

Report

Driving a green recovery in developing countries

What role is China playing?

**Jodie Keane, Yue Cao, Beatrice Tanjangco, Manzoor Ahmad,
Dylan Johnson and Rebecca Nadin**

July 2021



This report has been funded by the UK Foreign, Commonwealth and Development Office (FCDO). Views expressed do not necessarily reflect FCDO's official policies.

Readers are encouraged to reproduce material for their own publications, as long as they are not being sold commercially. ODI requests due acknowledgement and a copy of the publication. For online use, we ask readers to link to the original resource on the ODI website. The views presented in this paper are those of the author(s) and do not necessarily represent the views of ODI or our partners.

This work is licensed under CC BY-NC-ND 4.0.

How to cite: Keane, J., Cao, Y., Tanjangco, B. et al. (2021) *Driving a green recovery in developing countries: what role is China playing?* ODI Report. London: ODI (www.odi.org/publications/en/driving-a-green-recovery-in-developing-countries-what-role-is-china-playing).

Photo: Chinese workers inspect solar photovoltaic technology. Credit: Jenson/Shutterstock.

Acknowledgements

The authors are grateful to Dylan Johnson (Kenya), Manzoor Ahmad (Pakistan) and key informants for their in-country research support. We are also grateful for the comments provided by our reviewers, which we have endeavoured to address. The team worked under the guidance of Rebecca Nadin (Director, Global Risks and Resilience (GRR)). The authors are also grateful for the project management and communications help provided by Silvia Harvey (Project Management Officer, GRR) and Josie Emanuel (Senior Communications Officer, GRR).

About the authors

ORCID numbers are given where available. Please click on the ID icon next to an author's name in order to access their ORCID listing.

Jodie Keane

Senior Research Fellow at ODI, where her work focuses on the interaction between international trade, development and climate regimes. She is an experienced trade economist and project manager who has worked with multiple governments across the developing world to secure their trade policy outcomes. Between 2015 and 2020, she was Economic Adviser, International Trade Policy at the Commonwealth Secretariat, London. She began her career working on non-market economy issues for the World Bank, including for China and Viet Nam.

Yue Cao

Senior Research Officer in ODI's Global Risks and Resilience programme. Yue has over nine years of research and technical assistance experience working on climate and environmental risks, energy policy and Chinese development finance for think tanks, consultancies and the UN. He has authored multiple studies on the climate and environmental risks of Chinese overseas projects, including those of the Belt and Road Initiative, and on climate investments in low and middle income countries.

Beatrice Tanjangco

Research Fellow within the ODI Global Risks and Resilience directorate. She is an economist by training, having held consultancies with various international organisations and think tanks, as well as working in macroeconomic consulting for several years. Her interests span macroeconomics, international trade, climate resilience and financial markets and risk.

Manzoor Ahmad

Currently serving as the Chairman of a WTO Dispute Panel on trade and environmental issues. He is also a Senior Fellow, Pakistan Institute of Development Economics (PIDE). His recent published work includes research papers/articles on China-Pakistan Economic Corridor (CPEC) and China's investments in Central Asia. Previously, he has served as Director, Food and Agriculture Organization (FAO) to the United Nations; Pakistan's Ambassador to the World Trade Organization at Geneva and Deputy Director, World Customs Organization, Brussels.

Dylan Johnson

A data scientist. He has previously worked as a data scientist at a machine learning company in Cape Town, South Africa, a consultant at the World Bank in Nairobi, Kenya, and a research assistant for a sanitation, water, and hygiene study in Kakamega, Kenya. He holds a bachelor's degree in economics from Cornell University.

Rebecca Nadin

Director of ODI's Global Risks and Resilience programme and the Head of ODI's Global China 2049 initiative. She manages a team of policy analysts and experts exploring the risk emerging from intersecting global challenges such as climate change, transnational crime and geopolitical volatility. A China policy expert with a focus on China's emerging geopolitical strategy, national security and climate policy, her current focus is on understanding the potential environmental, social and political risks and/or opportunities that may arise from China's evolving global outreach for host countries and other key stakeholders.

Contents

Acknowledgements / i

Display items / iv

Acronyms / v

Executive summary / 1

1 Introduction / 3

1.1 China and the goal of green recovery / 4

2 Case studies: Pakistan, Kenya and Nepal / 8

2.1 Methodology and analytical approach / 8

2.2 Pakistan / 11

2.3 Kenya / 22

2.4 Nepal / 32

3 Discussion of findings / 42

3.1 Summary of key findings / 42

3.2 Recommendations / 48

4 Conclusion / 53

4.1 Political economy considerations / 54

References / 56

Appendix Impact of Covid-19 / 63

Display items

Figures

Figure 1 Economic multiplier and climate effects of Pakistan’s stimulus policies (as of December 2020) / 12

Tables

Table 1 Summary indicators for case study countries / 9

Table 2 Categorisation of relief measures / 9

Table 3 Stimulus measures and related Nationally Determined Contributions priorities to end of 2020, Pakistan / 14

Table 4 CPEC coal power plants / 18

Table 5 Kenya’s economic stimulus, multipliers and climate ambition / 24

Table 6 Kenya’s financing strategy for Nationally Determined Contributions, April 2020 / 26

Table 7 Kenya’s Covid-19 stimulus measures and related Nationally Determined Contribution adaptation/mitigation component / 28

Table 8 Kenya’s financing strategy for Nationally Determined Contributions, April 2020 / 31

Table 9 Nepal’s economic stimulus, multipliers and climate ambition / 34

Table 10 Nepal’s Covid-19 stimulus measures and related Nationally Determined Contributions adaptation/mitigation component / 37

Table 11 Projects financed by China’s development banks in Nepal / 39

Table 12 How can China support a green recovery? / 43

Table 13 Summary of how China could support green recoveries as a financier / 44

Table 14 Summary of how China could support green recoveries as technology provider, knowledge broker and development partner / 47

Table 15 Recommendations for China and case study countries / 51

Table A1 Economic multiplier and climate potential of Pakistan’s stimulus policies / 65

Table A2 Financing of economic recovery strategy in Kenya / 70

Acronyms

ABS	asset-backed securities
ADB	Asian Development Bank
BRI	Belt and Road Initiative
BRIGC	BRI International Green Development Coalition
CCRT	Catastrophe Containment and Relief Trust
China NBS	National Bureau of Statistics
CO₂	carbon dioxide
CPEC	China–Pakistan Economic Corridor
DNS	debt-for-nature swaps
DSSI	Debt Service Suspension Initiative
ESG	environmental, social and corporate governance
ESRM	environmental and social risk management
Exim	Export–Import Bank of China
FDI	foreign direct investment
FYP	five-year plan
GDP	gross domestic product
GHG	greenhouse gas
GIP	Green Investment Principles
ICU	intensive care unit
IFC	International Finance Corporation
IMF	International Monetary Fund
IPP	independent power producer
IT	information technology
MDB	multilateral development bank
MoCC	Pakistan’s Ministry of Climate Change
MOU	memorandum of understanding
MtCO₂	metric tons of carbon dioxide equivalent
MTOE	megatonnes of oil equivalent
MW	mega watt
NDC	Nationally Determined Contributions

NEECA	National Energy Efficiency and Conservation Authority
NGO	non-government organisation
NSFC	National Natural Science Foundation of China
PPA	purchasing power agreements
SBN	Sustainable Banking Network
SBP	State Bank of Pakistan
SDG	Sustainable Development Goal
SDR	Special Drawing Rights
SGR	standard gauge railway
SME	small and medium-sized enterprises
T&D	transmission and distribution
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States of America
VAT	value-added tax

Executive summary

The Covid-19 pandemic has suspended economic activity, with unprecedented socioeconomic consequences that threaten the achievement of the Sustainable Development Goals (SDGs). The vulnerabilities exposed by the pandemic are also a precursor for the pending challenges due to the climate emergency. Given that climate change represents an existential threat to humanity, post-Covid-19 recovery strategies must set economies on greener recovery trajectories.

This crisis presents an opportunity for governments to ‘build back better’, but this requires political commitment, fiscal space and resources, including external support from pioneers in green finance and technologies. Developing countries face precarious, time-bound and intertemporal decisions as they balance the need to recover from the economic fallout wrought by Covid-19 with addressing the current climate emergency. Against this backdrop, and given China’s own green ambitions, we explore if and how China can support a green recovery internationally.

China is currently the world’s largest greenhouse gas (GHG) emitter, but it has signalled at the highest levels that its post-Covid-19 growth path will pivot towards a greener recovery. To what extent is this rhetoric being translated into tangible implementation measures within China’s approach to its broader international development and overseas investment objectives? How can China also contribute to a green recovery in developing countries?

Through analysing three case studies – Pakistan, Kenya and Nepal – this report explores if and

how China can contribute to a green recovery and the barriers to and opportunities within this. The report begins with an analysis of China’s Covid-19 response and recovery strategies. It then reviews fiscal and monetary stimulus measures to identify elements which are either high or low in climate ambition, and to assess the degree of alignment with countries’ Nationally Determined Contributions (NDCs). Each country case study explores the extent to which pandemic responses include green elements; major blockages to elevating climate ambition within Covid-19 recovery strategies; and how relations with China could be leveraged to unlock new sources of sustainable finance. Given the pressures on public finance brought on by the pandemic, the report emphasises financial tools throughout. However, the most politically and economically feasible response areas that target a greener recovery trajectory, and which could be supported by China, are also identified.

In terms of key findings, in each case study country, Covid-19 pandemic response and recovery measures have so far had relatively low climate ambition, which stands in contrast to their ambitions for climate actions reflected in current, as well as planned, NDCs. There are difficulties in measuring financing needs especially for adaptation climate-related activities within the NDCs. This often results in an underestimation of actual needs. Nevertheless, NDCs convey governments’ ambitions to reduce national emissions and adapt to the impacts of climate change. In addition to reviewing NDCs, we analyse recent government statements to achieve climate-compatible development, and the specific actions they prioritise.

China is an important creditor to all three case study countries. However, of the three only Kenya has approached China for additional resources since Covid-19 struck. At the project level, the challenge of unlocking green finance from China will not be unlike that of realising opportunities from other financiers. Incentives on both sides are required, with standards and regulatory frameworks aligned to international best practice. As the case study analyses of Pakistan, Kenya and Nepal show, there is high demand for green asset finance, including in sectors such as solar power. This demand may increase as support for carbon-intensive energy sources shifts, e.g. from coal power to renewable energy sources (Pakistan). However, considerable capacity constraints need to be addressed in order to projectise to attract finance and develop appropriate standards and regulatory frameworks.

China could assist in overcoming technical barriers to support these efforts, as well as in de-risking and providing demonstration effects. However, this will require China to play a combination of roles: financier, technology provider, knowledge broker and development partner.

Depending on the depth and strength of economic ties, as well as corresponding country aspirations, there are different entry points for China to support greener recoveries, as well as potential barriers. This includes as a financier, different mechanisms such as capital market financing, concessional and commercial lending and through support to debt relief and debt swap initiatives.

The demand for, and political feasibility of, securing China's support to achieve greener Covid-19 response and recovery strategies depends on: the extent to which the principle of a green recovery is shared; the extent to which there are similar norms in relation to what should be achieved in terms of a green recovery; and the extent to which there are common standards that reflect these shared norms.

The major barriers identified in our analysis are technical- and capacity-related, 'just transition'-related and, finally, political economy-related. In order to realise the opportunities highlighted in this report, there is a need for enhanced dialogue, greater transparency and greater alignment of regulatory frameworks and standards. This includes the need to bring Chinese standards into line with international best practice.

1 Introduction

The Covid-19 pandemic has suspended economic activity, with unprecedented socioeconomic consequences. Economic growth, trade and investment have all declined significantly, with global growth falling by -4.4% in 2020, compared to 2.9% growth in 2019 (IMF and World Bank, 2020).

For developing countries, the pandemic struck at an already challenging time, with debt servicing costs more than doubling between 2000 and 2019 (Spiegel et al., 2020). Global debt stocks experienced their fastest gains since the 1970s (World Bank, 2019a). Overall, global growth and trade have been sluggish in recent years. Trade tensions between the United States (US) and China have been rising, and protectionist sentiment has grown.

The Covid-19 pandemic threatens the achievement of the SDGs during this last decade of action. Unprecedented pressure on public finances to shore up economic growth and confront the virus has exacerbated debt sustainability issues. It had been intended that, in 2020, countries would submit more ambitious NDCs to achieve the level of ambition established by the Paris Agreement.

The vulnerabilities exposed by the Covid-19 pandemic are a precursor for those stemming from the climate emergency.

Under an optimistic scenario, the median warming estimate currently sits at around 2.1°C, higher than the 2°C limit and the safer 1.5°C goal of the Paris Agreement.¹ Given that climate change represents

an existential threat to humanity, post-Covid-19 recovery strategies must set economies on greener recovery trajectories.

A greener recovery trajectory means lower emissions with greater climate and environmental benefits for people and the planet. These are aligned with the 1.5°C increase goal and should form pillars of net-zero emissions strategies. Brown measures, in contrast, are those that reinforce the links between economic growth and fossil fuel production and consumption. They are economically unviable and risk future stranded assets (Pfeiffer et al., 2018; Hepburn et al., 2020) and catastrophic climate change.

This crisis presents an opportunity for governments to 'build back better', but this requires political commitment, fiscal space and resources, including external support from pioneers in green finance and technologies. Developing countries face precarious, time-bound and intertemporal decisions as they balance the need to recover from the economic fallout brought on by Covid-19 with addressing the current climate emergency.

Against this backdrop, and given China's own green ambitions, we explore if and how China can support a green recovery internationally. China has signalled at the highest levels that its post-Covid-19 growth path will pivot towards a greener recovery. But to what extent is this rhetoric being translated into tangible implementation measures within China's approach to its broader international development and overseas investment objectives?

¹ See <https://climateactiontracker.org/global/temperatures/>.

Given China's own, at times, 'brown' economic recovery – can and, if so, how can China contribute to a green recovery in developing countries?

To answer these questions, this report starts by exploring some of the steps China has taken towards a green recovery domestically and internationally. It then explores how China could facilitate greener recoveries in Pakistan, Kenya and Nepal. The three country case studies explore the extent to which pandemic responses include green elements; major blockages to elevating climate ambition within Covid-19 recovery strategies; and how relationships with China could be leveraged to unlock new sources of sustainable finance.

For each case study country, the report identifies potential roles that China could play, such as financier, technology provider, knowledge broker or development partner. In light of the public finance circumstances induced by the pandemic, the report emphasises financial tools throughout.

In sum, the report identifies the most politically and economically feasible response areas that target a greener recovery trajectory, and those that might be supported by China in particular.

1.1 China and the goal of green recovery

Urbanisation, industrialisation, shifts in livelihoods and expectations of greater material wealth are among the many factors that have enabled China to alleviate poverty on a massive scale. They also had profound consequences for China's ecosystems. Climate change, desertification and soil, air and water pollution threaten the viability

of China's continued growth. China ranks number one in the world on losses from climate-induced disasters (Nadin et al., 2015). For example, in Jiangxi Province in 2019, more than 4.87 million people were affected by drought, with over 82,000 hectares destroyed.

In addition, China is motivated to tackle climate change to ensure its energy and food security and to address increasing environmental degradation. But China is also the world's largest emitter of carbon dioxide (CO₂). According to the Global Carbon Project, China emitted 10,175 metric tons of carbon dioxide equivalent (MtCO₂e) in 2019, accounting for almost 30% of world emissions (Friedlingstein et al., 2020). However, in recent years, Beijing has signalled its desire to shift from a largely investment-driven growth model, which has focused on capital accumulation powered by heavy industries including coal, towards a more consumption-based growth model, within which renewable energies and green technologies play a greater role.

Yet challenges and contradictions remain for China's policymakers. As discussed in the *Economic Pulse* 1 and 2 reports,² gross domestic product (GDP) growth in 2020 was still primarily driven by public investments (namely infrastructure), especially since the government needed to prop up growth during the pandemic (Tanjungco et al., 2020; 2021), and followed a similar response pattern to the 2007–2008 financial crisis, where a large share of the stimulus package went towards infrastructure investments (Schüller and Schüller-Zhou, 2009). China's emissions grew by 4% in the second half of 2020 (Myllyvirta, 2021). This was largely from fossil fuels, steel and cement production. China's ongoing urbanisation policy also creates contradictions –

² This report follows on from ODI's *Economic Pulse* series, a series of reports analysing information on Chinese economic activity relevant to developing countries. The second report can be found here: www.odi.org/publications/17876-economic-pulse-2-china-navigates-its-covid-19-recovery-bri-and-dual-circulation.

at present 60% of China's population lives in urban areas, but by 2030 it is expected that around 70% will be urbanised (Liu and Cai, 2018). As of 2018, China's cities accounted for 85% of national energy consumption.

Certainly, China's initial response to the pandemic lacked 'green' elements, with some elements even considerably 'brown'. Domestically, measures to mitigate the pandemic's adverse economic impacts focused on supporting small businesses and providing local governments with the necessary tools to respond to the pandemic. Fiscal packages did not, at least initially, explicitly specify any green elements.

In the first few months of the pandemic, the greenest initiative in the response to the pandemic was the expansion of charging infrastructure for electric vehicles (Xinhua, 2020a) and extending support for the new energy vehicle (NEV) sector as a whole (Cheng, 2020). Otherwise, green elements were lacking. In fact, one of China's initial attempts to boost growth was to quickly approve coal power permits (Hale and Hook, 2020) that could potentially lock the country into a high-emission growth path. Leaning on traditional drivers of growth such as manufacturing may have also contributed to increased emissions.

In December 2020, the United Nations (UN) Climate Action Summit offered a chance to update China's NDCs – and China took it. In a speech by President Xi Jinping, it was announced that, by 2030, carbon emissions per unit of GDP will be reduced by 65% compared to 2005; non-fossil energy will make up 25% of energy

consumption; solar and wind power will have an installed capacity of more than 1.2 billion kilowatts; and forest stock volume will expand by 6 billion cubic metres over 2005 levels.³ In the shadow of China's less-green pandemic stimulus response, this commitment offers the promise of a boost to previous NDC pledges and signifies greater ambition than other big emitters such as the US. This follows Xi's pledge for carbon neutrality by 2060, announced at the 75th UN General Assembly in September 2020.⁴

These latest updates to the country's proposed NDCs were assessed by Climate Action Tracker⁵ – an independent scientific analysis that tracks climate action – as being 'highly insufficient'. The Climate Action Tracker rates the new pledges to 2030 as insufficient to mitigate a damaging climate change trajectory because, while they are considered improvements, they would be easy to meet given China's current policies and emissions trajectory and would not require much improvement in mitigation policy. They also note how recovery activities have been carbon-intensive, and how the country still appears supportive of the coal industry.⁶ China joins a handful of countries whose NDC pledges are considered either highly or even critically insufficient to meet their 'fair share' range and keep warming below 2°C.⁷ Notably, at the time of this writing, China has yet to formally submit its NDCs to the UN.

Nevertheless, there have been signs of greater aspirations for a greener recovery in the medium to long run. The publication of the 'Guiding Opinions of the State Council on Accelerating the Establishment of a Green and Low-Carbon

3 The full text of Xi's speech is here: www.xinhuanet.com/politics/leaders/2020-12/12/c_1126853600.htm

4 See <http://jhsjk.people.cn/article/31871327>

5 See <https://climateactiontracker.org/countries/>

6 For the China-specific page, see: <https://climateactiontracker.org/climate-target-update-tracker/china/>

7 For a country comparison, see: <https://climateactiontracker.org/countries/>

Circular Development Economic System⁸ is notable as perhaps the most comprehensive and far-reaching statement of how China's leadership aims to integrate 'green' targets within every facet of the economy and indicates that the political will and commitment for this exists at the very top. The document also indicates how these top-level goals might trickle down in different sectors of the economy, with pledges to green the manufacturing system, targeting traditionally polluting industries including steel, chemical, construction, textile, paper and leather industries, and to shut down and ban polluting industries.

In March 2020, China published the 14th five-year plan (FYP) and 2035 Vision – the country's highest mid-term programmatic document – indicating greener development growth strategies and 'ecological civilization' as one of six overarching priorities over the next decade and beyond. To caveat, the 14th FYP has been criticised for its conservative green ambition and potential misalignment with the 2060 carbon neutrality pledge. Specifically, the plan was criticised for not including a more explicit carbon emissions cap, instead indicating emissions reduction 'based primarily on carbon intensity control, with the absolute carbon cap as a supplement', and leaving room for the further development of coal power. However, an in-depth report by Carbon Brief on the climate and energy goals of the 14th FYP highlights that China may introduce stricter energy and climate targets in the sectoral FYPs to be published throughout 2021 and 2022. It also points to the government's willingness to introduce bottom-up emissions caps (initiated by individual

provincial governments, similar to the ratchet mechanism in the Paris Agreement) before 2025 (Liu et al., 2021). That said, how individual provinces' plans develop, and how climate-compatible across all the GHGs they are, will also be critical.⁹ Also of note, China's target covers carbon dioxide emissions, not other greenhouse gases such as methane or nitrous oxide.

1.1.1 Going green globally?

Looking beyond China's own domestic 'greening' ambitions and implementation challenge, the 14th FYP also has a chapter dedicated to 'Promoting the high-quality construction of the BRI', in line with the concept of 'high-quality development' (高质量发展). High-level speeches during the pandemic carried the same message, where green energy, the digital economy and health cooperation were identified as focus areas that can play a significant role in China's engagement with middle- and low-income countries after the pandemic (these were announced personally by Xi at the Extraordinary China–Africa Summit On Solidarity Against Covid-19 in June 2020, and also by Chinese diplomats while on tours engaging with regional organisations (Tanjungco et al., 2020)).

In the medium term, China may boost 'green' Belt and Road Initiative (BRI) investments. Five key ministries and regulators jointly issued guidance to promote climate investments both domestically and overseas a few weeks after Xi made the 2060 carbon neutrality pledge.¹⁰

8 See a copy of the document here: www.gov.cn/zhengce/content/2021-02/22/content_5588274.htm

9 The outline of the 14th FYP was discussed at the fifth plenary of the 19th Central Committee meeting (China executive leadership) held at the end of October, and then announced at the National People's Congress in March 2021.

