

STUDY

PAREMIA

Partnerships for Ambitious Resilience and Mitigation Action

Potential for action and opportunities for cooperation

Rixa Schwarz, Maik Wings, Ursula Hagen



Brief Summary

Global efforts to realise rapid emission reductions and build resilience must be ramped up without further delay to meet the 1.5 °C Paris target and enable vulnerable communities to deal with climate impacts. Where individual states reach their limits in implementing the SDGs and Paris objectives, bilateral or multilateral partnerships can provide support for the necessary transformation to net-zero-emission and resilient societies. Partnerships are indispensable to achieve whole-societal transformation, as they enable countries to share knowledge, experience and resources. Germany entertains solid climate cooperation with several countries in the Global South. In this study, we analyse preconditions for such partnerships with 13 countries and suggest thematic starting points for three of them – Chile, India and South Africa.

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Inhalt

Introduction.....	4
1 The growing need for ambitious resilience and net-zero-carbon policies	4
2 Transformative partnerships	7
3 Selected countries.....	8
4 Methodology	9
4.1 Assessing Resilience Policy Performance	9
4.2 Assessing Climate Policy Performance	11
5 Country analysis and recommendations	13
5.1 Focus countries	13
Chile	14
India	19
South Africa	24
5.2. Non-focus countries	29
Bangladesh	29
Brazil	31
Colombia.....	33
Côte d'Ivoire.....	35
Indonesia.....	37
Kenya	39
Morocco.....	41
Peru	43
Philippines	45
Viet Nam	47
6 Endnotes	49

Introduction

Geopolitically, 2015 was a highly significant year for building a more sustainable world: the international community of states adopted first the Sustainable Development Goals (SDGs) and shortly thereafter the Paris Agreement. Since the countries' climate plans, the nationally determined contributions (NDCs), are due for implementation only from 2020 onwards, their decisive and effective implementation at the national and sub-national level is now crucial. Efforts to realise rapid emission reductions must be ramped up without further delay – among other things to allow more ambitious future target setting, as the 2021 UNFCCC Synthesis Report has unmistakably stated that emission reduction levels are far from sufficient to meet the target set in Paris to pursue efforts to limit global temperature rise to 1.5 °C^[1]. At the same time, the protection of those most affected by climate change must be improved swiftly and significantly through adaptation and resilience building and the implementation of the SDGs. Where individual states reach their limits in implementing the SDGs and Paris objectives, bilateral or multilateral partnerships can provide support for the necessary transformation to net-zero-emission and resilient societies. Partnerships are indispensable to achieve whole-societal transformation, as they enable countries to share knowledge, experience and resources.

The present study strives to map opportunities for bilateral partnerships between Germany and selected countries in order to address challenges arising from climate change impacts and transition to a net-zero-carbon economy. It analyses the selected countries' policies for resilience building and adaptation as well as policies in the field of mitigation, building upon both of Germanwatch's annually released indices – the Climate Change Performance Index and the Global Climate Risk Index. The study identifies concrete avenues for Germany's or the EU's bilateral cooperation that would allow for more ambitious resilience and mitigation action with these countries. The elaborated recommendations are based on literature reviews, interviews with local experts and exchange among the different Germanwatch teams that among other things cover mitigation and adaptation policies and private and public climate finance.

1 The growing need for ambitious resilience and net-zero-carbon policies

The COVID-19 crisis and the various measures to cope with the pandemic and its socio-economic effects currently dominate the public debate. The pandemic sets the fight against the climate crisis in a context of economic slowdown, rising nationalism and self-isolation but also potentially green and resilient recovery plans and a growing recognition of the need to cooperate internationally to address global crises. While measures to reduce health risks and economic stimulus packages are rightly the first response measures, the following large-scale responses like recovery plans need to be intertwined with the larger objective of addressing climate change and meeting the SDGs.

In recent years, attribution science has made increasingly apparent that the frequency and severity of extreme weather events are increasing due to climate change. Slow-onset changes such as sea level rise will pose further challenges. Even in a 1.5 °C scenario, millions of poor and vulnerable people's livelihoods are at risk, and their human rights threatened. Therefore, adaptation efforts need to be ramped up drastically. Different instruments are available on various levels. It is first and foremost the states' duty to protect those within their jurisdiction.^[2] Therefore, all levels of government - in cooperation with civil society - have to develop policies and instruments proactively in order to mitigate the negative effects of climate-related events. Adaptation can manifest as infra-

structure adjustments, for example in the form of dikes and dike elevations, as well as institutional innovations, new regulations or networks.

