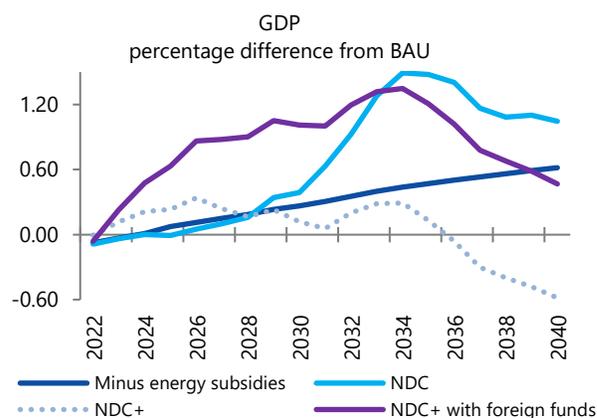
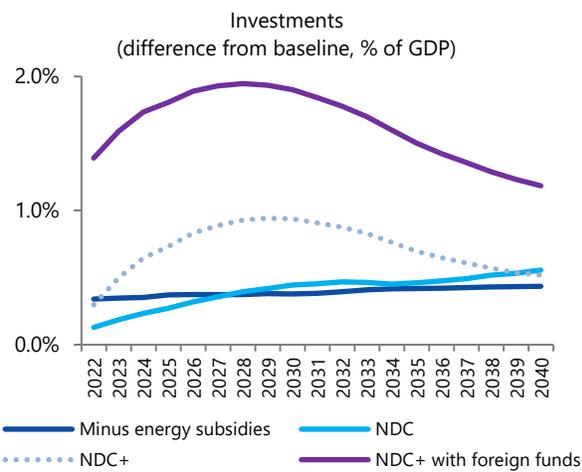


Figure B.21: Foreign investments can alleviate trade-offs in more ambitious scenarios



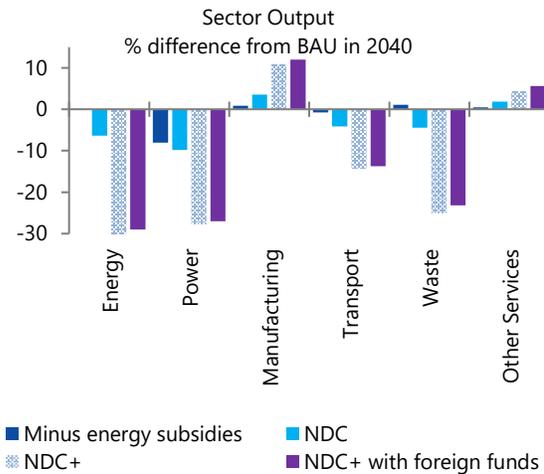
Source: WBG staff analysis using the MANAGE CGE model.

Note: "Minus energy subsidies" refers to scenario 1 (redirecting of electricity and fuel subsidies).

**Any transition will be disruptive in the short term—even if beneficial over the long term; strong political support for a comprehensive decarbonization strategy will be essential to promote a smooth transition.** This is challenged by political economy conditions and stakeholders that benefit from engagement in fossil fuel sectors. All three scenarios, however, are within Indonesia's reach. Although the redirection of fossil fuel subsidies is challenged by high energy prices, it is consistent with the longer-term trend in Indonesia, will generate fiscal savings for development, and incentivize more efficient resource use. The NDC scenario is already consistent with the government's land and energy sector commitments.

**The economy-wide impacts of climate mitigation will affect households through employment and wages.**<sup>76</sup> By redirecting energy subsidies, the first scenario has only minuscule impacts on employment growth, while the more ambitious second and third scenarios (NDC and NDC+) lead to marginal impacts on employment growth—not exceeding 0.7 percentage points annually over the 2020 to 2040 period. Most negative impacts are felt in energy-intensive sectors (Figure B.23) given the increase of costs due to the carbon tax, but overall employment in these sectors is relatively low (below 10 percent of total employment). Wage growth in most sectors is not substantially affected by the scenarios, except for large increases

Figure B.22: There will be gains and losses across sectors



in electricity, gas, and water supply sectors, by about 25 percent in the NDC and 215 percent in the NDC+ scenarios relative to the BAU scenario (by 2040). Labor demand for renewables and gas increases, leading to higher wages given labor frictions (that is, a function of the skill transferability of workers).