10 A copy of the guidance on promoting investment and financing to address climate change, Document 57, 2020, can be found here: <https://mp.weixin.qq.com/s/McjDVDO-iU5RWEkqIYWWUA>

This marks the first time any Chinese policy document has mentioned the need for regulation of overseas investments in line with climate change targets. Prior documents only emphasised adopting host country standards and principles. The document was followed by the launch of the *Green development guidance for BRI projects baseline study* report, published in December 2020 by the BRI International Green Development Coalition (BRIGC) (a coalition established by China's Ministry of Ecology and Environment and international partners). The guidance is intended to help determine which projects align with the objective of greening the BRI and which do not, providing a framework to classify BRI projects (Green BRI Center, 2020). However, it is yet to be made official policy.¹¹ Meanwhile, the 14th FYP mentions a 'push for legislations on overseas

investments', which would be mandatory, as opposed to current policy documents, which are voluntary. China's political rhetoric has indicated a shift towards greener economic development both domestically and abroad. Thus, while there is some movement towards greening Chinese overseas investments, much remains to be seen regarding how high-level policies setting 'directions of travel' will be translated into concrete operational policies. Country case study analysis will help to assess the extent to which this rhetoric is being or can be translated into tangible and implementable measures for a green economic recovery in developing countries, and identifying potential roles that China could play, such as financier, technology provider, knowledge broker or development partner, in realising a 'green recovery'.

11 See <http://en.brigc.net/> for more information.

2 Case studies: Pakistan, Kenya and Nepal

This chapter identifies how China could support Pakistan, Kenya and Nepal in their efforts to stimulate a green recovery. It does so by describing existing economic relations with China and levels of interconnectedness, and then reviewing the green recovery elements of the Covid-19 response and recovery strategies. Finally, it explores the extent to which recovery strategies are aligned with NDCs, which lay out countries' climate needs, and the specific ways China can support green recovery ambitions.

In terms of the critical financing issues facing each country, the following points are notable.

- Pakistan:** Pakistan has benefitted from the Debt Service Suspension Initiative (DSSI), but debt challenges remain acute and Pakistan may seek further relief from China. There is a high-level commitment for a green recovery, seeking a paradigm shift towards more sustainable socioeconomic systems, but there is uncertainty regarding how these ambitions will translate into actual recovery strategy and implementation plans.
- Kenya:** There is a strong emphasis on the 'Big Four' development priorities (food security, affordable housing, manufacturing and affordable healthcare) within the Covid-19 response and recovery strategy. Green recovery elements also feature, such as a focus on green infrastructure. However, Kenya faces issues regarding financing higher levels of ambition given current debt sustainability levels. There are also particular issues with regard to existing BRI investments, though some resolution has recently been achieved with regard to Chinese debt.
- Nepal:** Nepal's 15th periodic plan highlights the importance of integrating sustainable and green elements in its development. It also incorporates protections for natural resources. However, Covid-19 response measures have had limited green recovery elements. Opportunities to tap into China's development assistance and green finance instruments and expertise exist, but require operationalisation. The World Bank and United Nations, alongside a coalition of international donors, are working with the government of Nepal to put together a 'green recovery' package of investment and support to a more ambitious NDC commitment to deliver a greener economic recovery over the next few years. Current donor commitments to this initiative are \$7.4 billion.

2.1 Methodology and analytical approach

The three case study countries are members of the BRI as indicated by the signing of Memorandums of Understanding (MOUs) with China. Nonetheless, each country case study has its own unique relationship and different degrees of economic dependence as well as political unanimity with China (Table 1). These relationships, in turn, influence how China can support a green recovery, as well as the extent to which preferences between actors and incentives are aligned. While the three countries are attempting to recover economically from the Covid-19 pandemic through fiscal and monetary measures, response and recovery measures have relatively low climate ambition. This stands in contrast to their ambitions for climate actions reflected in current, as well as planned, NDCs.

Table 1 Summary indicators for case study countries

Country	Debt Service Suspension Initiative eligible	Debt owed to China (% GDP, nearest year)	Economic stimulus (% of GDP)	Total BRI and Greenfield Investment from China 2016–date (\$ million)	Import China share 2018 (% all imports)	Export China share 2018 (% all exports)	CO ₂ emissions 1990–2018 (MtCO ₂)	Average urbanisation rate 1990–2019 (%)	Regulatory indicators for sustainable energy (RISE)
Kenya	Yes	12.3	3.3	5590	21	1.8	297	4.5	61
Nepal	Yes	n/a	n/a	3670	12.6	3	112	4.3	38
Pakistan	Yes	1.11.58	6.9	24650	24.18	7.69	3819	3.1	50

Note: RISE is a combined index of electricity access, renewable energy, energy efficiency and cooking fuel, where 0–33 is red, 34–66 is yellow and 67–100 is green.

Source: World Bank Development Indicators, www.globalcarbonproject.org and <https://rise.esmap.org>

A framework to analyse the extent to which fiscal and monetary stimulus measures support high/low climate ambition has been developed by Hepburn et al. (2020). This approach assesses the extent to which responses to Covid-19 incorporate transformative policies that are in line with the adaptation to and mitigation of climate change and the shift towards low-carbon growth. This report builds on this approach in order to answer the following question: how can China contribute to a green recovery in developing countries?

Each country case study assesses the extent to which Covid-19 response and recovery plans

are aligned with NDCs and green economy financing needs. Major green recovery elements identified by Hepburn et al. (2020) include energy investments or natural capital; a set of 25 policy archetypes – six rescue-type policies (A, C, D, I, K, O) and 19 recovery-type policies – were defined, following a wide cataloguing effort of over 700 significant G20 fiscal stimulus policies proposed or implemented over the period 2008–2020 (see Table 2). Fast-acting climate-friendly policies include residential and commercial energy efficiency retrofits, as well as natural capital spending (afforestation, expanding parkland, enhancing rural ecosystems) (Bowen et al., 2009; Houser et al., 2009).

Table 2 Categorisation of relief measures

Archetype	Relief measures	Climate ambition	Long-run economic multipliers
A	Temporary waiver of interest payments	Low/Negative	Low
B	Assisted bankruptcy	Low/Negative	Low
C	Liquidity support for large corporations	Low/Negative	Low
D	Liquidity support for households, start-up small- and medium-sized enterprises (SMEs)	Low/Negative	High

Table 2 Categorisation of relief measures (continued)

Archetype	Relief measures	Climate ambition	Long-run economic multipliers
E	Airline bailouts	Low/Negative	Low
F	Not for profits, education research, health institution bailouts	High/Positive	Low
G	Reduction in value-added tax and other taxes	Low/Negative	Low
H	Income tax cuts	Low/Negative	Low
I	Business tax deferrals	Low/Negative	Low
J	Business tax relief for strategic and structural objectives	Low/Negative	Low
K	Direct provision of basic needs	Low/Negative	High
L	Education investment	High/Positive	High
M	Healthcare investment	High/Positive	High
N	Worker retraining	High/Positive	High
O	Targeted direct cash transfers or temporary wage increases	Low/Negative	High
P	Rural support policies	Low/Negative	Low
Q	Traditional transport infrastructure investment	Low/Negative	High
R	Project-based infrastructure grants	Low/Negative	High
S	Connectivity infrastructure investment	High/Positive	High
T	Clean energy infrastructure investment	High/Positive	High
U	Building upgrades (energy efficiency)	High/Positive	Low
V	Green spaces and natural infrastructure investment	High/Positive	Low
W	Disaster preparedness, capacity building	High/Positive	Low
X	General research and development (R&D) spending	High/Positive	High
Y	Clean R&D spending	High/Positive	High

Source: Hepburn et al. (2020)

While we acknowledge the difficulties in measuring financing needs in general, and especially for adaptation climate-related activities within the NDCs, with actual needs often underestimated – they convey a government’s ambitions

to reduce national emissions and adapt to the impacts of climate change. We also analyse recent government statements on climate-compatible development, and the specific actions they prioritise.

In assessing country response and recovery plans, priorities are identified and the extent to which a green recovery is aligned with immediate and medium-term economic recovery goals (rescue vs. recovery) and existing (climate-aligned) pre-pandemic socioeconomic development plans is assessed. From these government responses, green recovery elements are analysed to explore how they could be operationalised and better supported by China.

2.2 Pakistan

The China–Pakistan Economic Corridor (CPEC) is intended to be a model green BRI. While there has been an absence of green recovery and climate ambition within stimulus packages so far, including in the large \$623.5 million construction sector’s recovery package, at the highest levels Pakistan has signalled its intention to advance these aspects.

Barriers to this green transition include China’s overseas lending to high carbon infrastructure projects – China will have to speed up its own domestic policies to blacklist overseas coal power projects and cancel planned coal investments in Pakistan through the CPEC and support renewable energy efforts. This process is likely to require some cost-sharing on the part of the Chinese government.

2.2.1 Economic relations with China

Pakistan and China have a long history of economic and geopolitical cooperation. In recent years Pakistan has also become a key partner of the BRI. The CPEC, announced in 2013 and launched in 2015, has since the pandemic been heralded as an opportunity to spur green recovery efforts by both countries.¹² Before the pandemic, Pakistan received more than 30% of total national foreign direct investment (FDI) inflows – around \$914.8 million in 2019 – making China the top investor in the country.

The majority of China’s CPEC investments target energy infrastructure (hydropower, coal-fired thermal power, wind and solar and transmission lines); transport networks (motorways, railroads, ports and an airport); and special economic zones with preferential trade and tax incentives. This is in line with the vision set out in the Long-Term Plan for China–Pakistan Economic Corridor (2017–2030) (CPEC, 2017).

Many of the projects initiated by Chinese firms, supported by the Chinese state, have been supported by Chinese finance. According to data from the World Bank’s International Debt Statistics, China is Pakistan’s top creditor, with \$6.6 billion of debt to be serviced by the end of 2021 (34% of total external debt service). This is considerably higher than any other creditor, e.g. the International Monetary Fund (\$2.4 billion), the Asian Development Bank (\$2.2 billion), the

12 See http://pid.gov.pk/site/press_detail/15424.

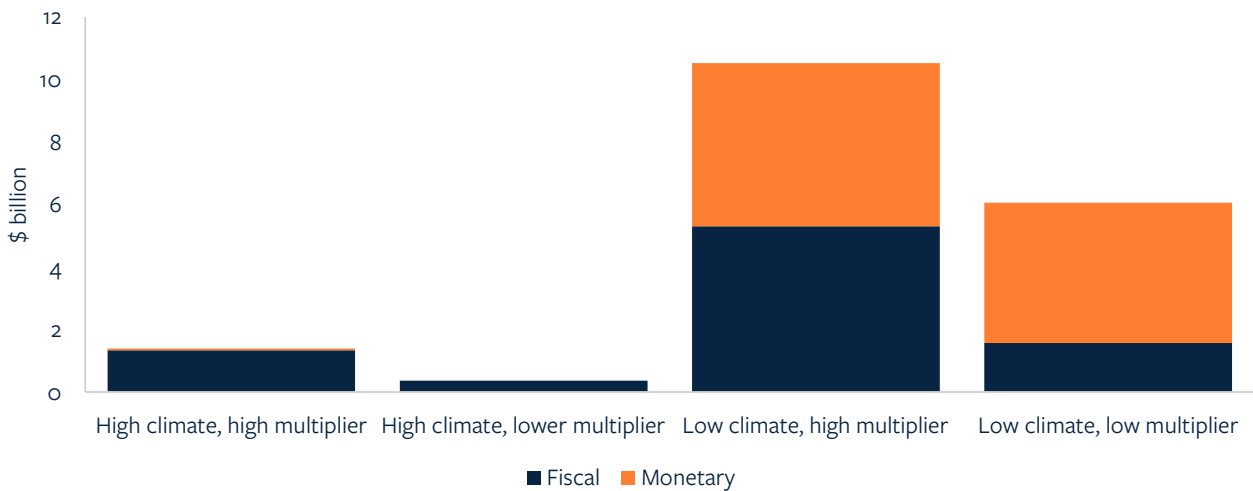
World Bank (\$1.8 billion) and the private sector (\$1.7 billion).¹³ In parallel, trade volumes have accelerated since the announcement of the CPEC, with China becoming Pakistan’s top source of imports (accounting for 25% of total imports, at \$12.4 billion), and the second largest market for exports (accounting for 8.6% of total exports, at \$2 billion) in 2019 (ITC, n.d.).

2.2.2 Green recovery elements

The government’s pandemic response priority thus far has been maintaining employment and boosting the economy through liquidity support to businesses, both large corporations and small

and medium-sized enterprises (SMEs). It has also supported household income with direct cash transfers, and household consumption through tax reductions on basic goods and services. Using the archetypes in Hepburn et al. (2020) to analyse these policies, while they will have strong stabilising effects in the short term, their growth effects in the mid- to long term are mixed – low for liquidity support to big corporations and tax reduction on goods and services, and high for liquidity support to SMEs and direct cash transfers – and they generally make low or even negative climate contributions (see Figure 1, and Table A1 in the Appendix, which lists all the stimulus measures coded).

Figure 1 Economic multiplier and climate effects of Pakistan’s stimulus policies (as of December 2020)



Source: Authors, using data from ADB (2020); GoP (2020); IMF (2020b)

13 Pakistan’s total external debt stock as of September 2020 is \$74.8 billion (11.98 trillion Pakistani rupees, PKR) (Ministry of Economic Affairs, 2020); the DSSI data does not report debt stock but debt service projections over 2020–2021. While providing useful disaggregation by creditor, the DSSI data likely underestimates debt service obligations, as the projections for 2020–2021 are based on debt stocks at end-2018 and do not account for any debt service that may arise from changes in the stock after 31 December 2018. Moreover, the data for bilateral and private creditors is reported by national authorities to the World Bank Debtor Reporting Systems, and despite significant improvements in public debt statistics, most lower-income countries still tend to inadequately capture debts to state-owned enterprises, contingent liabilities related to public–private partnerships, and collateralised debt. See Humphrey and Mustapha (2020) for more details.

That said, the government has implemented some policies in disaster risk reduction, public health and education, which can generate both high economic multiplier and positive climate outcomes, though their effects may take longer to manifest (Hepburn et al., 2020). The government has also reframed and accelerated the existing Billion Trees Tsunami programme to create green jobs.¹⁴ Overall, however, only an estimated \$1.7 billion of the \$18.3 billion total stimulus has high climate impact potential; as the government moves into the next stage of pandemic management and implements more recovery-oriented measures (e.g. targeted sectoral support and the new government budget 2020–2021), it should align future stimuli and projects with existing climate commitments (as expressed in NDCs and global climate goals).

Green construction involving renewable energy and replacing old machinery with more environmentally friendly modern machinery can achieve high economic and climate goals. In this respect, it is noteworthy that the construction industry, which can lock in the economy on a higher carbon trajectory unless explicit green objectives are being pursued, received its own ‘special’ recovery package while only producing 2.53% of national GDP¹⁵ (PBS, 2020). However,

there is presently no requirement in the construction stimulus package to implement any of these measures.

The government has also cut funding to some of the sectors that can generate both the highest climate and economic multiplier effects, as per Hepburn et al. (2020), in the new budget (GoP, 2020): the Climate Division budget was cut from \$47.3 million in 2019–2020 to \$31.1 million in 2020–2021; the Information Technology and Telecom Division was cut from \$45.5 million to \$41.1 million; the Science and Technology Research Division from \$46.1 million to \$27.4 million; and the Water Resources Division from \$529.6 million to \$505.9 million.

In Table 3 we examine the stimulus in light of Pakistan’s existing commitments in the first NDC submitted to the United Nations Framework Convention on Climate Change (UNFCCC) in 2015. We can see that stimulus measures aligning with the priorities set out in the NDC concentrate on Pakistan’s adaptation goals, e.g. better preparing and coping with disasters, supporting the agriculture sector and improving healthcare and education. There are no specific measures or references to climate mitigation objectives in current Covid-19 stimulus measures (see Table 3).

14 See www.reuters.com/article/us-health-coronavirus-pakistan-trees-fea-idUSKCN22A369.

15 The other sectors that received targeted support were manufacturing and agriculture, contributing 12.48% and 19.3% to national GDP in 2019–2020 (PBS, 2020).

Table 3 Stimulus measures and related Nationally Determined Contributions priorities to end of 2020, Pakistan

Covid-19 stimulus measure	Adaptation/mitigation priorities in the Nationally Determined Contributions
<p>Emergency, disaster risk reduction</p> <ul style="list-style-type: none"> • An emergency contingency fund • A transfer to the National Disaster Management Authority for the purchase of Covid-19-related equipment • Creation of a Covid-19 Responsive and Other Natural Calamities Control Program in the 2020–2021 Budget 	<p>‘Improving the emergency response mechanism for managing extreme climate events and strengthening the development of disaster reduction and relief management systems based on risk assessments, aligned with the goals of Sendai Framework on Disaster Risk Reduction: 2015–2030’</p>
<p>Agriculture</p> <ul style="list-style-type: none"> • Support to small and medium-sized enterprises (SMEs) and the agriculture sector (100 billion Pakistani rupees) in the form of power bill deferment, bank lending and subsidies and tax incentives • Increased spending for agriculture, food, irrigation, forestry and fishing in the 2020–2021 Budget 	<ul style="list-style-type: none"> • ‘Improving the irrigation system through actions such as lining of canals and irrigation channels • Enhancing water resource management through: <ul style="list-style-type: none"> – Integrated watershed management – Water conservation – Development and optimisation of water resource allocation, implementation of strict water management regulations and utilisation of unconventional water resources such as recycling of used water and harvesting rainwater and flood water • Strengthening risk management system for the agriculture sector • Implementing a comprehensive Climate Smart Agriculture program’
<p>Education</p> <ul style="list-style-type: none"> • Increased education spending in the 2020–2021 Budget 	<p>‘Development of a multitude of professionals in the field of climate change through strengthened educational opportunities for individuals in the disciplines of geo-sciences, social sciences, management sciences, governance, policy formation and implementation’</p>
<p>Healthcare</p> <ul style="list-style-type: none"> • Increased health spending in the 2020–2021 Budget • The Refinance Facility for Combating Covid-19 to support hospitals and medical centres to purchase Covid-19-related equipment (41 hospitals to date) • The State Bank of Pakistan (SBP) has introduced further regulatory measures to facilitate the import of Covid-19-related medical equipment and medicine 	<p>There is no specific priority in the Nationally Determined Contributions, though health is an importance concern mentioned in the introduction/executive summary of the document</p>

Source: GoP (2016); ADB (2020); GoP (2020); IMF (2020a)

Although other priorities appear to have subsumed climate-related priorities in Pakistan’s pandemic response spending, the government understands the opportunities of pursuing climate-compatible development. In his speech at the Climate Ambition Summit 2020 on

12 December 2020, Prime Minister Imran Khan made strong political commitments to mitigate GHG emissions by pledging to:

- Not build any more coal-based power plants, while conceding the use of indigenous coal

for coal-to-gas and coal-to-liquid energy projects. Khan also noted that Pakistan had already scrapped two CPEC coal power projects that were supposed to produce 2,600 megawatts (MW) of energy and replaced them with hydro-electricity.¹⁶

- Produce 60% of energy through renewable resources by 2030.
- Run 30% of all vehicles on electricity by 2030.
- Plant 10 billion trees in the next three years (as part of the existing Billion Tree Tsunami programme) and increase the number of national parks and protected areas from 30 to 45.

These green priority areas will likely feature prominently in Pakistan's second NDC, which was still being finalised in February 2021. While the financing needs for these priorities are being estimated by government ministries,¹⁷ it is worth noting that Pakistan committed to reducing by up to 20% of the projected GHG emission figures for 2030 (1,603 MTCO₂) – conditional on aid grants from the international community in the first NDC in 2015. The report estimated abatement costs at \$40 billion for up to 20% reduction in emissions; \$15.6 billion for a 15% reduction; and \$5.5 billion for a 10% reduction.

Moreover, the first NDC also indicated that Pakistan, itself highly vulnerable to extreme climate events and floods, needs between \$7 billion and \$14 billion a year for adaptation (GoP, 2016). For comparison, while Pakistan did not receive adequate international assistance to achieve these objectives over the past five years,¹⁸ the new pledges/priorities committed in 2020 will likely deliver more than 20% of emissions

reduction if implemented fully by 2030, which will mean even higher financing needs than those estimated in Pakistan's first NDC.

The prime minister's recent climate pledges align well with the government's long-term socio-economic development goals. Concerning goals in the energy sector, a key, long-standing obstacle, linked to water and food security, has been the country's energy deficit, with frequent power outages due to load shedding lasting 12–16 hours a day across the country (Khan and Ashraf, 2015), and costing an estimated 2.5–4% of GDP (Shahbaz, 2015). With the new CPEC-assisted power projects and slowing down of the economy due to Covid-19, there is now excess installed capacity. The government is unable to pay for this contractual commitment giving rise to an unsustainable increase in the circular debt estimated to be 2.6 trillion PKR by June 2021. This is further compounded by two other problems: the country's reliance on imported coal, oil and gas, and underinvestment in the transmission and distribution (T&D) network, leading to T&D losses and energy curtailment. Thus, transitioning away from thermal generation to low-carbon renewable power, as well as investing in the power network, is essential for supporting the government's socio-economic and climate objectives.

Besides renewable energy, green transportation and nature-based solutions, the government also sees opportunities in energy efficiency. An interview with the National Energy Efficiency and Conservation Authority (NEECA)¹⁹ reveals that Pakistan has the potential to save up to 10–15% (10–12 megatonnes of oil equivalent

16 The shelved projects are the 1320 MW Salt Range Mine Mouth Power Project Gaddani Power Park in Balochistan and the 1,320 MW Muzaffargarh Coal Power Project in Punjab (Isaad, 2021).

17 Interviews with Ministry of Climate Change (MoCC), 14 December 2020.

18 Interview with government official, 17 December 2020.

19 Interview with NEECA, 14 December 2020.

(MTOE)) of primary energy supply by 2030. This would require an investment of \$18 billion, which could be recovered in a relatively short time: for example, a \$4 billion investment in energy efficiency in the industrial sector could be recovered in about five years. In a strategic plan under development, NEECA aims to achieve the goal of 3 MTOE energy saving by 2023. Interviews with the Ministry of Climate Change²⁰ highlight that the Clean and Green Pakistan campaign to change behaviour and improve services in water, sanitation and hygiene, and the Recharging Pakistan Programme to tackle floods, will also be priority areas for the government.