With the 2015 Paris Agreement, all countries have committed themselves to climate protection efforts, limiting global warming to well below 2 °C and pursuing efforts to limit warming to 1.5 °C. Current commitments are far short of setting the world on track to keep global warming to 1.5 °C and higher ambition and faster action are urgently needed. Especially the big emitter countries have yet to increase their domestic emission reductions to keep the 1.5 °C scenario in reach; their support for countries of the Global South is an additional essential part of their responsibility for global emission reduction. As the Paris Agreement enters a crucial phase of national and regional implementation, cooperative action can prove highly supportive.

Box 1: Paris Objectives

Art 2. Paris Agreement (Objectives)

a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change;

(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production; and

(c) Making finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development.

Art 4.1 Paris Agreement (Mitigation)

In order to achieve the long-term temperature goal set out in Article 2, Parties aim to reach global peaking of greenhouse gas emissions as soon as possible, recognizing that peaking will take longer for developing country Parties, and to undertake rapid reductions thereafter in accordance with best available science, so as to achieve a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century, on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty.

Art 7.1 Paris Agreement (Adaptation Goal)

Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response (...)

Under the circumstances of the COVID-19 pandemic, the twofold climate challenge of countries in the Global South intensifies: On the one hand, they strive to improve the living conditions of their population and protect them from the climate change impacts already occurring – now exacerbated by new vulnerabilities due to the pandemic, which interact with climate vulnerability. On the other hand, they have to create a development path that in the long run will lead to a net-zero-carbon economy and society – now under the conditions of COVID-induced economic slowdown. Countries in the Global North need to support the Global South by rapidly decarbonising their own economies and assisting Global South countries in mitigation and resilience action – due to COVID-19, global solidarity has to increase.

Bilateral partnerships between countries are one of the suitable tools to support this balancing act. We see a growing role of countries like Germany in cooperating directly with countries in the Global South, not only as a result of industrialised countries' historic responsibility and their capacity but also as an opportunity to mutually develop new pathways towards inclusive, resilient and prosperous net-zero societies.

Germany itself has to find ways to accelerate the transition of its economy.^[3] In addition, it is becoming apparent that climate change impacts are already a danger to health, life and prosperity even in high-income countries.^[4] For this reason, bilateral climate and SDG partnerships are not to be understood as traditional unidirectional North-South support but rather as cooperation on equal footing to foster equitable socio-ecological transformation in both countries. This report identifies effective prioritisation of fields of action for partnerships with the selected countries on climate mitigation and resilience building issues. Collaboration efforts in these areas not only contribute to achieving the global Paris goals but also provide mutual benefit through cooperative learning.

2 Transformative partnerships

It is now well understood that far-reaching changes in the way we live and do business are necessary to achieve the goals of the Paris Agreement and the SDGs. The starting point of any serious policy to achieve the international climate goals must be ambitious climate policies at home and (for member states) in the EU. Germany, too, has so far failed to live up to its responsibility in achieving the Paris goals. Beyond domestic action, however, this responsibility for achieving the global climate goals has another dimension, namely to support the necessary socio-ecological transformation at the international level. One tool to support this process are transformative climate and SDG partnerships between countries.^[5]

We define transformative climate and SDG partnerships as cooperation agreements between two or more governments that aim to contribute effectively to the transformative change required to achieve the goals set out in the Paris Agreement and the SDGs in all participating countries. While it is in principle possible to enter into such partnerships between more than two partner countries or groups of countries, this report only considers possible bilateral partnerships between Germany and one country from the Global South. As outlined below, these partnerships are centred on the objectives of the Paris Agreement and the SDGs in order to effectively support their implementation, going beyond what could be achieved without the partnership^[6]. They are designed as partnerships on equal terms with positive effects on both partners, fostering structural and systemic change in both partner countries, building on existing efforts and following pro-poor and human rights based and multi-stakeholder approaches. Additionally, the approaches are consistent with the criteria of participation and mutual empowerment, transparency and accountability, do-no-harm as well as multi-stakeholder partnerships.