**Sectoral policies combined with the introduction of a carbon tax (NDC and NDC+) progressively affect household expenditures—driven by recycling of revenues into social assistance.** While the effective tax on energy increases energy prices across scenarios, improved agricultural productivity due to land policies in the NDC and NDC+ scenarios helps to keep overall inflation subdued. This results from lower food prices, which are much larger components of the overall household consumption basket than energy (Figure B.24). Household expenditures increase progressively in absolute terms for the NDC and NDC+ scenarios (Figure B.25). The progressive growth of household expenditures is mostly driven by increased social assistance which is generated by revenue from the carbon tax. Except in the first scenario, household expenditures in rural areas increase more than in urban areas given the higher agricultural productivity of land (due to the land policies) and an increase of investment in the agriculture sector (due to its lower energy intensity) (Figure B.27).

<sup>76</sup> Distributional impacts are assessed using micro-economic simulations of the results from the CGE macro model. An occupational choice model re-allocates workers based on the outputs of the CGE model. Income is transformed into expenditure based on the marginal propensity to consume. Consumption shares are kept constant assuming that households do not adapt their behavior in response to changes in prices. Population parameters are adjusted based on UN population growth projections, with education levels adjusted based on the aging of the youngest cohorts.

**While revenue recycling can mitigate adverse impacts on poverty, specific groups might still require targeting with tailored support.** The poverty rate is hardly affected in the subsidy removal scenario. Poverty is set to decline in the NDC and NDC+ scenarios (Figure B.28)—driven by social assistance. Although poverty is not worsening in any geographic

area, specific groups can lose from the reforms and will need targeted assistance. In the short term, however, poverty might be more strongly affected by price volatility undermining households' purchasing power. A food price shock of 30 percent can increase poverty by seven percentage points while a similar energy price shock increases poverty by only 1.4 percentage points.

Figure B.23: Impacts on employment

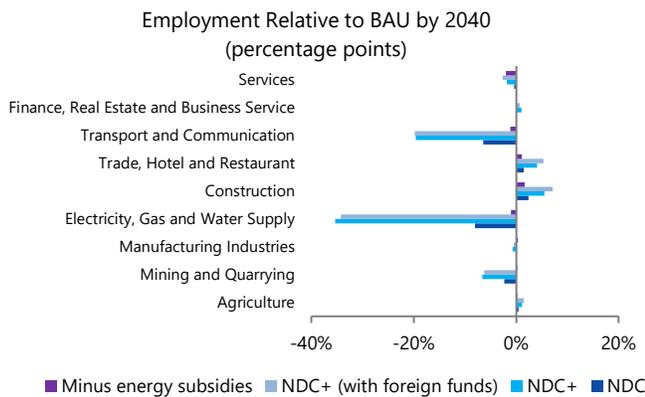


Figure B.24: Impact on prices

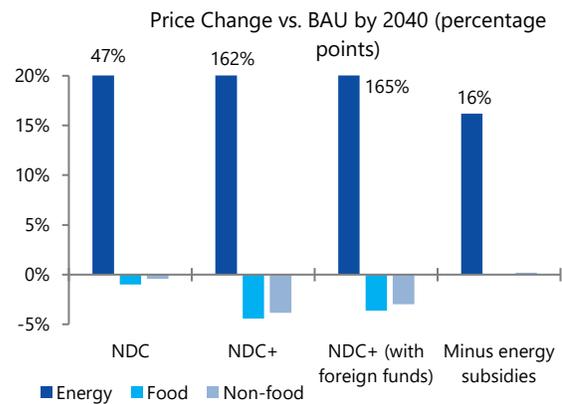


Figure B.25: Impact on household expenditure

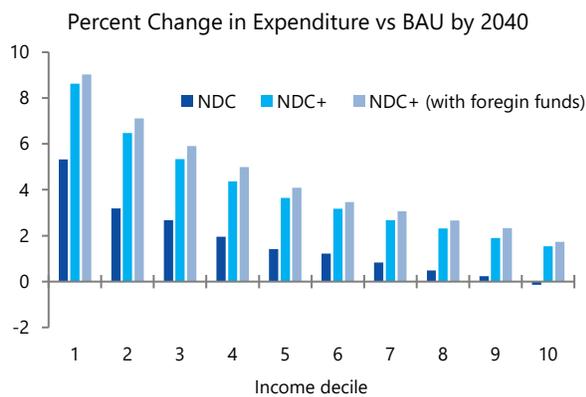


Figure B.26: Impact on expenditure by worker type

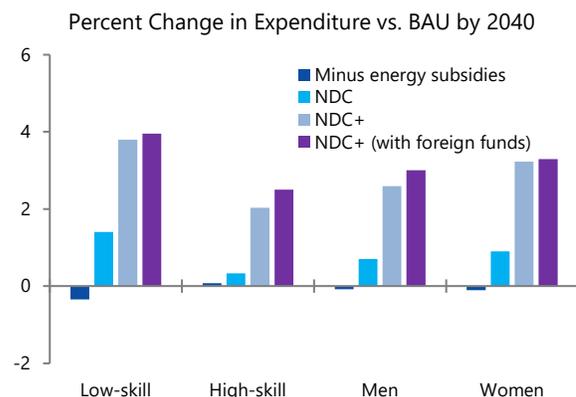


Figure B.27: Drivers of expenditure change

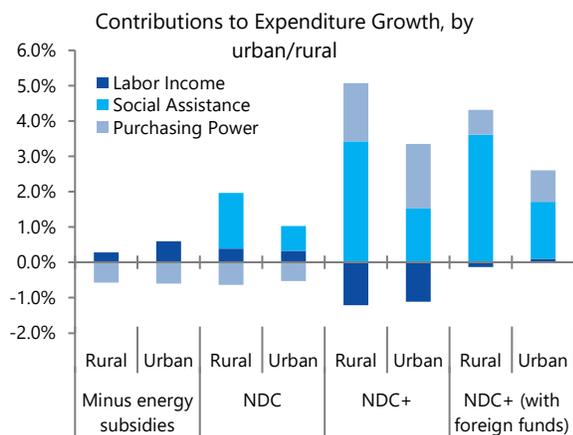
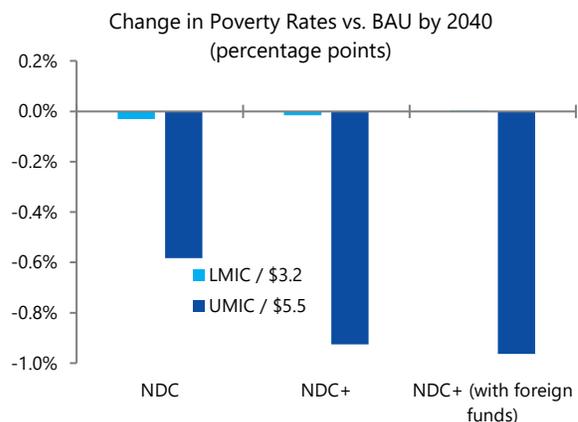


Figure B.28: Impact on poverty



Source: World Bank staff estimates based on a Microsimulation Model. Model is based on SUSENAS 2019 data projected forward to 2020 (to avoid perturbations by COVID-19 impacts). Macroeconomic projections are derived from CGE results above.

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## 6. A Climate and Development Policy Framework

**What are the implications of the above findings for policy priorities going forward?** To recap, Indonesia has drawn on its abundant supply of natural resources while achieving impressive development transitions in income, social services, infrastructure, economic growth, and poverty reduction—particularly over the quarter-century to 2022. Yet climate change poses physical and economic risks for Indonesia, and some aspects of the earlier growth model have imposed costs on development, such as air pollution. In response, Indonesia has embarked on a transition toward low-carbon and climate-resilient growth (Republic of Indonesia 2021). This IEP argues that mitigation and adaptation efforts on the supply and demand side, along with adaptation efforts, can be supported by economic policy enablers that are themselves important for long-term growth (Figure B.29). The latter aim to create the enabling conditions that will facilitate a reallocation of resources from carbon-intensive to greener parts of the economy, and from low-productivity to high-productivity areas of the economy, while raising new financing. The transition is expected to be more efficient—and growth positive—

when these enablers are strengthened simultaneously with sectoral policies.