2.2.3 How can China support a green recovery?

The country's high level of indebtedness (total debt is expected to have increased from 85.6% of GDP in 2019 to 87.2% in 2020 (IMF, 2020a)) and the high debt service obligations (interest payments amount to 6.3% of GDP in 2020 and over 41% of the new budget (GoP, 2020)) restrict Pakistan's capacity to drive a green recovery.

Even before Covid-19, Pakistan had rolled over \$700 million in debt in 2019 as part of an International Monetary Fund (IMF)-driven bailout (IMF, 2019), and China extended \$1.5 billion additional loans to Pakistan to repay the debt it owes to Saudi Arabia (Dawn, 16 December 2020).²¹ While the latest review of Pakistan's Extended Fund Facility programme under the IMF in December 2019 showed the country's debt to

be sustainable owing to reforms initiated since the programme began, this was performed before the Covid-19 pandemic.

Pakistan is still on the 'grey list' of the Financial Action Task Force, which makes it increasingly difficult to get financial aid from the major multilateral institutions. Given this, China will be important to Pakistan in terms of providing any further debt relief. This includes debt haircuts to what China has currently already committed to as part of the DSSI process to support Pakistan's debt sustainability in the short to medium term. There are unofficial reports that Pakistan is close to requesting relief on payments for power projects financed by Beijing.²²

Within pre-existing BRI investments

The CPEC enjoys a special status in the BRI initiative and has already supported massive infrastructure investments in the country, estimated at \$26 billion as of 2020. After recent developments in both countries' new climate commitments, on 14 December 2020 Pakistan's Special Assistant to the Prime Minister on Climate Change Malik Amin Aslam met with a Chinese delegation headed by China's Ambassador to Pakistan Nong Rong to discuss green cooperation between the two countries in light of 'Prime Minister Imran Khan's vision of green Pakistan [being] perfectly aligned to Chinese President Xi Jinping's vision of green China'.²³ The two sides explored new synergies for working together and agreed to 'make China-Pakistan Economic Corridor a model green belt and road initiative' to protect and preserve the natural environment in

20 Interviews with MoCC, 14 Decemer 2020.

21 <https://economictimes.indiatimes.com/news/international/world-news/china-bails-out-pakistan-to-repay-2-billion-saudi-debt-pak-media/articleshow/79708195.cms>

22 www.bloomberg.com/amp/news/articles/2021-02-09/pakistan-to-seek-debt-relief-from-china-belt-and-road-loan?__twitter_impression=true&s=09

23 http://pid.gov.pk/site/press_detail/15424

the region, renaming it ‘the China-Pakistan Green Economic Corridor’,²⁴ though no details have been worked out as to what this means in practice.

The majority of existing BRI energy investment is concentrated in thermal power, and a major challenge is how to reduce funding for planned coal power plants – in line with Pakistan’s new climate commitments – and retire earlier those in operation. Recent research shows that coal is increasingly economically unviable: it is already cheaper to build new renewable energy capacity including battery storage than to continue operating 39% of the world’s existing coal fleet, a proportion that will increase to 73% in the next five years (Bodnar et al., 2020). Moreover, owing to the continued problems of ‘circular debt’ in Pakistan, operational CPEC coal power producers already suffer from payment arrears from the government – a problem that will worsen considering their reliance on costly imported coal, hastening the date when they will become stranded assets.²⁵

As of February 2020, there are nine CPEC coal power plants at various stages of development

(see Table 4). Given that CPEC power projects fall within a government-to-government framework, for the four projects that are in preparation or are seeking financial closure, the Chinese government should drive committed resources elsewhere, for example towards new renewable technologies such as biomass to create stronger links with the agriculture sector,²⁶ or to increase the capacity of planned/ ongoing renewable energy power generation projects. This may require some cost bearing on the part of Chinese developers, and ultimately financiers, as some of the expenses already incurred (e.g. studies, land clearing, construction site preparation) would need to be written off, or they may be accounted for in new lending agreements for green projects from repurposed resources. The state policy banks would be the most likely candidates, within the consortia of Chinese banks, to shoulder these costs due to their role as ‘first movers’ (thus bearing their associated risks (Chin and Gallagher, 2019; Chen, 2020)).²⁷ Given the time-sensitive nature of the task, dialogue between the Chinese and Pakistani governments to realise this would need to take place with a certain urgency.

24 Ibid.

25 The Third Pole reports that the CPEC Sahiwal plant in Punjab province was on the brink of closure in April 2019, after the government was unable to pay \$127 million of charges it owed. Similarly, the Port Qasim power plant in Karachi ran into financial difficulties (\$133 million of payment arrears) in May 2019 due to rising debt and the increasing cost of imported coal. See www.thethirdpole.net/en/energy/no-end-to-coal-in-pakistan/

26 More understanding on the sustainability of this energy source in the Pakistani context would be needed.

27 Chin and Gallagher (2019) and Chen (2020) show how Chinese policy banks operate differently to ‘Western’ multilateral development banks (MDBs) and development finance institutions (DFIs), by creating a ‘general credit space’ that is then filled by Chinese state-owned commercial banks and by services exporters that often build and supply equipment to the funded projects. They do so by bundling loans and financing portfolios of development projects instead of conducting individual project financing. As such, they cover the total risk-return profile across the entire portfolio, with the option of using earnings from more profitable projects to cover losses of the less profitable ones.

Table 4 CPEC coal power plants

Coal power plant	Fuel source	Capacity (megawatts)	Status
Sahiwal 2x660 MW Coal-fired Power Plant, Punjab	Imported coal	1,320	Operational since 2017
2x660 MW Coal-fired Power Plants at Port Qasim, Karachi	Imported coal	1,320	Operational since 2018
HUBCO Coal Power Project, Hub, Balochistan	Imported coal	1,320	Operational since 2019
Engro 2x330 MW Thar Coal Power Project, Sindh	Local coal	660	Operational since 2019
SSRL Thar Coal Block-I 6.8 mtpa & Power Plant (2x660 MW), Sindh	Local coal	1,320	Seeking financial closure (project preparations finalised: land clearing, construction site preparation)
HUBCO Thar Coal Power Project (Thar Energy), Sindh	Local coal	330	In construction (targeted commercial operational date March 2021)
ThalNova Thar Coal Power Project, Sindh	Local coal	330	Seeking financial closure (project preparations finalised: land clearing, construction site preparation)
300 MW Imported Coal Based Power Project, Gwadar	Imported coal	300	Project preparation (i.e. construction site finalised, land lease signed)
Thar Mine Mouth Oracle Power Plant (1,320 MW) and surface mine	Local coal	1320	Project preparation (i.e. letter of intent being issued, shareholding structure being agreed, draft purchasing power agreement tariff)

Source: <http://cpec.gov.pk/energy>

For the five coal power plants that are already operational or about to be commissioned, planning for early retirement should begin in earnest as a potential phase-out would occur over several years. The five power generators, like other independent power producer (IPP) projects in Pakistan, benefit from a sovereign guarantee on the purchasing power agreements

(PPA) signed with the grid operator, the Central Power Purchasing Agency, locking in the government to pay for generation capacity (based on take-or-pay fuel contracts) for the lifetime of the assets. Phasing out these plants would require renegotiating these expensive long-term contracts while replacing these assets with renewable facilities that provide the same

level of electricity services (currently the four coal plants provide 19% of total generation in the country),²⁸ which would not happen overnight.

Bodnar et al. (2020)²⁹ explore several financial mechanisms to refinance existing coal assets, reinvest the freed-up resources in renewable energy and support a ‘just transition’ for workers and communities, including:

- Single asset refinancing: a coal plant borrows money to pay down remaining debt and invest in new renewable energy. This refinancing would come at a lower cost considering that renewables PPA do not have capacity payments.
- Ratepayer-backed securitisation: ratepayers raise low-cost debt against future revenues from a dedicated surcharge on their bills. The proceeds are used to finance renewable assets and pay remaining obligations from the thermal assets while retiring them.
- Asset portfolio securitisation: similar to the ratepayer-backed securitisation with debt raised from the expected revenues from a portfolio of renewable PPAs. This would be applied to IPPs with a portfolio of coal PPAs.
- Carbon bonus: the government or public financiers offer payments to electricity providers for each ton of emissions abated while continuing to provide the same value of electricity services and ensuring a fair workforce transition. In contrast to traditional carbon pricing regimes, where utilities owning and operating plants pay a fee to continue operations, the carbon bonus incentivises utilities to abate.

- Reverse auctions inclusive of debt forgiveness: a public fund is established to support the phase-out of coal assets and reinvest in renewables. Asset owners submit bids for the cost to phase out their coal plants and replace the service provided with clean energy.

Overall, a phase-out is a complicated problem, involving commercial, legal and economic considerations. While a framework for early retirement should be agreed by the governments of China and Pakistan, practical solutions will need to be developed on an asset basis. Recently, the Climate Investment Funds, together with the Inter-American Development Bank and the China-Latin American and Caribbean Cooperation Fund, successfully implemented the first-of-its-kind coal early retirement project in the world in Chile.³⁰ This project provides a workable model that could be explored and applied to coal power plants in Pakistan, especially considering that it was co-funded by a multilateral fund established by the Chinese government.

Early road projects under the CPEC emphasised rapid completion without sufficient consideration of their impact on the environment. A recent study by Kouser et al. (2020) suggests that, once all CPEC corridor investments are implemented, the addition of 7,000 trucks per day on the route would release up to 36.5 million tonnes of CO₂. Further, the network of new roads from China to Pakistani ports would result in massive tree cutting. This problem may now be compensated through

28 www.thethirdpole.net/en/energy/opinion-is-pakistan-really-phasing-out-coal/

29 Underlying the deployment of these instruments is the lack of competitiveness of coal.

30 www.climateinvestmentfunds.org/news/world-first-new-financial-model-drives-chile%E2%80%99s-decarbonization

upgrading the existing 1,680km railway track from Karachi to up-country. The project, known as Main Line-1 (ML-1), will cost \$6.8 billion and will operate under the Build-Operate-Transfer model through a public-private partnership. Negotiations between the government and China on financing agreements are ongoing. Generally speaking, while connectivity infrastructure is warranted for economic development, the CPEC corridor should re-analyse projects under planning in light of Pakistan's ambitions for clean transportation.

New Energy and transportation project finance

Pakistan has set an ambitious target to achieve 60% carbon-free energy generation by 2030. China is already working on developing major hydroelectric projects within the framework of CPEC and outside it, but there have been fewer projects in solar and wind power. A massive scaling up of these investments, compared to coal, is required to realise Pakistan's green recovery ambitions.

According to the World Bank, utilising just 0.071% of the country's area for solar photovoltaics power generation would meet Pakistan's current electricity demand. Pakistan also has several well-known wind corridors, but the installed capacity of solar and wind energy in the country, at just over 1,500 MW, is only 4% of total capacity, and currently equals around 2% of total electricity.

Many new energy projects in Pakistan are already being developed by independent power producers accessing private finance. While smaller-scale solar and wind power projects can raise funding from capital markets, there

are higher risks associated with larger, utility-scale wind and solar, as shown by the example of Quaid-e-Azam 1,000 MW Solar Park. China could support Pakistan's green recovery ambitions by providing funding for utility-scale solar and wind projects in Pakistan, including through securitisation and playing a de-risking and demonstration role. As the world's largest producer, investor and consumer of solar and wind technologies – one out of every three solar panels and wind turbines in the world are in China – China can also provide the necessary technology.³¹

Considering the chronic under-investment in the power network, there is also substantial scope for upgrading and building the transmission and distribution system in Pakistan. Chinese grid companies are among the biggest in the world (in terms of assets) and have extensive experience in building energy grids both domestically and overseas, and managing and operating them through the many acquisitions they have carried out over the years. For off-grid regions, China also has a wealth of experience with distributed renewable generation and mini-grids. Any such endeavours would work best if coordinated with multilateral development banks (MDBs), who have been working for a number of years on curbing transmission and distribution losses, through co-funding or other forms of partnership, to avoid duplication.

China has considerable knowledge and technical expertise in terms of energy-efficient technologies and energy efficiency in the built environment, as well as in process efficiency improvements in the industrial sector. Based on its domestic experience,³² China could work with Pakistan to introduce green requirements in

31 www.theguardian.com/commentisfree/2020/oct/05/china-plan-net-zero-emissions-2060-clean-technology

32 www.weforum.org/agenda/2017/06/china-clean-green-buildings-future/

Pakistan's stimulus package for the construction sector, such as green certifications for new buildings or retrofits for old ones, as it does not feature such measures presently. China is also highly experienced in setting feasible but ambitious energy intensity targets, as well as absolute caps, as part of broader energy and industrial strategies,³³ and could provide this technical assistance to Pakistan.

In order to achieve its clean energy target, Pakistan will also need to modernise its transport sector. About 28% of the 40.8 million tons of carbon emissions in Pakistan are from fuel combustion (IEA, n.d.). The majority of the heavy transportation fleet on the road network in Pakistan consists of ageing and highly fuel-inefficient vehicles. The government has recently approved the National Electric Vehicle Policy and will need significant support in establishing electric vehicle infrastructure. Pakistan also needs green urban mass transit systems.

China is now home to nearly half the world's electric passenger vehicles, 98% of electric buses and 99% of electric two-wheelers. It also has extensive experience in developing green mass transit systems and freight transits, for instance in Ethiopia, where it established an electric passenger train.³⁴ China can work with Pakistan to build the electric vehicle infrastructure and on mass transit system technology transfer. This will not only help Pakistan to meet its environmental targets, but also create thousands of new green jobs.

Nature-based solutions

There are important opportunities related to nature-based solutions. Pakistan is implementing two large programmes in this area: the 10 Billion Trees Tsunami project initiated in 2017, which aims to plant 10 billion trees by 2023; and the Clean Green Pakistan, whose key component is to expand the country's protected area from 13% to more than 15% by 2023 and create 5,000 green jobs across the country. China has been exceptionally successful in afforesting its own land over the last two decades.

An MOU has been created between the State Forestry Administration of China and the Pakistan government to share experiences, with the latter especially interested in replicating the experience of the forest ecosystem plantation in the Kubuqi Desert.³⁵ The MOU could be leveraged to accelerate nature-based solutions as part of Pakistan's green recovery ambitions and in alignment with the shift in the orientation of China's international policy objectives.

Agriculture is Pakistan's second-largest sector in terms of GHG emissions, employs more than a third of the population and provides important inputs to other productive industries in the country. Despite this, efficiency, innovation and technical knowledge are low compared to other countries with a similar economic structure.³⁶ There is a lot of room to reduce carbon footprints and environmental degradation: the sector would benefit from improved production techniques upstream and increased water use and energy efficiency downstream.

33 www.euractiv.com/section/energy/opinion/energy-efficiency-and-growth-the-chinese-way/

34 http://www.xinhuanet.com/english/2019-08/15/c_138311929.htm

35 Interview with government official, 17 December 2020.

36 Interview with expert, 11 October 2020.

With nearly 20% of the world's population, but only 5% of the world's fresh water and 8% of its arable land, China has been able to meet its growing demand for food largely through its own agricultural production (95% in 2015) thanks to innovation and productivity gains (Huang and Rozelle, 2018). China could engage the Pakistani government to understand the potential to increase productivity and create higher-value supply chains through technical assistance, knowledge brokering and project pilots.

Development assistance

China has gained invaluable experience over the last 20 years in energy market design and policies, shifting from command-and-control measures to market-oriented mechanisms, and experimenting with a range of tools, including feed-in tariffs, auction systems and carbon markets.³⁷ As pointed out by the World Bank, to attract investment and rapidly increase solar and wind deployment, further work on procurement through competitive bidding and market design is required in Pakistan (World Bank, 2020d). China could provide technical assistance in this area through its overseas aid programme. This has already been explored and has found support among some policy-makers thinking about the next phase of BRI development.³⁸

China's experience with setting aggressive goals for green building construction and renovation, including a requirement for 50% of all new urban

buildings to be certified green buildings,³⁹ can be of major assistance to Pakistan. In particular, programmes for constructing and renovating energy-efficient primary and secondary schools, community hospitals and public buildings can be successfully replicated in Pakistan.

Additionally, some instances of coal power plants' refinancing for early retirement may not be viable solely on market conditions, especially if using mechanisms such as carbon finance and reverse auctions (see earlier in this sub-section). China could provide Pakistan with concessional financing tools through its aid programme, or offer additional relief to debt tied to thermal power generation.

2.3 Kenya

The economic relationship between China and Kenya could be perceived as unbalanced on the trade side, given Kenya's relatively high dependence on Chinese imports. China is a significant investment partner, but its share of total investment flows has recently declined. There remain issues regarding existing BRI investments, which could pose a barrier to unlocking greater sources of greener finance. The stimulus and recovery strategy predominantly comprises measures that have high economic multipliers and less climate ambition, though some green recovery elements feature. Overall, Kenya's financing needs to implement its NDC are acute.

37 Given government interest, China could support Pakistan to develop an emissions trading system to accelerate the phase-out of inefficient coal-fired power plants. China has recently launched the world's largest national emissions trading scheme after running local pilot schemes in seven provinces over the last half decade, and has gathered many lessons on overcoming challenges to bring carbon markets to fruition. See https://icapcarbonaction.com/en/?option=com_etsmap&task=export&format=pdf&layout=list&systems%5B%5D=55.

38 China's Energy Research Institute through the 2C Asia initiative has already made such a proposal: see <https://chinadialogue.net/en/energy/11699-can-chinese-aid-steer-asia-toward-clean-energy/>.

39 www.weforum.org/agenda/2017/06/china-clean-green-buildings-future/

2.3.1 Economic relations with China

Kenya was one of the pilot countries for China's Sino-Africa industrial cooperation, announced in 2015. Major cooperation plans for 2016–2019 included industrialisation, agricultural modernisation and infrastructure, supported by a series of financial and political commitments by the Chinese government (Xia, 2019).

In relation to trade, China is Kenya's major import partner: it accounted for almost 25% of total imports in 2020 (compared to 1.5% of Kenya's exports). Kenya's trade overall was hit hard by the pandemic, though imports declined to a far greater extent than exports. This has been considered beneficial for some sectors. For example, Kenyan fishermen are reported to have benefitted from a decline in fish imports from China, enabling increased consumption of domestic fish.⁴⁰

Overall, China's share of Kenya's total FDI inflows has been decreasing since 2014, when it stood at 56.8% of the total, declining to 14.3% by 2018. Nonetheless, Chinese stocks of FDI still remain high; they have risen steadily since 2003, reaching a total of \$1.76 billion and accounting for 12.2% of total stock in 2018. FDI inflows from

China had been increasing until 2016, but then dropped from \$281.8 million to \$29.7 million. Investment increased in 2017 to \$410 million but experienced another large drop of 43.4% in 2018, to \$232 million.

In relation to trade, despite the Covid-19 shock induced by lockdowns, imports from China remained strong overall during 2020: initially falling to a low of Ksh 16.2 billion (\$145.8 million)⁴¹ in March 2020, before rebounding in July to Ksh 32.5 billion (\$291.3 million), representing a year-on-year increase of 5.2% from July 2019. The economic relationship between Kenya and China is unbalanced on the trade side, but important in terms of investment, though flows have declined and tend to be volatile. Overall, Kenya is considered a gateway into the East African region by China.⁴²

2.3.2 Green recovery elements

Adapting the approach of Hepburn et al. (2020), it is possible to classify Kenya's Covid-19 recovery package so far. As summarised in Table 5, Kenya's stimulus and recovery strategy mostly comprises measures that have high economic multipliers, but less ambition in relation to the climate and green recovery elements (see Appendix).

40 Data on the fish trade from the Kenya National Bureau of Statistics obtained by The Nation shows that China's fish exports to Kenya dropped by almost 50% as a result of the global supply chain disruption caused by the pandemic. See Daily Nation PG 11, 16 November 2020.

41 Central Bank of Kenya Indicative Exchange Rate of 1USD (\$) = 111.587 Kenyan shillings (www.centralbank.go.ke/forex/).

42 See Newcomb (2020) and Farooq et al. (2018).

Table 5 Kenya's economic stimulus, multipliers and climate ambition

Stimulus measures	Type	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier
Fiscal					
Fast-tracking payment of VAT refunds and other government obligations	G	-	-	-	X
Social protection cash transfers and food relief	K	-	-	X	-
Full income tax relief for persons earning below \$225 (Ksh 24,000) per month and a reduction of turnover tax rate on small businesses from 3% to 1%	O	-	-	X	-
Expediting payments of existing obligations to maintain cash flow for businesses during the crisis	D	-	-	X	-
Provision of credit guarantees, fast-tracking payment of VAT refunds and other government obligations	D	-	-	X	-
Healthcare investment \$0.1 billion additional expenditure	M	X	-	-	-
Non-healthcare additional spending \$2.3 billion	K	-	-	X	-
'Kazi Mtaani' Programme to target unemployed youth in major cities (KSh 10.0 billion)	N	X	-	-	-
Road infrastructure and urban renewal: rehabilitation of roads and access bridges; classrooms; schools	Q	-	-	X	-
Monetary					
The Central Bank of Kenya has lowered the Central Bank Rate by 125 basis points to 7% while also reducing the Cash Reserve Ratio by 100 basis points to 4.25% thereby injecting an estimated KSh 35.2 billion into the banking system	C, D	-	-	-	X
Increased the maximum tenor of repurchase agreements from 28 to 91 days	C, D	-	-	-	X
Flexibility to banks regarding loan classification and provisioning for loans that were performing on 2 March 2020, but were restructured due to the pandemic	C, D	-	-	-	X

Note: More information regarding the classifications can be found in Hepburn et al. (2020).