The most crucial principles for transformative climate and SDG partnerships are:

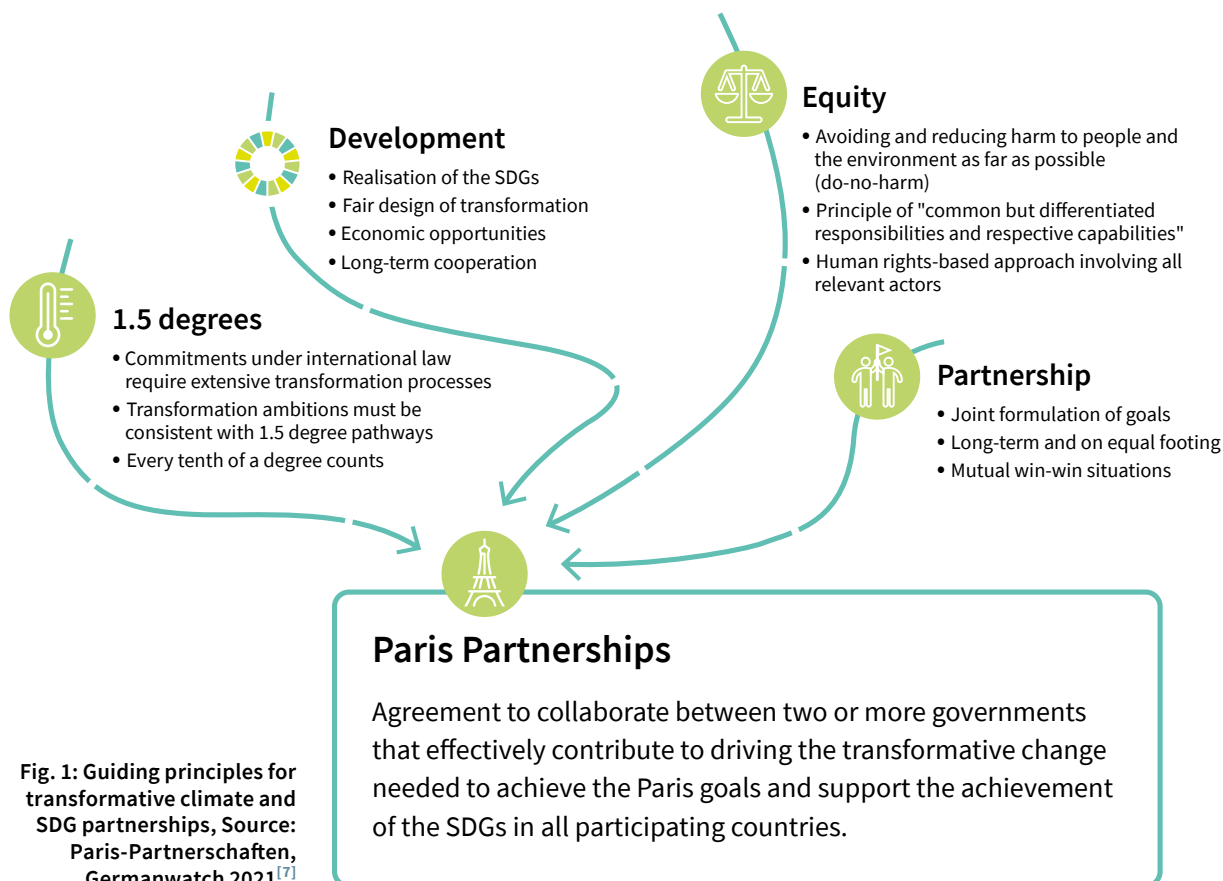


Fig. 1: Guiding principles for transformative climate and SDG partnerships, Source: Paris-Partnerschaften, Germanwatch 2021^[7]

3 Selected countries

The study investigates the relevant policies of thirteen countries identified as potential partners for Germany. They each face different transformation, adaptation and mitigation challenges concerning climate change impacts and institutional setting and capacity. They are promising candidates for establishing partnerships with Germany, building on existing bilateral cooperation. These countries can serve as role models for a specific region or a specific issue (e.g. energy transitions, resilience of mega cities) and/or their policies have a major impact on the achievability of the Paris goals and SDGs.

The selected focus countries for this study's in-depth analysis are Chile, India, and South Africa. Further countries included in a more basic analysis are Bangladesh, Brazil, Colombia, Côte d'Ivoire, Indonesia, Kenya, Morocco, Peru, Philippines and Viet Nam.