**The IEP focuses on these enabling conditions in this concluding section.** Each policy option presented is rated according to criteria of *urgency* and *synergy* (Figure B.30). While many measures are important, some are relatively more urgent because inaction will lock in carbon-intensive development patterns or vulnerabilities that increase subsequent costs and financial risks. The IEP indicates urgency by suggesting each action as either a short-term priority (by 2025), a medium-term priority (by 2030), or a long-term priority (beyond 2030). Meanwhile, synergy refers to the extent to which a policy option is considered to contribute to both climate goals and broader (non-climate) development goals (e.g., faster long-term growth, poverty reduction, or wealth accumulation). It should be noted that this is a partial list of recommendations. The Indonesia CCDR provides further options covering sectoral reforms—with a focus on the supply and demand for energy and land—as well as adaptation measures.

Figure B.29: Building blocks for the transition

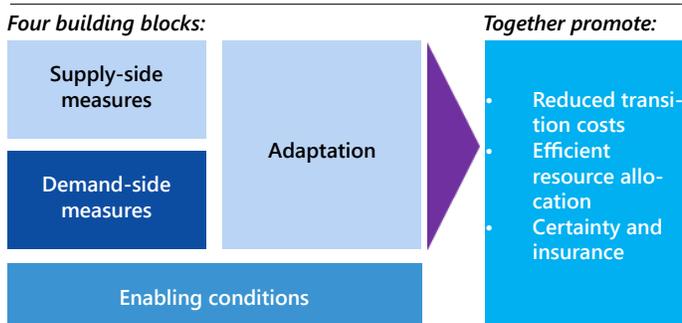


Figure B.30: Prioritization approach for recommendations

Urgency: When to act		Synergy: Expected climate and development outcomes		
Short-term priority	S	3	3	High
Medium-term priority	M	2	2	Medium
Long-term priority	L	1	1	Low-moderate
		Climate	Development	

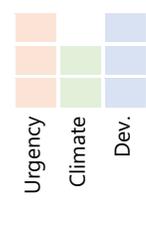
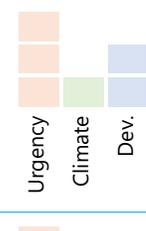
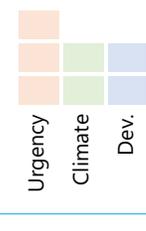


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**(a) Fiscal measures**

**Fiscal reforms can help create price signals that promote a low-carbon transition and raise revenues for mitigation and adaptation investments.** Although subsidy spending on energy consumption has declined in recent decades, there are opportunities for further subsidy redirection. There is scope to increase the coverage of carbon pricing and fossil fuel

taxes, while realigning those fiscal instruments within the same sector that have countervailing effects on the incentives for emissions. Expanded carbon pricing and fossil fuel taxes could raise revenue for climate expenditures, social protection, or general budget expenditures. Specific measures could include:

<p><b>Develop a roadmap to complete transport fuel subsidy retargeting. Fuel subsidies are regressive, distort carbon price signals, and weigh on the budget.</b> Rising global oil prices make it politically difficult to eliminate fuel subsidies in the short term, however, planning for reform could begin now in anticipation of more favorable medium-term conditions. Reform planning would include redistribution mechanisms to offset impacts on the poorest. World Bank analysis suggests that removing subsidies in isolation could increase the poverty rate by 0.4 percentage points, but fiscal savings (from reduced fuel and electricity subsidies) can be used to offset impacts on households with net fiscal savings of 0.3 percent of GDP.</p>	
<p><b>Convert the electricity price subsidy (PLN's PSO) into targeted cash transfers for eligible households.</b> This would allow the charging of tariffs that cover generation costs while using cash transfers to compensate the poor and vulnerable for price rises. This may require updates to the social welfare regis-try list (<i>Data Terpadu Kesejahteraan Sosial</i>, DTKS), to ensure sufficient information for targeting, manag-ing, and monitoring cash transfers.</p>	
<p><b>Review the inventory of tax measures to optimize alignment of fiscal policy with low-carbon objectives.</b> The review could consider: (i) opportunities to introduce an excise on fossil fuels after redirect-ing existing subsidies with compensatory measures for the poor; (ii) removing tax incentives for carbon-intensive sectors; and (iii) eliminating conflicting effects of tax policy on emissions within high-emission sectors. This would be aligned with Presidential Regulation No. 98/2021 on the economic value of carbon.</p>	

**(b) Carbon-pricing reforms**

**Fiscal reforms could include extension of Indonesia's important carbon-pricing reforms that were adopted in 2021.**<sup>77</sup> The government first introduced carbon pricing through a voluntary ETS in the power sector. This is slated for extension to other sectors from 2024. Any emissions above predetermined caps will

be subject to a carbon tax or will need to be offset through trading of allowances. This is an important step forward. As is common with the introduction of new tax instruments, implementation challenges are likely to arise, including from the interaction of different carbon-pricing instruments (tax, ETS, and offsets).

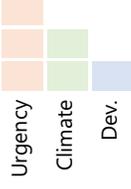
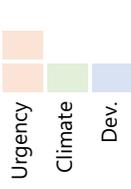
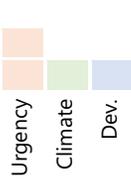
<p><b>Develop an integrated roadmap for carbon pricing.</b> Develop a roadmap for expanded carbon pricing based on a review of the impact, cost, and feasibility of the current and/or alternative instruments for additional sectors beyond 2024. Ensure alignment across different carbon-pricing instruments (ETS, carbon tax, and potential offsetting schemes). Estimate baselines disaggregated by subsector and projected annual emissions. Explore options to trade carbon credits internationally.</p>	
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<sup>77</sup> Presidential Regulation No. 98/2021 provides the legal umbrella to introduce a price on carbon through carbon trading (cap-and-trade and carbon offsets mechanisms), performance-based payments and carbon tax/levies. The Tax Harmonization Law (2021) mandates the introduction of a carbon tax. The tax's introduction was on hold at time of writing.

### (c) The financial system

**The financial system is critical to Indonesia's climate transition; addressing two challenges will help it do so in a pro-growth manner:** (i) strengthening the

management of climate- and environment-related financial risks; and (ii) mobilizing savings for climate mitigation and adaptation investments.

<p><b>Develop a comprehensive strategy for climate-risk assessment.</b> Building on the recent progress on regulations and roadmaps for sustainable finance, a climate risk assessment strategy could include how authorities (for example, Bank Indonesia and OJK) plan to: (i) integrate climate risks in their supervisory frameworks; (ii) address climate risks within their internal organization and governance structure (for example, dedicated units to manage climate risks); and (iii) allocate the needed resources and expertise to address climate risks, including through outreach and capacity-building to key financial institutions.</p>	
<p><b>Develop further guidance on risk management approaches and disclosure requirements for banks.</b> OJK could draw on the Basel Committee on Banking Supervision's principles for climate-risk management (Bank for International Settlements 2021). Guidance would include stress testing and scenario analysis methodologies, risk identification and management approaches, and procedures for disclosure of climate risks.</p>	
<p><b>Develop a further climate finance strategy focused on Indonesia's climate finance needs and opportunities.</b> This strategy would build on the Sustainable Finance Roadmap in that it would specifically: (i) estimate the current and projected financing gap to meet the country's climate mitigation and adaptation targets; (ii) determine the priority sectors requiring climate investments; and (iii) explore potential sources of finance for priority sectors, including regulatory reforms that would encourage private sector financing.</p>	
<p><b>Incentivize the use of green bonds through diverse channels.</b> This could include: (i) aggregation and securitization so that green bonds can reach the size that investors are demanding. For example, OJK could develop standardized contract templates and procedures to create consistency and simplicity in the bond issuance process; and (ii) reduce listing requirements for labeled bonds and support new and existing issuers to bring these bonds to the market.</p>	
<p><b>Develop further guidance and incentives to stimulate green loans.</b> In 2019, Bank Indonesia issued a regulation on loan-to-valuation (LTV) ratios for green mortgages to support green building development (Iswara 2019). This regulation enables a five percent increase in the maximum LTV for green development (to 90 percent), thereby lowering the down payment paid by borrowers. In addition to the incentive framework already introduced by Bank Indonesia, there are a range of other incentive mechanisms that authorities could consider for encouraging the uptake or de-risking of these loan products—such as guarantees, subsidies, data provision, and aggregation.</p>	

### (d) Trade policy

**Adjustments to trade policies could be used to support Indonesia's decarbonization objectives.** Indonesia has low average tariff rates on imports of green goods and technologies (below rates for non-green goods), however, NTMs add costs to green goods that exceed tariff costs. While many represent

important standards that should be maintained, there may be opportunities for streamlining these barriers. There may also be scope for integrating environmental provisions in Indonesia's trade agreements and for Indonesia to more fully participate in policy initiatives on green trade.

<p><b>Liberalize remaining tariffs on imports of green goods, including through multilateral participation.</b> While average tariffs are encouragingly low, there are a few remaining tariff peaks for green goods. Reducing import tariffs will reduce key goods' prices and boost access to lower-cost and more energy-efficient technologies. This may be particularly important for industries that must comply with climate change mitigation policies.</p>	
<p><b>Review and streamline NTMs on green goods.</b> Some NTMs could be simplified such as import approvals and compliance with SNI. Some NTMs could be considered for removal entirely, such as PSIs and port of entry restrictions. Over time, some NTMs could be phased out as a robust national single window and integrated risk management system is developed.</p>	
<p><b>Harmonize existing local standards with international ones and develop new standards that are aligned with international standards and practices.</b> Firms trading in green goods reported a lack of harmonization with international standards as a key challenge. Misalignment imposes costs on exporters and increases the time required to bring green goods to market. Working toward a harmonization of product standards across markets could encourage imports of green goods and boost Indonesian exports in new markets with comparable standards.</p>	
<p><b>Reduce the stringency of LCRs until demand can sustain local economies of scale.</b> High LCRs prior to establishment of market demand large enough to support domestic manufacturing economies of scale may prevent industry development, increase prices, and prevent international technology transfer. Allowing the market to first develop, such that domestic production can support the economies of scale required to keep prices affordable, may be more effective.</p>	
<p><b>Look for opportunities to include enforceable environmental provisions in trade agreements and participate in plurilateral and multilateral trade policy initiatives on green goods.</b> Environmental provisions and commitments are likely to become more detailed in terms of scope and ambition. Direct participation in multilateral and plurilateral environment-related trade policy initiatives would allow Indonesian exporters to benefit from improved market access in destination markets, while also giving Indonesia a seat at the table to shape the content and course of discussions.</p>	

**Measures to improve enabling conditions could focus on fiscal and financial measures in the short term, including setting out a roadmap for carbon pricing.** Short-term measures will help to align tax incentives with climate goals and improve economic efficiency. Reducing LCRs on renewable energy technologies can help support uptake in the short-term while Indonesia's domestic capacity continues to build. Upfront planning for carbon pricing will help inform the private sector's medium- and long-term investment decisions. Medium-term actions, meanwhile, could include harmonization of trade standards for green goods, and electricity tariff reform, along with continued retargeting of remaining

fuel subsidies. Longer-term actions could focus on continued liberalization of tariffs on green goods and gradual expansion of carbon pricing in line with the earlier developed roadmap. Other sequences of actions would be possible and will need to consider a range of factors including international economic conditions and political feasibility. Through these and other reforms, Indonesia can boost underlying drivers of productivity and efficiency, helping to reduce the short-term costs of emissions cuts and adaptation, while strengthening long-run growth prospects as Indonesia and the world moves towards a low-carbon future.

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