Source: Adapted from IMF Policy Responses to Covid-19; IMF Fiscal Monitor Database; RSM Global

The full details of Kenya's stimulus are included in the Appendix. The FY2020/21 budget includes the economic stimulus package, which amounts to 0.5% of GDP (Ksh 56.2 billion or \$513 million), and will run to June 2021.⁴³ Based on this plan, the Treasury has identified key pillars of the economic recovery strategy: the healthcare system; the private sector; small and medium-sized enterprises; the eight-point stimulus plan; information and communication technology; green growth; economic management and governance; resilience to global supply chain shocks; disaster risk management; inequality and social protection; multilateral and regional collaboration; mobilising diaspora resources; security and policy; and legal and institutional reforms (National Treasury of Kenya, 2020a).

The strategy does not define terms such as 'green growth' or 'resilient supply chains'. However, the Budget Statement published in February 2021 does provide slightly different definitions, referring to 'facilitated clean, green, resilient growth' and 'enhanced resilience of the economy to global supply chain shocks'.⁴⁴ In addition, it states that economic recovery will place emphasis on climate change adaptation and mitigation. However, it is not clear how this objective relates to other elements, including the resilience of global supply chains – where there is no specific mention of climate or green

elements within the description of measures to boost resilience.

There are plans to support electric cars and light trains, support small businesses in recycling, employ youth in tree planting, promote solar and wind power to support wind farming and transition Kenya to a low emissions environment (National Treasury of Kenya, 2020a). More support will be directed towards the Financing Locally-Led Climate Action programme. These policies should have a positive impact on climate change and encourage long-term growth (Hepburn et al., 2020). However, actual tracking of the implementation of these plans is required. Similarly, more project detail is needed, for example with regard to the 'Greening Kenya' and 'Buy Kenyan' campaigns.

Kenya's first intended NDC estimated that over \$40 billion is required for mitigation and adaptation actions across sectors up to 2030.⁴⁵ This estimate was developed into a financing strategy for the decade 2020–2030 for climate change mitigation and adaptation (UNDP, 2020), with financing needs estimated over two periods (2019–2024 and 2024–2030), as indicated by Table 6. On 12 December 2020, Kenya submitted its updated NDC and revised financial estimates (to \$62 billion) (Rowling, 2020), with an updated NDC published on 24 December 2020.⁴⁶

43 See www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#K.

44 See <http://www.parliament.go.ke/sites/default/files/2021-02/2021%20Budget%20Policy%20Statement%20from%20the%20National%20Treasury.-compressed.pdf>.

45 See www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya_NDC_20150723.pdf.

46 See [www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya%27s%20First%20%20NDC%20\(updated%20version\).pdf](http://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya%27s%20First%20%20NDC%20(updated%20version).pdf).

Table 6 Kenya's financing strategy for Nationally Determined Contributions, April 2020

Strategic objectives of sector climate change intervention areas	Total funding gap 2019–2024 (\$ millions)	Total funding gap 2024–2030 (\$ millions)	Share (%)
Infrastructure/energy: encourage renewable energy development; increase uptake of clean cooking solutions	7,033	10,282	37.8
Water, sanitation and irrigation/water and the blue economy: enhance resilience of the water sector for economic uses	4,261	6,230	22.9
Agriculture, livestock and fisheries/food and nutrition security: increase food and nutrition security through enhanced agricultural systems	2,738	4,002	14.7
Infrastructure/transport: climate-proof transport infrastructure and develop sustainable transport systems	2,200	3,216	11.8
Social protection, devolution and arid and semi-arid land/ disaster (drought and flood). Risk management: reduce risks resulting from climate-related droughts, floods, etc.	918	1,342	4.9
Forest, tourism and wildlife forestry/wildlife and tourism: increase forest cover to 10% of total land area; increase resilience of the wildlife and tourism sector	616	900	3.3
Health, environment and sanitation/health, sanitation and human settlements: reduce incidence of vector diseases and strengthen solid waste management and climate-resilient settlement	500	730	2.7
Environment and devolution: solid waste management: put in place a solid waste management infrastructure in urban and rural areas	274	401	1.5
Trade and industrialisation/manufacturing: improve energy and resource efficiency in manufacturing sector	47	69	0.3
Total	18,587	27,172	100.0

Note: This table is replicated from Table 2.5 in UNDP (2020), which summarises the financing gap for 2024–2030 as \$21,396 million, compared to the sum of all values which is \$27,172 million.

Source: UNDP Kenya's Financing Strategy for Nationally Determined Contribution 2020

Compared to Kenya's intended NDC, the 2020 NDC commits Kenya to mobilise resources to meet 13% of this budget, with international support for the remaining 87%. This illustrates some of the challenges in measuring financing needs in general for NDCs, and especially for adaptation climate-related activities; actual needs are often underestimated, as reflected

in the large differences between Kenya's NDC estimations during 2020. It is also important to note that no financial breakdown is available for the December 2020 NDC, although an overall estimate of needs is indicated.

Based on the intended NDC and analysis by UNDP (2020), it was estimated that \$18.6 billion

will be required in the first five years (2020–2024), and \$21.4 billion in the remaining five years (2024–2029), making a total of \$39 billion (UNDP, 2020), as summarised in Table 6. The projected increase in 2024–2029 accounted for a 6.6% annual food inflation rate. The largest gap identified relates to financing for renewable energy development and clean cooking solutions, comprising 37.8% of the total funding gap (however, it should be noted that there are issues regarding costs of supply and demand). This gap of \$17.3 billion is much larger than the Ksh 5.8 billion (\$52 million), or 10.3%, dedicated to ‘Environment, water and sanitation’ in the recovery plan (see Appendix) – where there is no mention of renewable energy.

Overall, Kenya’s priorities listed in the Covid-19 Economic Recovery Plan and the NDC are similar, but there is a need for greater clarity regarding the implementation of stimulus measures. For example, some expenditures in the stimulus package could be traditional infrastructure investments (e.g. ‘rehabilitation of access roads and bridges’, ‘Infrastructure upgrades for low-cost boarding schools in arid lands’, ‘Rehabilitation of classrooms’), though in practice they could also include building upgrades for energy efficiency (which has high climate ambition).

Without more detailed project-level information it is difficult to judge how stimulus measures could support Kenya’s mitigation goals, such as ‘enhancement of energy and resource efficiency across different sectors’ (NDC, December 2020). Table 7 reviews the recovery elements included in Kenya’s stimulus package, and areas where there is some alignment with its NDC (December 2020).

The priorities listed in the Medium-Term Expenditure Framework (2018–2022) are more closely related to the NDCs. As Kenya’s December 2020 NDC states, climate change actions have been mainstreamed across sector plans. For example:

- The agriculture, rural and urban development in the Medium-Term Expenditure Framework goal is to attain food and nutrition security, the same goal as in the NDCs (National Treasury of Kenya, 2020b).
- The energy, infrastructure and information and communications technology sector goal in the Medium-Term Expenditure Framework is the creation of sustainable and reliable infrastructure and services in the energy, transport and information and communications technology sector, including the promotion of clean cooking solutions. This matches the goals for infrastructure, energy and transport in the NDCs of renewable energy development, promotion of clean cooking solutions and sustainable transport systems.
- The environmental protection, water and natural resources sector goal in the Medium-Term Expenditure Framework is to protect the environment through increasing coverage of sewage systems, eradicating plastics use and protecting forests and wildlife. This is close to the goals of the environment, devolution and health sector and environment and sanitation sector in the NDCs.
- The trade and industrialisation sector falls under the general economic and commerce affairs sector in the Medium-Term Expenditure Framework, which includes investments in manufacturing and agro-processing (National Treasury of Kenya, 2020b). The goal of trade and industrialisation in the NDCs is to improve resource and energy efficiency in

Table 7 Kenya's Covid-19 stimulus measures and related Nationally Determined Contribution adaptation/mitigation component

Covid-19 stimulus measure	Component in Nationally Determined Contributions (NDCs)
<p>Infrastructure and transport: rehabilitation of roads and access bridges; infrastructure upgrades for low-cost boarding schools in arid lands; rehabilitation of classrooms</p> <p>Social protection: cash transfers</p> <p><i>Education (not mentioned in NDC)</i></p> <p>Environment, water and sanitation: household irrigation, flood control measures, rehabilitation of wells, Green Kenya campaign</p>	<p>Adaptation examples</p> <p>Infrastructure energy: develop and adopt guidelines on how to climate-proof energy infrastructure; increase the number of companies participating in energy-efficient water use by 40%.</p> <p>Infrastructure transport: development of climate-proof transport infrastructure ('upscale the construction of roads to systematically harvest water and reduce flooding', 'promote the resilience of roads to climate risks', 'greening of 14,000ha of infrastructure (roads, railways, dams)')</p> <p>Social protection: risk management of droughts and floods ('flood risk management incorporating nature-based solutions')</p> <p><i>Climate-resilient settlements (not mentioned in recovery plan)</i></p>
<p>Trade and industrialisation: purchase of locally assembled cars</p> <p>Agriculture and food security: farm input subsidies; temporary support for horticulture; working capital for Kenya meat commission</p> <p>Tourism: 5,500 community scouts and grants to 160 community conservancies</p> <p><i>Small and medium-sized enterprise support (not mentioned in NDC)</i></p>	<p>Mitigation examples</p> <p>Trade and industrialisation: energy and resource efficiency for the manufacturing sector (enhancement of energy and resource efficiency across sectors)</p> <p>Infrastructure energy: clean and efficient sustainable energy technologies to reduce overreliance on fossil and non-sustainable biomass fuels</p> <p>Agriculture and food security: climate-smart agriculture</p> <p>Tourism: develop and adopt guidelines for adaptation and climate-resilient action plans</p> <p>Environment, water and sanitation: scaling up nature-based solutions for mitigation</p> <p><i>Clean cooking solutions (not mentioned in recovery plan)</i></p> <p><i>Solid waste management (not mentioned in recovery plan)</i></p>

manufacturing, with investments including energy efficiency considering the long-term cost savings. It is therefore important to consider how Kenya's 'uy Kenya, build Kenya' Covid-19 response and recovery strategy can support both climate goals and the need for resilient supply chains. For example, green companies could also be incentivised to relocate to Kenya, including from China. Kenya's National Climate Change Action Plan (2018) also seeks movement towards green manufacturing.⁴⁷

The alignment between the Medium Term Expenditure Framework and Kenya's NDC is greatest. Overall, it is clear that Kenya's recovery and NDC financing needs are acute.

Steps are being taken to address these needs, with Kenya beginning to tap into green financing options, including the launch of its first green bond on the London Stock Exchange (KPMG, 2020). Kenya has also launched the Greening Kenya Campaign, a flagship Vision 2030 programme. The campaign aims to plant a billion new trees and achieve 10% forest cover by 2022 (UNEP, 2018; Ministry of Environment and Forestry Kenya, 2020). Currently, there does not appear to be any link to the Greening Kenya Campaign and the potential for debt-for-nature swaps. However, there do seem to be particular issues with regard to debt financing, as we discuss in the following section.

2.3.3 How can China support a green recovery?

Debt restructuring

The debt suspension provided recently by China presents an important opportunity for China to assist Kenya in fighting Covid-19 and addressing the

shortfall in the resources required to implement the NDC. Whilst these most recent developments will provide respite to Kenya in its efforts to respond to the pandemic, how increased expenditures may contribute to green recovery elements will need to be reviewed and monitored carefully.

According to a statement issued by the Chinese embassy in January 2021 both sides are reported as holding talks related to debt servicing issues (particularly the \$1.4 billion loan from the China Export-Import (Exim) bank for the standard gauge railway (SGR)); it was mentioned that China 'attaches great importance to debt suspension and poverty alleviation in African countries, including in Kenya'.⁴⁸

Between 1960 and 2007, China cancelled at least \$14 million in loans to Kenya (Acker et al., 2020). Although there may be some possibility of other small cancellations, China is unlikely to completely forgive debt in Kenya. Instead, discussions between China and Kenya have yielded a six-month debt repayment holiday worth \$245 million. In addition:

- Kenya will have the next six years to make payments on suspended debt servicing costs, including a one-year grace period after June 2021.
- The proceeds from savings are to be channelled towards combatting the pandemic.
- Kenya is obligated to make public its entire stock of debt.

It is estimated that Kenya must provide service to its debt annually of \$914.4 million to China (World Bank, 2020b). China has been a growing source of debt for Kenya, and in 2019 was owed 24% of total debt outstanding and disbursed and 73% of bilateral debt outstanding and disbursed. In

47 See www.kenyamarkets.org/wp-content/uploads/2019/02/NCCAP-2018-2022-Online-.pdf.

48 See www.theafricareport.com/60569/china-and-kenya-in-talks-about-debt-challenges/.

2020, China was owed 33.7% of total debt service, representing 79.4% of total bilateral debt service (ibid.).

China has so far agreed to waive the debt of the interest-free loans it has provided, but those make up only 5% of total lending in Africa (Oxford Business Group, 2020). It is unclear what effect China's participation in the DSSI has had for Kenya given that, according to the National Treasury, Kenya has not applied to the DSSI (National Treasury of Kenya, 2020c). More recently, it has been reported that Kenya will not seek debt suspension from multilateral and commercial creditors 'to safeguard its sovereign rating and its future access to international financial markets'.⁴⁹

Existing and new BRI investments

Issues with regard to financing existing BRI investments, such as the SGR, are well known. However, it is important to consider how such investments correspond to the connectivity infrastructure identified by Hepburn et al. (2020) as having high positive climate impact and high long-run multipliers.

Whilst the debt servicing impasse for the SGR has been resolved as a result of the January 2021 discussions between China and Kenya, both must work together to resolve contractual and procurement issues. From the completion of the initial segment in 2017 to May 2020, the railway has posted a loss of Ksh 21.7 billion (\$194.5 million) (Mutua, 2020). The project requires an annual cost of Ksh 50 billion (\$448 million) or 4% of total revenue (Ndi, 2018). In addition, the rail would only haul an estimated 8.7 million tons per year based on the 3,000 tons locomotive capacity, far short of

the annual 22 million tons of freight promised at the outset, and making it harder to justify extending the railway to Uganda (ibid.). The railway's construction contract was found unconstitutional by the Court of Appeals in Kenya for failing to acquire goods and services in a manner that is 'fair, equitable, transparent, competitive, and cost-effective' (Cuenca, 2020). Looking ahead, and beyond the debt suspension secured from China, this case and its rulings indicate how procedural, contractual and procurement issues must be addressed by Kenya in order to secure support for upgrading existing BRI investments and new support for infrastructure development in line with Kenya's green recovery efforts.

Project finance

Analysis of China's existing project loan portfolio in Kenya suggests most are concessional.

Concessional loans typically provided for large infrastructure projects are financed through the Exim bank. In a dataset of 40 loans worth \$9.05 billion from China to Kenya issued between 2001 and 2017, the top three sectors with the largest loan values were in transport (63.9%), power (19.2%) and multisector infrastructure projects (6.6%) (China Africa Research Initiative and Boston University Global Development Policy Center, 2020).

China is already financing energy projects aimed at increasing power generation, reliability and power access through Exim (United Nations Development Programme, 2020). Between 2010 and 2017, as shown by Table 8, the Exim Bank has lent a total of \$985 million for energy projects, with the three largest categories being

⁴⁹ See www.bloomberg.com/news/articles/2021-01-20/china-allows-kenya-to-delay-245-million-jan-june-debt-payments.

geothermal (40.6%), solar (13.8%) and transmission and distribution (13.6%) (Gallagher, 2019).

Kenya is one of the few countries in the world which has received solar project finance from China over the period 2010–2018 according to recent analyses by Kong and Gallagher (2020): an installed capacity of 50 MW costing \$135.7 million in 2017. This finance was provided by Exim, with this policy bank and China Development Bank being the drivers of the renewable energy boom, while seemingly providing support elsewhere on an ad hoc basis. Some of

the reasons put forward for this include recipients' inability to subsidise, lack of competitiveness relative to fossil fuel alternatives and the need for affordable and reliable storage technologies (ibid).⁵⁹

With regard to the type of financing for energy projects, 33.7% of the loan value was concessional, 28.7% was commercial and 34.2% was of an unknown type. The distribution of the number of loans of each type was concessional (47.5%), unknown (35%), zero interest loans (7.5%), commercial loans (5%) and preferential export buyers' credit (5%).

Table 8 Kenya's financing strategy for Nationally Determined Contributions, April 2020

Project	Year	Location	Sector	Subsector	Borrower	\$ million	%
Drilling Geothermal Stream	2015	Unspecified	Geothermal	Exploration and extraction	Kenya Electricity Generating Company	400	40.6
Olkaria IV Geothermal Field Drilling	2010	Rift Valley	Geothermal	Exploration and extraction	Government of Kenya	93	9.4
285km/220kV electricity transmission line and three converting stations	2017	Garissa and Isiolo	Unspecified	Transmission and distribution	Kenya Electricity Transmission Company	134	13.6
Nairobi Transmission Grid upgrade	2017	Nairobi	Unspecified	Transmission and distribution	Government of Kenya	128	13.0
Rabai–Malindi–Garsen–Lamu transmission line	2015	Rabai–Malindi–Garsen–Lamu	Unspecified	Transmission and distribution	Government of Kenya	94	9.5
Garissa-based 55MW solar farm	2017	Garissa	Solar	Power generation	Government of Kenya	136	13.8
Total						985	100

Source: Gallagher (2019)

In relation to total investments, five projects are recorded by the Global Investment Tracker;⁵¹ three of them real estate, one technology (telecoms) and one alternative energy (type not defined).

China can ensure that future projects it finances adhere to Kenya's environmental and health goals. In a dataset of 26 loans to Kenya between 2008 and 2017, 13 were for projects in critical or national protected areas: two projects were in critical areas, one was in a national protected area, and 10 were in both (China Africa Research Initiative and Boston University Global Development Policy Center, 2020). Both China and Kenya should aim to ensure that such projects better align environmental objectives with international norms and standards. Some alignment of standards and enforcement mechanisms may be required.

Most banks in Kenya do not currently account for the impacts of climate risks on their balance sheets or in their lending decisions, nor does the Central Bank of Kenya require them to do so. However, Kenya is developing a sustainable finance roadmap and is engaged in efforts to establish a common green finance market in Africa.

Shifting towards a focus on clean infrastructure projects presents an important opportunity to support Kenya's post-Covid-19 recovery strategy in line with its NDC and development strategy, as well as assisting in climate mitigation efforts. Clean infrastructure projects are deemed to have a high multiplier because of potential job creation: 7.49 jobs created per \$1 million for renewables infrastructure against 2.65 jobs in fossil fuels (Garret-Peltier, 2007, cited in Hepburn et al., 2020). Clean infrastructure would also

lower Kenya's energy spending over time and benefit the wider economy, making it even more attractive for Chinese firms.

Both creditor (China) and debtor (Kenya) will have to balance actors' commercial considerations with environmental impacts. Between 2001 and 2017, \$5.8 billion of a total of \$9.0 billion (64.4%) loaned to Kenya went to the transport sector. In contrast, China loaned a total of \$417 million (4.6%) to the water, health and education sectors.

The extent to which Kenya can ensure and enforce that investments are in line with its climate ambitions requires a detailed review of its legal and regulatory framework. The Treasury is working on a green fiscal policy framework to create the conditions for a green recovery. Currently, the bilateral investment treaty between Kenya and China (2001) does not include a reference to climate, and although it was signed it has not entered into force.⁵² More specific instruments may be required to overcome disputes. Lessons from the SGR suggest that large projects can often go over budget and overestimate demand (Gorecki, 2020); this is suggestive of capacity constraints that must be addressed. As a development partner, China could support Kenya in addressing procedural, contractual and procurement issues. Kenya could also review its trade and investment policy framework to better incentivise the import of green goods, services and technologies from China, whilst balancing its 'Buy Kenya, Build Kenya' objectives.

2.4 Nepal

Recent figures place China as Nepal's largest investor and second-largest import partner.⁵³

51 See www.aei.org/china-global-investment-tracker/.

52 See <https://investmentpolicy.unctad.org/international-investment-agreements/treaty-files/5532/download>.

53 Dates as of 2018; see Ministry of Foreign Affairs Nepal (2019b) for more information.

Although China is Nepal's largest bilateral creditor, most debt in 2020 and 2021 is owed to multilateral institutions, for which debt suspension has been granted. This offers scope for China to provide its expertise, as well as finance, for specific projects that form part of recent moves towards green recovery efforts, some aspects of which are in alignment with Nepal's NDC. Aligning standards within lending facilities to support greener activities and projects is also an area where China's expertise could be leveraged, as Nepal has already made considerable progress in this area. Barriers to this transition are mostly related to capacity constraints and technical barriers.

2.4.1 Economic relations with China

Sharing a border along the Himalayan range, the Nepal–China relationship has always been publicly amicable, without the overt tensions and border disputes that have affected China's relations with its other contiguous neighbours. Diplomatic relations were formalised in 1955 and affirmed by frequent exchanges of visits, with China recently encouraging political stability to aid investment opportunities and Nepal's development. Both countries stand to benefit from stronger ties.

From China's point of view, Nepal belongs to the BRI and involvement in the region would help solidify cultural and economic ties.⁵⁴ From Nepal's point of view, China is its second-largest source of imports next to India, the second-largest source of tourists and the largest source of foreign investment (Ministry of Foreign Affairs Nepal, 2019b). In terms of debt exposure, Nepal is part of the DSSI and data from the initiative shows that China was Nepal's largest bilateral creditor in 2020 and 2021, accounting for 7% of total debt

service obligations. However, it is important to note that most of Nepal's debt service obligations for 2020 and 2021 are due to official multilateral institutions, with only 17.3% and 16.2% in 2020 and 2021, respectively, due to bilateral creditors.⁵⁵ Regardless, assistance in driving a green recovery would help Nepal meet many of the goals outlined in its 15th periodic plan.

2.4.2 Green recovery elements

Nepal's initial response to the Covid-19 shock suggests that overall measures initiated have low climate ambition. Following the framework outlined in Hepburn et al. (2020) and used in the previous case studies, Table 9 classifies Nepal's recovery policies according to a combination of high and low economic and climate multiplier effects. Nepal's pandemic response largely prioritised expanding the country's capacity to respond to the health emergency, supporting small businesses and providing social support for households (both the formal and informal sector). From a climate perspective, however, some of these policies are more desirable than others, as they are considered to have high economic multipliers and a positive climate impact, e.g. increased investments in healthcare, including in rural areas, and skill enhancement and training programmes.

Other macro policies also generally had high economic multiplier impacts, but with a low climate impact. Nepal's fiscal and monetary response was geared towards supporting the economy, which meant instituting policies with high economic multipliers (see the Appendix for more on Nepal's Covid-19 policy response). These include providing daily food rations, subsidising utility bills, giving jobs to informal workers, offering food or cash-for-work

54 See speech at the 'Conference on Dialogue of Asian Civilizations (CDAC)', 15 May 2019 (Ministry of Foreign Affairs of the People's Republic of China, 2019b).

55 See data here: <https://datatopics.worldbank.org/dssitables/annual/NPL>, accessed 9 December 2020.

programmes, increasing loans to affected sectors, compensating for lost wages in the formal sector and other forms of liquidity-enhancing measures from the central bank. For the latter, providing liquidity support (through broad-based interest cuts and loan

deferments) for large corporations is considered under the Hepburn et al. (2020) framework as having a low economic multiplier and low environmental impact. The extension of tax filings also falls under this category (see the Appendix for more details).

Table 9 Nepal's economic stimulus, multipliers and climate ambition

Stimulus measures	Type ⁱ	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier
Fiscal policy, 2020–2021 budget					
Testing facilities expanded in high-risk zones	M	X	–	–	–
Personal protective equipment (PPE) and allowance for healthcare and lab technicians	M	X	–	–	–
Free health insurance plan for healthcare workers, 50% discounts on group Covid-19 insurance	M	X	–	–	–
Additional intensive care unit (ICU) beds	M	X	–	–	–
Adding capacity to the National Public Health Laboratory	M	X	–	–	–
Expansion of Prime Minister Employment Program	N	X	–	–	–
Skill enhancement training programmes at federal and provincial levels	N	X	–	–	–
Additional hospitals and ICU beds for provincial capitals	M, P	X	X	–	–
Additional basic hospitals in local levels	M, P	X	X	–	–
Modern health laboratories to be established in all provincial capitals	M, P	X	X	–	–
Daily food rations	K	–	–	X	–
Subsidised or waived utility bills	D, K	–	–	X	–
Compensation for lost wages in the formal sector	D, O	–	–	X	–
Extensions of tax filing deadlines	D, I	–	–	X	X
Small Farmers' Credit Program operated via Small Farmers' Development Micro Finance Institutions	D	–	–	X	–

Table 9 Nepal's economic stimulus, multipliers and climate ambition (continued)

Stimulus measures	Type ⁱ	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier
Informal workers given jobs in public works projects or accept 25% of daily wage handout	O	-	-	X	-
Government to deposit social security contributions	O	-	-	X	-
Monetary policy					
Refinancing fund of subsidised credit for banks' lending at a concessional rate to priority sectors including small and mid-size enterprises	D	-	-	X	-
Expedited approval of loans for imports/distribution of medical supplies	D	-	-	X	-
Subsidised credit for migrants starting a business	D	-	-	X	-
Interest rate and policy rate cuts	D, C	-	-	X	X
Require banks to increase loans to priority sectors and small- and medium-sized enterprises to 40% from 25% by 2024	D	-	-	X	
Relaxation of reporting norms for banks and financial institutions	D, C	-	-	X	X
No longer requiring banks to build up 2% countercyclical capital buffer	D, C	-	-	X	X
Deferral of loan repayments due in April and May until mid-July	D, C	-	-	X	X
Extension of repayment schedule for capital loans	I	-	-	-	X
Discount on interest payments paid early	A	-	-	-	X

i See Appendix for definitions of each type, based on Hepburn et al. (2020).

Note: More information regarding the classifications can be found in Hepburn et al. (2020).

Source: Hepburn et al. (2020); ADB Covid-19 Policy Tracker database (<https://covid19policy.adb.org/data-extraction?f%5B0%5D=version%3A172>) and IMF Fiscal Policy Monitor (www.imf.org/en/Topics/imf-and-covid19/Fiscal-Policies-Database-in-Response-to-COVID-19), both accessed 14 December 2020.

On 11 December 2020, the Nepalese government and international partners released a joint statement in support of a green recovery. All parties agreed to work towards a green recovery package that is closely aligned to the government's 15th development plan. Support from development partners is targeted at five priority areas. The first priority area allocates \$840 million for immediate relief from Covid-19, and up to \$4.2 billion was earmarked for restructuring current projects, and \$2.4 billion for new initiatives in the four other areas to support a green recovery (Pant, 2020; Thapa, 2020; European Commission, 2020). To quote directly from the joint statement, these four areas comprise:

- 'Nature-based solutions for growth and job creation in agriculture, forestry and biodiversity and water management, and tackling the impacts of climate change in the Himalayas;
- Green and resilient infrastructure, urban development and pollution management, that together create jobs and protect human health;
- Increasing resilience to future shocks such as health, climate and earthquake risks, by strengthening health, social protection, education and disaster management systems; and
- Stimulating private sector recovery, and increasing green investment and job creation in finance, tourism, clean energy, waste management, forestry and agriculture' (Himalayan Times, 2020).

The focus areas in the proposed December 2020 green recovery package all have high climate impacts based on the Hepburn et al. (2020) framework, but some have weaker economic multipliers. Of the package focus areas, 'increasing resilience to future shocks' ranks as a measure

with both a positive impact on climate and high economic multipliers. Other areas identified also had a high climate impact but with relatively low economic multipliers. These include the building of green and resilient infrastructure, urban development and pollution management, and the use of natural resource-based job creation. The latter, however, may improve its economic multipliers down the line.

Despite lower economic multipliers, factoring in green elements for urbanisation is in line with the country's development plans and goal of a greener and more resilient recovery. Nepal is considered one of the least urbanised countries in the world, but its rapidly urbanising cities and population, touted as one of the fastest-urbanising countries in the world, present an opportunity to shape a more resilient recovery. The country published its urban development strategy (National Urban Development Strategy 2016–2030) to foster balanced urban development and to ensure the development of urban centres abides by the guiding principles of sustainability, inclusivity, resilience, green and efficiency. The plan aims for these cities and towns to reflect the highest values of society. While economic multipliers are not necessarily high for urban development plans, this is in line with the push for a green and sustainable recovery (Government of Nepal Ministry of Urban Development, 2017).

Regardless, these package focus areas could contribute to Nepal meeting its NDCs. The update published on 8 December 2020 (Government of Nepal Ministry of Population and Environment, 2016, 2020; Climate Action Tracker, 2020). Table 10 summarises how some of the package focus areas align with certain NDC components.

Table 10 Nepal's Covid-19 stimulus measures and related Nationally Determined Contributions adaptation/mitigation component

Green recovery package	Component in NDC
<p>Increasing resilience to future shocks such as health, climate and earthquake risks, by strengthening health, social protection, education and disaster management systems</p>	<p>Adaptation examples</p> <ul style="list-style-type: none"> ● 'By 2030, all 753 local governments will prepare and implement climate-resilient and gender-responsive adaptation plans. The plans will address climate change and disaster vulnerability and risks and prioritise adaptation and disaster risk reduction and management measures focusing on women, differently-abled, children, senior citizens, youth, Indigenous Peoples, economically deprived communities and people residing in climate-vulnerable geographical areas.'
<p>Nature-based solutions for growth and job creation in agriculture, forestry and biodiversity and water management, and tackling the impacts of climate change in the Himalayas.</p> <p>Green and resilient infrastructure, urban development and pollution management</p>	<p>Mitigation examples</p> <ul style="list-style-type: none"> ● 'By 2030, increase the reliable supply of clean energy, ensuring access to all. ● Forests under community-based management will comprise at least 60 percent of Nepal's forest area; management committees will have 50 percent women representation and proportional representation of Dalits and Indigenous People in key posts. ● By 2030, establish 200 climate-smart villages and 500 climate-smart farms. ● By 2030, adopt low emission technologies in brick and cement industries to reduce coal consumption and air pollution, including through the development and/or enactment of emission standards. ● By 2030, create an enabling environment for both public and private sector to treat industrial and municipal waste, including faecal sludge. ● By 2030, adopt and implement waste segregation, recycling and waste-to-energy programs in at least 100 municipalities. ● Adopt national building codes and prepare Integrated Urban Development Plans emphasising low carbon and climate-resilient urban settlements in all municipalities.'

Source: Second Nationally Determined Contribution (NDC), Government of Nepal, 8 December 2020 ([www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20Second/Second%20Nationally%20Determined%20Contribution%20\(NDC\)%20-%202020.pdf](http://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20Second/Second%20Nationally%20Determined%20Contribution%20(NDC)%20-%202020.pdf)).

2.4.3 How can China support a green recovery?

Nepal's NDC targets in energy generation, transport, industry, waste, tourism and urban settlements can all benefit from investment, financial assistance and technical capacity from China. The BRI in particular presents an opportunity to work on efforts to increase connectivity (this is in line with the Nepal–China Transit protocol that came into effect in 2020). In terms of energy, the joint statement from the visit of Xi in October 2019 noted that ‘both sides will bring into full play the Joint Implementation Mechanism (JIM) on China-Nepal Cooperation in the energy sector, to carry out exchanges and cooperation in the fields of hydropower, wind power, solar power, biomass energy and other kinds of new energy as well as the grid system, etc.’ (Ministry of Foreign Affairs of the People's Republic of China, 2019a). As such, there are opportunities for both countries to work together on green initiatives.

Existing BRI investments

The *Green development guidance for BRI projects baseline study* was released in December 2020 by BRIGC.⁵⁶ Based on analysed best practices, the report proposes the use of a project classification system with the environmental objectives of pollution prevention, climate change mitigation and biodiversity conservation in mind. In terms of classification, red projects can cause significant and irreversible environmental damage, yellow projects are environmentally neutral with only moderate impacts, and green projects have no

significant negative impact and can positively contribute to at least one environmental aspect. This proposed framework can provide a benchmark for ensuring projects along the BRI are ‘green’. The report is meant as a guide for stakeholders, particularly within the Chinese government, to refer to in efforts to ensure that projects within the BRI are green. The BRIGC works with environmental institutes, research institutes and NGOs in partner BRI countries, but for Nepal no partnerships have currently been made.

Down the line, this classification system can be applied to projects based in Nepal, namely those along the Trans-Himalayan Multi-Dimensional Connectivity Network, a key investment corridor for China and Nepal. The classification of projects between ‘red’, ‘yellow’ and ‘green’ can help ensure projects do not have any negative externalities affecting climate, pollution and biodiversity. Notably, hydropower, a significant energy source in Nepal, may be classified as red-green under these new guidelines. It would classify as red because of the biodiversity risk, but appropriate safeguards can add a green label as it produces an emission-free source of energy (Green BRI Center, 2020).

More generally, there are sustainable finance principles and frameworks that can be followed to ensure investments are green. These include the Equator Principles, UN Principles for Responsible Investment and the Green Investment Principles for the Belt and Road (the GIP). The GIP ensures that investments along the BRI integrate environmental considerations within the

⁵⁶ The BRIGC was launched in 2019 by China and international partners during the Second Belt and Road Forum for International Cooperation. A research network supervised by China's Ministry of Ecology and Environment, it aims to provide a platform for policy dialogue and communications, the sharing of environmental knowledge and the exchange of information regarding green technology and transfer, with the end goal of actioning a green BRI. Partners include the environmental departments of several BRI countries, intergovernmental organisations, non-government research institutes and enterprises (BRI International Green Development Coalition, 2020).

decision-making and implementation of projects (Green BRI Center, 2020). Signatories include leading Chinese financial institutions such as China Development Bank and the Export-Import Bank of China.⁵⁷ As these guidelines are voluntary, investors and relevant stakeholders in Nepal can choose to abide by such principles to incorporate environmental, social and corporate governance (ESG) factors in new investment projects.

Finance

Nepal has not approached China for additional financing help during the pandemic, but instead has approached multilateral institutions such as the Asian Development Bank (ADB), World Bank, International Finance Corporation (IFC) and IMF for financial assistance, indicating demand for additional finance. To cite a few examples, in July 2020 Nepal and the World Bank signed a loan worth \$450 million for a road connectivity project to speed up the country's post-pandemic recovery (Government of Nepal Ministry of Finance, 2020). Also in July, the IFC issued a \$25 million loan to NMB Bank, one of Nepal's premier banks, to facilitate financing for green projects and SMEs. It is also expected to enhance

the bank's capacity to evaluate and assess green lending opportunities (International Finance Corporation, 2020b). In November 2020, Nepal signed a loan worth \$156 million with ADB on concessional terms to update the country's power grids (ADB, 2020).

Nepal has, however, approached China for financing before the pandemic. Data from Boston University's new dataset on China's overseas development finance shows China's Exim has lent to the Nepal government and Nepal electricity authority around \$4.5 billion over the past few years for energy and transport projects (Boston University Global Development Policy Center, n.d.). As Nepal works towards improving its energy mix and developing 'green and resilient infrastructure' as specified in its recovery strategy and in line with its NDC to 'increase the reliable supply of clean energy', it could secure lending from China that also supports these objectives. Loans can also be extended to sectors beyond energy and transportation. However, additional debt may not be desirable given the pandemic, and the country might prefer other means, such as grant financing.

Table 11 Projects financed by China's development banks in Nepal

Project	Year	Amount (\$ billion)	Lender	Borrower	Sector
West Seti Hydropower Project (China covering 75% of the cost)	2015	1.4	Exim bank	Nepal Electricity Authority	Power
Budhigandaki Hydroelectric Project	2017	2.5	Exim bank	Government	Power
Trishuli-3A project	2011	0.152	Exim bank	Nepal Electricity Authority	Power
Upper Trishuli III Dam	2011	0.2	Exim bank	Government	Power
Pokhara International Airport	2016	0.216	Exim bank	Government	Transport
MA 60 and Y12 aircraft purchase	2016	0.035	Exim bank	Nepal Airline Corporation	Transport

Source: Boston University Global Development Policy Center (n.d.)

⁵⁷ The full list of signatories and members can be found here: <https://gipbr.net/Membership.aspx?type=12&m=3>.

Project finance

The BRI is an opportunity for both China and Nepal to engage in mutually beneficial projects and strengthen efforts to enhance connectivity (i.e. ports, roads, railways, aviation and communications). Nepal is currently facing a large infrastructure and investment gap. The World Bank estimated that the country's investment needs would be roughly 10–15% of GDP annually over the next decade (World Bank, 2019b). However, public financing is currently marked by the underspending of capital expenditure. In order to meet the country's investment needs, Nepal would need to mobilise other sources, including foreign investment. Nepal can look to China for this reason, especially as the BRI acts as a framework for increased cooperation. However, there has been limited progress on key projects, e.g. the Kathmandu–Kerung railway, over project financing: Nepal prefers grants to finance the project while China does not provide grants for its BRI projects. Other reasons could be geopolitical and jockeying between China and India.

In the energy sector, China and Nepal have developed several hydropower projects, including the recently inaugurated Upper Trishuli 3A Hydropower Project (Xinhua, 2019), with several more underway.⁵⁸ The energy sector provides an opportunity not only to drive economic growth, but also for the country to increase revenues if it can export power to the South Asia region. Beyond hydro-projects, which can have negative externalities on the environment, the country can consider developing solar and wind energy projects which are less harmful for the environment.

In general, even projects that are not inherently in green sectors can be made green with

the upgrading of industries. The adoption of green standards and certifications, along the lines of the GIP, can mitigate many negative environmental externalities and pave the way for more sustainable development. For example, the cement industry is one of the most energy-intensive, but has GHG reduction potential if the main sources of energy driving these plants can be diversified from coal. Also, the shift from conventional building materials that have high embodied energy and emission rates to more energy-efficient building materials can be slowly introduced (Shrestha, 2016). To caveat, this upgrading may require the transfer of knowledge and skills to adopt and maintain new green standards, practices or technologies.

Development assistance

- Of the list of instruments signed and exchanged between Nepal and China in 2019, one item agreed upon with potential green benefits was the signing of the MOU for 'Cooperation in Disaster Risk Reduction and Emergency Response' (Ministry of Foreign Affairs Nepal, 2019a). Hepburn et al. (2020) list disaster preparedness as a desirable recovery-type policy. Disaster preparedness may not reverse climate change, but it can soften impacts and increase awareness. Projects that cover adaptation, disaster vulnerability and risks can thus benefit from training and capacity-building support (Government of Nepal Ministry of Population and Environment, 2020).
- The National Natural Science Foundation of China (NSFC), founded in 1986, has built an international cooperation network, funding over 925 International (Regional) Cooperation and Exchange Programs under Agreements/MoUs (UNEP, 2021). This includes research projects with countries within the BRI. They

⁵⁸ Developing projects in hydropower include a 756 MW Tamor Storage Hydroelectricity Project in eastern Nepal (Xinhua, 2020b), and a 200 MW Tamakoshi III Hydropower Station Project (Rijal, 2019).

have partnered with research foundations and international scientific organisations such as the UN Environment Programme (UNEP). February 2021 saw the launch of a project on ‘Developing nature-based solutions for Nepal following a nexus approach towards sustaining forestry, water resources and livelihoods’, funded by UNEP and NSFC (National Natural Science Foundation of China, 2018). China can help Nepal green its recovery through this type of project assistance, helping fund research that will enable Nepal to provide scientific support for future nature-based solution related policies.

- In terms of financing, China can provide technical assistance to help develop Nepal’s green finance system, which is currently at a nascent stage. Nepal joined the Sustainable Banking Network (SBN) in 2014 and is currently in the ‘developing’ stage of establishing a sustainable finance system.

Nepal launched the ‘Guidelines on environmental and social risk management (ESRM) for banks and financial institutions’ in 2018, followed shortly afterwards by the issuance of its corresponding implementation tools and checklist (International Finance Corporation, 2020a). The sustainable finance framework opens the door to environmentally and socially responsible investments and provides definitions

and examples of green assets. However, the banking system is still in the process of converting these guidelines into a directive, and delays in implementation highlight a lack of capacity within the banking industry to apply the sustainable finance framework (e.g. the capacity of regulators, financial institutions, cooperation among institutions, etc.).

China can provide technical assistance and help develop the system and expedite the implementation of the ESRM guidelines. China is considered a ‘first mover’ within the SBN (International Finance Corporation, 2020c), one of the early pioneers of green finance with its green credit guidelines issued back in 2012 and one of the first to apply green credit policies to commercial lending (China Banking Regulatory Commission, 2012; Ho, 2018). The SBN itself provides a space in which Nepal can approach countries like China for its help and expertise. To caveat, Nepal will need the necessary institutions, frameworks and basic training in place. There might also be some disconnect in terms of regulatory and financial standards, as these are often more closely aligned to India and may be a hurdle when it comes to capacity-building. Nevertheless, Nepal can benefit from best practice learnings given China’s experience developing its own green financial market and system.

3 Discussion of findings

3.1 Summary of key findings

Green elements in the stimulus packages of all three country case studies have been limited. Nepal has been the most ambitious, announcing plans for a dedicated package of over \$7.4 billion earmarked for greening existing projects and for new initiatives targeting nature-based solutions, green and resilient infrastructure, general resilience-building and private sector green recovery. In Pakistan, only \$1.7 billion of the \$18.3 billion stimulus package has high climate potential. Similarly, the climate elements of Kenya's stimulus have been minimal.

That said, all three countries have committed to higher climate ambitions in either their revised NDCs or at the highest political level. This highlights the tension between immediate Covid-19 response needs and the longer-term low-carbon, resilient development objectives that all low- and middle-income countries had to contend with at the early stages of the pandemic. It also highlights the imperative of ensuring that any additional future recovery package is green and contributes to achieving the NDCs.

The climate needs indicated in Pakistan, Kenya and Nepal's NDCs are significant even before acknowledging Covid-19 recovery costs and climate transition costs. While Pakistan's second NDC is still in preparation, it is likely that the costs for mitigation and adaptation will be higher than those referenced in the first NDC, as analysed in Sub-section 2.2.2. Kenya estimates that it will

require \$62 billion to meet both mitigation and adaptation goals in the next decade, requiring support for 87% of this budget. Nepal requires \$25 billion to achieve its conditional mitigation targets, and will cover \$3.4 billion for the unconditional targets (these estimates only cover activity-based targets and not other costs such as policies and measures, and do not include adaptation goals).

China is Pakistan's top creditor, with \$6.6 billion of debt to be serviced by the end of 2021 (34% of total external debt service). Kenya has increasingly relied on China as a creditor. In 2020, Kenya owed China \$914.4 million, representing 33.7% of total debt service and 79.4% of total bilateral debt service. While China is Nepal's largest bilateral creditor (7% of total debt service in 2020–2021), the latter has larger debt service obligations to multilateral institutions. This highlights the potential for China to provide debt relief and free up resources to support green recoveries in these three countries. That said, only Kenya has approached China for additional resources since Covid-19 struck.⁵⁹

At the project level, the challenge of unlocking green finance from China will not be unlike that of realising opportunities from other financiers. There needs to be incentives on both sides, with standards and regulatory frameworks aligned to international best practice. There will be particular issues regarding the transition from existing financial support to, for example, coal, to renewable energy sources as emphasised in the case of Pakistan; the result could be stranded

⁵⁹ To the best of our knowledge, Nepal has not approached China, whereas Pakistan is reported to be close to requesting payment relief for CPEC power projects financed by China, but has not done so officially.

assets due to changes in policy and legislation, which raises several challenges regarding supporting ‘just transition’ efforts, both for China as a creditor and BRI recipients.

New investments

As the country case study analyses of Pakistan, Kenya and Nepal show, there is a high demand for green asset finance, including in sectors such as solar power. This demand may increase as support for carbon-intensive energy sources shifts, e.g. from coal power to renewable energy sources (Pakistan). But there are considerable capacity constraints to be addressed in order to projectise and develop appropriate standards and regulatory frameworks. The case study countries’ own financial instruments may need reform in order to align standards with lending facilities from China. More generally, stakeholders from both China and partner countries can choose to follow ESG principles such as those outlined by the Green Investment Principles, incorporating environmental considerations within decision-making, due diligence, management and design of future projects.

Current investments

In Pakistan, the CPEC will need to be re-analysed considering China’s pivot to a green

recovery and Pakistan’s ambitions for low carbon power generation and clean transportation. Given that there is already high-level political commitment to transform the CPEC into a model green BRI between the two countries, the challenge lies in the technical details of debt relief and coal project cancellation and the practicalities that will emerge from implementation. In Kenya, existing BRI investments are somewhat more problematic, with particular challenges around the SGR. In Nepal, creditors can ensure that projects along the Trans-Himalayan Multi-Dimensional Connectivity Network adhere to common and enforced standards.

3.1.1 Roles that China can play

China could assist in overcoming technical barriers to support these efforts, assist in de-risking and provide demonstration effects, but this essentially requires a combination of roles: financier, technology provider, knowledge broker and development partner (Table 12). Actions are also needed on behalf of the host governments, who will need to enforce their climate ambitions through the development of appropriate regulatory frameworks; these frameworks will also be different for current investments, as compared to new green investments.

Table 12 How can China support a green recovery?

	Green financier	Technology provider	Knowledge broker	Development partner
Role	Green BRI and NDC financing	Upgrading, retrofitting	Capability and capacity-building	Address debt impasse; project development and industrial upgrading
Frameworks required	Prioritise green loans Develop common environmental standards based on international best practice and ensure oversight and enforcement	Trade and investment policy; alignment of standards	Firm-level intermediate institutions engaged	Political engagement; transparency

There are different roles that China can play in supporting a green recovery, depending on the depth and strength of economic ties, as well as corresponding country aspirations. This provides different entry points for China to support greener recoveries, as well as potential barriers, which are in some cases deeply entwined with political economy considerations (given the trade-offs between green/brown recovery elements in countries' response and recovery strategies).

Green financier

There are a range of different green financing options available to China to support a green recovery in the selected country case studies, as well as other developing countries. Table 13 summarises the possible roles that China could play in supporting a green recovery as a financier in the case studies reviewed, as well as some of the potential barriers and opportunities that may arise.

Table 13 Summary of how China could support green recoveries as a financier

Financial mechanism	China's role	Opportunities	Barriers
Capital market financing	Funds from bonds/ securities can be used in green overseas projects	Movement from carbon-intensive to greener infrastructure in Pakistan, Green recovery priority in Nepal	Enforcement, availability of Green Projects to fund
	Investors can purchase green financial instruments	Kenya issued its first green bond	Need for capability- building, enforcement
Debt-for-nature swaps (DNS)	Creditors can consider allocating certain debt for DNS as they negotiate debt terms	Alignment with Nationally Determined Contribution (NDC) and scale	Institutional capacity, monitoring, the willingness of creditors to restructure debt
Commercial and concessional lending	Extend loans for green projects, likely on concessional terms		Appetite for additional debt, monitoring
	Ensure projects abide by green guidelines. Those along the BRI will likely need to abide by green development guidance	Alignment with NDC, the release of <i>Green development guidance for BRI projects baseline study report</i>	Pivot to green investments relatively new

In terms of financing, China already boasts a relatively developed green bonds market,⁶⁰ with some examples of green securities.⁶¹ In theory, it should also be possible to lend overseas with green credit guidelines applied or to participate in DNS. However, there are issues regarding enforcement as well as alignment between standards applied by creditors, as well as debtors seeking green finance for specific projects. To date, these financing mechanisms have not yet been used on a large scale, and there are no examples of deployment in the selected country case studies. Ultimately, taking on additional sovereign debt might not be considered feasible, even though such financing options could attract other sources of capital to green projects and stimulate greener recoveries.

With regard to capital markets, green capital market instruments are not that common in developing countries such as Pakistan, Kenya and Nepal. While Kenya issued its first green bond early in 2020 on the London Stock Exchange, Nepal and Pakistan have yet to do so. Generally, green finance, both the concept and practice, are still underdeveloped. However, the proceeds of climate bonds issued from China can be used to fund projects overseas, where there is demand and projects that qualify.

Beyond capital markets, Chinese banks can extend credit to green projects overseas. Pakistan, Kenya and Nepal have all taken on loans for building

power projects from the China Exim bank, with some loans for transport and other infrastructure projects. Using a project classification system to determine which projects have a better environmental impact can help investors prioritise and shift resources from brown to green overseas investments (Green BRI Center, 2020).

For example, in Nepal several hydropower projects are being developed with China. In Pakistan, some hydropower projects are being developed within the CPEC. Hydropower can have negative environmental externalities and warrant a 'red' classification, signalling a need for projects better for the environment, such as solar or wind (ibid.). In Kenya, a handful of geothermal and solar-powered projects were financed by Chinese development banks. To caveat, as discussed above, taking on additional debt may not currently be a viable option for the case study countries. Using additional green loans from China will likely have to come with more favourable terms to entice further borrowing.

Beyond extending credit for projects, China can enforce green standards for projects of existing borrowers. For example, projects along the BRI can refer to the *Green development guidance for BRI projects baseline study*. Other means to do this would be to choose to abide by broadly agreed principles for sustainable investment. For example, certain Chinese lenders have signed up to the Green Investment Principles for BRI lending.

60 China has one of the largest green bond markets in the world. From 2016 to 2019 its green bond market quadrupled in size to about \$120 billion, making it the second-largest after the US, with clean energy and clean transportation initiatives receiving the largest share of the proceeds (Escalante et al., 2020).

61 The development of green bonds in China has led to the development of other 'green' financial products such as green asset-backed securities (ABS). An ABS differs from a bond in that it is collateralised or secured by a class of other assets (often an income stream from those assets). A 2020 report by the Climate Bonds Initiative and the International Institute for Sustainable Development notes that green ABS volumes amounted to \$7.2 billion in 2019, increasing their share of total issuance from 5% to 13% (see www.climatebonds.net/resources/press-releases/2020/06/climate-bonds-initiative-ccdc-jointly-publish-fourth-annual-china).

Technology provider

Beyond finance, China can take on alternative roles to drive the green agenda forward, including as a provider of green technology. China is a dominant producer of green technology. China can support the transfer of green technology through foreign direct investment, licensing of the technology to local firms or other partnerships. Some barriers are important to note, including issues with intellectual property rights (which deserve further attention) as well as levels of technological development and incentives or regulations in place for new technologies.⁶²

China is a significant trade and investment partner for the three case study countries: it is Pakistan and Kenya's top import partner and Nepal's second-largest import partner after India.⁶³ As Chinese investment, trade and aid become more prominent, it is important to explore opportunities for investment in clean infrastructure, technology and healthcare, as well as other areas highlighted in economic recovery plans. More detailed product-specific analysis is required regarding trade trends in environmental goods and services. The importation of more energy-efficient goods and technologies, through overcoming informational or technical barriers, could be supported. However, China's supply must be matched with demand from the three countries.

Knowledge broker

To supplement the transfer of technology, complementary knowledge to absorb this capacity will be necessary. Among the many roles it can play, China can utilise its experience and transfer knowledge to its partners. China has extensive knowledge and technical expertise in terms

of energy-efficient technologies and energy efficiency in the built environment, as well as in process efficiency improvements in the industrial sector. In terms of the green finance space, China has a relatively developed green financial market, and boasts one of the largest green bond markets in the world. Based on domestic experience, China can assist other countries with their NDCs through capacity-building and technical assistance (i.e. disaster preparedness capacity-building in Nepal, assisting with developing energy market design and policies in Pakistan, upgrading infrastructure in Kenya). Similarly, China's experience with setting aggressive goals for green building construction and renovation can be shared with partner countries looking to establish green infrastructure. This could strengthen the country's bilateral relationships. However, it would be necessary for recipient countries to have the prerequisite knowledge for certain skills to be transferred.

Other support as a development partner

China can use its ongoing debt negotiations as leverage to help facilitate a green recovery in other countries. Concerning sovereign debt, only Kenya has so far pursued negotiations to secure relief. Nevertheless, with global debt stocks rising, public finances squeezed by pandemic-related spending and China's role as one of the largest creditors in the DSSI, there is an opportunity for China to use debt negotiations to encourage a green recovery in other countries. However, while China is a large creditor for each of the country case studies reviewed, and in theory it could use DNS in its negotiations to help push for a green recovery overseas, in practice none of the countries

⁶² See Ockwell et al. (2008).

⁶³ See data from <https://oec.world/>.

reviewed has articulated this demand, nor do they feature within recent analyses which have explored the feasibility of such swaps within specific country contexts (Simmons et al., 2021).

While each of the country case studies reviewed have submitted NDCs, the extent to which specific projects that could provide for climate mitigation and improved environmental outcomes, and therefore feature within a DNS, would depend on the interests of Chinese creditors (including private); moreover, institutional frameworks would need to be developed including third-party monitors and other stakeholders. However, crucially, China has not publicly expressed interest in debt-for-nature swaps, nor have any of the country case studies analysed.

Nevertheless, as an important development partner, China can encourage the industrial

upgrading of overseas investments, in line with the recently announced international ‘high-quality BRI’ and the jointly issued guidance to promote climate investments domestically and overseas. However, there will be a need to ensure such initiatives are undertaken in line with international best practice and standards. Chinese policy now mentions the need for regulation of overseas investments in line with climate targets. Pakistan, Kenya and Nepal are all within the BRI and would benefit from these types of investments. China is one of the largest sources of FDI for the country case studies and the upgrading of existing projects to become more climate-friendly and energy-efficient would contribute to the green recovery of such developing economies. But there will be a need for oversight and enforcement. See Table 14 for a summary of how China can support green recoveries beyond financing.

Table 14 Summary of how China could support green recoveries as technology provider, knowledge broker and development partner

Type of support	China’s role	Opportunities	Barriers
Green technology and environmental goods and services	Facilitate the transfer of green technology (solar, wind, more efficient batteries and tech)	Alignment with Nationally Determined Contributions (NDC), China has a significant trading relationship with case countries	There must be demand for green technology from China
Technical assistance and capacity- building	Participate in capacity- building exercises, provide technical assistance, and share experience	Alignment with Nationally Determined Contributions (NDC), and strengthen bilateral relationships	Skills required – the need for prerequisite knowledge for efficient and effective transfer of new knowledge
Upgrade investments	Upgrade current investments, especially those along the BRI where there are negative environment externalities	Alignment with NDC and broader development strategy	China’s pivot to green investments relatively new

The demand for, as well as political feasibility of, securing China's support to achieve greener Covid-19 response and recovery strategies depends on: the extent to which the principle of a green recovery is shared, in terms of expectations that are socially enforceable; the extent to which there are similar norms in relation to what should be achieved in terms of a green recovery; and the extent to which there are common standards that reflect shared norms.

3.2 Recommendations

Based on the country case study analyses, we provide a set of recommendations to move from low to high climate multipliers within Covid-19 response and recovery strategies, supported by China. These are summarised in Table 15 and discussed in turn for each case study, below.

Pakistan

Currently, Pakistan's recovery has included minimal green elements, despite announcements of high climate ambition. There are unilateral policy initiatives that the Pakistani government could adopt to accelerate the greening of its recovery, including better tailoring its own financing instruments. For example, the State Bank Temporary Economic Refinancing Facility could grant low-interest loans only to projects that install environmentally friendly plants, machinery and processes, or a tiered system to grant lower-interest loans to projects that install low-emission and high-efficiency plants, machinery and processes.

In addition to these unilateral policy initiatives, as model green BRI partners, Pakistan and China could adopt specific measures to support a greener recovery, including at the sectoral level. Environmental approvals should be made

mandatory and stringent. This requires the development of related standards and appropriate regulatory frameworks. Reforming energy markets and incentive schemes will be fundamental in accelerating the deployment of wind and solar energy to achieve the 60% target by 2030, as well as supporting more energy efficiency, urban clean transportation and sustainable agriculture.

As CPEC enters the second phase, which will focus on poverty alleviation, agriculture and industrial cooperation, there is scope to achieve development objectives through green technologies and solutions analysed earlier, including efficient and climate-smart agriculture, distributed renewable energy for energy access and industrial energy efficiency.

For its part, China will have to speed up its own domestic policies to blacklist overseas high-carbon investments. Unlocking China's green finance for Pakistan requires addressing Pakistan's high debt burden and funding for coal power projects. The two challenges are interconnected as China is Pakistan's biggest lender and much of that credit funds high-carbon activities, including coal power plants and some transport projects. This will likely require some debt haircuts on the part of Chinese lenders, and channelling the committed resources for coal elsewhere, such as new renewable technology deployment, enhancing ongoing renewable energy projects, improving T&D networks or energy efficiency.

To retire CPEC coal power plants earlier, considerable renegotiations of the assets' long-term contracts and strategic manoeuvring will need to be spearheaded by the two governments. Pakistan's government has recently successfully renegotiated PPAs with 47 other IPPs to address problems of 'circular debt', setting an

important precedent.⁶⁴ At the same time, there are unconfirmed reports that the Pakistani government is about to approach the Chinese counterparty for debt relief on the CPEC coal projects.⁶⁵ This provides a great opportunity, as Pakistan's government should engage in these renegotiation dialogues with the intention of reinvesting the freed-up resources in new renewable power facilities whose returns would pay for existing debt obligations tied to the thermal assets. This would minimise the costs borne by Chinese developers and investors while deepening cooperation between the two countries in climate-aligned areas.

Finally, besides finance, there is an array of areas for technical cooperation, knowledge brokering and capacity-building where both countries can collaborate.

Kenya

Kenya's current response and recovery package could be greener and more in line with its NDC, particularly within the infrastructure energy and transportation sectors. There is presently no requirement in the stimulus package to ensure that implemented measures are in line with Kenya's NDC – despite climate being mainstreamed within the current medium-term framework under its Agenda 2030. In addition, the government has cut funding to some of the sectors that can generate both the highest climate and economic multiplier effects.

Whilst Kenya's efforts to secure debt suspension from China have now come to fruition, there remain procedural, contractual and procurement issues with regard to existing BRI investments. Moreover, whilst the agreement with China seeks

to channel debt payment savings towards the pandemic response, there is no specific mention of green recovery endeavours.

China is an important financier for infrastructure energy (as well as transportation). A focus on clean infrastructure projects would be an opportunity for China to boost its green credentials and assist in the advancement of Kenya's NDC and green recovery efforts. This is especially important given Kenya's role as a gateway into East Africa and the strong connections and established trade links already in place. China could also work with Kenya to strengthen its own green financing instruments.

There are areas where less political ambition is required, but climate multipliers could be high. For example, as a development partner with substantial expertise in the agriculture sector and irrigation, China could assist in the delivery of existing projects included in Kenya's medium-term delivery plan and stimulus package. In Kenya, there were 522 stalled projects as of June 2019 across all sectors identified in the Medium-Term Expenditure Framework, with the water, irrigation and environment sector having the highest number of stalled projects, at 216 (World Bank, 2020c).

Finally, China is interested in investing in telemedicine, tele-education, 5G and big data (Forum for China Africa Cooperation, 2020). Such investments, termed 'connectivity infrastructure' by Hepburn et al. (2020), are deemed to have a positive impact on climate change and large positive multipliers in the long run. These investments could prove useful in future quarantine scenarios, reaching those who are unable to access education

64 www.dawn.com/news/1606274

65 <https://economictimes.indiatimes.com/news/international/world-news/china-bails-out-pakistan-to-repay-2-billion-saudi-debt-pak-media/articleshow/79708195.cms>

and helping firms operate digitally, and could also support Kenya's measures to increase the number of internships in the IT sector.

Nepal

Nepal, with the help of China, can pursue policies with higher climate ambitions. Nepal is beginning to use its recovery to address some of its NDCs, such as projects that improve connectivity, and these can build in green elements to the current response – using low-carbon and climate-resilient options in infrastructure projects. They can thus address the country's significant infrastructure gaps with green solutions. Projects can be classified according to environmental impact and those with positive externalities can be prioritised. Stakeholders and development partners can also choose to follow broadly agreed principles for sustainable investments. For projects that are already underway, China can work with Nepal to ensure that projects along the BRI abide by international environmental standards.

As a development partner, capacity-building opportunities to improve disaster preparedness are expected to have a high climate multiplier.

Capacity and research support to help Nepal produce an evidence base to underpin future environmental policies will also be useful. Nepal can also push on with its development of sustainable banking to take advantage of green financing in the future, although capacity constraints must be addressed. It is worth noting that a prerequisite to securing these opportunities is that Nepal secures political buy-in from China through demonstrating an alignment in preferences, and an agreement to work towards common standards. Geopolitical considerations also need to be accounted for, and Nepal's work with China may be restricted to areas further from India.

In terms of financing, Nepal's own financial system still lacks the capabilities to issue its own green capital market instruments and would only be able to rely on proceeds from green instruments issued by other countries such as China. Other forms of lending such as direct commercial or concessional lending from China will depend on the country's appetite and capacity to take on more debt. At the moment, Nepal leans towards grant financing rather than debt financing.

Table 15 Recommendations for China and case study countries

Country	Country role	China role
Pakistan	Low political and climate ambition	
	Ensure new fiscal and monetary support is green; request support from China to develop emissions trading schemes.	Further hydropower development and financing; ⁱ knowledge sharing in energy efficiency, nature-based solutions and clean transportation; use of Chinese aid for targeted technical assistance to develop policies, market mechanisms, improve efficiency and innovate in green sectors.
Pakistan	High political and climate ambition	
	Requires and incentivises China to accelerate investments in electricity T&D network and new renewable energy technologies as part of larger investment packages within CPEC; include green requirements in the construction fiscal stimulus package; seek debt relief or debt swaps for nature-based solutions; introduce green requirements in current and future monetary stimulus schemes; plan and start negotiations with China for phaseout of CPEC coal power.	Strategic targeted funding to de-risk and demonstrate large-scale deployment of wind and solar energy from Chinese lending institutions (including China Development Bank, Exim Bank and commercial institutions); adopt policies to blacklist coal and other high-carbon investments overseas (e.g. BRIGC's Green Development Guidance for BRI Projects' report); haircuts on Chinese bilateral debt and further relief beyond current DSSI aligned measures; rethinking of CPEC transportation corridor in line with Pakistan's new clean transportation ambition; create policy dialogues with the Pakistan government, private sector and civil society to showcase opportunities to modernise the agriculture sector and contribute to emission reductions.
Kenya	Low political and climate ambition	
	Ensure alignment between fiscal and monetary support with NDC adaptation and mitigation priorities with high climate and high multiplier effects (e.g. road upgrades, building upgrades for energy efficiency). More careful assessment of clean energy infrastructure projects and enforcement. Finalise sustainable finance roadmap and mandate banks to take account of climate risks.	Share existing knowledge regarding best practice on energy efficiency; support stalled project delivery in water irrigation and environment sector; boost internships in IT-related sectors; promote knowledge exchanges between Chinese and local firms to adopt cleaner technology.

Table 15 Recommendations for China and case study countries (continued)

Country	Country role	China role
Kenya	High political and climate ambition	
	Ensure savings accruing from debt suspension support green recovery and NDC objectives.	Support green recovery efforts through ensuring greater alignment between Kenya's recovery efforts and NDC, as a condition of debt suspension.
	Update legal and regulatory investment instruments to reflect and enforce climate ambition.	Existing efforts in funding power generation, distribution network expansion and power transmission should be confirmed to be green.
	Address procedural, contractual and procurement issues and develop specific instruments to address investment disputes.	
Nepal	Low political and climate ambition	
	Support for formal and informal workers retraining programme; expedite implementation of 'Guidelines on Environmental and Social Risk Management for Banks and Financial Institutions' and create enabling framework to support the development of green financial instruments.	China can provide technical assistance and capacity-building for Nepal Rastra Bank in implementing its Environmental and Social Risk Management Guidelines and preparing the finance industry for green financial instruments. To caveat, Nepal's financial sector regulations are closer to India than China so this might complicate the technical assistance to be provided.
	High political and climate ambition	
	Incorporate nature-based solutions, green energy and low-carbon and climate-resilient infrastructure ideas into the current pandemic response and secure necessary finance from development partners, including China.	Impose green guidelines and green investment principles on projects within the BRI, and target lending or future financing towards projects concerning connectivity, clean transportation and disaster resilience.
	Upgrade traditional industries to become more efficient and sustainable (e.g. cement factories).	Jointly conduct workshops in disaster preparedness and capacity-building; provide research support for studies that can help Nepal provide scientific backing for green solutions (e.g. nature-based solutions).
	Partner with the BRIGC and adopt green guidelines and benchmarks for future infrastructure projects for the BRI. Investors and stakeholders can also choose to abide by investment principles that will help ensure new investments integrate ESG considerations.	Projects within the BRI can benefit from the proposed <i>Green development guidance for BRI projects baseline study</i> by BRIGC.

i This should be done with caution as hydropower can be ecologically highly damaging. Nonetheless, the World Bank (2020d) shows that achieving a least-cost electricity mix in Pakistan by 2030, under all scenarios of energy demand, would require a rapid expansion of variable wind and solar capacity in addition to continuing hydropower development. Thus, the trade-offs between energy security, reduced emissions and environmental degradation should be carefully considered from a strategic perspective, whereas individual projects should be carefully evaluated for their sustainability.

Note: see the Acronym list for all those listed in this table.

4 Conclusion

This analysis has sought to answer the question ‘How can China contribute to a green recovery in developing countries?’ and associated opportunities and barriers, within the context of Covid-19 response and recovery strategies. Our starting point has been to understand the extent to which China has pivoted towards driving a green recovery domestically and then the implications internationally; we have then reviewed the support mechanisms that China can provide to other developing countries.

We have shown that:

- Financing needs for the Covid-19 response and recovery were acute, with declines in GDP putting severe pressure on public expenditures, but each country case study has a different degree of debt sustainability issues.
- Covid-19 responses have focused primarily on immediate recovery; in each country case study, there was some alignment between the inclusion of green elements in strategies and submitted/planned NDCs.
- There are areas where China could support greener recoveries for both existing and new investments. However, there are formidable barriers to be overcome. These include issues related to existing BRI investments (Kenya), capabilities (Nepal) and concerns regarding a just transition and stranded assets (Pakistan).

Overall, while China and each country case study share the same principles acknowledging the

imperative of addressing climate change, and there are some common norms in terms of green recovery elements within recovery strategies, there are no current common standards. This matters for current investments as well as new opportunities for specific projects listed in NDCs.

There are still some barriers. For example, at present neither Chinese banks nor recipient banks in the country case studies have the capabilities to conduct proper due diligence to ensure borrower compliance with green finance principles, nor do they have experience with complying with international environmental policies and laws to monitor loans.⁶⁶ Should concessional or commercial lending by China be used to help drive a green recovery in the country case studies, stronger enforcement mechanisms are needed both domestically by China as well as in recipient countries. Moreover, issues regarding the costs of moving from conventional to greener lending will need to be addressed.

What constitutes ‘green’ is also not yet standardised internationally. For example, there are still important differences between China’s own green bond guidelines and international standards, particularly regarding the types of projects considered eligible. There have been efforts to align and harmonise standards between China and international best practice and these efforts should continue.⁶⁷ Whilst international guidelines⁶⁸ focus on projects that contribute to climate change mitigation and adaptation,

⁶⁶ See <https://foe.org/resources/going-out-but-going-green>.

⁶⁷ For example, see: www.ukchinagreen.org/green-finance/; www.moodyanalytics.com/regulatory-news/oct-16-20-ec-publishes-report-on-activities-of-sustainable-finance-platform.

⁶⁸ These include the Climate Bonds Taxonomy, Climate Bonds Standards and the EU Sustainable Finance Taxonomy.

in comparison Chinese policy targets those projects with environmental benefits, and this includes projects such as clean coal and coal plant retrofits – these projects are not included within international standards.⁶⁹ These types of projects are likely to be particularly important in the case of Pakistan. However, there is some need for clarification: consultation drafts of China’s ‘Green Bond Endorsed Project Catalogue (2020 Edition)’ show that clean coal projects will no longer be eligible for green bonds,⁷⁰ which sees a movement towards aligning China’s green taxonomy to international standards.

4.1 Political economy considerations

Balancing the imperative of immediate recovery expenditures, including those with low climate ambition but high short-run economic multipliers, against those with high climate ambition and high longer-run multipliers, is a deeply political choice. Securing the support of development partners is similarly a political choice. The country case study analysis presents a number of options as to how China could support a green recovery, including through bolstering relief measures with high climate ambition, compared to low, as defined by Hepburn et al. (2020). In doing so, we have shown where preferences between China and Pakistan, Kenya and Nepal may be aligned.

As the level of climate ambition increases, so too does the required political commitment on the part of national governments. This is in view of the well-known issues regarding intertemporal decisions (particularly social) and the comparison of costs and benefits at different times (using discount rates). Current responses to Covid-19 demonstrate these trade-offs viscerally, with

decisions to provide cash transfers now, as opposed to subsidies for worker retraining and education later.

More transparency regarding existing as well as green lending is required. Each country case study reviewed relies heavily on concessional lending from China’s Exim, especially for power projects. The movement towards alternative green financing options from China could be challenging, requiring bolstering domestic regulatory frameworks and standards to support eligibility. There will be a need for greater due diligence on both sides: lender and recipient.

Movement from low to high climate levels of ambition within Covid-19 response and recovery packages will require different political processes in each country case study, as well as variations in terms of diplomatic efforts. It also requires a substantial investment in obtaining the information needed to inform political choices and the appropriate regulatory frameworks to ‘projectise’ the objectives included in NDCs where these are aligned with Covid-19 response and recovery strategies.

Overall, the case study assessments show that China can drive a green recovery in a myriad of ways, though particularly in terms of financing, developing green projects and transfers of knowledge. We have been unable to provide further detail regarding the specific incentive mechanisms across different levels of actors, or how these options could be operationalised in practice. This requires validation beyond the scope of this report and detailed financial and political economy analysis. Nonetheless, the barriers that can be surmised from our analysis include those which are:

69 See Climate Bonds Initiative (2020); Escalante et al. (2020).

70 See www.reuters.com/article/us-china-environment-finance-idUSKBN2350FW.

- **technical and capacity-related** – both for the recipient country and China in moving projects towards greater scalability, finance and operationalisation;
- **‘just transition’-related** – both for the recipient country and China; and
- **political economy-related** – which require more detailed analysis and scrutiny.

In order to realise the opportunities highlighted in this report, there is a need for:

- **Dialogue** – whilst we have discussed the specific issues in relation to debt, greater

dialogue between private sector actors is required.

- **Greater transparency** – there remain large financial flows that are of unknown types; these information gaps must be addressed across each country case study.
- **Alignment of regulatory frameworks and standards** – while there have been developments in Chinese regulatory frameworks and standards towards international best practice, challenges remain in enforcement, and this is also the case for recipient countries requiring support.

References

- Acker, K., Brautigam, D. and Huang, Y.** (2020) *Debt relief with Chinese characteristics*. Working Paper 39. China-Africa Research Initiative.
- ADB – Asian Development Bank** (n.d.) ‘ADB COVID-19 policy database’. Online dataset (<https://covid19policy.adb.org/data-extraction?f%5Bo%5D=version%3A172>).
- ADB** (2020) ‘ADB approves loan to upgrade power grids in Nepal’ (www.adb.org/news/adb-approves-loan-upgrade-power-grids-nepal).
- Bodnar, P., Gray, M., Grbusic, T. et al.** (2020) *How to retire early: making accelerated coal phaseout feasible and just*. Rocky Mountain Institute (<https://rmi.org/insight/how-to-retire-early>).
- Boston University Global Development Policy Center** (n.d.) ‘China’s overseas development finance’. Boston: Boston University (www.bu.edu/gdp/chinas-overseas-development-finance/).
- Bowen, A., Fankhauser, S., Stern, N. and Zenghelis, D.** (2009) ‘An outline of the case for a “green” stimulus’. Policy brief. London: Grantham Research Institute on Climate Change and the Environment (www.lse.ac.uk/granthaminstitute/publication/an-outline-of-the-case-for-a-green-stimulus/).
- BRI International Green Development Coalition** (2020) ‘Overview: BRI International Green Development Coalition’. Webpage (http://en.brigc.net/About_us/Overview/202009/t20200928_102502.html).
- Chen, M.** (2020) ‘Beyond donation: China’s Policy Banks and the reshaping of development finance’ *Studies in Comparative International Development* 55(4): 436–459 (<https://doi.org/10.1007/s12116-020-09310-9>).
- Cheng, E.** (2020) ‘Electric cars take the spotlight in China’s post-coronavirus stimulus plans’. CNBC (www.cnbc.com/2020/05/04/electric-cars-take-the-spotlight-in-chinas-post-coronavirus-stimulus-plans.html).
- Chin, G.T. and Gallagher, K.P.** (2019) ‘Coordinated credit spaces: the globalization of Chinese development finance’ *Development and Change* 50(1): 245–274 (<https://doi.org/10.1111/dech.12470>).
- China Africa Research Initiative and Boston University Global Development Policy Center** (2020) ‘China Africa Research Initiative loans database’. Online dataset (<https://chinaafricaloandata.org/>).
- China Banking Regulatory Commission** (2012) ‘Notice of the China Banking Regulatory Commission (CBRC) on issuing the Green Credit Guidelines’ (www.lawinfochina.com/display.aspx?lib=law&id=9239&CGid=).
- Climate Action Tracker** (2020) ‘Climate action tracker’ (<https://climateactiontracker.org/countries/nepal/>).
- Climate Bonds Initiative** (2020) *China Green Bond Market 2019 Research Report*. Climate Bonds Initiative and China Central Depository & Clearing Research Centre (www.climatebonds.net/resources/reports/china-green-bond-market-2019-research-report).
- CPEC – China–Pakistan Economic Corridor** (2017) ‘Long term plan for China–Pakistan Economic Corridor (2017-2030)’. CPEC (<http://cpec.gov.pk/long-term-plan-cpec>).

- Cuenca, O.** (2020) 'Kenyan Court of Appeal finds SGR construction contract illegal'. *International Railway Journal*, 26 June (www.railjournal.com/africa/kenyan-court-of-appeal-finds-sgr-construction-contract-illegal/).
- Escalante, D., Choi, J., Chin, N. et al.** (2020) *The state and effectiveness of the green bond market in China*. Climate Policy Initiative (www.climatepolicyinitiative.org/publication/green-bonds-in-china-the-state-and-effectiveness-of-the-market/).
- European Commission** (2020) 'Government of Nepal–International Development Partners joint statement on green recovery in Nepal European Commission European External Action Service' (https://eeas.europa.eu/headquarters/headquarters-homepage/90497/government-nepal-%E2%80%93-international-development-partners-joint-statement-green-recovery-nepal_en).
- Farooq, M.S., Yuan, T. and Zhu, J.** (2018) 'Kenya and the 21st century maritime Silkroad: implications for China–Africa relations' *China Quarterly of International Strategic Studies* 4 (3):401–418 (<https://doi.org/10.1142/S2377740018500136>).
- Forum for China Africa Cooperation** (2020) 'Joint statement of the extraordinary China–Africa summit on solidarity against COVID-19'. (<http://ke.china-embassy.org/eng/zkgx/t1789803.htm>).
- Friedlingstein, P., O'Sullivan, M., Jones, M. et al.** (2020) 'The Global Carbon Budget 2020' *Earth System Science Data* 12: 3269–3340 (<https://doi.org/10.5194/essd-12-3269-2020>).
- Gallagher, K.P.** (2019) *China's global energy finance*. Washington DC: Global Development Policy Centre (www.bu.edu/gdp/).
- GoP – Government of Pakistan** (2016) 'Pakistan's intended nationally determined contribution (PAK-INDC)' (www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Pakistan%20First/Pak-INDC.pdf).
- GoP** (2020) 'Federal Budget 2020–21: budget in brief'. Islamabad: Government of Pakistan Finance Division (www.finance.gov.pk/budget/Budget_in_Brief_2020_21_English.pdf).
- Gorecki, I.** (2020) 'Kenya's Standard Gauge Railway: the promise and risks of rail megaprojects' *Africa Up Close*, 24 September (<https://africaupclose.wilsoncenter.org/kenyas-standard-gauge-railway-the-promise-and-risks-of-rail-megaprojects/>).
- Government of Nepal Ministry of Finance** (2020) 'Government of Nepal and World Bank sign \$450 million road support project in Nepal to boost post-COVID-19 recovery'. Press release, 17 July ([www.mof.gov.np/uploads/news/file/Joint%20Press%20Release_SRCTIP%20\(FINAL\)_20200717071346.pdf](http://www.mof.gov.np/uploads/news/file/Joint%20Press%20Release_SRCTIP%20(FINAL)_20200717071346.pdf)).
- Government of Nepal Ministry of Population and Environment** (2016) 'Nationally determined contributions' (www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20First/Nepal%20First%20NDC.pdf).
- Government of Nepal Ministry of Population and Environment** (2020) 'Second nationally determined contributions' ([www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20Second/Second%20Nationally%20Determined%20Contribution%20\(NDC\)%20-%202020.pdf](http://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Nepal%20Second/Second%20Nationally%20Determined%20Contribution%20(NDC)%20-%202020.pdf)).
- Government of Nepal Ministry of Urban Development** (2017) 'National Urban Development Strategy 2017 part B - detailed document' (www.moud.gov.np/storage/listies/July2019/NUDS_PART_B.pdf).

- Green BRI Center** (2020) “Green Development Guidance for BRI Projects” (Baseline) published by the Belt and Road Initiative Green Coalition (BRIGC) puts coal in negative list – Green Belt and Road Initiative Center’. Article, 4 December (<https://green-bri.org/green-bri-development-guidance-puts-coal-in-negative-list/>).
- Hale, T. and Hook, L.** (2020) ‘China expands coal plant capacity to boost post-virus economy’ *Financial Times*, 25 June (www.ft.com/content/cdcd8a02-81b5-48f1-a4a5-60a93a6ffa1e).
- Hepburn, C., O’Callaghan, B., Stern, N. et al.** (2020) ‘Will COVID-19 fiscal recovery packages accelerate or retard progress on climate change?’ *Oxford Review of Economic Policy* 36(1): S359–S381 (<https://doi.org/10.1093/oxrep/graa015>).
- Himalayan Times** (2020) ‘Nepal gets support green recovery from COVID pandemic’. *Himalayan Times*, 12 December (<https://thehimalayantimes.com/business/nepal-gets-support-for-green-recovery-from-covid-pandemic>).
- Ho, V.H.** (2018) *Sustainable finance and China’s green credit reforms: a test case for bank monitoring of environmental risk*. SSRN Scholarly Paper ID 3124304. Rochester, NY: Social Science Research Network (<https://doi.org/10.2139/ssrn.3124304>).
- Houser, T., Mohan, S. and Heilmayr, R.** (2009) ‘A green global recovery? Assessing US economic stimulus and prospects for international coordination’. Policy Brief No. PBO9-3. Washington DC: World Resources Institute (www.wri.org/research/green-global-recovery-assessing-us-economic-stimulus-and-prospects-international).
- Huang, J. and Rozelle, S.** (2018) ‘China’s 40 years of agricultural development and reform’ in R. Garnaut, L. Song and C. Fang (eds) *China’s 40 years of reform and development: 1978–2018*. 1st edn. ANU Press (<https://doi.org/10.22459/CYRD.07.2018.24>).
- Humphrey, C. and Mustapha, S.** (2020) *Lend or suspend? Maximising the impact of multilateral bank financing in the Covid-19 crisis*. ODI Working Paper 585. London: ODI (<https://odi.org/en/publications/lend-or-suspend-maximising-the-impact-of-multilateral-bank-financing-in-the-covid-19-crisis/>).
- IEA – International Energy Agency** (n.d.) ‘Statistics & data’. Online database (www.iea.org/statistics/).
- IMF – International Monetary Fund** (2019) *First review under the extended arrangement under the extended fund facility and request for modification of performance criteria – press release; staff report; and statement by the executive director for Pakistan*. IMF Country Report 19/380. Washington DC: IMF.
- IMF** (2020a) ‘Fiscal monitor, October 2020 – policies for the recovery’. Washington DC: IMF (www.imf.org/en/Publications/FM/Issues/2020/09/30/october-2020-fiscal-monitor).
- IMF** (2020b) ‘Policy responses to COVID-19’. Washington DC: IMF (www.imf.org/en/Topics/imf-and-covid19/Policy-Responses-to-COVID-19#K).
- IMF** (2020c) ‘World economic outlook, April 2020: the great lockdown’. Washington DC: IMF (www.imf.org/en/Publications/WEO/Issues/2020/04/14/weo-april-2020).
- IMF** (2020d) ‘World economic outlook, October 2020: a long and difficult ascent’. Washington DC: IMF (www.imf.org/en/Publications/WEO/Issues/2020/09/30/world-economic-outlook-october-2020).

- IMF and World Bank** (2020) ‘The evolution of public debt vulnerabilities in lower income economies’. Policy paper (www.imf.org/en/Publications/Policy-Papers/Issues/2020/02/05/The-Evolution-of-Public-Debt-Vulnerabilities-In-Lower-Income-Economies-49018).
- International Finance Corporation** (2020a) ‘Country profile Nepal – addendum to the SBN report “Necessary ambition: how low-income countries are adopting sustainable finance to address poverty, climate change, and other urgent challenges” – June 2020’. Washington DC: International Finance Corporation (www.ifc.org/wps/wcm/connect/442d72c9-2fbd-4891-a1aa-2331d038c3d9/SBN_Necessary_Ambition_Country_Profile_Nepal_2020.pdf?MOD=AJPERES&CVID=nbuVin6).
- International Finance Corporation** (2020b) ‘IFC’s \$25 million support to NMB Bank to boost green financing and access to credit for small businesses in Nepal to spur thousands of jobs’. Press release, 30 June (<https://pressroom.ifc.org/all/pages/PressDetail.aspx?ID=18578>).
- International Finance Corporation** (2020c) *Necessary ambition: how low-income countries are adopting sustainable finance to address poverty, climate change, and other urgent challenges* Washington DC: IFC (www.ifc.org/wps/wcm/connect/5f89213d-afc8-40d7-bfd9-9d63812c7428/SBN_Necessary_Ambition_Report_2020_final_webversion.pdf?MOD=AJPERES&CVID=nbZPky5).
- Isaad, H.** (2021) ‘Opinion: is Pakistan really phasing out coal?’ *The Third Pole*, 18 January (www.thethirdpole.net/en/energy/opinion-is-pakistan-really-phasing-out-coal/).
- ITC – International Trade Centre** (n.d.) ‘Trade map – trade statistics for international business development’ (www.trademap.org/).
- Khan, S. and Ashraf, H.** (2015) ‘Analysis of Pakistan’s electric power sector’. Sweden: Blekinge Institute of Technology, Department of Electrical Engineering (www.diva-portal.org/smash/get/diva2:917526/FULLTEXT01.pdf).
- Kong, B. and Gallagher, K.** (2020) *Chinese development finance for solar and wind power abroad*. GCI Working Paper 09. Boston: Global Development Policy Center (www.bu.edu/gdp/2020/02/13/chinese-development-finance-for-solar-and-wind-power-abroad-2/).
- Kouser, S., Subhan, A. and Abedullah** (2020) ‘Uncovering Pakistan’s environmental risks and remedies under the China-Pakistan Economic Corridor’ *Environmental Science and Pollution Research* 27(5): 4661–4663 (<https://doi.org/10.1007/s11356-019-07428-5>).
- KPMG** (2020) ‘The sustainable infrastructure opportunity’. Webpage, KPMG (<https://home.kpmg/xx/en/home/insights/2020/06/covid-19-recovery.html>).
- Liu, Z. and Cai, B.** (2018) *High-resolution carbon emissions data for Chinese cities*. Cambridge, MA: Harvard Kennedy School Belfer Center for Science and International Affairs (www.belfercenter.org/publication/high-resolution-carbon-emissions-data-chinese-cities).
- Liu, H., Liu, J. and You, X.** (2021) ‘Q&A: what does China’s 14th “five year plan” mean for climate change?’ *Carbon Brief* (www.carbonbrief.org/qa-what-does-chinas-14th-five-year-plan-mean-for-climate-change).
- Ministry of Economic Affairs** (2020) ‘Pakistan’s debt and liabilities-summary’. Ministry of Economic Affairs, Economic Affairs Division, Government of Pakistan (www.sbp.org.pk/ecodata/Summary.pdf).
- Ministry of Environment and Forestry Kenya** (2020) ‘Greening Kenya Campaign gains momentum’. Blog (<http://www.environment.go.ke/?p=6159>).

- Ministry of Foreign Affairs Nepal** (2019a) 'List of instruments signed and exchanged between Nepal and China' (<https://mofa.gov.np/list-of-instruments-singed-and-exchanged-between-nepal-and-china/>).
- Ministry of Foreign Affairs Nepal** (2019b) 'Nepal-China relations' (<https://mofa.gov.np/nepal-china-relations/>).
- Ministry of Foreign Affairs of the People's Republic of China** (2019a) 'Joint statement between the People's Republic of China and Nepal' (www.fmprc.gov.cn/mfa_eng/wjdt_665385/2649_665393/t1707507.shtml).
- Ministry of Foreign Affairs of the People's Republic of China** (2019b) 'Xi Jinping attends the opening ceremony of the Conference on Dialogue of Asian Civilizations (CDAC) and delivers a keynote speech'. Press release, 15 May (www.fmprc.gov.cn/ce/cese/eng/wjdt/t1664312.htm).
- Mutua, J.** (2020) 'SGR reveals Sh21bn loss as China firm debt rises'. *Business Daily*, 9 September (www.businessdailyafrica.com/bd/economy/sgr-reveals-sh21bn-loss-as-china-firm-debt-rises-2300880).
- Myllyvirta, L.** (2021) 'Analysis: China's CO₂ emissions surged 4% in second half of 2020'. *Carbon Brief*, 1 March (www.carbonbrief.org/analysis-chinas-co2-emissions-surged-4-in-second-half-of-2020).
- Nabi, I.** (2020) *Coping with COVID-19: the Pakistan experience*. Washington DC: Center for Global Development (www.cgdev.org/blog/coping-covid-19-pakistan-experience).
- Nadin, R., Opitz-Stapleton, S. and Yinlong, X.** (2015) *Climate risk and resilience in China*. London: Routledge.
- National Natural Science Foundation of China** (2018) *NSFC annual report 2018* (www.nsfc.gov.cn/english/site_1/report/C1/2018/10-18/130.html).
- National Treasury of Kenya** (2020a) 'Post-COVID-19 economic recovery strategy' (www.treasury.go.ke/component/jdownloads/send/226-strategies/1709-draft-post-covid-19-economic-recovery-strategy-2020-2022.html).
- National Treasury of Kenya** (2020b) 'Draft 2020 budget policy statement' (www.treasury.go.ke/media-centre/general-press-releases.html).
- National Treasury of Kenya** (2020c) 'General press releases' (www.treasury.go.ke/media-centre/general-press-releases.html).
- Ndii, D.** (2018) 'SGR by the numbers: some unpleasant arithmetic' *The Elephant*, 21 July (www.theelephant.info/op-eds/2018/07/21/sgr-by-the-numbers-some-unpleasant-arithmetic/).
- Newcomb, C.S.** (2020) *The impact of Chinese investments on the Kenyan economy*. Master's thesis, Chapman University (<https://doi.org/10.36837/chapman.000190>).
- Ockwell, D.G., Watson, J., MacKerron, G. et al.** (2008) 'Key policy considerations for facilitating low carbon technology transfer to developing countries' *Energy Policy* 36(11): 4104–4115 (<https://doi.org/10.1016/j.enpol.2008.06.019>).
- Oxford Business Group** (2020) 'Will China help ease the Covid-19 debt burden on emerging markets?'. Oxford Business Group, 11 November (<https://oxfordbusinessgroup.com/news/will-china-help-ease-covid-19-debt-burden-emerging-markets>).

- Pant, L.D.** (2020) 'Nepal and DPs agree to enable green and sustainable recovery from the COVID-19 pandemic, development aid'. Online article, 15 December (www.developmentaid.org/#!/news-stream/post/81239/nepal-and-dps-agree-to-enable-green-and-sustainable-recovery-from-the-covid-19-pandemic).
- PBS – Pakistan Bureau of Statistic** (2020) 'National accounts table 7 – sectoral shares in GDP (at constant basic prices)'. Islamabad: PBS (www.pbs.gov.pk/sites/default/files//tables/national-accounts/Table-7.pdf).
- Pfeiffer, A., Hepburn, C., Vogt-Schilb, A. and Caldecott, B.** (2018) 'Committed emissions from existing and planned power plants and asset stranding required to meet the Paris Agreement' *Environmental Research Letters* 13(5) (<https://iopscience.iop.org/article/10.1088/1748-9326/aabc5f/meta>).
- Rijal, P.** (2019) 'Chinese, Nepali firms sign deal to develop Tamakoshi 3 scheme'. Kathmandu Post, 27 July (<https://kathmandupost.com/money/2019/07/27/chinese-nepali-firms-sign-deal-to-develop-tamakoshi-3-scheme>).
- Rowling, M.** (2020) 'UN chief calls for more climate finance for poor nations as 2020 goal slips'. Reuters, 12 December (<https://in.reuters.com/article/us-climate-change-summit-finance-idINKBN28MoY5>).
- Schüller, M. and Schüler-Zhou, Y.** (2009) 'China's economic policy in the time of the global financial crisis: which way out?' *Journal of Current Chinese Affairs* 38(3): 165–181 (<https://doi.org/10.1177/186810260903800308>).
- Shahbaz, M.** (2015) *Measuring economic cost of electricity shortage: current challenges and future prospects in Pakistan*. MPRA Paper No. 67164. Lahore, Pakistan: COMSATS Institute of Information Technology (<https://mpr.aub.uni-muenchen.de/67164/>).
- Shrestha, S.** (2016) 'Comparison of energy efficient and green buildings: technological and policy aspects with case studies from Europe, the USA, India and Nepal' *Univ.-Verl. der TU Berlin* 49 (<https://doi.org/10.14279/depositonce-4948>).
- Simmons, B.A., Ray, R., Yang, H. and Gallagher, K.P.** (2021). 'China can help solve the debt and environmental crises' *Science* 371(6528): 468–470 (<https://science.sciencemag.org/content/sci/371/6528/468.full.pdf?ijkey=rUzpdJuoTDq.&keytype=ref&siteid=sci>).
- Spiegel, S., Schwank, O. and Obaidy, M.** (2020) 'COVID-19 and sovereign debt'. Policy brief. New York: United Nations (www.un.org/development/desa/dpad/publication/un-des-a-policy-brief-72-covid-19-and-sovereign-debt/).
- Tanjangco, B., Cao, Y., Nadin, R. et al.** (2020) *Economic Pulse 1: Covid-19 and economic crisis – China's recovery and international response*. London: ODI (<https://odi.org/en/publications/economic-pulse-1-covid-19-and-economic-crisis-chinas-recovery-and-international-response>).
- Tanjangco, B., Cao, Y., Nadin, R. et al.** (2021) *Economic Pulse 2: China navigates its Covid-19 recovery – outward investment appetite and implications for developing countries*. London: ODI (<https://odi.org/en/publications/economic-pulse-2-china-navigates-its-covid-19-recovery-outward-investment-appetite-and-implications-for-developing-countries/>).
- Thapa, R.** (2020) 'Nepal gets support for green recovery from COVID pandemic'. Himalayan Times, 12 December (<https://thehimalayantimes.com/business/nepal-gets-support-for-green-recovery-from-covid-pandemic>).

- The Presidency** (2020) ‘The Seventh Presidential Address on the coronavirus pandemic: the 8-point economic stimulus programme Saturday 23rd May, 2020’ (www.president.go.ke/2020/05/23/the-seventh-presidential-address-on-the-coronavirus-pandemic-the-8-point-economic-stimulus-programme-saturday-23rd-may-2020/).
- UNEP – United Nations Environment Program** (2018) ‘UN Environment joins campaign to green Kenya’. Press release, 19 December. Nairobi: UNEP (www.unenvironment.org/news-and-stories/press-release/un-environment-joins-campaign-green-kenya).
- UNEP** (2021) ‘Kick-off of the Nepal NBS project funded by the UNEP-NSFC joint programme’. Nairobi: UNEP (www.unep-iemp.org/newsInfo_259.html).
- UNDP – United Nations Development Programme** (2020) *Kenya: financing strategy for Nationally Determined Contribution*. New York: UNDP (www.ndcs.undp.org/content/ndc-support-programme/en/home/impact-and-learning/library/kenya--financing-strategy-for-nationally-determined-contribution-.html).
- World Bank** (2019a) *Global waves of debt*. Washington DC: World Bank.
- World Bank** (2019b) *Nepal Infrastructure Sector Assessment – private sector solutions for sustainable development*. Washington DC: World Bank (<https://openknowledge.worldbank.org/bitstream/handle/10986/32355/134956.pdf?sequence=1&isAllowed=y>).
- World Bank** (2020a) *COVID 19: Debt Service Suspension Initiative* Washington DC: World Bank (www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative).
- World Bank** (2020b) ‘International debt statistics’. Washington DC: World Bank (<https://datatopics.worldbank.org/debt/ids/>).
- World Bank** (2020c) *Kenya public expenditure review 2020: options for fiscal consolidation after the COVID-19 crisis*. Washington DC: World Bank (<https://openknowledge.worldbank.org/handle/10986/34052>).
- World Bank** (2020d) *Variable renewable energy integration and planning study*. Washington DC: World Bank (<http://hdl.handle.net/10986/34586>).
- World Bank** (2020e) *Kenya economic update: navigating the pandemic*. Washington DC: World Bank (<https://documents.worldbank.org/en/publication/documents-reports/documentdetail>).
- Xia, Y.** (2019) ‘Chinese agricultural and manufacturing investment in Kenya: a scoping study’. Chinese Africa Research Initiative (www.static1.squarespace.com/static/5652847de4bo33f56d2bdc29/t/5d657c6d44756300019e37ad/1566932078004/WP_30_Xia_Chinese_Investment_Kenya.pdf).
- Xinhua** (2019) ‘Nepali prime minister inaugurates China funded hydro project in Nepal’. Xinhua, 18 December (www.xinhuanet.com/english/2019-11/18/c_138564821.htm).
- Xinhua** (2020a) ‘The State Council’s Joint Prevention and Control Mechanism: will continue to increase the construction of new energy vehicle charging infrastructure’. Xinhua, 10 April (www.xinhuanet.com/auto/2020-04/10/c_1125836233.htm).
- Xinhua** (2020b) ‘Nepal-China joint venture to develop hydropower project in eastern Nepal’. Xinhua, 20 January (www.xinhuanet.com/english/2020-01/20/c_138720721.htm).

Appendix Impact of Covid-19

Pakistan

The Pakistan economy was still reeling from a monetary crisis in 2019, which required a bailout package of \$6 billion from the IMF, when Covid-19 hit the country. Despite expectations that the country would be hit hard by the pandemic due to low capacity in its health system, thanks to measures taken by the government the country has weathered the crisis better than its peers (Nabi, 2020). This, in combination with the better-than-expected health response to Covid-19, led the IMF to improve Pakistan's economic recovery projections, increasing GDP growth from -1.5% in 2020 in the April World Economic Outlook (IMF, 2020c) to -0.38% in the October update (IMF, 2020d). GDP is forecast to grow by 1% in 2021 (ibid.).

In response to the outbreak, the federal government announced a fiscal relief package worth approximately \$7.48 billion (PKR 1.2 trillion) to directly support income and basic services for households and the revenues of SMEs (IMF, 2020b). The measures, which were almost fully implemented by December 2020, include:

- a transfer to the National Disaster Management Authority for the purchase of Covid-19-related equipment
- direct cash transfers to workers and low-income families

- financial support to utility stores selling government-subsidised basic goods and services, and support for health and food supplies and accelerated procurement of wheat
- support for households and SMEs through power bill deferment and relief, reduction in regulated fuel prices, export tax refunds and other tax incentives
- exports to the agricultural sector with similar tax incentives and bank lending support
- the establishment of a contingency fund
- the implementation by the regional governments of Punjab and Sindh of cash transfer programmes (\$62 million in Punjab and \$9.3 million in Sindh) and tax relief measures (\$112 million in Punjab) in response to the crisis (IMF, 2020b).

Beyond the immediate rescue package, the national government is also implementing measures that have longer-term recovery effects, including a \$623.5 million (PKR 100 billion) stimulus for the construction sector, which is deemed to have high economic multiplier effects through its connection with over 15 ancillary industries, including cement, aluminium, glass, steel, transportation and warehousing.⁷¹ In the 2020–2021 budget approved in June 2020, the federal government has increased fiscal expenditure for public health, social protection, education and agriculture, as well as creating a package to subsidise housing mortgages and a

71 Interview with Pakistan Institute of Development Economics, 11 October 2020.

‘Covid-19 Responsive and Other Natural Calamities Control Program’, while reducing the overall budget compared to the financial year 2019–2020. These additional expenditure allocations amounted to \$1.08 billion.

In addition to fiscal measures, monetary measures have been adopted to provide short-term liquidity (\$602 million) and credit creation (\$2.67 billion), and generate longer-term effects through forbearance on lending (\$5 billion) (ADB, n.d.). Total monetary support is estimated at around \$8.5 billion (ADB, n.d.; IMF, 2020b). Combined, fiscal and monetary measures amount to around 6.6% of GDP.⁷²

To finance many of these measures the Pakistani government has received international assistance from bilateral and multilateral donors in the form of grants and loans amounting to \$5 billion (ADB, n.d.). Pakistan has also joined the G20-endorsed DSSI, which is providing a standstill on \$3.64 billion of debt interest payments, equalling 1.3% of Pakistan’s 2019 GDP (World Bank, 2020a), though this is considerably less than total debt interest payments for 2020, which amount to 6.3% of GDP (IMF, 2020a).

Table A1 codes the stimulus items using Hepburn et al. (2020)’s methodology, which is graphed in Figure 1.

72 As of December 2020. Pakistan’s GDP in 2019 was \$278.2 trillion; using 2018’s GDP (\$314.5 trillion), the percentage decreases to 5.8%. See <https://data.worldbank.org/country/pakistan>.

Table A1 Economic multiplier and climate potential of Pakistan’s stimulus policies

Stimulus	Policy archetype	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier	Total
Fiscal policies						
Elimination of import duties on emergency health equipment (extended until December 2020)	G	–	–	3	–	–
Cash transfers to 6.2 million daily wage workers (PKR 75 billion)	O	–	–	75	–	–
Cash transfers to more than 12 million low-income families (PKR 150 billion)	O	–	–	150	–	–
Accelerated tax refunds to exporters (PKR 100 billion)	I	–	–	–	100	–
Support to SMEs and the agriculture sector (PKR 100 billion) in the form of power bill deferment and bank lending, as well as subsidies and tax incentives	D, P	–	50	50	–	–
Earmarked resources for an accelerated procurement of wheat (PKR 280 billion)	K	–	–	280	–	–
Financial support to utility stores (PKR 50 billion)	K	–	–	50	–	–
A reduction in regulated fuel prices (with a benefit for end-consumers estimated at PKR 70 billion)	G	–	–	70	–	–
Support for health and food supplies (PKR 15 billion)	G	–	–	15	–	–
Electricity bill payments relief (PKR 110 billion)	G	–	–	110	–	–
An emergency contingency fund (PKR 100 billion)	W	100	–	–	–	–
A transfer to the National Disaster Management Authority for the purchase of Covid-19-related equipment (PKR 25 billion)	W	25	–	–	–	–
Support package to the construction industry (PKR 100 billion). This includes tax exemptions and subsidies of PKR 30 billion	I, C	–	–	–	100	–

Table A1 Economic multiplier and climate potential of Pakistan’s stimulus policies (continued)

Stimulus	Policy archetype	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier	Total
The government of Punjab implemented a PKR 18 billion tax relief package and a PKR 10 billion cash grants programme	H, O	–	–	10	18	–
The government of Sindh’s measures included a cash grant and ration distribution programme of PKR 1.5 billion for low-income households	O	–	–	1.5	–	–
Financial year (FY) 2020–2021 budget		–	–	–	–	–
Increased health spending	M	14	–	–	–	–
Increased social protection spending	O	–	–	40	–	–
Increased education spending	L	6	–	–	–	–
Increased spending for agriculture, food, irrigation, forestry and fishing	P	–	8.779	–	–	–
Tariff and customs duty reductions on food items	G	–	–	x	–	–
Covid-19 Responsive and Other Natural Calamities Control Program (PKR 70 billion)	W	70	–	–	–	–
Housing package to subsidise mortgages (PKR 30 billion)	A	–	–	–	33.388	–
Provision of tax incentives to the construction sector (retail and cement companies)	I	–	–	–	0.885	–
Monetary policies		–	–	–	–	–
State Bank of Pakistan (SBP) has cut the policy rate by a cumulative 625 basis points to 7.0% since 17 March	C, D	–	–	x	x	–
Refinance Facility for Combating Covid-19 support to hospitals and medical centres to purchase Covid-19-related equipment (41 hospitals, PKR 7.99 billion to date)	M	7.99	–	–	–	–

Table A1 Economic multiplier and climate potential of Pakistan’s stimulus policies (continued)

Stimulus	Policy archetype	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier	Total
Temporary Economic Refinancing Facility stimulate investment in new manufacturing plants and machinery, as well as modernisation and expansion of existing projects (269 new projects, PKR 211 billion to date)	C	-	-	-	211	-
SBP (Rozgar) Refinance scheme: incentivise businesses to avoid laying off workers during the pandemic (2,958 firms, PKR 238 billion to date)	C, D	-	-	119	119	-
Ministry of Finance creating credit risk sharing facility under the SBP Refinance Scheme to shoulder risks	C, D	-	-	15	15	-
Increasing the regulatory limit on extension of credit to SMEs by 44% to PKR 180 million (PKR 180 million/1.44) = PKR 125 million; PKR 180 million – PKR 125 million = PKR 55 million)	D	-	-	55	-	-
Long Term Financing Facility: to promote export-oriented investment	D	-	-	90	-	-
Increase in the limit of refinancing provided to banks under the Exports Finance Scheme	C, D	-	-	50	50	-
Reducing the capital conservation buffer by 100 basis points to 1.5%	C, D	-	-	x	x	-
Relaxing the debt burden ratio for consumer loans from 50% to 60%	D	-	-	x	-	-
Allowing banks to defer client (corporate, consumer, agriculture, SMEs and microfinance sectors) payments of principal on loan obligations by one year (PKR 659 billion deferred to date)	C, D	-	-	329.5	329.5	-
Restructuring of microfinance banks’ loans	D	-	-	184	-	-

Table A1 Economic multiplier and climate potential of Pakistan’s stimulus policies (continued)

Stimulus	Policy archetype	High climate, high multiplier	High climate, lower multiplier	Low climate, high multiplier	Low climate, low multiplier	Total
Relaxing regulatory criteria for restructured loans for borrowers who require relief beyond the extension of principal repayment for one year	A	–	–	–	x	–
The SBP has also introduced mandatory targets for banks to ensure loans to construction activities account for at least 5% of private sector portfolios by December 2021	C	–	–	–	x	–
The SBP has introduced further regulatory measures to facilitate the import of Covid-19-related medical equipment and medicine. These include (i) lifting the limit on import advance payments and import on open account; and (ii) allowing banks to approve an Electronic Import Form for the import of equipment donated by international donor agencies and foreign governments. The SBP has also relaxed the 100% cash margin requirement on imports of certain raw materials to support the manufacturing and industrial sectors.	M	x	–	–	–	–
Fiscal + FY 2020–2021 Budget (PKR)	–	215.53	58.77	854.81	252.27	–
Fiscal + FY 2020–2021 Budget (USD billion)	–	1.33	0.36	5.29	1.56	–
Monetary (PKR)	–	7.99	0	842.26	724.5	–
Monetary (USD billion)	–	0.04	0	5.22	4.49	–
Fiscal + FY 2020–2021 Budget + Monetary (USD billion)	–	1.38	0.36	10.52	6.05	18.32

Note: More information regarding the classifications can be found in Hepburn et al. (2020). For policies that fit more than one archetype (for instance because a breakdown of supported recipients was not available), we assumed a 50/50 allocation of the policy’s monetary value to each archetype.

Source: IMF Fiscal Monitor Fiscal policy database (updated to September 2020); IMF Policy Tracker (updated 2 December); RWR Advisory; GoP Budget 2020–2021; ADB Covid-19 Policy Monitor.

Kenya

Kenya's economy was expected to contract by 1.0% in 2020. Real GDP had decreased by 0.4% year on year in the first half of 2020, compared to growth of 5.4% in the first half of 2019 (World Bank, 2020e). Because of lower tax revenues and higher Covid-related spending, the fiscal deficit has grown to 8.2% of GDP, up from a pre-Covid-19 target of 6.0% (World Bank, 2020e). Debt to GDP has climbed to 66.5% from 62.4% in June 2019. Kenya has disbursed Ksh 40 billion, or 0.4% of GDP, for Covid-19-related expenditure, including healthcare, social protection and funds for facilitating payments of obligations to businesses (IMF, 2020b). These focused on keeping Kenya's Big Four Agenda on track. Within this context, on 23 May 2020 President Uhuru Kenyatta set out an eight-point stimulus plan totalling Ksh 56.7 billion (\$509 million),⁷³ summarised in Table A2:

1. Rehabilitation of access roads and footbridges.
2. Hiring of 10,000 teachers and 1,000 information technology interns; 250,000 locally fabricated desks.
3. Value-added tax refunds and Credit Guarantee Scheme.
4. Hiring of 5,000 healthcare workers and expanded bed capacity.
5. Farm inputs for 200,000 farmers and support for flower and horticultural firms to reach international markets.
6. Soft loans to Tourism and Finance Corporation, 5,000 community scouts. Support for 160 community conservancies.
7. Rehabilitation of wells, water pans and underground tanks in arid and semi-arid areas. Support for flood control measures and the Greening Kenya Campaign.
8. Enforcement of Buy Kenya, Build Kenya to purchase locally manufactured vehicles.

73 The Presidency (2020).

Table A2 Financing of economic recovery strategy in Kenya

Initiative	Project	Total (Ksh billion)
Road infrastructure and urban renewal	Kazi Mtaani	10
	Rehabilitation of access roads and bridges	5
Education	Rehabilitation of access roads and bridges	5
	Recruitment of 10,000 teachers	2.4
	Rehabilitation of classrooms	2.1
	Desks for secondary schools	1.9
	Infrastructure upgrades for low-cost boarding schools in arid lands	0.7
	Hiring 1,000 interns in information technology	0.3
Small and medium enterprise liquidity	Payment of outstanding value-added tax refunds	5
	Payment of pending bills	5
	Seed capital for Credit Guarantee Scheme	3
Health	Recruitment of 5,000 diploma and certificate-level health interns	1.2
	Increase bed capacity in public hospitals	0.5
Agriculture and food security	Farm input subsidies	3
	Temporary support for horticulture	1.5
	Working capital for Kenya Meat Commission	0.5
Tourism	Soft loans to hotels and related businesses	3
	Post-Covid-19 tourism marketing	1
	5,500 community scouts and grants to 160 community conservancies	2
Environment, water, and sanitation	Community and household irrigation	3.4
	Flood control measures and mitigation	1
	Rehabilitation of wells, water pans and underground tanks in arid lands	0.9
Manufacturing	Purchase of locally assembled cars	0.6
Social protection	Credit to small businesses	0.7
	Cash transfers	1
Total		56.2ⁱ

ⁱ Note that the table in (National Treasury of Kenya, 2020a) on page 32 reports a total of 56.7, but the total is actually 56.2.

Source: Draft Post Covid-19 Economic Recovery Strategy 2020–2022

Nepal

Like many countries, Covid-19's impact on the Nepalese economy was severe. GDP growth fell to 0.8% in Q3 of FY 2019/2020, compared to 6.2% the previous year. Based on three months' data ending mid-October (FY 2020/2021), government revenue collected was 172.36 billion Nepalese rupees, as opposed to Rs 211.28 billion over the same period the previous year.

Nepal was among the countries eligible for DSSI that requested to participate for debt suspension.⁷⁴ Under the updated 'Catastrophe Containment and Relief Trust (CCRT)' to help address Covid-19, Nepal was one of the 25 countries that received debt relief for the six months following April 2020, for debt worth roughly Special Drawing Rights (SDR) 2.852 million.⁷⁵ In October 2020, the second tranche of the CCRT was also approved for debt service between October and April. For Nepal, the country had debt service worth SDR 3.57 million.⁷⁶ In May, the IMF approved a disbursement under the IMF Rapid Credit Facility worth SDR 156.9million.

Currently, Nepal has a manageable debt profile, with a low public debt to GDP ratio, giving it the fiscal space to take on green recovery initiatives. This low public debt to GDP ratio (30.3% of

GDP in FY2018/2019 and 37.7% of GDP in FY 2019/2020),⁷⁷ implies minimal chances of debt distress and space to take on more debt if required. The World Bank and IMF conducted a joint debt sustainability analysis in May 2020, and consider Nepal's external debt as at 'low risk' of debt distress.⁷⁸ Risks are on the downside and the fiscal impulse may be hampered by pressures on the budget deficit given subdued revenues and increased expenditures, and a trend of underspending.

So far, the fiscal response has focused on expanding health services and providing social support and relief to smaller businesses, and additional support was built into the budget for FY 2020/2021. The immediate fiscal policy response included increasing expenditure on health services, providing tax relief and expanding the social safety net. Social assistance included providing discounts for utility payments and daily food rations, extending tax deadlines, and compensating for lost wages for those in the formal sector. The budget for the FY 2020/2021 featured Covid-19-related spending amounting to 3.1% of GDP, with allocations for the health sector⁷⁹ and social assistance, and loans to the business sector. In terms of monetary policy, the Nepal Rastra Bank was proactive in injecting liquidity into the system and encouraging banks' lending activity.

74 www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative

75 www.imf.org/en/News/Articles/2020/04/13/pr20151-imf-executive-board-approves-immediate-debt-relief-for-25-countries; ADB Covid-19 Policy Tracker database.

76 www.imf.org/-/media/Files/Publications/PP/2020/English/PPEA2020045.ashx

77 Data from www.nrb.org.np/category/current-macroeconomic-situation/?department=red, as of 25 November 2020.

78 See <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/359541595079918075/nepal-joint-world-bank-imf-debt-sustainability-analysis>.

79 www.imf.org/-/media/Files/Publications/PP/2020/English/PPEA2020045.ashx