Fig. 2: PAREMIA countries

4 Methodology

4.1 Assessing Resilience Policy Performance

In this study, we analyse where countries stand in the development of their policy responses to climate change challenges, whether they have started implementing these policies, and whether these policies truly contribute to increasing resilience as intended.

According to the IPCC, the term resilience refers to the “capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure while also maintaining the capacity for adaptation, learning and transformation”.^[8] Hence, it describes the ability of a system to maintain its services under climate stress and in turbulent environments (i.e. despite massive external disturbances and internal failures). Implementing the precautionary principle is therefore a fundamental approach for building resilience, given the unpredictability (non-linearity) of the behaviour of complex systems.

Climatic changes create direct and indirect hazards and threats. In order to increase a country’s resilience, both aspects have to be addressed. Germanwatch’s Global Climate Risk Index provides a good overview of the extreme weather risk countries already face today. It annually analyses to what extent countries and regions have been negatively affected by weather-related loss events (storms, floods, heatwaves etc.) both combined over the last twenty years and separately for the most recent year for which full data is available (i.e. 2019 for the 2021 Index). The results of this analysis clearly show that impacts of extreme weather events hit the poorest countries hardest as these are often geographically more exposed, more vulnerable to the damaging effects of a hazard, have a lower coping capacity and may need more time to rebuild and recover. None of the ten most affected countries and territories in the period 2000 to 2019 is a high-income country but five of them are least developed countries (Myanmar, Haiti, Mozambique, Bangladesh and Nepal^[9]). The Global Climate Risk Index results may serve as a red flag that highlight already existing vulnerabilities that may further increase as extreme events become more frequent or more severe due to climate change.

Aside from the uncontrollable circumstances of hazards and threats connected to climatic changes, political action also determines a country’s resilience. Countries with good governance and efficient and effective procedures tend to be more effective in reacting to new external challenges and deal more swiftly with shocks in general. However, specific policy responses tailored to climate related challenges are required in order to build resilience. This requires a clear understanding of vulnerabilities and strategies to tackle them. Such strategies should be accompanied by instruments and measures and cohesive plans and resources that are required to implement these measures.

Based on these aspects, which are analysed using document and literature analysis as well as expert interviews, the study provides an estimate as to the adequacy of current policies and policy implementation. Additionally, It illustrates ways in which bilateral cooperation can support the countries in their policy response. In order to determine the resilience policy rating, the following questions were addressed in interviews:

- How would you rate existing policies in terms of acknowledging the need for adaptation to and dealing with the unavoidable consequences of climate change?
- How would you rate existing policies (sectoral and cross-sectoral) in terms of providing an adequate and fitting response to the challenges?

- Is there a clear implementation strategy that will help the policies to succeed?
- To what extent does the current or intended implementation process contribute or will contribute to the targets set out in the policies?
- To what extent have policies, instruments and measures already resulted in reduced vulnerability or increased resilience or are likely to do so in the near future?
- How would you rate the results in relation to the expenditure?
- Are the most vulnerable people put first in the formulation and implementation of policies addressing adaptation to and dealing with the unavoidable consequences of climate change?
- Are human-rights implications being considered during formulation and implementation of policies?

The questions are answered on a scale from 1 (“weak”) to 5 (“strong”). Anchoring examples for each question were provided to offer guidance. Additional explanations provided by interviewees are incorporated into the texts provided in the country chapters. All results are summarized (unweighted) to generate an overall result, presented in the “policy meter”. Further, recommendations were developed on the basis of identified gaps and bottlenecks. They, again, include insights drawn from interviews, scientific documents, and the expertise of several Germanwatch teams.

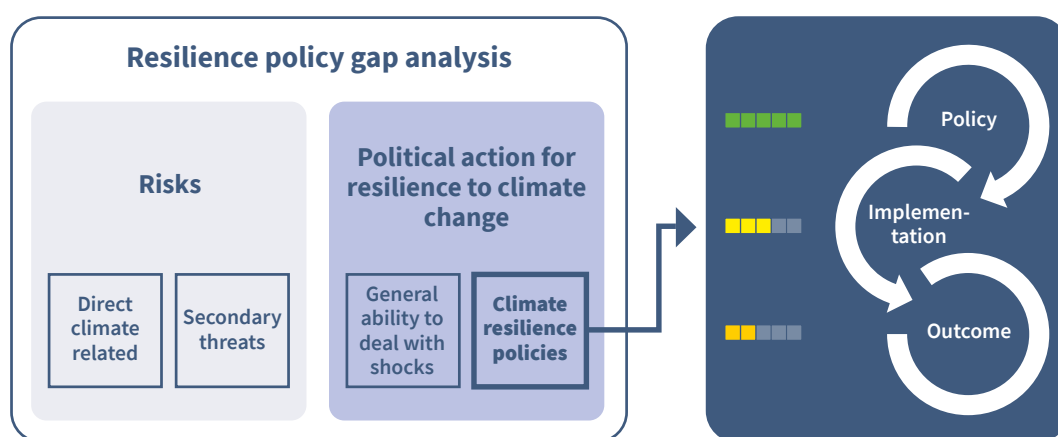


Fig. 3: Resilience policy gap analysis, Source: own figure

Limitations of the resilience analysis

In order to evaluate the aforementioned aspects of resilience, we relied on the scientific literature available as well as our own experience in the field of international climate policy. Additionally, we spoke with local experts and asked them to evaluate the performance of their countries. While we cover direct risks and secondary threats, the focus of the research is the policy response, in particular climate resilience policies. Each of the featured countries deserves an in-depth analysis on its own. However, such an endeavour is beyond the scope and capabilities of this project. Thus, the results provide a general overview of the countries' climatic challenges and endeavours to tackle them. Further research on this topic is necessary, especially concerning recommendations for the future. We do, however, believe that this overview can contribute by laying groundwork and starting the conversation on potential cooperation between Germany and the selected countries. The results are summarized in the country profiles.

4.2 Assessing Climate Policy Performance

In this study, we analyse the climate policy performance of countries based on the assessment framework for national climate policy performance used by the Climate Change Performance Index (CCPI, www.ccpi.org). For the national climate policy performance, we consider each country's performance in five categories: GHG Emissions, Energy Supply and Renewable Energy, Energy Use, Future Targets and Non-energy Sectors (forestry, agriculture, peat lands). The following policies or policy areas are addressed in the respective categories:

Table 1: CCPI Categories of policy areas

Categories	Policy areas
GHG Emissions	Long-term low GHG emission development strategy (2050) Plan to phase out fossil fuel subsidies Carbon price signal
Energy Supply and Renewable Energy	Coal phase out Support schemes for RE in the electricity sector Support schemes for sustainable biofuels
Energy Use	Transport: overarching policies: low-carbon infrastructure strategy for the transport sector & specific policies Industry: Minimum energy performance standards (MEPS) & Support for energy efficiency in industrial production Building: energy/emissions performance standards for buildings & minimum energy performance standards for appliances
Future Targets: NDCs and LTSs	Emission reduction target Renewable energy target Energy Use target
Non-Energy Sectors	Forestry: incentives to reduce deforestation and forest degradation and support schemes for afforestation Peat lands: incentives or regulation to limit peat cutting Agriculture: standards and support for sustainable agricultural practices

For the annual climate policy assessment of the CCPI, national experts fill in a questionnaire in which they indicate whether certain policies are in place and rate both strength and level of implementation of the respective framework on a scale from 1 ("weak") to 5 ("strong"). An overall rating of policy performance in a respective category is again indicated on a scale from 1 to 5. For those countries included in this study that are part of the annual CCPI assessment (Brazil, Chile, India, Morocco, Indonesia, South Africa), the climate policy performance is derived from experts' assessment of national climate policies collected for the 2021 edition of the CCPI. For the remaining countries not (yet) included in the CCPI (Bangladesh, Colombia, Côte d'Ivoire, Kenya, Peru, Philippines, Viet Nam), climate policy performance is analysed through literature analysis, using the same five categories and policy areas. The assessment of climate protection policy performance thereby focusses on policy action – or lack thereof - using these respective sources:

- Kenya, Peru, Philippines, Viet Nam: Climate Action Tracker (CAT)
- Bangladesh, Colombia, Côte d'Ivoire: Nationally Determined Contributions (NDCs), Biennial update report (BUR)

For all countries, this study uses key indicators like current emission levels, (renewable) energy use and policy strengths or gaps as well as existing areas of cooperation to assess climate policy performance and develop recommendations.

Limitations of the mitigation analysis

It has to be noted that availability of information on specific policies is limited for some countries and comprehensive up-to-date policy databases with broad country coverage are lacking. For those countries not included in the CCPI, it is beyond the scope and capabilities of this project to include the level of implementation of specific policies in the analysis of climate policy performance in the same depth as CCPI-countries. Nevertheless, these results provide a general overview of countries' current efforts to implement low-carbon policies against the background of their current emissions profile/development.

5 Country analysis and recommendations

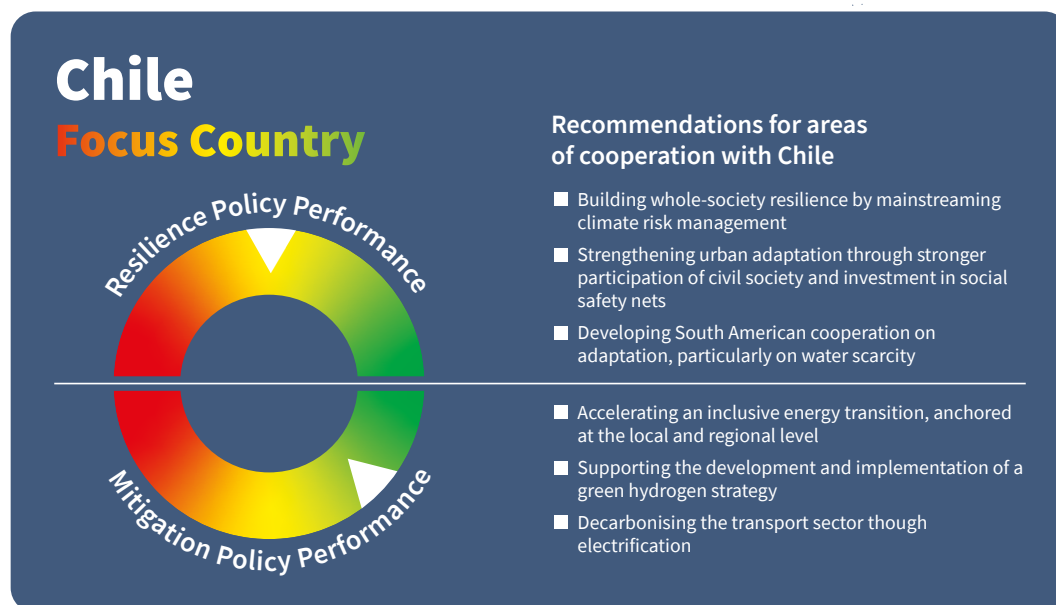
5.1 Focus countries

Germany is already participating in climate and/or SDG relevant cooperation to some extent with all thirteen pre-selected countries. Three focus countries were identified for this study: Chile, India and South Africa, thus covering examples from three continents (South America, Asia and Africa). All of the focus countries are affected by climate impacts and have considerable mitigation potential. They are of geopolitical relevance and act as political anchors in their region. Thus, their immediate and ambitious action is vital for achieving the Paris goals.

Chile was selected not only because of its regional leadership in climate mitigation but also as the host of COP25 in 2019. India, a densely populated subcontinent highly vulnerable to climate change impacts, also plays a crucial role in global mitigation efforts because of its growing economy and energy demand. South Africa is the leading but largely coal-based economy on the African continent and its transition to renewable energy would send a positive signal that could influence many other countries on the continent.

The following chapter is an analysis of the countries' respective scores in the two Germanwatch indices – Climate Risk Index and Climate Change Performance Index –, as well as their resilience and mitigation policies. This analysis is completed with recommendations for areas of cooperation that the German government may wish to focus on in its attempts to develop partnerships for the implementation of the Paris goals and the SDGs with each of these countries. The recommendations are not primarily addressed at the focus countries' governments, as actors in Germany and Europe are the target audience of this report. At the same time, the German and European governments cannot solely form a partnership to holistically transform societies. A partnership must be formed by both partners on an equal footing. Partner country governments should define their own positions and priorities, also based on additional research from the partner country. The focus and objectives of the partnerships must be openly discussed with the partnering country. The recommendations of this study can only serve as starting points to enter such a discussion on a potential partnership.

Chile



Chile is a country of extremes. It stretches over 4,200 km from north to south, has a coastline of over 6,400 km and contains some of the highest mountains of the Andes reaching up to over 6,800 m above sea level. Chile – a presidential democratic republic – has relatively low levels of poverty and scores very high on the UNDP human development index, ranking 43rd out of 189 countries and territories in 2019^[10]. