

A transition approach to poverty reduction and climate finance

The missing link to implementation



©Petmal/iStock/Getty Images Plus/Getty Images



Shared Prosperity Dignified Life



المجالس العالمية
GLOBAL COUNCILS
أهداف التنمية المستدامة
Sustainable Development Goals

A transition approach to poverty reduction and climate finance

The missing link to implementation

Susanna Gable, Fiona Bayat-Renoux, Maria Alejandra Gonzalez-Perez,
Jamal Saghir, Kevin Chika Urama and Bambang Widianto



Shared Prosperity Dignified Life



المجالس العالمية
GLOBAL COUNCILS
أهداف التنمية المستدامة
Sustainable Development Goals



Acknowledgements

The present report was written by Susanna Gable, Chief Economist at the Swedish International Development Cooperation Agency; Fiona Bayat-Renoux, Chief of the Green Climate Finance Unit at the United Nations Capital Development Fund; Maria Alejandra Gonzalez-Perez, Professor of Management at Universidad EAFIT; Jamal Saghir, Professor of Practice at the Institute for the Study of International Development at McGill University, and Senior Advisor at the Global Center on Adaptation; Kevin Chika Urama, Acting Chief Economist/Vice President, Economic Governance and Knowledge Management at the African Development Bank; and Bambang Widianto, Special Staff to the Vice President of the Republic of Indonesia, under the guidance of Mahmoud Mohieldin, Executive Director at the International Monetary Fund, and United Nations Special Envoy on Financing the 2030 Sustainable Development Agenda, and UN Climate Change High-Level Champion for Egypt. We are grateful for comments by François Bourguignon, Professor of Economics at the École des Hautes Études en Sciences Sociales, and feedback from participants during the launch of the report at COP27 in Egypt.

The report is a product of the Global Council for Sustainable Development Goal 1, chaired by Mahmoud Mohieldin. The Global Councils on Sustainable Development Goals was launched as a cross collaborative project between the Federal Competitiveness and Statistics Centre and the Prime Minister's Office of the United Arab Emirates at the World Government Summit in 2018.

The report has been edited and designed by the Conference Mangement Section of the United Nations Economic and Social Commission for West Asia (ESCWA).

The findings, interpretations and conclusions expressed in the report are those of the authors. They do not necessarily represent the views of the affiliated organizations or Governments they represent.

Contents

1. Background	5
2. Growth-poverty-climate nexus	7
A. Poverty and the inclusiveness of growth	7
B. Economic growth and climate: changes over time and across incomes	8
C. Climate change negatively affects growth and poverty reduction	9
D. Poverty slows economic growth and the green transition	11
3. Principles for a climate approach that accounts for poverty and country contexts	13
A. Development and adaptation is a pre-condition for resilience to climate change	13
B. A just green transition	14
C. Mitigation as a productive development path with income-adjusted trade-offs	16
D. Climate justice: energy poverty and emission patterns	16
E. A transition approach: climate-development approaches in countries with various income levels	19
4. Financing gap and the distribution of resources	21
5. Framework for green inclusive transition finance	25
6. Financing and policy options for climate change that take poverty into account	29
A. Enabling policy reforms and investment environment	29
B. Getting prices right	30
C. Global, regional and national financing architecture, systems and institutions	31
D. Green climate resilient project pipelines with sustainable development co-benefits	32
E. Financing instruments for increased private capital flows	33
F. Inclusive green development and the role of ODA and additional public climate resources	36
7. Conclusions	39
Endnotes	43

1. Background

The world is currently facing a triple crisis: food, energy, and climate. People living in poverty and in developing countries, especially in Africa, are on the frontline, suffering most in a crisis they did not create. Many solutions are available but major change will only happen when a large enough part of the international system moves in the same direction, and solutions are tailored to specific country contexts.

The climate on planet Earth is changing rapidly, with disastrous consequences. Between 2030 and 2050, climate change is expected to cause an additional 250,000 deaths every year,¹ and the link between climate change and its impact on human well-being is becoming increasingly visible. If left unchecked, climate change will push up to 130 million people into poverty by 2030, undoing hard-won development gains, and may result in over 200 million climate migrants by 2050.²

Many hoped that the COVID-19 pandemic would mark the beginning of a more permanent shift downwards in emissions, but the latest data has shattered those hopes. Global emissions of carbon dioxide and other greenhouse gases (GHGs) plunged 4.6 per cent in 2020, as lockdowns in the first half of the year restricted global mobility and hampered economic activity.³ However, emissions rebounded by 6.4 per cent in 2021 to a new record, surpassing the pre-pandemic peak of 2019 as global economic activity resumed. Hence, there has been limited progress in terms of changes to production systems or consumption behaviour.

Poverty is a significant factor in people's vulnerability to climate-related shocks and stresses. Climate vulnerability also perpetuates poverty, which in turn limits climate action. As a result of climate change, natural disasters such as floods, droughts and severe temperatures are increasing in frequency and intensity. These effects are expected to worsen in the future, thereby making it harder for people to overcome poverty. Sea level rise and the increase in sea temperatures are threatening coastal communities and livelihoods. Poverty prevents both individuals and countries from taking climate action, and is therefore an underlying driver of climate change. The only measure to address the effects of climate change on the poor, and the impact of poverty on the climate,

is to incorporate poverty reduction and adaptation measures into development planning, which must go hand in hand with climate change mitigation in developed economies. Efficient climate change policy is not viable without poverty reduction measures, and poverty reduction is not possible without effective climate change measures.

Rapid and targeted action is necessary to mitigate climate change and avert a climate crisis. According to the Paris Climate Agreement, adopted by 197 countries in 2015, the global average temperatures since pre-industrial levels should be limited to 1.5°C, and stay well below 2°C to avoid catastrophic climate change effects. Limiting increases in temperatures to around 1.5°C requires global greenhouse gas emissions to peak before 2025 at the latest, and to be reduced by 43 per cent by 2030.⁴ However, the Intergovernmental Panel on Climate Change (IPCC) concludes that the world is most likely to exceed 1.5°C, and that staying under 2°C is improbable. Based on current national climate plans, global warming is projected to reach around 3.2°C by the end of the century.⁵ The world must meet the costs of adapting to a changing climate, while stepping up mitigation efforts.

In addition to mitigation efforts, there is a need to accelerate adaptation measures, especially for people living in poverty. There is a clear lag between the implementation of policies and green technologies and actual declines in emissions, and between declines in emissions and lower global temperatures. Given the present levels of carbon dioxide in the atmosphere, changes in the climate would continue in their current direction for millennia. Consequently, regardless of socioeconomic trends and climate policies, mean global temperature will continue increasing before it declines. People living in poverty are especially vulnerable because of their direct exposure to the effects of climate change, their dependence on natural capital, and their lack of resilience and resources to adapt. According to the IPCC,⁶ around 3.6 billion people live in climate-vulnerable environments. Nine out of the ten countries most vulnerable to climate change are in Africa. Inequalities in transition capacity, and the fact that many climate change impacts are irreversible and exceed adaptability, compound its disparate

effects. This situation is further exacerbated by unsuccessful adaptation activities, which are funded through projects that lack programmatic planning and have high transaction costs.⁷

Climate change already costs up to \$300 billion on average per year (equivalent to 167 per cent of global official development assistance) in measured financial losses, but most losses are not measured, especially in developing countries. A small island State can lose more than its annual GDP to a single weather related disaster in extreme years. Three quarters of the almost 700 million people living in extreme poverty rely on small-holding agriculture and natural resources to survive. For these people, shifting weather patterns, limited access to adequate water sources, and increased competition for other resources, including arable land, are a matter of life and death. African countries lost between 5 and 15 per cent of their GDP per capita growth owing to climate change over the period 1986–2015.⁸ Climate change has also led to increasing mortality, climate-induced conflict, human displacement and migration, among other effects observed across the African continent.

The climate crisis is accompanied by several other crises, leaving some countries poorer and people with increased needs but less resources. For the first time in decades, extreme poverty increased in 2020 owing to the economic impact of the COVID-19 pandemic. Developing countries are falling behind in the post-pandemic recovery. With limited stimulus packages, developing economies are suffering from the compounded effects of the virus: depleted savings, a looming debt crisis, the reversal of capital flows, and limited fiscal space and few resources for investment in recovery and a green transition. Poor countries are falling further behind as rich countries recover.⁹ These trends are amplified by the war in Ukraine, further exacerbating the supply of resources and increasing the possibility of a food crisis.

The situation is especially severe in Africa, which ranks last of all continents in climate resilience. According to the African Development Bank,¹⁰ the COVID-19 pandemic resulted in 29 million more Africans living in extreme poverty in 2021, relative to pre-pandemic estimates, with an additional 30 million people expected in 2022 and in 2023. If the war in Ukraine persists, another 1.8 million Africans could slide into extreme poverty in 2022, and an additional 2.1 million in 2023. African countries need about \$432 billion to address the socioeconomic impact of the pandemic, and to support economic recovery in 2022 and 2023. The continent needs more than a decade to meet pre-pandemic poverty targets, that were already on a downward trend before the outbreak of COVID-19. Moreover, the United Nations has warned of a food crisis and severe risk of starvation in the Horn of Africa owing to droughts.¹¹ To adequately implement its nationally determined contributions (NDCs), Africa requires cumulative climate financing of up to \$1.6 trillion between 2020 and 2030, an average of \$128 billion annually.

Despite the rise in poverty and inequalities, multiple crises and a lack of development resources, climate-related investments remain vital. Too much is at stake on both the mitigation and the adaptation side. There is a need to transition towards an economic system that respects planetary boundaries, but these necessary changes will only happen if development goals, such as poverty alleviation and social inclusion, are also addressed. The response must consider that while the main burden of mitigation is in the hands of those with resources, who have already benefitted from activities resulting in carbon emissions, the main burden of adaptation is unfortunately borne by those without the means to implement it. Resources must be urgently made available to developing countries, given that the economic and climate costs of catching-up are rapidly increasing for the whole planet.

A just transition and climate justice underpin the way forward. The Paris Agreement and the Sustainable Development Goal on climate action (SDG 13) have explicit provisions on a just transition, which is based on the premise that an economic development model can simultaneously address environmental challenges while ensuring decent jobs and income if the model adjusts at the various stages of the transition. A just transition involves political, economic and social interventions to transition to low-carbon societies and economies, while leaving no one behind. Failure to undertake an immediate and coordinated transition, in addition to inadequate risk management, imminently jeopardizes economic activities, poverty reduction and the social fabric, especially in countries with fewer resources for a transition. Both the challenges posed by the negative effects of climate change and the urgent measures needed to combat them are very different in more industrialized high-income countries. In these countries, the focus is on reducing greenhouse gas emissions, to a large extent produced by themselves. In low-income countries, priorities differ and include increasing resilience and adaptive capacity to climate-related risks and natural disasters, largely created by emissions from richer countries.

The present paper proposes principles and a framework to guide policy and financing options on adapting to life in a changing climate and a green transition, while achieving poverty reduction goals. These principles reveal the need to take specific development contexts into account when designing strategies, policies and financing options. Chapter 2 highlights the interdependence between poverty, economic growth and climate, stressing that one cannot be solved without the others. Chapter 3 presents several principles, taking into account current and historical patterns of emissions and resources. Chapter 4 addressed the climate and poverty reduction financing gap, and misaligned resources between developed and developing countries. Chapter 5 sets out an adapted transition financing framework, and chapter 6 reveals how these principles and the transition finance approach can help drive various policy and financing options.

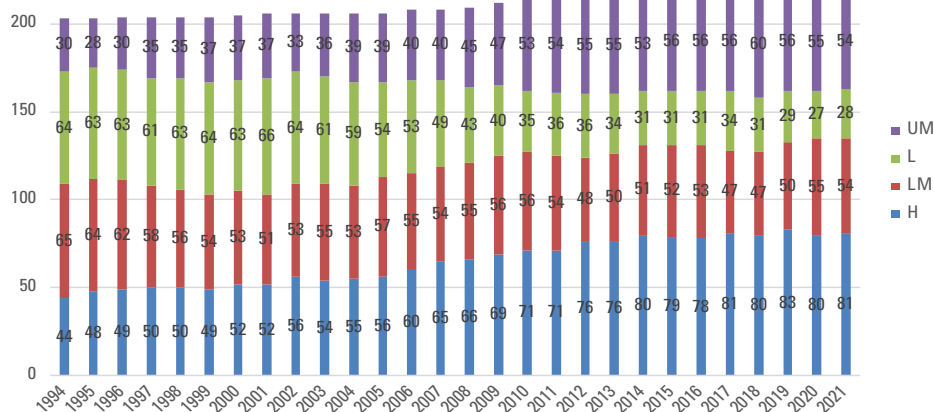
2. Growth-poverty-climate nexus

A. Poverty and the inclusiveness of growth

Economic development is essential for poverty reduction over time. From 1990 to 2019, global extreme poverty declined from 36 to 8.5 per cent. As illustrated in figure 1, the number of low-income countries more than halved between 2000 and 2019, declining from 66 to 31. The number of high-income countries increased from 52 in 2000 to

80 in 2019. The numbers of middle-income and lower-middle-income countries (60 upper middle-income and 47 lower-middle-income countries in 2019) remained constant overall, as countries transitioned in and out of these groups during that period.¹² Most of this aggregated global poverty reduction is a result of economic growth, rather than redistribution of income within countries. However, the extent to which economic growth reduces poverty differs across countries and periods: economic growth can be more or less inclusive, and therefore more or less efficient at reducing poverty.

Figure 1. Number of countries by income category



Source: World Bank, Classifying countries by income, 2019.

Note: UM: upper-middle income; L: lower income; LM: lower-middle income; H: high income.

Economic development is also essential for building resilience and adaptation to ease poverty impacts during shocks. Poverty reduction is both about increasing the number of people moving out of poverty, and decreasing the number of people being pulled into poverty. While low-income and middle-income countries were severely hit by the economic and poverty impact of COVID-19 lockdowns, the difference in recovery was substantial. The same is true for their ability to prevent, adapt and overcome climate shocks. In addition to poor people being more often affected by climate shocks (they are more exposed) and losing more when affected relative to their income or wealth (they are more vulnerable), they have less resilience because of weak support from family, friends and the community, and have less access to financial tools or social safety nets to help prevent, prepare for and manage these impacts.

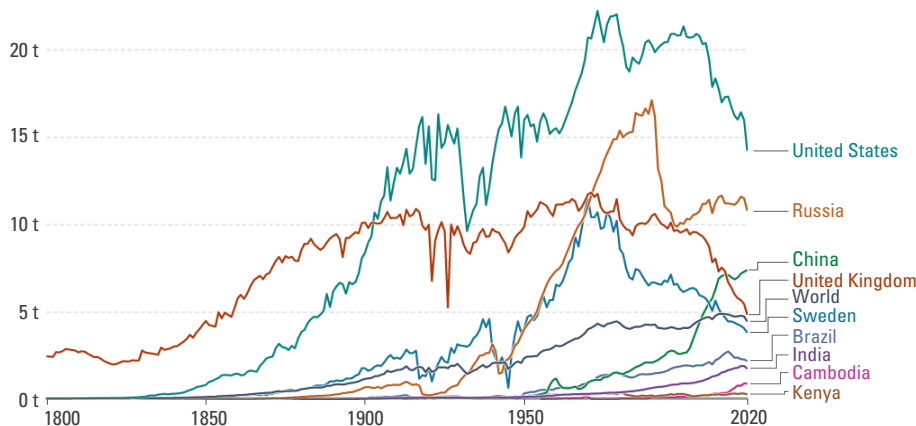
However, growth alone is not sufficient to strengthen resilience among vulnerable populations. Around 62 per cent of the global population still lives on less than \$10 a day, income inequality has been increasing within most countries, and the previous economic convergence between countries has been replaced by divergence after the pandemic. COVID-19 recovery plans and the green transition must therefore take into account that it is not possible to simply grow our

way out of poverty and into resilience. It is necessary to look at the underlying causes of poverty and inequality, and ways to increase the share of the poorest groups in economic growth and sustainable transition.

B. Economic growth and climate: changes over time and across incomes

Economic development affects climate change, but to varying degrees in different economic systems and over time, as countries develop. Economic development is essential for poverty reduction but often negatively affects climate change, thus creating well-known trade-offs. As a result of development, the United States has contributed 25 per cent of accumulated carbon dioxide emissions and European Union countries have contributed 22 per cent, but Africa has contributed only 3 per cent.¹³ Figure 2 shows how emissions per capita change over time as countries increase their incomes, consumer preferences change, and new technology becomes available.¹⁴

Figure 2. Carbon dioxide emissions per capita



Source: Our World in Data.

Note: Figure 2 shows carbon dioxide emissions from the burning of fossil fuels for energy and cement production. Land use change is not included.

The costs of renewable energy continued to fall in 2021, and investments in renewables continued to pay huge dividends in 2022. According to the International Renewable Energy Agency (IRENA),¹⁵ almost two thirds of renewable power added in 2021 had lower costs than the cheapest coal-fired options in G20 countries. The cost of electricity from onshore wind fell by 15 per cent, offshore wind costs fell by 13 per cent, and solar PV costs dropped by 13 per cent compared with 2020. IRENA also

estimates that given the current high fossil fuel prices, the renewable power added in 2021 has saved around \$55 billion from global energy generation costs in 2022. In non-OECD countries, the 109 GW of renewable energy added in 2021 (that cost less than the cheapest new fossil fuel-fired option) will reduce costs by at least \$5.7 billion annually for the next 25–30 years. Between January and May 2022, the generation of solar and wind power may have saved Europe fossil

fuel imports of around \$50 billion, predominantly fossil gas. While a temporary crisis response might be necessary in the current situation, the IRENA report shows that high coal and fossil gas prices in 2021 and 2022 will significantly decrease the competitiveness of fossil fuels, and make solar and wind power more attractive.

Although the share of renewables is increasing, there are still obstacles to a full transformation. In Europe, the unprecedented surge in fossil gas prices will make new fossil gas generation increasingly uneconomic over its lifetime, thus increasing the risk of stranded assets. Fuel and carbon dioxide costs for existing gas plants may average four to six times more in 2022 than the lifetime cost of new solar PV and onshore wind commissioned in 2021. For developing countries, particularly in Africa, which are building new energy infrastructure, research shows that the cost of clean energy sources is already more competitive than developing new fossil fuel plants, and that the year-on-year costs will continue to fall as the infrastructure develops. Solar power costs are falling by 13 per cent year-on-year, and wind power costs are dropping by 9 per cent.¹⁶ However, challenges remain regarding the storage of electricity generated from renewable sources, which in practice means that a certain share of more reliable energy sources is needed. In addition, high oil and gas prices suggest that they are still in demand, not least from high-income and upper-middle-income countries. Consequently, many Governments, entrepreneurs and investors may want to continue exploiting oil and gas resources, including in Africa.

For most developing countries, economic growth allows for increased technical efficiency in production systems and consumption goods, thus reducing environmental externalities. At lower income levels, environmental externalities are high owing to inefficient production technologies, regardless of how green those technologies are. Consequently, investing in economic growth and poverty eradication at lower income levels delivers environmental co-benefits. For example, improved incomes make it possible to replace old machines with more energy efficient alternatives, or replace an old car with one with less gas mileage. However, at a certain levels of income, the Jevon effect kicks in, where increased consumption can only lead to decreased emissions if green technologies are introduced at a faster pace. In addition to reducing the amount of energy needed for a given use, improved efficiency also lowers the relative cost of using a resource, which increases the quantity demanded. Moreover, improved efficiency accelerates economic growth, further increasing demand for resources. For low-income countries, there is a need to leapfrog in technology when increased consumption overtakes efficiency gains, so as to ensure a sustainable development path. To avoid the depletion of a resource, the true social cost needs to be reflected by balancing the decrease in resource cost owing to improved efficiency.

Countries with similar income per capita differ substantially in their emissions, owing to various factors such as policies and economic structure. For example, emissions per capita in the United States (14.2 tons) are about three times larger than in Sweden (3.8 tons). Despite similar income levels, emissions per capita total 0.3 tons in Kenya, 0.9 tons in Cambodia, and 1.8 tons in India. Hence, income per capita has a direct impact on emissions, but countries have different development contexts and economic structures, indicating the importance of policy in this regard.

Past patterns cannot be automatically translated into future patterns, given changing consumer preferences, public policies and technological development. At a certain point, emissions per capita decline as countries switch to a more service-based economy with resources to invest in the latest technology solutions. However, the curves in figure 2 are, on average, expected to become flatter and shorter for countries transitioning in the future (in other words, the peak of carbon dioxide emissions per capita will be lower and happen earlier). In 2021, the global average peaked at 4.91 tons per person, but decreased to 4.47 tons in 2020 (figure 2).¹⁷ While many current high-income countries show that economic growth is compatible with reducing emissions, as is the case in Sweden (figure 3), this needs to happen at a faster pace and across more countries globally.

C. Climate change negatively affects growth and poverty reduction

Just as economic development has implications for climate change, the reverse is also true, with climate change shaping the dynamics of growth and poverty reduction. There are a number of simulations suggesting a decline in expected global GDP owing to climate change, ranging from a few percentages to 30 per cent in 2100.¹⁸ In contrast, according to IMF, small sacrifices are needed in terms of mitigation policies to reach net-zero emissions, reducing global consumption by only 1–4 per cent in 2030 and 3–11 per cent in 2100 relative to an expected consumption growth of more than 300 per cent in all scenarios.¹⁹

However, using aggregate GDP hides the distributional effects and the potential impact of climate change on poverty in different regions and countries. Actual climate change is expected to be worse for developing countries. In addition, measuring the impact in global GDP loss masks the actual climate impact, as exemplified by sub-Saharan Africa that only generates 3 per cent of global GDP. A large impact from climate change in sub-Saharan Africa would therefore have only a minor effect on global GDP,

but would potentially have a large impact on poverty and the well-being of its people. Equally important is that climate change effects will be highly heterogeneous within countries – across occupations and income

classes (figure 4). Since poor people's assets and income represent such a small share of national wealth, their losses, even if dramatic, are largely invisible in aggregate economic statistics.

Figure 3. Change in per capita carbon dioxide emissions and GDP in Sweden

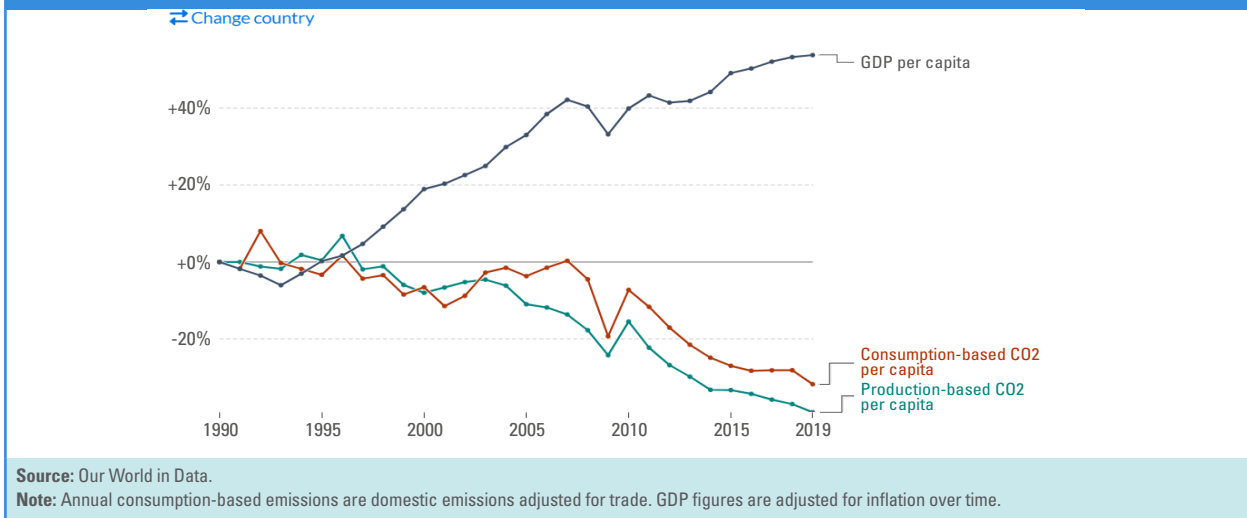
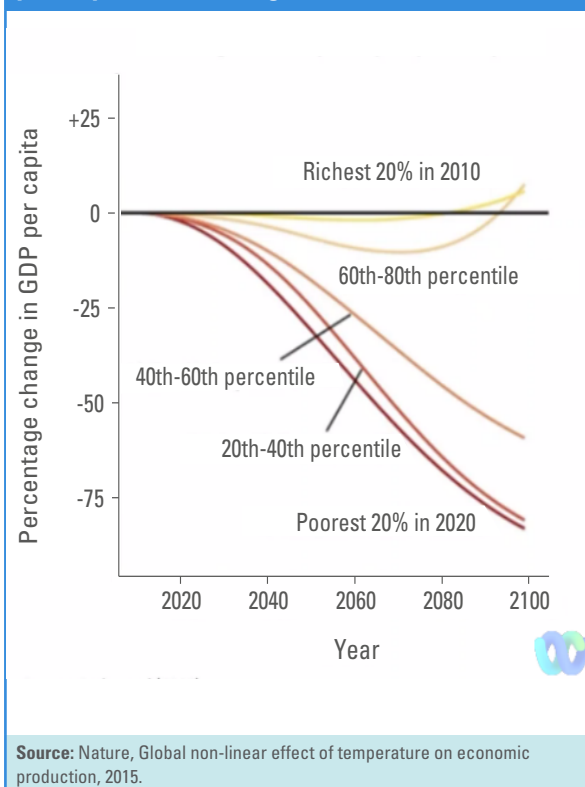


Figure 4. Global change in GDP per capita (Percentage)



The African continent is especially vulnerable to the fallout of climate change for several reasons. In sub-Saharan Africa, more than 60 per cent of the population are smallholder farmers, of which 60 per cent are women, and depend on agriculture for their livelihood.²⁰ About 23 per cent of sub-Saharan Africa's GDP comes from agriculture.²¹ Some of Africa's distinctive geographical features (three fifths of its land area consists of drylands, where rainfed agriculture and livestock husbandry support over 500 million people) and climatic characteristics, such as its dependence on monsoonal weather systems, also increase its vulnerability to changing weather patterns and more extreme weather events. Furthermore, the continent is experiencing a wave of rapid urbanization, leading to severe pressure on its urban infrastructure and risk management systems. African countries also find themselves with a greatly reduced fiscal space for investment in adaptation and mitigation in the wake of the COVID-19 pandemic. All these factors, when added to the existing development challenges of poverty, food insecurity and conflict, mean that Africa will likely experience higher climate change impacts as a percentage of GDP than other regions. Some projections indicate that climate change will lead to an equivalent of 2–4 per cent annual loss in Africa's GDP by 2040.²² Other data suggest that in the absence of climate change policies, Africa could lose between 2 and 12 per cent of GDP by 2100, depending on global warming scenarios, compared with less than 1 per cent for the United States, European Union and United Kingdom, and between 1 and 5 per cent for China.²³

World Bank estimates suggest that climate change may drive between 68 million and 132 million people into poverty by 2030.²⁴ The range depends on a high or low impact of climate change scenario, and a prosperity or poverty development scenario.²⁵ Agricultural impact is the main factor, followed by health impacts (diarrhoea, malaria, and stunting), and the labour productivity effects of high temperature.²⁶ Disasters play a limited role, but this would change if indirect longer-term impacts on income losses were included. An important conclusion is that the prosperity scenario has a large impact on poverty reduction, and significantly reduces the negative effects of climate change on poverty.²⁷ Consequently, to ease the poverty impact of climate change, development and its resulting resilience are essential for poor countries.

Poor countries and poor people have fewer resources to fall back on and lower adaptive capacity to climate change, thus exacerbating its negative effects on growth and poverty reduction. The 2022 African Economic Outlook Report shows that just adapting to climate change could cost the continent at least \$50 billion annually by 2050, equivalent to about a third of current global official development assistance (ODA).²⁸ This lack of resilience to the effects of climate change can impact the number of people falling into poverty, owing to direct or indirect environmental and climate shocks. It also affects the number of people escaping poverty, through lower agricultural productivity and asset losses (physical and human), or slowdown due to natural disasters.²⁹

There are several additional dynamics creating a downward spiral for affected areas with low adaptability. For example, since areas exposed to climate change are also more risky, this affects the willingness of households and businesses (domestic and international) to save and invest in both physical and human capital investments, thus affecting the future development path. Another example is migration that plays a key role in the ability of poor households to escape poverty caused by climate change, by capturing opportunities for better jobs, higher pay, and improved access to services and education. Climate change may both trigger more migration, if opportunities disappear because of climate impacts, and impair migration through increased conflict and exclusion for example. Given the importance of upward mobility as an instrument for poverty reduction, it is critical that adaptation to climate change does not lock people in places or occupations where they become less able to escape poverty.

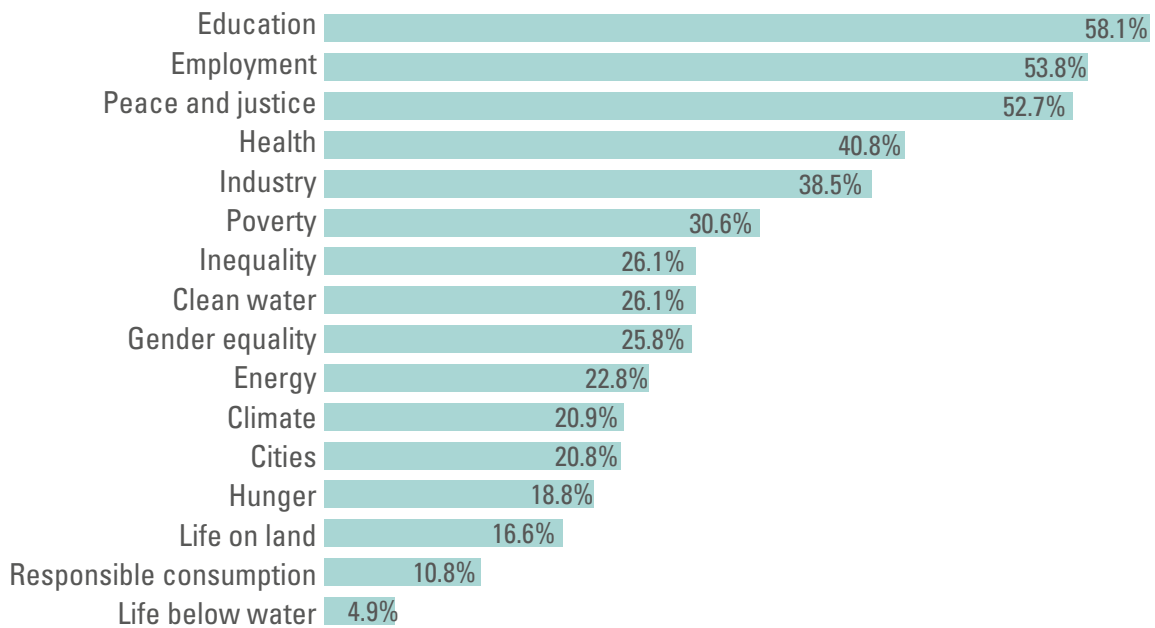
D. Poverty slows economic growth and the green transition

Poverty forces short-term decisions that are not compatible with sustainable green growth. This is true at the household level, where investing in children's schooling may come second to a family's expenditures on food, or where felling trees for cooking or heating in order to survive trumps preventing deforestation and soil erosion. This is also true at the national level, where current expenditures such as paying civil servants for basic public services may need to be prioritized over longer-term institutional building and investments. In investment terms, the poor have a high discount rate and hence prioritize short-term gains over long-term sustainable development goals. It is therefore crucial to heavily invest in poverty eradication, so as to secure global environmental security.

Increases in poverty and inequality, owing to climate change and other factors, may also have negative effects on economic growth and poverty reduction through greater social unrest. This is particularly sensitive if food insecurity increases, for which the vulnerability differential between poor people and the rest of the population is large. Poor people spend a larger share of their budget on food than the rest of the population: 62 per cent on average for the poor compared with 44 per cent for non-poor people.³⁰ It is also especially sensitive for the urban poor who spend higher shares of their income on food than the rural poor, and who do not benefit from the income increase from rising agricultural prices that typically accompany a food crisis.³¹

In terms of the SDGs, those related to the environment are given low priority among both leaders and citizens in developing countries. As shown in figure 5, education (SDG 4), economic growth and jobs (SDG 8), and peace, justice and strong institutions (SDG 16) are the most important priorities for leaders in developing countries, followed by health (SDG 3) and industry, innovation and infrastructure (SDG 9).³² Even when looking at responses from leaders from different social groups and regions, this result was remarkably consistent. Apart from Asian regions that are more directly affected by rising sea levels, leaders ranked climate change (SDG 13) at the lower end of their priorities. Other SDGs related to the environment, such as life below water (SDG 14), responsible consumption (SDG 12) and life on land (SDG 15), were ranked at the very bottom. Strong country ownership is a pre-condition for any development to be sustained in the long term, suggesting that any global strategy for climate change needs to take these preferences into account, and as they evolve through the different transition stages.

Figure 5. Percentage of leaders who identified an SDG as one of their top priorities, 2020



Source: AIDDATA, Listening to Leaders 2021: A report card for development partners in an era of contested cooperation, 2021.

Consequently, tackling global poverty should be a priority in its own right, but also a factor determining the realization of climate change goals.

Households or countries that have yet to reach a point where they can focus beyond basic needs, cannot make longer term decisions for a sustainable, prosperous and green development. In addition, with increased resources and improved institutions comes more efficient and updated technologies and infrastructure,

accompanied by a risk reduction that attracts more resources that can be transformed into a more human capital and service-based system. These technologies and efficiency improvements include clean energy and renewables, whose costs are now declining. With storage and transmission technologies and financing options in place, the share of renewables in total energy consumption will increase.

3. Principles for a climate approach that accounts for poverty and country contexts

The present paper asserts that there is a need to focus on fundamental social and economic changes that meet the goal of eliminating poverty, while keeping global development within planetary boundaries. The following sections present several principles that urgently need to be reflected in practical policymaking and financing decisions.

A. Development and adaptation is a pre-condition for resilience to climate change

The impact of climate change on poverty is conditioned by overall development progress. According to the World Bank, the quantitative impacts of climate change on poverty are much smaller in a world where socioeconomic trends and policies ensure that development is rapid, inclusive and climate informed, than in a world where extreme poverty persists.³³ Development also has more general effects on resilience, including having more resources and savings for public and private investments and consumption, and fewer households living with a daily income close to the poverty line. Technology transfers to countries also increase with development, which supports both mitigation and adaptation measures. A structural shift away from subsistence agriculture would also decrease exposure to the negative effects of climate change on poverty. In addition, increased incomes are related to lower fertility, translating into lower population growth and healthier people.

With development and greater resources there is also room for targeted efforts related to poverty and climate, and safety measures during crises. For instance, future vulnerability to agricultural impacts can be reduced by enhancing road infrastructure, and strengthening links between rural and urban markets, thereby stabilizing prices. Another example is that the share of income people spend on food decreases as people escape poverty, making the consequences of higher food prices more manageable in the future. As a country develops, a larger share of its citizens living in poverty may have access to social protection, health insurance and financial tools, which would make a significant difference in terms of their vulnerability.

While it is essential to act now to mitigate the medium- and long-term effects of climate change, climate policies and investments can do little to reduce the amount of global warming between now and 2030–2040. This is because of the lag between the introduction of mitigation policies and investments, their impact on emission reduction, and the knock-on effect of emissions reduction on global warming and the climate system.³⁴ While it is possible to speed up the introduction of mitigation policies, and to some extent the speed at which they translate into emission reductions, the relationship between emission reductions and the actual slowdown in global warming is governed by natural laws. Research from the Global Center on Adaptation finds that the climate change level for Africa over the next 20 years is already locked in, and these impacts can only be reduced by adaptation.³⁵ Hence, while countries take essential measures to prevent further deterioration of the climate system, the main way to limit the socioeconomic impacts of climate change

by 2030–2040 is by reducing socioeconomic vulnerability to climate change through targeted adaptation efforts.

Over the past decade, many have questioned the effectiveness of adaptation based on incremental change (in other words, adaptation by adjusting existing systems and practices in line with experienced and anticipated changes). Some would even argue there has been mal-adaptation. Classic examples include changing planting dates as seasonal calendars change, or reinforcing houses against an increasing coastal storm risk. Instead, it has been argued that adaptation requires transformative change (a paradigm shift), which is achieved by significantly altering systems and practices. Such a shift could entail changing farming practices completely, such as from annual crops to orchards, or by moving to farm elsewhere as the climate changes, or by rehousing entire communities further from the coast to areas less subject to storm damage. Such adaptation can progress through periods of incremental change, interspersed with the need for more substantial transformative changes. However, to create more transformative change, programmatic scaled-up adaptation initiatives and adequate financing are needed.

Adaptation is receiving increased attention, especially when considering climate justice. Developing countries have voiced their alarm during international negotiations on climate change, pointing to the existential threats that many countries are already facing from climate change. Global actors are increasingly including climate risks in their decisions,³⁶ and the private sector is seeking to become more engaged. Major corporations have the resources and inhouse skills to factor climate risks and responses into their long-term planning. Smaller enterprises are limited in their options to adapt themselves, but could increasingly act on market opportunities to supply the means for adaptive actions.

B. A just green transition

Green growth in developing countries, entailing low-carbon measures and adaptation policies, should focus on robust growth and job creation, without locking economies into unsustainable development patterns. According to IPCC, four system transitions are key for adaptation and mitigation: the energy system transition, the land and ecosystem transition, urban and infrastructure system transitions, and the industrial system transition. Most green growth policy is good growth policy: it is about getting prices right, fixing markets, addressing coordination failures and knowledge externalities, and assigning property rights. However, green growth policies are no substitute for good growth policies. Lessons from other transitions, such as trade liberalization, show that good policies and well-designed social safety nets reduce human and economic costs, which will be equally true for the green transition. The

aim should be to operationalize sustainable development by reconciling developing countries' urgent need for rapid growth and poverty alleviation, with the risks of lock-in and irreversible environmental damage and climate change. Box 1 sets out the approach taken by Indonesia in assuring a just green transition.

Greening growth requires addressing a number of market failures, which means Governments need to manage those market failures and focus on protecting the most vulnerable, given that all major transformations are highly vulnerable to governance failures. Greening growth also entails careful management of the political economy of reform, ensuring that the poor are not harmed and putting in place effective safety net mechanisms. In addition, green investments often require high upfront costs, though these may be recouped later through lower operations and maintenance costs (smart agriculture, sustainable fisheries, green energy, climate resilient infrastructure), with longer payback periods. Since costs are short term and the payback periods are long term, there is an additional risk of government failure. Governments need to convince voters to pay for investments whose benefits occur in the future, or to support the introduction of taxes and regulations that may hurt some businesses today but create opportunities in the future.

A just transition is an alternative to the jobs-environment dilemma. Risks associated with the climate transition affect the entire economic order, including certain jobs. Failure to implement an immediate and coordinated transition and an adequate risk management strategy will endanger economic activities, particularly in countries with limited transitional resources, such as developing countries. Climate justice is a useful concept in relation to the transition process. It has different meanings depending on the context, but it generally includes the following three principles: distributive justice, which includes the allocation of burdens and benefits among individuals, countries and generations; procedural justice, which refers to who decides and participates in decision-making processes; and respectful, fair and committed recognition of different cultures and perspectives. According to the IPCC, climate justice links development and human rights to address climate change in a rights-based manner.³⁷

Economic transition creates winners and losers, making the case for insurance and social protection, not only in terms of adaptation but also as part of climate change mitigation reform. Provision of quality basic social services and social protection are essential on the adaptation side. According to the latest Human Development Report, insurance provides an essential stabilizing force and promotes risk-sharing in the face of uncertainty.³⁸ There is an urgency to reduce poverty and provide poor people with opportunities, quality basic social services, and well-designed social safety nets to reduce their vulnerability before climate change impacts become larger than they are today. In addition, there will be many

success stories and winners following a green transition, but also losers that need to adjust to a new system. Many workers worldwide will lose or change jobs owing to changes in consumption preferences and production, policies and regulations for energy transition and decarbonization. Creating resilience in such a transformation means also including social protection measures to ensure people can re-enter the workforce as quickly as possible. This is important for efficiency

reasons, to prevent social unrest, and to limit political constraints to necessary and urgent adjustments. Solving the climate-growth-poverty dilemma requires a multi-actor approach to transitional justice – a trusted social contract – involving the Government, human rights organizations, worker representatives, the private sector, academia, and coalitions among these actors.

Box 1. A just energy transition and poverty alleviation in Indonesia

Indonesia, like any other country, is facing the challenge of a tremendous energy shock, while simultaneously pursuing an energy transition. The country has therefore identified several policy options that balance the energy transition and, at the same time, address inclusive and just poverty alleviation initiatives. The following lessons learned can be taken as recommendations to implement a just and inclusive energy transition:

1. It is imperative to promote equal access for the poor to energy, by removing entry barriers for households to acquire low-carbon technology. Renewable energy projects have deepened social and wealth divides owing to unequal access, especially because of the high cost of renewable technologies. Strong cross-sectoral initiatives between the energy sector and ministries, such as the Ministry of Public Works and Housing, can be a way to develop inclusive energy policies, programmes or schemes to address this issue. Weak equal access initiatives may lead to unfair outcomes that only benefit the non-poor.
2. Decision-making regarding the energy transition should include the voices of the rural poor, the vulnerable and other marginal communities. Their roles and sense of ownership of the transition and their control over technologies that affect their lives are important. Engagement with local communities will therefore lead to positive impacts on the transition towards low-carbon energy. This suggests that participatory frameworks that prioritize the needs and concerns of residents are crucial to ensuring the sustainability of the transition.
3. It is necessary to find easily implementable policies that promote non-carbon technologies. In Indonesia, with 80 per cent of transport comprising motorcycles, converting carbon-based motorcycles into electric motorcycles will reduce carbon dioxide emissions immediately. However, the conversion cost must be affordable to complement this initiative, and the Government should significantly expand electric charging infrastructure.
4. The Government should increase both capital and operational expenditure for non-carbon technology. Indonesia has great potential in geothermal, hydro, solar and wind power, and even ocean energy power which requires significant capital that is not easily obtained during the current economic downturn. However, smaller investments in small biomass or hydroelectric projects in rural areas with government assistance are viable. The Government should also make a serious effort to reduce subsidies by moving away from commodity-based subsidies to direct subsidies for poor and vulnerable households. It is possible to reduce subsidies if sufficient compensation is provided for poor and vulnerable households. However, of far greater importance in the longer term is that reducing subsidies while creating compensation schemes for poor and vulnerable households provides an opportunity for Indonesia to improve its social protection system.

Source: B. Widiyanto, Managing a just energy transition and poverty alleviation: the Indonesian experience, 2022.

C. Mitigation as a productive development path with income-adjusted trade-offs

For many low- and lower middle-income countries, the main motivator for mitigation policies and investments is ensuring a sustained development path and improving energy access. There is a risk of development creating lock-ins in energy-intensive and carbon-intensive patterns, if longer-term carbon constraints are not considered. These lock-ins may take the form of inefficient urban solutions, or insufficient investment in energy efficient public transport systems and zero-carbon electricity. Without early retirement, the lifetime of energy infrastructure that is built now may in effect create an “emission commitment” for decades. The longer the wait to implement mitigation policies in a country, the costlier necessary future mitigation will be due to the inherent path dependency in any economic system. Adaptation costs will also increase but as a function of delayed total global mitigation policies and carbon dioxide emissions, rather than the mitigation policy of a specific country. With already constrained resources, it is important for a country to avoid these sunk costs. One example is the role of decentralized renewables for energy access in Africa given limited grid access, especially in rural areas. Another example relates to expanding the energy system: when the decision is between coal and gas, or between gas and renewables. It makes economic sense for all countries to account for the carbon constraint, especially in decisions with long-term consequences. In addition, the costs of renewables continue to fall, increasingly making them a cost-competitive and economically sound solution for countries.

Nonetheless, there will be trade-offs for decision makers to balance, and those trade-offs will differ in different contexts. In addition, in certain countries, such as many African countries, the cost of adaptation needs to be prioritized versus the relatively small contribution to climate change reduction from domestic mitigation policies. There are some basic services and opportunities for the extremely poor that are unrelated, or very marginally related, to climate change. Providing those who are currently extremely poor with access to basic services would not jeopardize climate mitigation, but trade-offs need to go beyond basic services.

While the present paper emphasizes numerous win-win solutions between poverty reduction and climate change, there are trade-offs to consider, as in any situation with limited resources. There could, for example, be a choice between an initiative creating decreased carbon dioxide emissions and poverty reduction, and an initiative creating a lesser decrease in carbon dioxide emissions but a larger decrease in poverty reduction. The trade-off could therefore be to choose between two win-win options.

There could also be initiatives to consider resulting in an increase in carbon dioxide emissions but a substantial decline in poverty. The trade-offs policymakers face will differ depending on the country context, as will the conclusions from those trade-offs. Country-owned NDCs are important plans where countries' ambitions to contribute to decreased emissions are tailored to their national context.

Climate change and its effects on poverty in one country is not a function of emissions from the country itself, but of global emission and aggregated mitigation efforts. With the limited resources available, it is even more important that investments and policies to reduce climate change are efficient and tailored to where they make a significant difference.

It is a balancing act between benefitting from current economically accessible energy sources and infrastructure, and efficiently transitioning towards a low-carbon economy before it becomes too expensive and politically difficult. Investment in natural gas is one area of debate. This investment is seen in many developing countries as an economically feasible and less carbon-intensive option to coal, during a transition to a fossil-free energy system. The risk of carbon lock-ins is considered limited for many low-income countries since the level of energy consumption is still low. In addition, many richer countries treat natural gas as a greener alternative and expand it from already high levels. Particularly following the energy crisis triggered by the war in Ukraine, many high-income countries are also looking to diversify gas import sources – for example, by exploring options in Africa – to ensure lower energy supply risks.³⁹

Solutions should therefore be country-specific but the direction and long-term solution is clear: natural gas is not green energy, but is possibly an option that could be part of a transition solution to an inclusive and sustainable development path. However, research shows that while a temporary crisis response may be needed for the current situation, high coal and fossil gas prices, as in 2021 and 2022, will deteriorate the competitiveness of fossil fuels and make solar and wind power even more attractive.

D. Climate justice: energy poverty and emission patterns

The Paris Agreement called for “common but differentiated responsibilities” to support mitigation of greenhouse gas emissions alongside climate adaptation. As argued in the 2022 African Economic Outlook Report, climate justice is not only about how the world should transition from carbon-intensive development to climate-resilient pathways, but also how the burden of historical and current carbon emissions should be shouldered by countries in a responsible manner. While the agreement by developed countries is to mobilize \$100 billion a year by 2020 for climate action

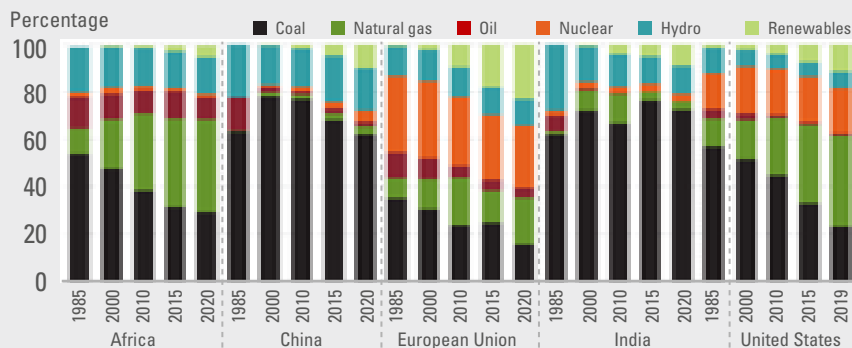
in developing countries to compensate for carbon dioxide already emitted, it is also about the approach to the distribution and rights of future emissions. If the world is to achieve net-zero transitions by 2050 when about 85 per cent of the global carbon budget has already been used, only 400 gigatons of carbon dioxide equivalent is left to share.⁴⁰

Some argue that developed countries need those the most owing to their dependency on fossil fuels, while others say that developing countries need them more since their current share is marginal and they have an urgent need to develop. Box 2 provides further insights into climate justice by outlining just transitions in Africa.

Box 2. Just energy transitions in the African context

Universal access to energy services is a key Sustainable Development Goal (SDG 7). It is also a key factor in achieving other SDGs, including climate goals. Energy consumption is highly correlated with GDP growth. Consequently, restraining a country's access to energy means restraining its social and economic progress. In Africa, low per capita electricity consumption (550 kWh) compared with other regions significantly constrains production and structural transformation in African economies. As indicated in the 2022 African Economic Outlook Report, energy transitions evolve gradually over time, often over several decades, defined by technologies, market incentives, policy shifts, and consumer behaviour. In many countries, natural gas served as a transition fuel during the period 1985–2020 (see the figure below), allowing countries to gradually reduce coal in the energy mix cost-effectively. The share of renewable energy in the global energy mix has increased since 1980s, but it remains a small share of the mix in all regions. Its share is the highest in the European Union, where it reached 23 per cent by 2019.

Africa's energy mix has a lower carbon intensity compared with other regions. As illustrated in the figure, the share of coal in the mix has declined progressively from 54 to 29 per cent between 1985 and 2020. Similar transitions are observed in the United States and the European Union. In other regions and countries, notably China and India, the share of coal in the energy mix remains very high.



Source: African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.

Just energy transitions require common but differentiated responsibility for climate adaptation and mitigation. About 85 per cent of the global carbon budget has already been used. Africa's historical share of global emissions is below 3 per cent, with an average carbon footprint per capita of 0.95 tCO₂e. This is well below the 2 tCO₂e required to achieve net-zero transitions target. This means that Africa still has some headroom within the remaining global carbon budget. Estimates in the 2022 African Economic Outlook Report suggest that if historical emissions are considered, Africa's carbon credit could reach up to \$4.8 trillion by 2050. Paid annually, this could reach \$173 billion per year from 2022 to 2050. This is almost 10 times higher than the \$18.3 billion per year in global climate finance Africa received from 2016 to 2019. A just energy transition therefore requires increased climate finance flows to enable African countries to harness opportunities in fast-expanding global green growth technologies and markets.

Africa has unique competitive advantages in several green growth sectors: materials, components, products and services, which it needs to harness to benefit from the global green transition. Africa's significant potential in renewables and decentralized energy systems are critical for achieving SDG 7 in a climate resilient manner. As global energy policy shifts, and technology and market trends ease investments in fossil energy, many African countries are likely to face significant asset stranding risks in the coming decades. However, Africa's resource potential presents unique opportunities for the continent to lead in several green development sectors, and to achieve several global climate goals.

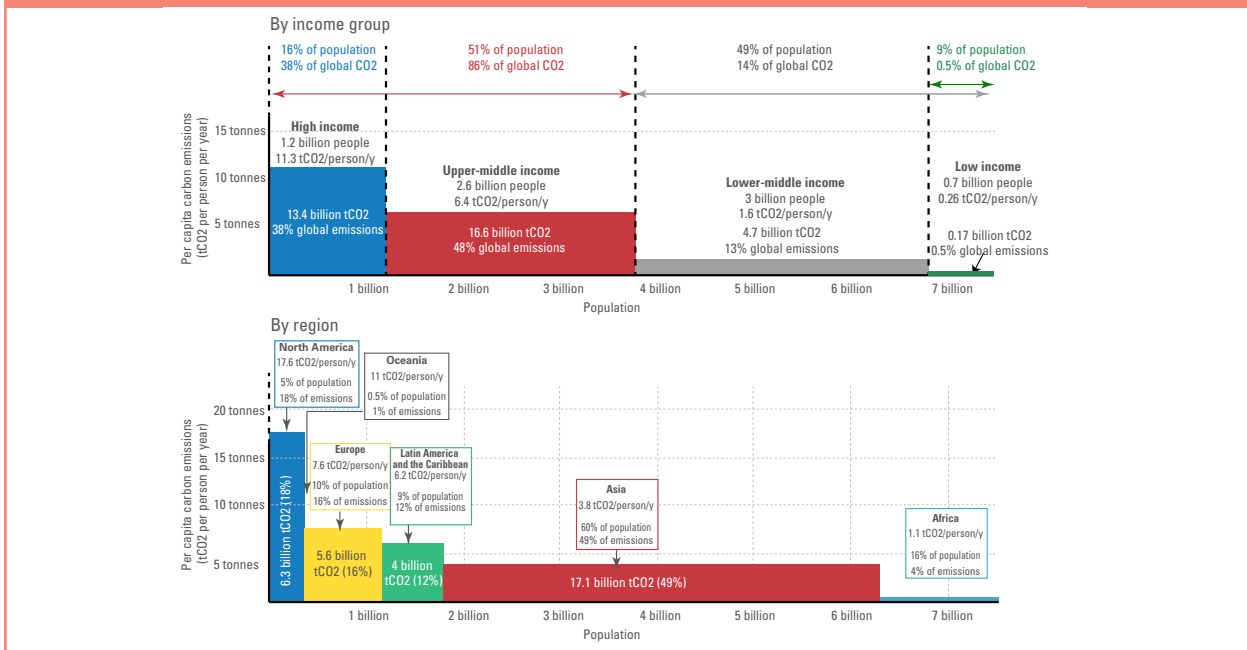
Nevertheless, Africa must maintain a balanced energy mix to manage short-term energy insecurity. Rapid investments to harness the significant opportunities in the green growth sectors will be critical for the continent's competitiveness in the medium to long term, while ensuring an effective green transition to decouple economic growth from environmental externalities, including greenhouse gas emissions. Without a balanced approach, poverty; unemployment, especially among young people; insecurity and other social and environmental fragilities will deepen, and the SDGs will not be achieved.

Source: African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.

A large proportion of historical and current emissions are from developed and emerging economies, suggesting that economic growth and energy access in developing countries should be prioritized going forward. Figure 6 shows that high-income and upper-middle-income countries are responsible for 87 per cent of current carbon dioxide emissions, lower-middle-income countries for 13 per cent, and low-income for a meagre 0.4 per cent. Per capita emissions in an average high-income country total 11.3 tCO₂eq, and reach 6.4 tCO₂eq in an upper middle-income country. In a lower middle-income country, they are only 1.6 tCO₂eq, and in a low-income country they are almost negligible at 0.26 tCO₂eq. In 2020, the average American had a carbon footprint of 14 tCO₂eq,

while the average African had 0.95 tCO₂eq, much below the required global per capita average of 2.0 tCO₂eq needed to achieve the Paris Agreement.⁴¹ An important caveat however is that the need for the global economic system to operate within planetary boundaries cannot be compromised. While most low-income and lower-middle-income countries' contributions to overall global emissions is limited, this is not the case for some highly populated countries. It is therefore of crucial importance that these current or potential top emitters embark on a low-carbon development path despite their low incomes, with support from the international community.

Figure 6. Global carbon dioxide emission, by income and region



Income or regional group	Share of population (%)	Share of production-based CO ₂ emissions (%)	Share of consumption-based CO ₂ emissions (%)
High income	16%	39%	46%
Upper-middle income	35%	48%	41%
Lower-middle income	40%	13%	13%
Low income	9%	0.4%	0.4%
North America	5%	17%	19%
Europe	10%	16%	18%
Latin America and the Caribbean	9%	6%	6%
Asia	60%	56%	52%
Africa	16%	4%	3%
Oceania	0.5%	1.3%	1.3%

Source: Our World in Data.

The concept of energy poverty is useful, given the role of universal access to energy services in achieving the SDGs. SDG7 on universal access to energy calls for access to affordable, reliable, sustainable and modern energy for all, and recognizes that none of the other SDGs can be achieved without adequate access to energy services. Power consumption per capita in sub-Saharan Africa is the lowest worldwide, estimated at 370 kWh a year, compared with 6,500 kWh in Europe and 11,000 kWh in the United States. In terms of oil, Zambia, for example, consumes less than 0.01 per cent of the European per capita consumption, and 0.005 per cent of that of the United States. Over 600 million Africans do not have no access to electricity, despite progress in rural and grid investments in recent years.⁴²

While many high-income economies have largely flattened the emissions curve, upper-middle-income countries are in a steep increase. By current trends, today's developing countries will be the dominating emission producers in the longer run, not least because the global population is expected to increase by 2 billion in the next 30 years, 97 per cent of which will be in developing countries. Also, many high-income and upper-middle-income countries have already invested in a fossil fuel-based system, suggesting that lower-income countries have much lower sunk costs when transitioning into a less fossil-driven economic system. Hence, everyone would gain from supporting the still resource-constrained upper-middle-income countries in their efforts to break away from their current path dependency.

Access to electricity is a long-term investment and a necessary input for economic transformation, which lays the foundation for sustainable development and poverty reduction. The energy security-poverty nexus are a particularly serious issue for development. Economic activity and economic growth that are necessary for job creation and raising incomes in developing countries depend on adequate, affordable and reliable supplies of energy. However, rapid progress in electrification requires that Governments rethink their strategies for the energy sector.⁴³

Through ongoing acceleration of renewable energy, efficiency improvements and innovations, developing countries today will have access to more energy-efficient technology than was available for developed countries at the time they were at the equivalent income level. However, this does not automatically translate into more energy efficient development paths. For developing countries, the adoption of available efficient technology could be delayed because of less stringent regulations and policies (or even misaligned policies such as fuel subsidies), trade barriers, skill mismatch, or access to capital and financial markets. Moreover, other development areas may be prioritized because of limited resources. In addition, emission reduction from more efficient technology is often offset by increased use.

One of the biggest challenges for a green technology and infrastructure transition in developing countries is that the cost of the necessary capital is far higher in poor countries. This is due to differences in perceived and actual risk from countries' macroeconomic conditions, business environments, institutional capacity and legal infrastructure. In some African nations, such as the Congo, Madagascar and Zimbabwe, the cost of capital can reach 30 per cent, while in wealthy countries such as Germany and Japan, the cost can be as low as 3 per cent.⁴⁴ Businesses will therefore choose other destinations, and those that still chose to invest will favour technologies with lower upfront capital costs. This speaks to the need for general economic development and the building of necessary institutions for all investments, including green investments. It also speaks to the need for policy and financial de-risking to lower the risk and hence the borrowing costs for developing countries to increase their access to affordable long-term finance.

E. A transition approach: climate-development approaches in countries with various income levels

Although the transition process has a clear goal, there needs to be context-adjusted approaches. There are several contexts to take into account, which means the grouping in country income groups used here should be understood as a simplification. In particular, there are two groups of countries that stand out and need special attention. The first is lower-income countries that are major contributors to global emissions owing to their population size, even though per capita emissions are limited, as is the case for China and India. There is no room to question the overall global need to stay within planetary boundaries, which in practice means that these lower-income countries require special attention. The other group is higher-income countries that are very small economies, such as small island developing States (SIDS). Even though they have high income per capita, they are unable to cover the large costs associated with certain climate risks. Hence, the purpose of this grouping is to illustrate the rationale behind tailored approaches, depending on country-specific contexts, even if the end goal of sustainable development is the same.

Low-income countries should have a clear focus on poverty reduction; on the provision of basic needs, especially energy access; and on adaptation to build resilience. As mentioned above, low-income countries are responsible for only 0.4 per cent of current global carbon dioxide emissions.

Per capita emissions of 0.26 tCO₂eq are only 2.3 per cent of per capita emissions in an average high-income country. Put differently, on 8 January in a typical year, an average citizen in a high-income country has already emitted as much as a citizen in a low-income country does for the rest of the year. Even a doubling of energy consumption would be a fraction of the global energy consumption, suggesting that any lock-ins are unlikely. At the same time income per capita (GNI per capita) is between \$240 and \$1,090 in low-income countries, compared with between \$13,210 and \$116,540 in high-income countries. In addition, many low-income countries are conflict-affected countries and/or countries with huge humanitarian needs. Consequently, to adapt to ongoing climate change, and to mitigation efforts, economic development and resilience is key. Low-income countries may also prioritize energy access, where the costs of developing new energy sources and the cost-competitive falling costs of clean energy sources will be an important part of the decision-making process.

Lower middle-income countries should focus on poverty reduction, economic development and adaptation, but consider lock-ins and ensure the direction of the long-term development path is sustainable. Lower middle-income countries' contribution to climate change is also limited; they stand for only 13 per cent of current carbon dioxide emissions. Per capita emissions of 1.6 tCO₂eq are only 14 per cent that of high-income countries. However, not only energy systems but other types of infrastructure are also starting to settle. Given the path dependency, it is crucial to avoid expensive lock-ins to benefit from feasible technological leaps. One issue is the high cost of capital and the hesitant private sector, which is already facing a high-risk environment, to make innovative investments in new technology. Country ownership of this process is also essential as it will take political trust to reject some well-needed short-run profits for long-term benefits. A guiding principle for the international community is therefore to honour strategies laid out in countries' NDCs, national adaptation plans (NAPs) and national sustainable development goals.

Overall, upper-middle-income countries have developed while locking in an unsustainable infrastructure system, but with limited resources to invest in a greener climate-resilient development path. They stand for 41 per cent of current (consumption-based) carbon dioxide emissions. Per capita

emissions of 6.4 tCO₂eq are significantly higher than for lower-middle-income countries, but still only about half of those of high-income countries. Many are heavily populated, manufacturing-based, fast-growing countries. Hence, supporting these countries in their mitigation efforts, not least by catalysing private financing flows, will have a substantial effect on both current and future emissions. It is in every country's interest, and currently a very efficient path in the fight against climate change, to ensure a transition to a more sustainable system in upper-middle-income countries. In contrast to low- and lower-middle-income countries, the underlying investment climate in upper-middle-income countries has reached a level where the cost of capital and the risk structure are conducive to private flows that can potentially make a huge difference.

High-income countries need to take the lead in mitigation efforts in their own countries, but also acknowledge their responsibilities to support mitigation and adaptation efforts in others. The resources available in high-income countries are the result of unsustainable economic development, leaving a large climate and environmental debt, thus creating costs not only for high-income countries but the whole world. If historical emissions are considered, Africa's carbon credit, calculated with the current social cost of carbon, could reach \$4.8 trillion by 2050.⁴⁶ Paid annually, this could reach \$173 billion per year from 2022 to 2050, equivalent to total global ODA for 2021. It cannot be left to countries that never had a chance to take out this climate and environmental loan to develop, to pay back high-income countries' debt, especially since they are already exposed to the costs. Hence, efforts to reduce emissions should be foremost focused on high-income countries and upper-middle-income countries, while mitigation efforts for low-income countries and lower-middle-income countries should be encouraged as efficient, sustainable growth paths rather than an efficient strategy to bend global emissions. Fortunately, many high-income countries are bending their (both production and consumption) emission curves, revealing that growing while reducing emissions is possible. Such efforts just need to go faster and spread to more countries. The necessary transformative system change is embedded in consumer preferences, the willingness of the private sector and political will, which is continually unlocking constraints.

4. Financing gap and the distribution of resources

There are 17 SDGs and the total financing gap for the 2030 Agenda for Sustainable Development is estimated at around \$3.5 trillion per year.⁴⁶ Hence, without immediate action from public and private stakeholders to raise or redirect resources beyond current levels of total global ODA of \$179 billion (in 2021) and total climate finance flows of \$632 billion (2019/2020), the green and sustainable financing divide will widen. At the same time, increased risk levels in the global economy have impacted the private sector's willingness to invest in developing economies, given the uncertainty around short- and medium-term economic conditions. In addition, sovereign credit ratings have suffered owing to financial stress stemming from reduced tax revenues and increased public expenditure associated with the COVID-19 pandemic. These factors have reduced countries' fiscal space while increasing financing costs.

Even the financing gap for SDG 1 on poverty reduction is increasing. The pandemic and now the war in Ukraine have left a diverging world, with an increase in the number of extreme poor for the first time in decades. Moreover, no stimulus packages meant developing countries have been significantly scarred and their savings emptied. In parallel, the international development agenda is broadening to cover a range of other important goals. As mentioned, recovering from the pandemic in Africa alone will cost an estimated \$432 billion in 2022 and 2023.⁴⁷ To end extreme poverty in African countries by 2030, the African Development Bank estimates that 30.6 per cent of GDP is needed, or \$19 billion on average per country over the period 2021–2030.⁴⁸ Put differently, with current trends, for Africa to meet the 3 per cent

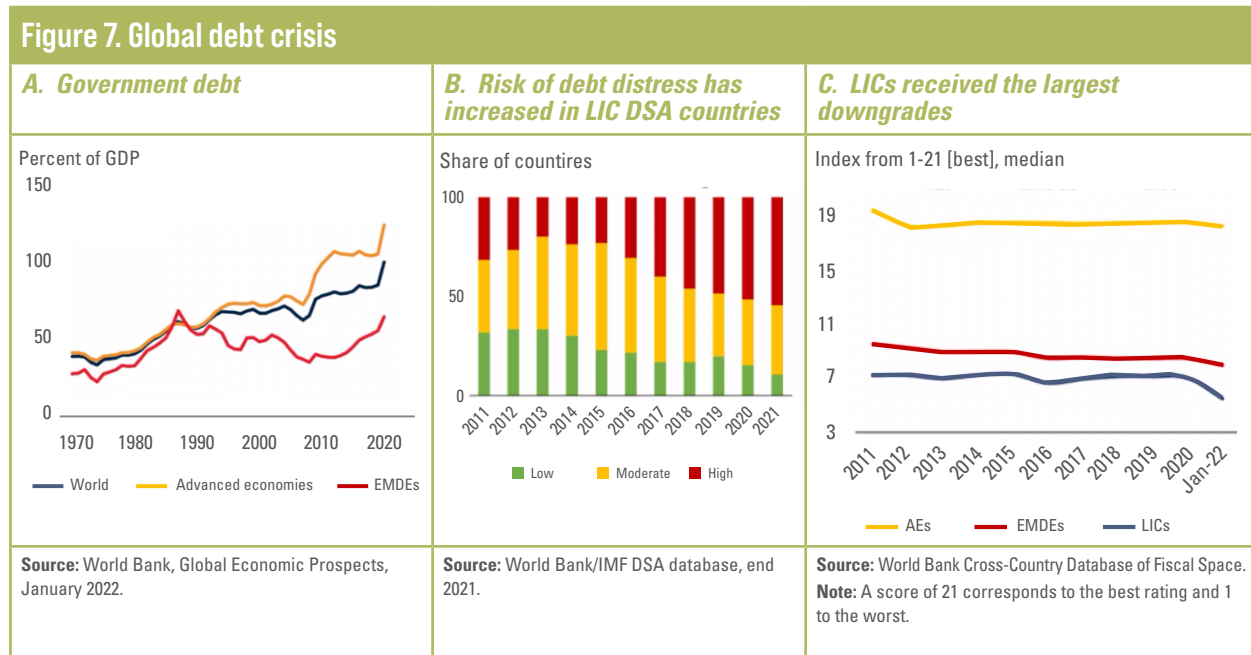
extreme poverty target, the continent would need to grow on average by about 12.1 per cent per year in the period 2021–2030, and make public investments equivalent to about 53.6 per cent of GDP annually. Hence, the fight against global poverty is far from over. Unless poverty is eliminated in Africa, global poverty reduction will remain a mirage with a direct impact on achieving climate change goals.

Even before the pandemic, there was a significant increase in debt levels across the world, following exceptionally low interest rates, but this situation was not exploited productively in developing countries. Between 2011 and 2019, public debt in a sample of 65 developing countries increased by 18 per cent of GDP on average, and by 27 per cent of GDP on average in sub-Saharan Africa. Rather than investing in economic growth and a transition towards more productive green development (including investments in education), sustained primary deficits were the single largest driver of public debt in those countries.⁴⁹ Evidence suggests that Governments ran up primary deficits not to make productive long-term investments but to pay current bills. Needs are considerable everywhere, but this was helping little in terms of repaying debt.

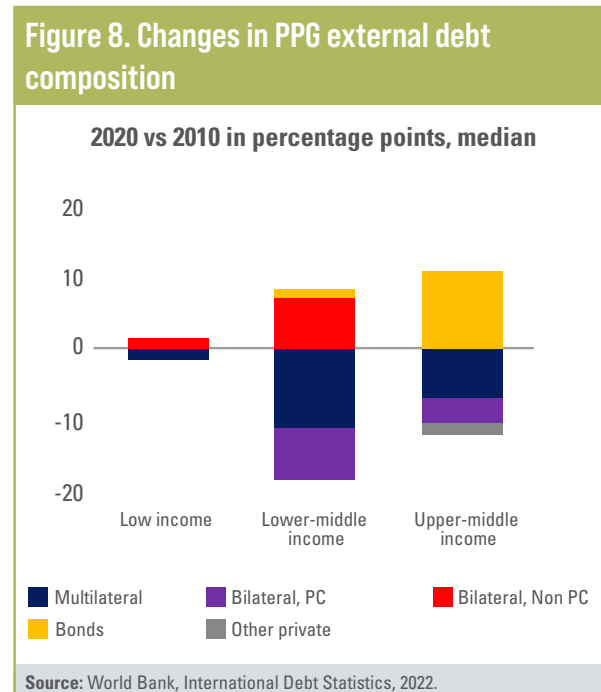
The COVID-19 crisis, followed by the war in Ukraine, have exacerbated the global debt crisis (figure 7). Debt distress results from a combination of increased debt stock, larger debt service payments, and lower growth prospects. In 2020, COVID-19 led to the largest one-year increase in debt since World War II. According to MF, as at August 2022, 41 per cent (or 29) and 10 per cent (or 7) of low-income countries' debt sustainability assessments indicated high risks of debt distress

or of being in debt distress, respectively.⁵⁰ The tightening of global economic and financial conditions in 2022 have brought additional challenges: slower economic growth, rising inflation due to commodity and food price increases, and deteriorating global financial and trade conditions. Fears over tightening monetary policies, rising interest

rates, and a poorer outlook for economic recovery have resulted in a pull-out of capital from emerging markets. Emerging market debt has been particularly hard-hit, experiencing a 21 per cent drawdown from January 2021 to June 2022.⁵¹



Debt for developing countries is also more expensive, dominated by borrowing from commercial resources with shorter maturity, than for developed countries. With the latest build-up in debt, there has been a decrease in concessional loans from multilateral development banks and an increase in loans from commercial (more expensive) creditors and China (figure 8).⁵² In addition, the majority of debt did not go to productive investments with the intention of creating economic growth that would improve productivity and repay the debt, but rather current expenditures. As long as real economic growth remained strong (typically for other reasons than improved productivity), the risks were masked, but this is no longer the case. Instead, global growth prospects are only 3.6 per cent in developing countries in 2022, and interest rates are increasing to tackle inflation.⁵³ The debt situation for developing countries is affecting financing options from both the public and private sectors.



Transitioning to a green resilient economy will require the mobilization of unprecedented capital, in a time of high debt distress levels. Getting the world on track for 1.5°C requires a surge in annual investment in clean energy projects and infrastructure to nearly \$4 trillion by 2030.⁵⁴ In addition, adaptation costs need to be covered: in only 40 African countries, estimated investment needs for adaptation are roughly \$331 billion by 2030.⁵⁵ Vivid Economics estimates that only the annual investment need in renewables for developing countries must increase to \$776 billion a year this decade, if they are to be on track for net-zero emissions by 2030.⁵⁶ That is over four times the total global annual amount of ODA in 2021 (\$179 billion) and about eight times the committed climate finance to developing countries (\$100 billion). In Africa alone, between \$1.3 trillion and \$1.6 trillion will be needed over the period 2020–2030 to implement the continent’s climate action commitments and NDCs, or between \$118 billion and \$145 billion annually.⁵⁷ Under the New Deal on Energy for Africa, between \$32 billion and \$40 billion in annual investment along the energy value chain is required just to achieve universal access to electricity on the continent by 2030.⁵⁸

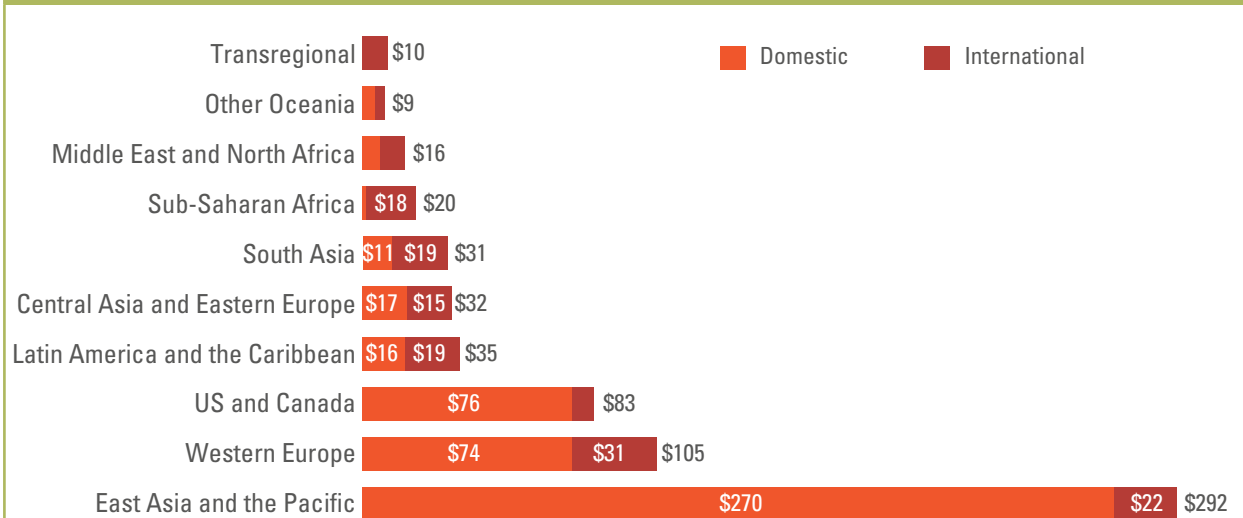
Climate financing is increasing, but financial flows to low-income countries are still limited. In 2019/2020, total global climate finance was \$632 billion but only \$20 billion went to sub-Saharan Africa (figure 9). Between 2016 and 2019, Africa only received about \$18.3 billion on average, creating an estimated financing gap of between \$124.4 billion and \$155.8 billion per annum if current trends continue.⁵⁹ In terms of the climate finance mobilized by developed countries to developing countries, only \$83 billion of the \$100 billion committed was provided in 2020.⁶⁰ On average, between 2016 and 2020, only 8 per cent went to low-income countries, 43 per cent to lower-middle-income countries, 27 per cent to upper-

middle-income countries, and 3 per cent to high-income countries (plus 19 per cent unallocated by income group).⁶¹ On average, \$21 per capita was mobilized to all recipient developing countries, but only \$14 per capita in least developed countries, and as little as \$11 per capita in fragile countries. As discussed above, while there may be a rationale to this from a mitigation perspective, it is questionable from an income-level perspective and an adaptation perspective.

Adaptation finance, particularly from the private sector, remains extremely low. In 2019/2020, adaptation finance accounted for only 7 per cent (\$46 billion) of total climate finance. While the bulk of adaptation finance comes from the public sector, it still only represents 14 per cent of total public climate finance.⁶² Adaptation finance within the \$100 billion commitment increased from \$20.3 billion in 2019 to \$28.6 in 2020, equivalent to 34 per cent, but still fell short of the 50 per cent goal.

In terms of instruments, the majority of total climate finance was debt. Around 61 per cent (\$384 billion) was raised as debt, of which only 12 per cent (\$47 billion) was concessional debt.⁶³ Equity investments made up 33 per cent of total climate finance, and grant finance was \$36 billion or 6 per cent of total flows. Overall, more than 75 per cent of the 2019/2020 tracked climate investments flowed domestically. This is significant because it highlights the importance of strengthening domestic financial systems and institutions. However, there are regional differences. International finance dominated in sub-Saharan Africa and South Asia, while domestic finance dominated in East Asia and the Pacific. Regions such as the Middle East and North Africa, Europe and Central Asia, and Latin America and the Caribbean had a more even spread between domestic and international flows.⁶⁴

Figure 9. Total climate finance flows by region, 2019/2020 (Billions of dollars)



Source: Climate Policy Initiative, Global Landscape of Climate Finance, 2021.

On a positive note, there are economic gains to be made from sustainable investments, and the global investment capital is abundant. According to the 2018 New Climate Report, investment in climate action could yield a direct economic gain of \$26 trillion through 2030 compared with business-as-usual.⁶⁵ The Global Commission on Adaptation found that the overall rate of return on investments in improved resilience is very high, with benefit-cost ratios ranging from 2:1 to 10:1.⁶⁶ Specifically, investing \$1.8 trillion in key adaptation areas, such as early-warning systems, climate-resilient infrastructure and agriculture, mangrove protection and water security, can alone generate \$7.1 trillion in total net benefits.⁶⁷ While not all these gains are possible to commercialize, it should give companies enough confidence that it is in the interest of Governments to stay on course in the green transition.

There is a misalignment between capital flows from high-saving to low-saving regions. Developed countries have ageing populations, high saving capacities, established social safety nets, and the bulk of their infrastructure is in place. Developing countries have significant opportunities to leapfrog, with a need to build two thirds of their infrastructure capital.⁶⁸ They have young populations, a wide range of savings rates (from 15 to over 40 per cent) and underdeveloped social safety nets, limiting the current fiscal space for infrastructure investments, while pointing to large returns on those investments through a demographic dividend as the younger populations enters the work force. The (infrastructure) investment gap looks like an economic paradox. With an estimated \$16.5 trillion of negative-yielding debt in OECD countries, \$26 trillion of low carbon climate-resilient investment opportunities in developing countries by 2030, and infrastructure

investments estimated to deliver a real return of 4–8 per cent, capital seeking higher results should flow from developed to developing countries to address this gap. This is not happening.⁶⁹ With global gross financial assets estimated at \$250 trillion in 2020, financing is available.⁷⁰

However economic gains for society do not automatically translate into profits for businesses and investors. Some of these gains are related to public goods dilemmas, the fact that both the perceived and actual risk in developing countries is still high, or that market prices are still distorted. However, with a longer-term perspective and consistent commitments to a green transition from policymakers, investments should flow towards higher investment return opportunities, such as in developing countries where most infrastructure investments are expected to take place in the coming decades.⁷¹ The reason for the lack of financing flows towards green investment opportunities in developing countries is due to a number of underlying barriers, which translate into higher risks. These barriers include weak and/or uncertain economic, fiscal and institutional conditions; weak domestic investment environments and poor credit ratings; absence of a pipeline of bankable, green labelled investments; limited capacity of domestic financial systems and institutions that green their investments; and a lack of blended finance mechanisms at scale to financially de-risk green and climate resilient investments.

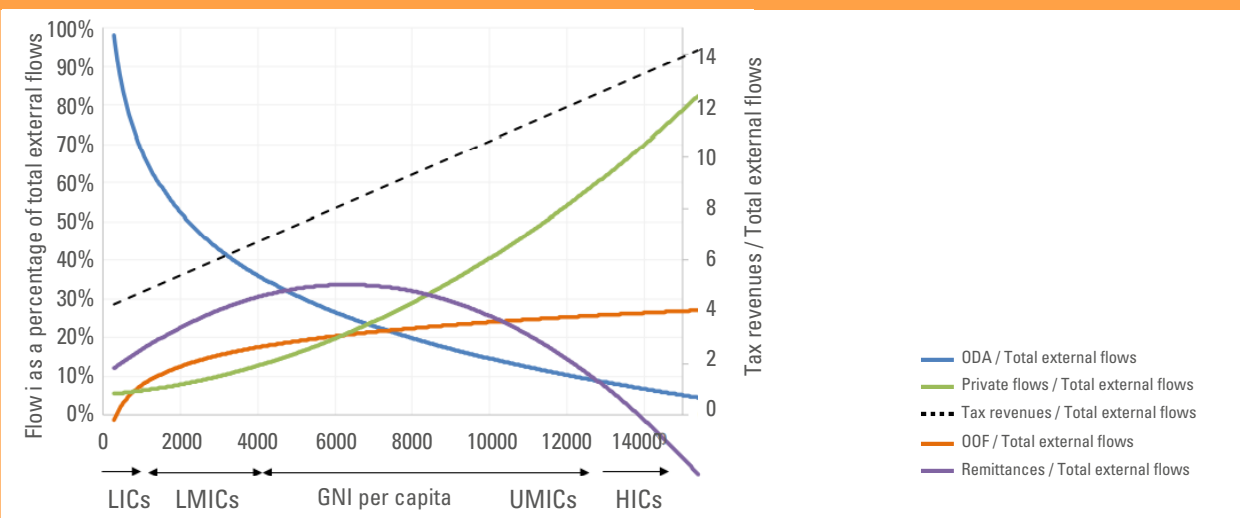
Chapter 5 provides a transition financing framework to guide the discussion in chapter 6 on various policy and financing options that can align financing flows and needs, should they be tailored to a specific development context.

5. Framework for green inclusive transition finance

As poverty and carbon dioxide emissions are affected by income per capita, so is the composition of finance available to a country. The OECD Transition Finance Toolkit helps link a just green transition to the financing side.⁷² No matter at what stage, financing gaps can slow a transition. Figure 10 shows the overall relationship between major financing flows within a country and its GDP per capita, with a clear shift in external flows from official to private flows. These overall flows can be helpful in assessing the distribution of overall climate finance, and the distribution of

the \$100 billion of mobilized climate finance to developing countries. This commitment should at least in theory be additional to initial ODA and include any private climate finance flow to a developing country initiated by a public intervention in a developed country (in other words, it should not include flows of private climate finance not initiated by a public intervention or any financing across developing countries or from domestic resources in developing countries).

Figure 10. DAC and non-DAC OECD members and multilateral agencies' outflows, 2012–2016 net disbursements, 2016 prices



Source: OECD, Transition finance: introducing a new concept, 2019.

Low-income and lower-middle income countries are highly dependent on ODA, and increasingly on remittances. This dependency on external voluntary flows is a major source of vulnerability to global shocks, and could undermine climate resilience and net transition ambitions. For instance, about 90 per cent of climate finance in Africa comes from international sources, compared with 92 per cent mobilized and spent domestically in Canada, the United States, and East Asia and the Pacific, and 71 per cent in Western Europe (figure 9). Africa's over-dependence on external support makes the continent susceptible to the same level of uncertainty that plagues other forms of external official financing, and limits aligning climate action with national development plans. Other important external flows, for low and lower middle-income countries other than ODA include remittances and other official flows (OOFs).⁷³ Remittances are increasing quickly and are almost as high as ODA by the time countries graduate to upper-middle-income country status. OOFs are also increasing but not as fast as remittances, and private flows do not take off until higher income levels. There is a rationale behind this pattern in countries where domestic investment is weak and risk is high, and therefore the expected return on investments for private actors are too low.

It is crucial that the flows of ODA, remittances and increasing OOFs, in addition to higher tax revenues, are used to create an improved investment climate. It is necessary to ensure that a country can attract and benefit from the potential of private flows for climate finance and other types of finance. In general, attracting these resources calls for realistic expectations: to what extent private flows can play a role in poverty and climate finance in low-income and lower-middle-income countries; and to what extent highly subsidized/guaranteed private flows to low-income and middle-income countries will result in high-return investments in the short run, given the underlying investment climate, or to what extent is it primarily about building capacity and institutions for a scaling-up at a later stage. Commitments such as the \$100 billion in climate finance are especially important for low- and lower-middle-income countries, given the lack of alternative flows. In the short run, it is one of few financing options for climate investments in countries with a number of needs to be met, including poverty reduction and investments in social sectors that are less attractive to private investors than infrastructure, for example. Despite this, only 8 per cent goes to low-income countries, while the 43 per cent to lower-middle-income countries is more promising.

Private flows take off as countries gain upper-middle-income status and eventually dominate external flows. Foreign direct investment, for example, is as high as 66 per cent of external financial flows in high-income countries and 45 per cent in upper-middle-income countries, but only 25 per cent in lower-middle-income countries and as low as 15 per cent in low-income countries.⁷⁴ In an upper-

middle-income country, this is not only the case when substantial infrastructure lock-ins are happening but also when returns to private flows are improving. Using parts of ODA and OOFs to catalyse private investments can have a significant leverage effect during the upper-middle-income stage, while the need for a catalysing element diminish (but do not disappear) as the country approaches high-income status, with a lower general risks and hence cost of mobilizing capital. Throughout the upper-middle-income and high-income stages, there are still market failures to address related to the price of carbon emission, redistributive policies, and public goods that require government support. This suggests that in addition to policy reform and government support to address market failures related to climate, support to inclusive sustainable private financing in upper-middle-income countries is also about addressing or subsidizing the remaining underlying reasons for high risk premiums in the broader investment climate. In high-income countries, support to inclusive sustainable private financing and innovation is often about policy reform to ensure that climate issues are appropriately provided for or appropriately priced in the market.

Finance for sustainable investments are mainly geared towards higher-income and upper-middle-income countries. This is not surprising since that is where the underlying investment climate is conducive to private initiatives, climate-oriented or not. Private flows and related instruments will naturally play an increasing role with income, but efforts to crowd in private flows in low-income and lower-middle-income countries (say through a guarantee) can also accelerate the necessary improvement in the investment climate and institutions themselves. Many of the binding constraints to climate investments are the same as the binding constraints to any investment. As discussed, high-income and upper-middle-income countries have the highest emissions per capita and the largest need for sustainable infrastructure investments. Consequently, on the one hand, it is necessary to maximize the private financing of development in high-income and upper-middle-income countries, with the benefit of leaving a larger part of public financing and ODA to low-income and lower-middle-income countries. On the other hand, a number of steps can be taken to encourage more private capital flowing to low-income and lower-middle-income countries, which will have direct benefits and indirect effects by building capacity and necessary institutions.

In addition to a country's income stage, the sector or specific development issue are important to the relevance of various financial flows. As mentioned above, countries in different income categories typically face and prioritize development challenges in the poverty-growth-climate nexus differently. Depending on the development challenge in question, different financing instruments are more or less effective. Infrastructure investments, driving higher growth and productivity

more directly, could for example be appropriate for debt instruments or private equity. However, for investments in health and other social sectors, with high demands for current expenditures and longer-term returns, domestic revenues, grants and remittances may be a better option (even if certain debt instruments also play a role in these sectors, given the increased long-run productivity by investing in human capital). Hence, the starting point should be the country context in combination with the specific development issue, to which different combinations of financing is mobilized, rather than the other way around where a specific instrument is maximized in all countries for all development issues.

Any policy or financing instrument should follow the principles of addressing market failures and avoiding distorting markets, i.e. crowding in the private sector rather than crowding it out. Investments with important public good deliveries, but too high costs or risks for an individual company, is one example where interventions are warranted. Information asymmetries, not least present when it comes to climate change impacts but also investment risks in developing countries, is another example. Supporting first movers in the creation of new markets can have major leverage effects for a country (or the world), but the Government may need to cover part of the benefit related to a demonstration effect for a private investor to meet a realistic risk-return rate.

Country ownership of the process is essential and a force for sustainability. As previously discussed, the prioritization of development challenges differs substantially between countries at different income levels. Decision makers need to take a range of issues into account, and ensure they are in line with the will of the people so as to be re-elected. However, this could be used as a strength. For example, if the creation of jobs is high on the agenda, which is a high priority in developing countries, relate climate investments to jobs. One way for a private investor to decrease risks associated with investments is to invest in line with nationally determined, owned development plans such as NDCs, NAPs and the SDGs. The risk reducing element is related to the need for the Government to retain trust from its citizens and in global commitments and partnerships.

Consequently, increasing resources (public and private, domestic and external) and willingness to implement a green inclusive transformation should be approached systemically, as follows:

- First, in many developing countries, the already high costs of capital prevent capital flows, which means that improvement in the general investments climate, through policy and institutional development, is a starting point for any approach to encourage productive investments. To the extent this is reflected in an improved credit rating for the country, borrowing costs will decrease thus enabling

countries to finance green inclusive development in a more affordable manner.

- Second, prices need to be adjusted to reflect the true social cost to allow markets to allocate resources efficiently from a societal stand point. For development to be inclusive and green, a number of market failures need to be adjusted and policy reforms implemented. This ranges from carbon taxes to access to markets to ensure distortions are minimized.
- Third, changes and capacity in the global, regional and national financial architecture, systems and institutions need to be addressed to align global capital towards developing countries and to climate change investments. This may include improving credit rating systems to better mainstream climate and inequality risks; establishing country platforms to coordinate investments opportunities; developing green domestic capital, financial markets, institutions and instruments; and standardizing environmental, social and governance (ESG) issues.
- Fourth, creating a high quality pipeline of inclusive, green climate-resilient projects with high levels of sustainable development co-benefits. The lack of a project pipeline could be a result of a bad general investment climate, i.e. a lack of promising projects to begin with, but also often a result of a lack of access to adequate project preparation support, and limited institutions and capacity to turn promising projects into projects that investors can assess. This may include strengthening domestic capacity to identify, formulate, measure and report on a pipeline of investments that are bankable and green/climate-labelled, and increasing access to project preparation funding.
- Fifth, a number of financial instruments and risk management approaches can be used to a much larger extent than seen to date. These can have direct effects by reducing, transferring or compensating for high risks, but also indirect effects by building necessary experience and institutions, and hence decreasing the underlying high risks in the investment climate (feeding back into the first point).
- Sixth, a broadened agenda demanding more public resources, grants and domestic public resources is vital. There is a continued need for additional capital injections as more development goals are added, so as to cover financing gaps where private capital is not an option, and to release the crowding in effect through different financing instruments. For example, it is important for developed countries to meet their commitment to mobilize \$100 billion in climate finance for developing countries in addition to ODA, including in the form

of grants. Hence, while a focus on mobilizing private resources is necessary, so is public domestic and international financing for some development challenges and for some development contexts.

- Lastly, a parallel cultural and behavioural change is needed among consumers, producers, investors, policymakers, and the international development community. When the solution to a problem is a change of system, ownership and leadership is at the heart of success. Hence, policies and instruments need to be tailored to local preferences, where investments and policy decisions will be made.

Going forward, there is a need to close the gap in the investment pathway by using domestic and international public climate finance in a manner that could catalyse larger long-term private investment.⁷⁵ Building such a bridge requires a partnership approach that harnesses the comparative advantage of public and private stakeholders to collectively address a range of barriers. Partnership is as much about building necessary public institutions and services and a levelled playing field with a clear and trusted path forward, as it is about concrete risk sharing arrangements and willingness from both public and private actors to shoulder some costs to overcome current market failures. As discussed, the nature of the public-private partnership will change as countries transition.

6. Financing and policy options for climate change that take poverty into account

The actual design of policy instruments must consider various approaches to climate, growth and poverty reduction at different stages of development. The following sections set out some financing options and related policies, and indicate how their usefulness varies depending on the context and related challenges and opportunities. These should be seen as examples, giving a snapshot of the type of promising and feasible option available to address both climate change and poverty reduction.

A. Enabling policy reforms and investment environment

Governments can address a number of constraints in the investment climate, and ensure that price signals and incentives are right from

the society's perspective. It is important to avoid weak and/or uncertain economic, fiscal and institutional conditions that create uncertainties about an inclusive green policy environment in the short and long runs. Table 1 provides a sample of key policy reforms both at the domestic and international levels. The expansion of climate finance needs to be assessed against a country's underlying capacity for productive investments, which means improvements need to be made in the general investment climate in parallel or as part of climate finance. If the supply of capital is in excess of what the underlying risk structure allows for decent returns and potential productivity improvements, there is a risk of both unproductive sustainable investments and a Dutch disease effect on the rest of the private sector, delaying development further.⁷⁶

Table 1. Key policy reforms at the domestic and international levels

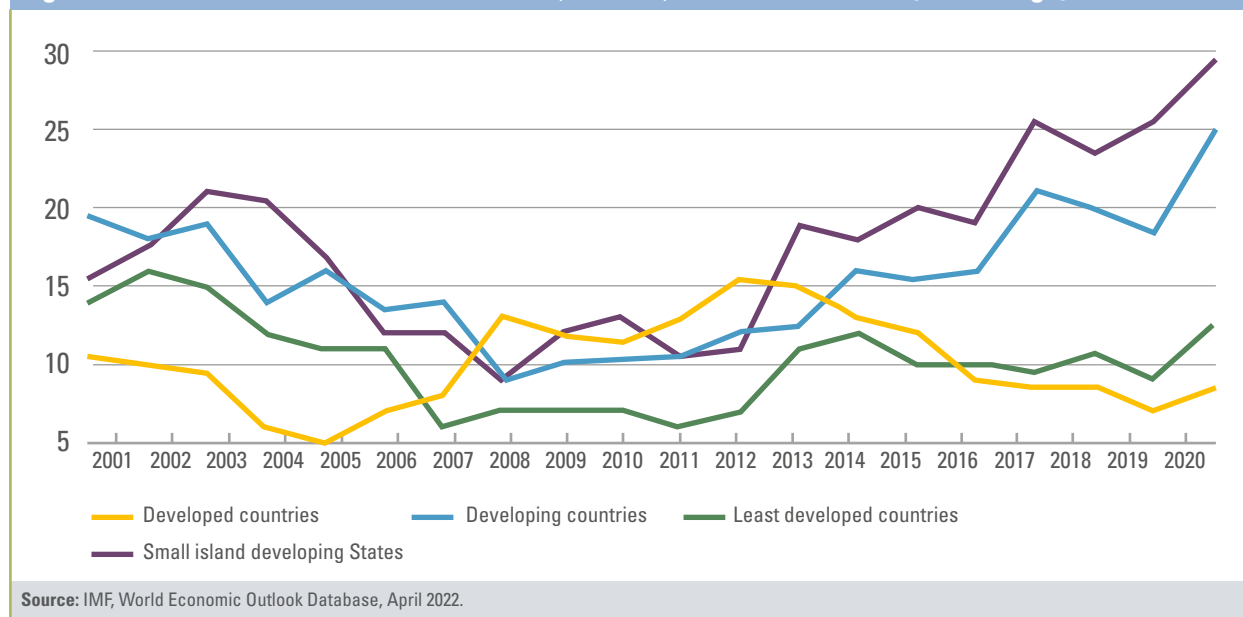
	Domestic	International
Policy reform (examples)	<ul style="list-style-type: none"> Improving the underlying investment climate, including education and government institutions. Getting prices right. Improving the management of natural resources. Stemming illicit financial flows. Digitizing for improved public financial management. Removing government inefficiencies. Developing country investment platforms and project pipelines. 	<ul style="list-style-type: none"> Getting prices right. Developing standards. Moving from voluntary to mandatory reporting. Formulating a methodology for credit ratings.

Source: Compiled by author.

Domestic public resources are necessary for sustained country-owned development financing, but potentials differ between countries. A stable flow of public domestic resources makes necessary public investments possible, and decreases risks during downturns and crises. Taxes, typically the main source of government revenues, are very low in per capita terms in low-income countries. This is partly due to tax rates and partly to the level of economic activity. Taxes as a share of GDP in low-income countries is only 13 per cent, compared with 15 per cent in lower-middle-income countries, 17 per cent in upper-middle-income countries, and 30 per cent in high-income countries.⁷⁷ This

translates into even larger differences in actual amounts per capita. Hence, low-income countries, especially after debt payments are made (figure 11), can typically only afford the basics, leaving limited room for investments in general, but especially for more innovative modern technology. Hence, continued efforts to increase economic activity and the tax rate are important, but it is also clear that domestic resource mobilization will need to be complemented by external grants for at least low-income and lower-middle-income countries. If not, it will be difficult to ensure enough public investments and services for both poverty reduction and climate action.

Figure 11. Debt service as a share of revenue, median, selected countries (Percentage)



B. Getting prices right

There are climate-related opportunities that developing countries can leverage to increase domestic resource mobilization and get prices right for an inclusive green development. In Africa, for instance, transitioning to a new low-carbon approach to development will require significant resources for renewable-energy projects. African Governments can mobilize more of their domestic resources from taxes to cover some of the initial capital cost of renewable energy. The proportion of tax revenue to GDP in Africa is 16.6 per cent, lower than Latin America and Asia.⁷⁸ This suggests African countries have headroom to increase their tax revenues, and the use of carbon taxation has the benefit of achieving the triple objective of boosting tax revenue, while generating incentives for reducing fossil fuel carbon dioxide emissions and creating fiscal space for SDG financing, including by providing jobs and reducing poverty.

Many countries have opted for fuel subsidies rather than carbon taxes. As share of GDP, these fuel subsidies are estimated at 5.6 per cent for Africa (about 2 per cent in Nigeria; 2.5 per cent in Ethiopia, 2.9 per cent in Morocco, 5.6 per cent in Cote d'Ivoire, and as high as 17 per cent in South Africa).⁷⁹ The arguments range from support to companies that would otherwise go out of business or leave the country, to supporting households given high energy prices. The High-level Commission on Carbon Prices, led by Joseph Stiglitz and Nicholas Stern, estimated that carbon prices should be at least \$40–80/tCO₂ by 2020 and \$50–100/tCO₂ by 2030.⁸⁰ The potentially adverse economic effects of higher energy prices and the removal of fossil fuel subsidies are more severe for low-income countries (given their development needs), countries with a large share of energy-intensive activities, and countries exporting fossil fuels. However, by reducing inefficient and harmful fossil fuel subsidies, Governments can generate resources to invest in sectors that will help decouple from coal and oil.

There are potentially large win-win opportunities when it comes to carbon taxes and poverty, where additional government revenues can be targeted for both redistributive and productive investments. An inclusive and sustainable strategy would be to implement carbon prices or at least remove fossil fuel subsidies, mainly benefiting non-poor households (who can afford fossil fuel-based assets), and use the increased fiscal space to support lower income households through conditional cash transfers or different types of social safety nets. Another progressive approach is introducing carbon tax (or reducing fossil fuel subsidies) while decreasing the tax on labour and creating more (green) jobs. In general, using the fiscal space from carbon taxes for public investments to both increase and transform economic development would constitute productive investments in both climate and poverty reduction. There is the option of using the fiscal space to subsidize low-carbon consumption (say electric vehicles) but these are more likely in higher-income countries, as they would mainly subsidize wealthy households in low-income countries. An international carbon price floor differentiated by country income levels could be a way forward to both internalize the true price and risk of carbon emission, and still adjust for development needs and the share of historic carbon dioxide emissions.

There are countries where people living in poverty cannot be protected from mitigation initiatives through solely redistributive policies. For the very poorest countries, poverty reduction and development, in which adaptation and climate resilience are central parts, should be a top priority. For poverty reduction to be sustainable, it needs to mainly come from inclusive growth where people benefit from and contribute to economic development, and only complemented by redistributive policies. For lower-middle-income countries, support from the international community needs to be provided to ensure that no one is left behind owing to mitigation initiatives. This is especially the case for mitigation-related investments that imply high short-term costs and trade-offs with other crucial development investments. Expensive mitigation investments not in line with other essential investments are urgently needed in low-income countries to prevent lock-ins into carbon-intensive patterns (such as some urban transport, energy infrastructure, or deforestation).⁶¹ The international community also needs to step up and consider supporting the short-term costs for a country that selects the greener alternative, given the global nature of the benefit.

C. Global, regional and national financing architecture, systems and institutions

At the international level, the current financial architecture and the high fragmentation of the global development finance landscape have contributed

to a lack of finance flows to developing countries, Africa in particular, and to climate issues. There are a number of dimensions under discussion, including supporting a shift towards long-term investment with sustainability (social, environmental) risks central to investment decisions, revisiting mechanisms for sovereign debt restructuring to respond to more complex debt instruments and a more diverse creditor landscape, reviewing the multilateral trading system, addressing challenges to tax systems that inhibit productive flows between countries, addressing illicit financial flows, reviewing the role and instruments of international financial institutions (including risk options within the triple-A rating, different crises response mechanisms, and transparency and standardization as the number of innovative financing mechanisms and new actors grows), and reviewing rating agencies' methodologies affecting countries' credit scores.

A key way forward is to address the overall risk profile and creditworthiness of developing countries. Developing countries' share of green financing is largely limited by private capital requirements to invest in high investment grade countries and products. Poor sovereign ratings and credit risk in turn negatively impact corporate credit risk. Corporate bond ratings tend to be subject to a sovereign ceiling, where corporate bond ratings are not better than the ratings of their sovereigns and corporate yields tend to be higher than sovereign yields. This means that even if a project is BBB rated, if the country is rated BB then bonds issued for that project through a corporate (financial or non-financial) will most likely be BB rated. Hence, to attract private flows, the domestic investment environment and related credit ratings are essential, and a better understanding of risks (perceived or actual) in developing countries, especially climate risks, is needed, as are support and guidance for Governments to secure and improve credit ratings. For example, there is currently a gap in understanding of climate risk exposure and the most impactful adaptation investments to reduce exposure.

Ratings in developing countries are low and have taken a negative turn lately. Before the COVID-19 crisis, more than 60 countries were rated below BBB and had access to capital only at interest rates higher than 18 per cent for two-year projects.⁶² As a result of COVID-19 and related factors, sub-Saharan African sovereigns had their ratings fall from B+ to B on average, exacerbating the challenge of attracting private investors' capital. Considered sub-investment grade, such developing countries are shut out from affordably raising green finance through global capital markets. The spread between the interest rate of a bond issued by the United States Government and the interest rate of loans to a BBB-rated country was 1.3 per cent in 2018 for a five-year project, and 2.5 per cent for a 10-year project.⁶³ At the beginning of 2020, it jumped to 6 and 9 per cent, respectively, in B-rated countries.

Furthermore, only 19 of 46 less developed countries are rated at all by at least one international credit rating agency, a pre-condition for access to international debt markets.

Incorporating natural capital accounting in credit risk ratings would reduce the cost of borrowing in many developing countries, especially in Africa. Only two African countries are rated investment grade. African countries can mobilize development finance by incorporating the aspects of natural capital in country credit risk ratings by credit rating agencies. The rising debt burden of African countries in the wake of the COVID-19 pandemic, with debt-to-GDP ratios above 70 per cent and rising risk of debt distress, calls for innovative measures to unlock new sources of debt financing. Incorporating natural capital in sovereign credit ratings is premised on a proper valuation of natural assets that increase a country's wealth and income levels (wealth accounting), which could be leveraged for borrowing on terms that are more favourable and reflective of the country's natural wealth. This is a novel approach being explored by the African Development Bank and its partners through the Natural Capital for African Development Finance.

Moreover, as credit rating methodologies further incorporate climate risks into assessments, sovereign ratings for developing countries are likely to fall. The impact of the rating inequality is exacerbated by the fact that countries in lower classes are often those whose creditworthiness might be most affected by climate change damages. While sovereign credit ratings are increasingly incorporating climate risks into assessments, the process of integrating these risks remains mostly qualitative in nature and there is a lack of clarity on how climate-related risks influence the final rating.⁸⁴ In addition, there is a need to also incorporate the impact of adaptation investments so that investments in resilience can translate into lower investment risk and therefore lower financing costs.

Domestic and regional institutional investors with large pools of resources present a significant opportunity for leveraging climate finance and funding the SDGs. Developing countries could thus approach not only global institutional investors but underutilized domestic institutional investors to finance the SDGs, including those targeted at addressing the effects of climate change. Notably, there are 260 public development banks (which include national and regional development banks) in developing countries, representing \$5 trillion in assets, with the capacity to extend more than \$400 billion in climate finance per year.⁸⁵ Doubling their investment capacity or leverage effect would be a game-changer to close the green financing divide. Africa, for example, has huge pension funds as a share of GDP to the tune of 8.4 per cent in Nigeria, 14.6 per cent in Kenya, and 84.6 per cent in Namibia, which African countries could align to help close the climate financing gap.⁸⁶

D. Green climate resilient project pipelines with sustainable development co-benefits

There are a number of mitigation policies that are in line with a high-productivity path of inclusive development, even for the poorest countries. This is especially the case for energy-efficient technologies, in lightning and transportation for example, which could help both in term of energy poverty and environmental costs. Other examples include renewable energy that can meet the needs of poor households at competitive prices, especially in remote rural areas where grid development and centralized production would be expensive (for example micro-hydro solutions). The fact that climate mitigation efforts can lower local air pollution has been shown to not only provide massive health benefits but also higher agricultural yields. Another example is public transport that can reduce carbon emissions and reduce local pollutants, but also transport costs and congestion. Another example is payment for ecosystem services, when designed with effective institutions (like land tenure) and enforcement capacity, and designed to support poverty reduction. Similarly, adaptation projects bring significant economic, social and environmental co-benefits. For example, investments in climate information services and climate resilient agricultural practices and productive capacity, particularly for women small-holder farmers, increase their income, which in turn improves health and education outcomes for children.

A key fiscal initiative by Governments to promote investments in line with a high-productivity, inclusive and green development is to leverage public-private partnerships (PPPs). Leveraging PPPs, not least for climate-resilient infrastructure, can help countries mobilize funds to bridge the existing infrastructure gap, while accounting for climate change. While African Governments are increasingly turning to PPPs to attract private capital for infrastructure projects, the World Bank's Private Participation in Infrastructure database shows that Africa has secured less than 7 per cent, or only \$74.8 billion, of global PPP investments over the last decade. In sub-Saharan Africa, PPP investments between 2010 and 2020 amounted to \$59.3 billion, directed towards 275 projects mainly related to electricity, ports and information and communications technology. Only seven of these PPPs were for road networks. If the PPPs integrate climate resilience and adaptation considerations, they could contribute to bridging the existing infrastructure gap in Africa.⁸⁷

A major constraint to more PPPs, and to attracting private investors more generally, is the absence of a pipeline of bankable green labelled investments that can be identified, measured and reported on in a transparent and accountable manner.

A number of initiatives can address this. For example, at the global level, creating shared standards, methodologies, taxonomies and data to translate NDCs and NAPs into investment plans and a pipeline of bankable projects, notably adaptation projects; improving the capacity of governments (national and local) and domestic financial institutions (national development banks and commercial institutions) to originate, appraise and report on green labelled investments; providing finance for project preparation to bring projects to a level of maturity where private investment can be unlocked; and avoiding the risks of “green washing” through increased transparency, and producing and providing data to measure, verify and report on the use of proceeds. It is also essential to create large enough deal sizes, possibly by aggregating smaller projects, given the high transaction costs.

E. Financing instruments for increased private capital flows

There is a range of flows and related policies and instruments that can be combined and tailored to the context (country, sector, etc.); or further developed through ‘finnovation’. Apart from taxes, grants and remittances, there are a range of financing instruments (table 2), including grants, equity, debt instruments, guarantees and insurances, which can be blended (from public and private sources) to complement an already broad range of policy reforms (there are over 5,500 policy instruments related to climate change).⁸⁸ In addition, along with reforms to the global, regional and national financial architecture, there

is a need for innovation and new financing instruments (finnovation). It is helpful to divide instruments into debt and non-debt instruments, as well as domestic and external instruments and policies. As discussed in chapter 4, international finance dominates in sub-Saharan Africa and South Asia, while domestic finance dominates in East Asia and the Pacific. Regions such as the Middle East and North Africa, Europe and Central Asia, and Latin America and the Caribbean have a more even spread between domestic and international flows. In the end these choices are country-specific. While the type of instruments are well documented, it is less clear when countries should use which instruments, and there is a lack of tools to help countries resolve such issues.

There are a number of underlying factors that can be addressed to increase the probability of financial instruments, such as guarantees, credit enhancement mechanisms and bonds, to be a force in the inclusive green transition in lower-income countries. These include an improvement in the capacity of domestic financial systems and institutions to, for example, issue bonds and green their investments. Many lower-income countries have shallow domestic financial and capital markets, with limited means to align domestic savings with national inclusive and green ambitions. Addressing the lack of credit history and the related information asymmetry is also essential to creating enough trust in the investor-entrepreneur relationship. The capacity of domestic financial institutions to price in climate risks and opportunities into their investment portfolios is also important. Underlying all this is limited engagement with private investors (global, regional and domestic) to promote opportunities. This is where country platforms for development financing can play a crucial role.

Table 2. Examples of financing flows, instruments and policies to mobilize financing for development

	Domestic	International
Non-debt instruments	<ul style="list-style-type: none"> • Taxes. • Fees, royalties, etc. • Private sector value chain initiatives. 	<ul style="list-style-type: none"> • Grants. • Diaspora remittances. • Guarantees. • Insurance instruments (catastrophe bonds). • Payment-for-services. • Credits (carbon credits, for example). • Private equity funds (green private equity funds, for example).
Debt instruments	<ul style="list-style-type: none"> • Domestic borrowing. 	<ul style="list-style-type: none"> • Loans from international financial institutions. • Bilateral borrowing. • Diaspora remittances (loans). • Capital markets. • Bonds (green bonds, for example). • Debt-swaps. • Asset-based securities.

Source: Compiled by author.

While a detailed description is beyond the scope of the present paper, there are a number of innovative instruments that are increasingly being used to mobilize climate finance to developing countries. These instruments include blended finance instruments, green bonds and loans, sustainability or sustainability-linked bonds and loans, and debt-for-climate swaps. The special drawing rights allocated to willing developed countries could also be reallocated to developing countries, potentially giving them the flexibility to finance climate needs. The IMF Resilience and Sustainability Fund is one of those instruments. Other instruments, such as equities, guarantees or insurance, are also expanding. Countries can also mobilize capital through carbon markets, especially when emissions are traded at the true price of carbon.

Debt instruments such as green, social and sustainable bonds more than doubled in the period 2020-2021.⁸⁹ Access to debt capital markets plays a critical role in developing countries' ability to raise finance for their development, while offering a potentially attractive return to investors. Green bond issuance reached \$523 billion in 2021 (with a total market size of \$1.6 trillion), with corporate issuers representing 44 per cent of cumulative green bond volumes, compared with sovereigns that stood for 10 per cent of the cumulative volumes.⁹⁰

Green, sustainability and sustainability-linked bonds from developing countries, with proceeds linked to public programmes contributing to the SDGs, can play a substantial role. Green bonds can offer developing countries a number of benefits, such as additional sources of finance for climate action by directing use of proceeds towards implementing NDC and NAP priorities and tapping into a new diversified investor base; long-term financing, notably for climate resilient infrastructure projects that have the potential to attract institutional investors; potentially reducing the cost of debt finance through the 'greenium' (a discount on new green bond issuance); possibly reducing the cost of and crowd-in equity encouraged by access to long-term affordable debt; contributing to mitigating climate change risk and creating reputational benefits for both issuers and investors by demonstrating their commitment to addressing the impacts of climate change; diversifying portfolios for investors away from climate risk, and meeting investors' growing ESG requirements while benefiting from strong yields; and creating a pipeline of green bankable projects that can attract investments from other entities.

There is also growing recognition of the importance of resilience and blue bonds. The Climate Bonds Initiative launched the Resilience Bond Principles, highlighting an opportunity for the creation of a new resilience bond market. The European Bank for Reconstruction and Development launched the first ever dedicated resilience bond in 2019, which received an AAA rating and raised \$700 million. While the resilience bond evidence base is nascent, international institutions and national and regional governments are showing an increased appetite

for investing in climate adaptation. According to the Global Center for Adaptation, green and resilience bonds are going to play a progressively important role in future bond markets. More research into resilience bonds, and their application in practice, is needed to scale their use, so as to help deepen and broaden resilience investment in climate-vulnerable countries.⁹¹

While the potential is undeniable, with macroeconomic conditions in developing countries still recovering from the pandemic and a debt situation that has limited productivity improvements, additional debt instruments need to be used sensibly. Increasing debt, climate-related or not, in countries where productive investments are unlikely and debt is already high, may worsen a country's conditions and its green transition. Hence, to avoid worsening the debt situation, debt-based climate instrument need to take into account the specific country context, and assess to what extent the planned investment has the potential for high enough returns to repay the debt. If so, than debt-based instruments can be an option, even in high-debt countries. In 2021, green bonds still only represented 5.8 per cent of total bonds issued globally, and about 0.8 per cent of the total bond market serving public firms and sovereign debt.⁹² In addition, developing countries represent only a fraction of green bond issuance. In 2021, emerging markets represented only 21 per cent of the total green bond issuance, which came mostly from China. Africa's share was only 0.077 per cent of the total 2021 green bond issuance.⁹³ Hence, while containing a huge potential for developing countries, green and sustainable bonds are likely to be more appropriate for upper lower to middle income countries and therefore a smaller part of the solution for the poorest countries, especially those already in high debt distress. For the poorest countries, it will be important to undertake efforts to reform domestic debt capital markets and improve the enabling economic and investment environment, so as to lay the foundations for such countries to leverage the potential of green and sustainable bonds in the near future.

Blended finance mechanisms, such as de-risking instruments, are on the rise as a way to use scarce public funding to crowd in private investments by compensating for (or addressing) information asymmetries and market imperfections. Any new technology, such as green technology, includes an additional risk factors on top of all the other risks that investors are exposed to in developing countries, including political and regulatory risks arising from governmental actions, such as changes in policies or regulations that adversely impact investments (for example, a non-commitment to a renewable energy strategy adding risk to investments that can be pushed out of the market by the introduction of a fossil fuel subsidy); macroeconomic and business risks arising from the possibility that the industry and/or the economic environment are subject to change; and technical risks determined by the skills of operators and managers and the nature of the project: its complexity, construction and technology (there are presumably high risks when introducing new

green technologies]. Hence, for new, green technology to be of interest in already risky low-income environments, there is typically a need for some type of public de-risking. As stated earlier, it is of importance that underlying market imperfections are addressed in parallel, decreasing the need for future financial de-risking.

Guarantees have been proven to have a high leverage ratio, and there is a need to develop innovative mechanisms to reduce guarantee costs.

According to OECD data on amounts mobilized from the private sector by official development finance interventions between 2012 and 2018, guarantees mobilized more private capital than direct lending or equity investments, from \$8 billion in 2012 to over \$18 billion in 2018, representing 39 per cent of total private finance mobilized for development over that period. OECD concludes that guarantees have been the most effective tool to mobilize capital in every year for which data is available. The reason for this significant mobilization effect is that guarantees help address the information asymmetry that typically discourages investors from investing in developing countries. By creating a track record, guarantees can encourage replication of further transactions without credit enhancement.

Nonetheless, some guarantees have been criticized for high fixed costs and too much of a project-by-project approach, given the scale of finance needed.

There are a growing number of innovations to reduce the costs and increase the scale of guarantees. Going forward, it is important to ensure that any fixed cost associated with blended finance decreases, that more standardized methods and measurements are used, and that “umbrella guarantees” are developed. This could for example be a political risk guarantee based on politically supported NDCs.

Adaptation financing through debt will exacerbate debt burdens, creating risks of further downgrades, and leading to a downward spiral that will make it impossible for many developing countries to access private capital for sustainable investments. According to a study by a group of universities in the UK, 63 countries (about half the number rated by the three largest credit rating agencies) could see their credit ratings downgraded because of climate change.⁹⁴ This is not an argument against integrating the true risks of climate change in the ratings, on the contrary. On the flipside, incorporating the positive impact of investments in adaptation and natural capital accounting in credit risk ratings could reduce the cost of borrowing. Incorporating natural capital in sovereign credit ratings is premised on a proper valuation of natural assets that increase a country’s wealth and income levels (wealth accounting), which could be leveraged for borrowing on terms that are more favourable and reflective of a country’s natural wealth.

Furthermore, although sovereign wealth funds are limited in Africa, opportunities abound to address natural resource revenue volatility, mobilize climate investments, create new assets that support inter-generational equity, and finance development of climate smart infrastructure. Establishing sovereign wealth funds with clear savings and investment rules and governance mechanisms can enhance domestic resource mobilization and strengthen economic resilience. Therefore, sovereign wealth funds could provide the much-needed resources for Africa to finance its sustainable development.

There are non-traditional sources of finance and financing mechanisms that have the potential to provide low-income and middle-income countries with new financing opportunities. For example, the voluntary carbon market, with only about \$1 billion in market value today globally, is projected to grow to more than \$20 billion in the next 10 years, reaching \$1 trillion by 2050.⁹⁵ Demand in voluntary carbon markets is growing by an estimated 1.1 billion to 2 billion tons per year. Analysis indicates demand will outstrip supply in the next 5–7 years by about 100 million to 400 million tons per year, with price/ton estimates in the range of \$20 to \$50 per ton by 2030. Carbon offset projects also bring a range of socioeconomic and environmental benefits. For example, clean cookstoves can reduce carbon and deforestation, and improve health and income: Gold Standard reports that for every carbon credit issued from a clean cookstove project, \$267 in economic value is created. Similarly, current expected sale prices compare favourably to the cost of implementing offset projects: clean cookstove projects costs approximately between \$4 and \$5 a ton, with a current sale price of between \$8 and \$12 a ton.⁹⁶ Similarly, projects related to blue carbon (the carbon stored in oceans and coastal ecosystems, including mangroves, marshes and seagrass) are still in their nascent stages. This is despite the fact that mangroves, for example, which are being lost at a rate of 1 to 2 per cent each year, sequester 5 to 10 times more carbon than terrestrial forests, protect biodiversity, and promote community livelihoods and food security. Hence there are opportunities to explore the potential of carbon markets and innovative financing instruments, so as to increase developing countries’ access to finance to implement NDC ambitions through the following components: increasing Governments’ strategic engagement in carbon markets; supporting the development of carbon off-set projects with socioeconomic co-benefits; conducting feasibility studies to determine the viability of offset projects focused on (re)-forestation, ocean, coastal, mangrove and marsh restoration (blue carbon), and clean cookstoves, as well as the environmental and social risks and safeguards; and promoting transparency about carbon projects.

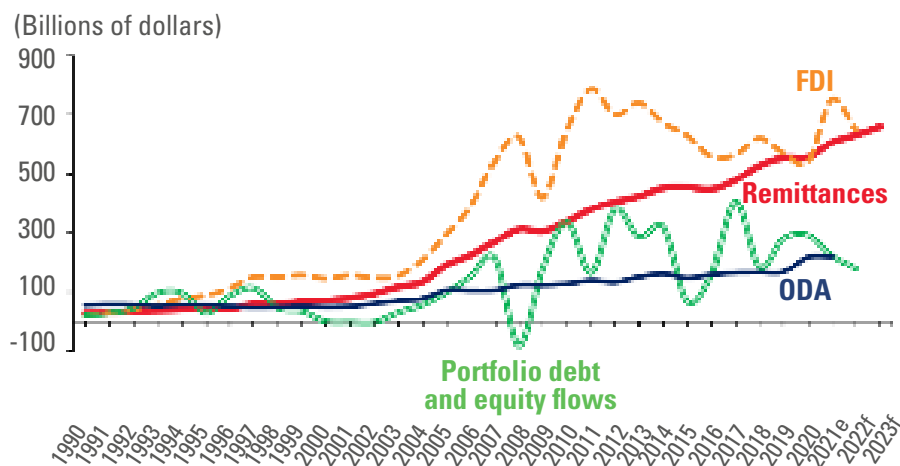
F. Inclusive green development and the role of ODA and additional public climate resources

In 2021, total global ODA was \$179 billion, equivalent to 0.33 per cent of GNI in Development Assistance Committee (DAC) member countries.⁹⁷ This was almost exclusively in the form of grants, loans to sovereign entities, debt relief and contributions to multilateral institutions. Around \$1.1 billion was related to development-oriented private sector instrument vehicles, and \$3 billion to net loans and equities to private companies

operating in ODA-eligible countries. While the overall level has been relatively constant in the last years, it is far from the goal of 0.7 per cent of GNI set by DAC members. In addition, there is now a worry that willingness to provide ODA is declining, that the number of development issues it should cover keeps broadening, and that an increasing share of ODA is used for in-donor country refugee expenses.

While ODA is a small part of overall external flows to developing countries, it is essential for the poorest countries and in times of crisis. As illustrated in figure 12, ODA will not be the capital flow that takes development to scale but, together with remittances, it is an essential and stable flow, especially in times of crisis. In addition, while ODA is only 20 per cent of external flows in upper-middle-income countries, it is 37 per cent in lower-middle-income countries, and as much as 63 per cent in low-income countries.⁹⁸ For some individual countries, it is even higher.

Figure 12. Remittances, foreign direct investment and ODA flows to low-income and middle-income countries, 1990–2023f



Source: OCHA, Migration and Development Brief 36 - A War in a Pandemic: Implications of the Ukraine crisis and COVID-19 on global governance of migration and remittance flows, May 2022.

Note: FDI = foreign direct investment; e = estimate; f = forecast.

In addition, the typical overall ODA goal of poverty reduction is less common, replaced by mutual bilateral self-interest goals or more “enlightened self-interest” in the form of global public goods. To some extent, this is a natural consequence of the convergence between countries and the decline in extreme poverty, opening up for the broadening of development goals as expressed in the 2030 Agenda. This is both because of the increase in the perceived importance of other goals in relation to poverty, and the importance of a holistic approach to be able to continue reducing poverty.

However, despite the “leave no one behind” principle, limited ODA commitments are now used to pursue a broad number of goals, including mitigating climate change, on a global level. There is a need for clarity that climate financing through current ODA levels will always be very limited in relation to climate finance needs, and that it is therefore of utter importance that: using current ODA levels for climate financing does not diminish incentives to mobilize other public and private climate financing flows; climate finance from current ODA levels has a clear poverty reduction focus, which translates into mainly adaptation

initiatives and mitigation initiatives as part of the overall transition into inclusive, sustainable and productive development; and current ODA levels should only be used where other financing flows are not realistic, or where a limited amount of ODA can catalyse larger financing flows from other resources. If the overarching goal is poverty reduction, it is essential that ODA focuses on mitigation that create synergies with development and poverty reduction, rather than mitigation as a goal in itself.

However, given the multinational architecture of international development cooperation, building on current ODA institutions is essential to meet the global climate change challenge. In addition, global and national development issues are strongly interlinked and can only be efficiently addressed when addressed together. This requires additional resources to ensure poverty reduction goals are not compromised, taking current ODA to levels that can both address global poverty and other global challenges, such as climate change. As a point of departure, it is essential that developed countries honour the 2009 commitment to mobilize \$100 billion annually to developing countries to support climate action. If there is political will, this is feasible. As a comparison, the fiscal resources mobilized by the world in response to COVID-19 was \$17 trillion within two years.⁹⁹ Crucially, the global community and developed countries should start considering moving beyond the \$100 billion target, as it does not reflect the true opportunity cost of climate change in developing countries.

The main focus of ODA should be to reduce the number of people living in poverty, while also driving the green transformation. As already stated, building resilience in poor countries often means general development and improvement in institutions – the type of support traditional ODA is typically providing. Even in cases where resources for redistributive policies are available, sometimes the capacity to implement them is missing. However, with the broadening of the SDGs also came a

broadening of actors, financing flows and instruments involved in international development, opening up for quickly expanding and promising new channels for ODA to catalyse development.

In developing countries where domestic public resources are insufficient to protect and reduce the number of people living in poverty, and private investment incentives are limited, support from the international community is essential for the mobilization of private capital. This is particularly true for investments with high upfront costs that are critical to prevent lock-ins into carbon-intensive patterns, such as for urban transport, energy infrastructure, or deforestation. In many low-income contexts and for specific sectors or development issues, such as in social sectors, grants funding is typically the only option. However, even in those cases, a great deal can be done to prepare for the necessary transformation to come. For instance, the international community can do much to ensure that development is rapid, inclusive, and climate informed. It can offer resources for climate risk analysis and project preparation; and it can ensure that other financing instruments and support are available as a country develops and transitions.

In terms of private capital, multilateral or bilateral development banks can provide advisory services to help countries develop strong capital markets and channel official development assistance to where it has most leverage. Ongoing efforts to create country platforms are promising, looking at capital constraints holistically, including constraints in the investment climate, financial institutions and markets, constraints to creating project pipelines, transparency, and connection to country-specific development plans. Starting from a specific transition stage and a specific development challenge reveals both the realistic mix of financing and policy instruments and the concrete constraints to further scale up financing in a certain context. This may be more fruitful than trying to maximize each financing and policy instrument at all transition stages, for all types of development challenges.

7. Conclusions

People living in poverty are especially vulnerable to the global climate crisis because of exposure to its effects, dependence on natural capital, and a lack of resilience and resources to adapt. This climate vulnerability perpetuates poverty. Poverty in turn, at the individual level and country levels, affects the ability to take climate action.

An efficient climate change policy must include poverty reduction policy and actions, and an efficient poverty reduction policy must tackle climate change. The only measure to address the impact of climate change on the poor, and the impact of poverty on the climate, is to incorporate poverty reduction and adaptation measures into development planning, which must go hand in hand with climate change mitigation in developed economies.

The climate crisis is accompanied by several other crises, leaving in their wake poor countries and people with increased needs but less resources in a diverging world. The impacts of climate change on the poor are exacerbated by geopolitical tensions and global shocks, such as the COVID-19 pandemic and the war in Ukraine. Despite the rise in poverty and inequalities, multiple crises and lack of development resources, this is not the time to dismiss the need for climate-related investments and the need to scale up and speed up adaptation: it is vital to mainstream resilience and low-carbon development in the long term. Ensuring resources are available for developing countries is urgent, as the cost of catching up economically and climate-wise increases rapidly. Many solutions are available but major change will only happen

when a large enough part of the system moves in the same direction and solutions are tailored to specific country contexts.

The present paper argues that for implementation of the green transition to be efficient, just and feasible, it is essential to take the specific development context and economic transition into account, including a transition approach to financing. Summits must produce viable solutions. There is an urgent need to agree on a set of principles, guiding policy and financing options for an inclusive green transition, which achieves poverty reduction goals alongside necessary climate actions, in line with the following principles:

- 1. Economic development and poverty reduction as pre-conditions for resilience in a changing climate.** Growth is necessary to meet the urgent development needs of the world's poor, but the poverty impact of growth differs between countries, and will not be unsustainable in the long run unless it is both socially inclusive and green. Economic development has resulted in a tremendous poverty reduction over time, even though the extent to which economic growth reduces poverty differs across countries and periods. Economic development is also essential for economic resilience, adaptation and poverty dynamics during shocks, including climate shocks. Poor countries and poor people have fewer resources to fall back on and lower adaptive capacity, thus enhancing the negative effect on growth and poverty reduction. To ease the poverty impact of climate change, development and its related resilience are essential for poor countries. Poverty forces short-term decisions and social unrest, not compatible with sustainable green growth.

2. No matter the success of mitigation efforts, there is a need for adaptation. The inclusion of adaptation strategies into broader national development planning is the only way to combat the effects of climate change on the poor. The most effective approach to improving the ability to anticipate and react to the adverse consequences of climate change is to reduce risk and minimize damage by integrating coping and adaptive actions as part of the broader development framework. However, adaptation has not reached anywhere near the scale that is required.

3. Mitigation as part of a sustainable development strategy, recognizing trade-offs. Economic development affects climate change, but to different degrees in different economic systems and over time, as countries develop. Green growth policies in developing countries need to focus on what is required in the next 5-10 years to sustain robust growth and job creation, without locking economies into unsustainable patterns. While there are numerous win-win solutions between poverty reduction and climate change, there will always be trade-offs to consider for decision makers with resource constraints, including trade-offs between two win-win options. However, as part of the equation, one needs to consider that the longer wait to implement mitigation policies, the larger the “emission commitment”, and the costlier both adaptation and mitigation will be. Smart strategies for inclusive green growth and smart climate change policies should take advantage of immediate benefits, including the falling costs and competitiveness of clean energy sources; avoid locking in unsustainable practices; offer the right incentives; and find innovative ways of financing projects. These initiatives are the path to sustainable development. While many current high-income countries show that economic growth is compatible with reducing emissions, this needs to happen at a faster pace and across more countries.

4. A just transition is essential for sustained development. There is a need to transition to an economic system that respects planetary boundaries, but the necessary changes will only happen if development goals, such as poverty alleviation and social inclusion, are also addressed. Just transition is based on the premise that an economic development model can simultaneously address environmental challenges and ensure decent jobs and income for impacted communities, if the model adjusts for the different stages of the transition. Failure will jeopardize economic activities, poverty reduction and the social fabric, eventually translating into failure to address climate change.

5. Climate justice and country ownership need to guide a sustainable transition. The response needs to take into account that while the main burden of mitigation is in the hands of those with resources, who have already profited from carbon emissions, the main burden of adaptation is unfortunately on those that lack the means. Ensuring resources are available for developing countries is urgent, as the cost of catching up economically and climate-wise increases fast. Moreover, a large proportion

of historical and current emissions are from developed and emerging economies, suggesting developing countries’ development should be prioritized when assessing the carbon budget going forward (taking the share of global emissions into account). Strong country ownership is a pre-condition for any development to be sustained in the long term, suggesting that any global strategy for climate change needs to take developing countries’ priorities into account and use them as a positive force to catalyse change.

With these principles in mind, which set out a clear path to combat both climate change and poverty, a context-adjusted approach to the transition comes naturally. While all countries are different, and a country’s scale of contribution to global emissions needs to be considered, the following general approaches by income-group are appropriate:

- **Low-income countries** should have a clear focus on poverty reduction and basic needs. Economic development and resilience is key in adapting to climate change, especially mitigation efforts.
- **Lower-middle-income countries** should focus on poverty reduction, economic development, and adaptation to increase resilience, but must also consider lock-ins and the economic feasibility of energy options, and ensure that the direction of the long-term development path is sustainable. Country ownership of this process is also essential, as it will take political trust to avoid reject well-needed short-run profits for long-term benefits.
- **Upper-middle-income countries** have developed to a large extent while locking in an unsustainable infrastructure system, but with limited resources to invest in a greener climate resilient development path. The fact that the underlying investment environment has reached a threshold means that the cost of capital and the risk structure is conducive to private flows that can potentially make a huge difference.
- **High-income countries** need to take the lead in mitigation efforts in their own countries and step up mitigation and adaptation efforts in developing countries. The resources available in high-income countries are the result of unsustainable economic development leaving a large climate and environmental debt, thus creating costs not only for high-income countries but the whole world.

However, even when agreeing to these principles, financing the transition is a challenge. As poverty and carbon dioxide emission evolve with income per capita, so does the composition of finance. No matter at what stage, financing gaps can slow down a transition. The financing gap for the 2030 Agenda is estimated at \$3.5 trillion per year. Even the financing gap for SDG 1 on poverty reduction is increasing owing to heightened needs combined with declining resources. Transitioning to a green and resilient economy will require the mobilization of unprecedented capital. Climate financing is increasing but the flows to low-income countries are still very limited.

Low-income and lower-middle-income countries are highly dependent on ODA. Remittances as a share of total external flows is increasing quickly, and is almost as high as ODA by the time a country graduates to upper-middle-income-country status. Other official flows are also increasing but not as fast as remittances, and private flows do not take off until higher income levels. There is a rationale behind this pattern where the domestic investment climate is weak and the cost of investing for private actors is simply too high. It is crucial that flows of ODA, remittances and the somewhat increasing OOFs, in addition to higher tax revenues, are used to create an improved investment climate to ensure that a country can eventually benefit from the potential of private flows. The pattern also calls for realistic expectations: to what extent can private flows play a role in poverty and climate finance in low-income and lower middle-income countries; and to what extent will highly subsidized private flows to low-income and middle-income countries result in high-return investments in the short run, given the underlying investment climate, or to what extent is it initially about building capacity and institutions for a scaling up at a later stage.

Private flows take off as countries gain upper-middle-income status and eventually dominate external flows. This is a moment when not only substantial infrastructure lock-ins are happening, but also when risk-adjusted returns to private flows are improving. Using public climate finance and portions of ODA and OOFs to catalyse private investments can have significant leverage effects. While this catalytic effect is larger in upper-middle-income countries and may be less needed in high-income countries, it is still necessary in low-income countries to build investor confidence and enable such countries to address the financing gap. Throughout the upper-middle-income and high-income stage, there are a number of other potential market failures to address, for example, related to the price of carbon emission, lack of innovation or redistributive policies. This suggests that support to inclusive sustainable private financing is a combination of blended finance and policy reform during both the upper-middle-income stage and high-income stage. However, with the higher risk level in upper-middle-income countries, blended finance is especially important in those countries.

The present paper arrives at the following recommendations to accelerate resource mobilization for both poverty reduction and climate action:

1. Adopt a transition finance approach. There is no single green growth model and strategies vary across countries, reflecting local preferences and contexts. Any single set of “best practices” should be imported with care. Nonetheless, all countries, rich and poor, have opportunities to make their growth greener and more inclusive without slowing it. The starting point should be the country context and the specific development issue to

which different combination of financing is mobilized, rather than the other way round where a specific instrument is maximized in all countries for all development issues. This implies that, as with development challenges, there is a need to take a transition approach. Starting from a specific transition stage and a specific development challenge helps in revealing both the realistic mix of financing and policy instrument, and the concrete constraints to further scale up financing in a certain context.

- 2. Address the underlying investment environment risks.** In many developing countries, the already high costs of capital prevent any capital to flow, which means that improvement in the general investments climate and institutions is a starting point for all efforts to encourage productive investments. There is a risk of not addressing the main, and even binding, determinant of high cost of capital in a country if there is exclusive focus on instruments to overcome risks associated with a certain development issue, such as climate. Instead, a systemic approach is encouraged where any second best solution, such as a guarantee, in parallel addresses the underlying risk structure.
- 3. Get the prices right.** For a transition to be inclusive and green, a number of market failures need to be adjusted and policy reforms be put in place. This ranges from carbon taxes to access to markets. Getting the prices right, and adjusting for market failures to ensure external effects are priced in, should be done at any income and transition stage. While adjustment of market failures results in winners and losers, any distributional effects should be handled separately.
- 4. Build and align the fundamental institutional financial structure globally, regionally and nationally.** Capacity in the global and national financial architecture needs to be addressed to align global capital to developing countries and to climate change. Initiatives may include reassessment of credit rating systems and supporting capacity, creating a pipeline of investable projects, and building or strengthening climate finance capacity within financial institutions and systems. Such initiatives should also include a better understanding by all actors of the role and motivation of other actors within the global financial system. Ongoing efforts to create country investment platforms are promising, looking at capital constraints holistically including constraints in the investment climate, financial institutions and markets, constraints to creating project pipelines, transparency, and connections to country-specific development plans.
- 5. Scale up the use of financial instruments to catalyse private investment and systemic change.** A number of financial instruments and risk management approaches can be used to a much larger extent than seen so far. While the present paper has urged addressing underlying investment climate and market failures, encouraging financing flows even in a second-best, distorted environment is important since time is limited and climate change and poverty need to be urgently addressed, and the

flows themselves and the capacity and institutions built in the process will catalyse change in the underlying structure. Any policy or financing instrument should follow the principles of addressing a market failure and not distorting markets, and crowd in the private sector rather than crowding it out. Increasing the use of innovative financing instruments, including green, resilience and blue bonds, carbon markets, debt for climate swaps and credit enhancement mechanisms, can play a critical role in scaling up private climate finance in developing countries, notably for adaptation.

6. **Provide more resources for a broadened agenda.** There is continued need for capital injections as more development goals are added, to cover financing gaps where private capital is not an option, and to release the crowding in effect through different financing instruments. The commitment by developed countries to mobilize \$100 billion in climate finance to developing countries must be met, also on the grant side. To ensure poverty reduction goals are not compromised, current ODA commitments need to be adjusted to levels that can both address global poverty and other global challenges such as climate change.
7. **Effect a parallel cultural and behavioural change among consumers, producers, investors, policymakers, and those working within development cooperation.** When the solution to a problem is a change of system, governance issues and leadership is at the heart of success. Systemic change demands new perspectives and new capacities to capture the underlying driving forces of different actors. Country ownership of the process is essential and a force for sustainability. The prioritization of development challenges differs substantially between countries at

different income levels. Decision makers need to take a range of issues into account, and ensure they are in line with the will of the people in order to be re-elected. Hence, it is not possible to get around this prioritization, but rather need to take it into account and use it as a strength.

Going forward, there is an especially large gap during the transition that needs to be addressed to bring initiatives to scale: the gap in the investment pathway that could catalyse larger long-term private investment. Capital must grow in a sustained matter. This is essential for creating jobs and direct income generation, or direct climate investments. A growing private sector also raises tax revenues and in turn the room for increased public investments for poverty reduction and climate action.

However, while the role of ODA and other grants is changing, they are still essential. In developing countries where domestic public resources are insufficient for fundamental public expenditures and to protect people living in poverty, and private investment incentives are limited, support from the international community is vital. This is especially true for investments with high upfront costs that are critical to prevent lock-ins into carbon-intensive patterns, such as for urban transport, energy infrastructure, or deforestation. The main focus of ODA should be to protect people living in poverty, and to drive the green transformation. Building resilience in poor countries often means general development and improving institutions from very low levels, the type of support traditional ODA typically provides. Given the overarching poverty goal, ODA should focus on adaptation and emission-reduction options that create synergies with development.

Endnotes

- 1 World Health Organization (WHO), Climate change and health, 2021.
- 2 Viviane Clement and others, Groundswell Part 2: Acting on Internal Climate Migration, 2021.
- 3 International Monetary Fund (IMF), Greenhouse emissions rise to record, erasing drop during pandemic, 2022.
- 4 IPCC, Sixth assessment report: Mitigation of climate change, 2022.
- 5 United Nations, What is climate change?
- 6 IPCC, Sixth assessment report: Mitigation of climate change, 2022.
- 7 In developing countries, much adaptation is still implemented as projects, where the average project funding is about \$8 million spread over three or more years, with half the projects receiving less than \$3 million, implying high transaction costs and insufficient programmatic thinking. Most projects are financed by funds such as the Adaptation Fund and the Green Climate Fund, and by bilateral and multilateral finance organizations. National government investments in adaptive activities are significant, but are difficult to estimate and to distinguish from development expenditure. Private sector investment is even more difficult to track.
- 8 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 9 The world had an opportunity to green the fiscal COVID-19 stimulus packages, but this does not seem to have materialized. The United Nations Environment Programme finds that, in the 50 largest economies, only 18 per cent of recovery spending and only 2.5 per cent of total spending will enhance sustainability. In 2020, G20 countries spent \$208.73 billion supporting fossil fuel energy, compared with \$143.02 billion supporting clean energy. (Source: UNEP, Are we building back better? Evidence from 2020 and pathways for inclusive green recovery spending, 2021).
- 10 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 11 United Nations, Food insecurity threatens societies, exacerbates conflicts and 'no country is immune', 2022.
- 12 Countries mostly transition in from a lower-income level group and out to a higher-income group, given the overall decrease in low-income countries and the overall increase in high-income countries. However, there are exceptions that have been reclassified as a low-income group after being upgraded to lower-middle-income country, such as Zambia.
- 13 Accumulated, production-based, emissions 1751-2017, Our World in Data.
- 14 At low GDP per capita, increases in income tend to result in only modest increases in energy consumption. Beyond this, a major factor in development has been industrialization, which comes with a tighter link between GDP growth and energy consumption growth (including to fuel hospitals, schools, transport, etc). At high-income levels, economies and growth diversify away from manufacturing, and energy consumption increases more slowly or declines with income.
- 15 IRENA, Renewable Power Generation Costs in 2021, 2022.
- 16 Climateaction.africa, Fossil fuels to renewable energy: the cost of switching, 2022.
- 17 This has not yet translated into a decline in total emissions since the global population is still increasing. However, 2020 marked a temporary decline in global emissions owing to the pandemic's impact on economic activity.
- 18 Marshall Burke and others, Global non-linear effect of temperature on economic production, 2015.
- 19 IMF, Mitigating climate change: growth-friendly policies to achieve net zero emissions by 2050, 2021.
- 20 Tom Walker and others, Improved Crop Productivity for Africa's Drylands, 2016.
- 21 McKinsey and Company, Winning in Africa's agricultural market, 2019.
- 22 Global Center on Adaptation, State and Trends in Adaptation Report 2021: Africa, 2021.
- 23 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 24 World Bank, Poverty and Shared Prosperity, 2020.
- 25 World Bank, Shock Waves: Managing the Impacts of Climate Change on Poverty, 2015. "Prosperity" assumes that the World Bank's goals of extreme poverty eradication and shared prosperity are met by 2030 (in particular, less than 3 per cent of the world population remains in extreme poverty), and that access to basic services is quasi-universal. "Poverty" is much more pessimistic in terms of poverty reduction and inequalities (for instance, 11 per cent of the world population remains in extreme poverty).
- 26 Other possible impacts include tourism, energy prices, foreign direct investment, or remittances. Moreover, the study only looks at the short term (during which there will be small changes in climate conditions compared with what unabated climate change could bring over the long term). Overall, one may consider this an estimated effect on poverty on the lower end, since other channels and longer-term effects would most probably add to the impact.
- 27 Climate change could have a large effect on extreme poverty in the prosperity scenario, but the impact is substantially larger in the poverty scenario. By 2030, between 3 million and 16 million people in the prosperity scenario, and between 35 million and 122 million people in the poverty scenario, would be in poverty because of climate change. At the same time, up to 2030, climate change remains a secondary driver of global poverty: the difference across reference scenarios due to socioeconomic trends and policies (that is, the difference between the poverty and prosperity scenarios in the absence of climate change) is almost 800 million people. Hence, the prosperity scenario has a dramatic effect on poverty and a lower, but still significant, effect on the poverty impact of climate change.

- 28 Across East and West Africa, climate change in the high-warming scenario is estimated to reduce GDP per capita growth by up to 15 per cent by 2050, below the baseline GDP per capita growth scenario. North and Southern Africa would also be severely affected, with around a 10 per cent decrease in GDP per capita growth by 2050, and Central Africa would face a potential decrease in GDP per capita growth of around 5 per cent. These regional differences are partly explained by variations in economic structures and by the degree of climate resilience. [Source: African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022].
- 29 Natural disasters often affect human capital, a critical component of capital accumulation, especially for children who may be pulled out of school or suffer permanent health consequences.
- 30 Maros Ivanic and Will John Martin, Implications of domestic price insulation for global food price behavior, 2014.
- 31 For some food producers, an increase in food prices is not necessarily a bad outcome. The final impacts will depend on how changes in prices and productivity balance (an increase in food prices owing to reduced productivity does not automatically lead to increased revenues), and on how increased revenues are distributed among farm workers and landowners. Taking a comprehensive view of farm households, looking at both their consumption and production, these households may benefit from climate impacts if the shock is widespread, if farm-level demand for their production is inelastic (while supply response is low), if there are few sources of off-farm incomes, and if food represents a relatively small share of their own expenditures. However, globally, the negative effects of reduced yields are likely to dominate the positive impacts of higher prices on farmers' income.
- 32 Almost 7000 leaders from the public and private sectors and civil society, with first-hand experience of development projects across 141 developing countries, participated in this 2020 survey.
- 33 World Bank, Shock Waves: Managing the Impacts of Climate Change on Poverty, 2015.
- 34 Only changes in short-lived climate pollutants (like black carbon and methane) could have a rapid impact, especially at the local level, but their potential at the global level remains relatively limited.
- 35 Jamal Saghir, Getting Africa's urbanization right, 2018.
- 36 Most multilateral development banks and development finance institutions have begun to actively protect their development investments, and now seek development that is not only low carbon but also climate resilient. Major economic forums, such as the World Economic Forum (WEF) and the Network for Greening the Financial System (NGFS), have recognized the immediate and future threat from climate change to the global macroeconomy. WEF annual rankings of high likelihood-high impact threats to the global financial system are now dominated by climate and environmental threats. NGFS, representing 66 central banks, is signalling that monetary decision-making will be increasingly affected by climate change, and that Governments and the private sector must take note.
- 37 IPCC, Sixth assessment report: Mitigation of climate change, 2022.
- 38 UNDP, Human Development Report 2021/2022 - Uncertain Times, Unsettled Lives: Shaping Our Future in a World in Transformation, 2022.
- 39 The share of natural gas in the energy mix in North America, Europe, China and Africa grew by 217 per cent, 150 per cent, 300 per cent and 255 per cent, respectively, between 1985 and 2020. [Source: African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022].
- 40 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 41 Ibid.
- 42 Ibid.
- 43 Jamal Saghir, Future of energy security: shifting system to meet climate targets, 2021.
- 44 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 45 Ibid.
- 46 Before COVID-19, the estimated gap was \$2.5 trillion. During the pandemic, needs increased by \$1 trillion. Initially, financing decreased by \$0.7 trillion, but some of those flows have now recovered. [Source: United Nations, Financing for Sustainable Development Report, 2021].
- 47 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 48 Ibid.
- 49 Between 2011 and 2019, the median public-debt increase attributable to primary deficits amounted to a whopping 14 per cent of GDP. In sub-Saharan Africa, it was 18 per cent. However, in South Asia, it was just slightly over 5 per cent. [Source: World Bank, When the debt crises hit, don't simply blame the pandemic, 2022].
- 50 IMF, List of LIC DSAs for PRGT-Eligible Countries, August 2022.
- 51 However, experience shows that emerging markets' debt asset class has weathered similar storms in the past and recovered. [Source: Lazard Asset Management, Outlook on emerging markets, 2022].
- 52 In 2010, multilateral lenders accounted for 56 per cent of the public and publicly guaranteed debt of sub-Saharan countries. By 2019, that share was just 45 per cent. In 2010, loans from Paris Club creditors accounted for 18 per cent of the debt; by 2019, the share was just 8 per cent. On the other hand, borrowing from China and commercial creditors nearly tripled over the same period: from 6 to 16 per cent, and from 8 to 24 per cent, respectively. [Source: World Bank, When the debt crises hit, don't simply blame the pandemic, 2022].
- 53 IMF, World Economic Outlook: Countering the cost of living crisis, 2022.
- 54 IEA, World Energy Outlook, 2021.
- 55 Global Center on Adaptation, State and Trends in Adaptation Report, 2021.
- 56 Frank Schroeder and Julian Havers, Closing the trillion dollar gap to keep 1.5 degrees within reach, 2021.
- 57 In Africa, over the period 2011-2019, debt instruments accounted for about two thirds of all climate finance to African countries [Source: African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022].
- 58 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 59 Ibid.
- 60 OECD, Aggregate trends of climate finance provided and mobilised by developed countries in 2013-2020, 2022.
- 61 Around 42 per cent went to Asia, 26 per cent to Africa, 17 per cent to the Americas, 5 per cent to Europe, 1 per cent to Oceania, and 9 per cent was unallocated.
- 62 IEA, Net zero by 2050, 2021; UNEP, The adaptation gap report, 2018.
- 63 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 64 IEA, Net zero by 2050, 2021; UNEP, The adaptation gap report, 2018.

- 65 New Climate Economy Report, Unlocking the Inclusive growth story of the 21st century: Accelerating climate action in urgent times, the New Climate Economy, 2018.
- 66 Global Center on Adaptation, What are resilience bonds and how can they protect us against climate crises?, 2020.
- 67 Global Commission on Adaptation, Adapt Now: A Global Call for Leadership on Climate Resilience, 2019.
- 68 Green Climate Fund, Scaling up climate finance in the context of Covid-19, 2021.
- 69 Ibid.
- 70 BGG, Despite COVID-19, global financial wealth soared to record high of \$250 trillion in 2020, 2021.
- 71 Allianz, Global Wealth Report, 2018.
- 72 OECD, Transition Finance Toolkit.
- 73 OOFs are defined as official sector transactions that do not meet ODA criteria. OOFs include grants to developing countries for representational or essentially commercial purposes; official bilateral transactions intended to promote development, but having a grant element of less than 25 per cent; and, official bilateral transactions, whatever their grant element, that are primarily export-facilitating in purpose. This category includes, by definition, export credits extended directly to an aid recipient by an official agency or institution (official direct export credits); the net acquisition by Governments and central monetary institutions of securities issued by multilateral development banks at market terms; subsidies (grants) to the private sector to soften its credits to developing countries; and funds in support of private investment.
- 74 OECD, Transition Finance Toolkit.
- 75 F. Bayat-Renoux, Leveraging the Potential of Green and Sustainable Debt Markets to Scale-Up Climate Action, 2022.
- 76 A Dutch disease effect happens when there is a large inflow of foreign capital, appreciating the exchange rate and making exports more expensive for foreigners, and foreign capital is mostly used for consumption rather than productive investments. Without productive investments, it becomes increasingly difficult for the domestic private sector to compete internationally, given the appreciated exchange rate.
- 77 OECD, Transition Finance Toolkit.
- 78 African Union and others, Revenue Statistics in Africa, 2021.
- 79 IMF, Global fossil fuel subsidies remain large: an update based on country-level estimates, 2019.
- 80 Joseph Stiglitz and others, Report of the High-level Commission on Carbon Prices, 2017.
- 81 The typical example is urban transit. While transit-oriented development may require higher upfront costs and investments than road-based low-density urbanization, the high urbanization rate in many developing countries and the lifetime of urban forms and transit infrastructure means that there is a window of opportunity now to build efficient transit-oriented cities. After a city is developed, it is practically impossible to modify its urban form. This makes it essential to provide developing countries with the resources and financial instruments that make it possible for them to drive urban development toward the efficient patterns that are needed to decarbonize the economy before the end of the century.
- 82 Green Climate Fund, Scaling up climate finance in the context of Covid-19, 2021.
- 83 Ibid.
- 84 Network for Greening the Financial System, Credit ratings and climate change – challenges for central bank operations, 2022.
- 85 Green Climate Fund and the International Development Finance Club, A strategic alliance to realize the full potential of public development banks in financing the green and climate resilient transition, 2020.
- 86 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.
- 87 Jamal Saghir and others, Africa 'climate infrastructure trap' in energy and transport sectors, 2021.
- 88 Green Climate Fund, Scaling up climate finance in the context of Covid-19, 2021.
- 89 Inter-agency Task Force on Financing for Development, Financing for Sustainable Development Report, 2022.
- 90 Climate Bond, Sustainable debt: Global State of the market 2021, 2022.
- 91 Global Center on Adaptation, What are resilience bonds and how can they protect us against climate crises?, 2020.
- 92 Total bond issuance in 2021 was \$9 trillion, with \$523 billion as green bond issuance. (Source: High Meadows Institute, Credit Markets – The Elephant in the ESG Room, 2021).
- 93 Climate Bond, Sustainable debt: Global State of the market 2021, 2022.
- 94 World Economic Forum, Study: Global warming could cut 63 countries' credit ratings, 2021.
- 95 Ecosystem Marketplace, Voluntary carbon markets top \$1 billion in 2021 with newly reported trades, a special ecosystem marketplace COP26 bulletin, 2021.
- 96 Ibid.
- 97 OECD, ODA Levels in 2021- Preliminary data, 2022.
- 98 OECD, Transition Finance Toolkit.
- 99 African Development Bank, African Economic Outlook Report 2022: Supporting Climate Resilience and a Just Energy Transition in Africa, 2022.

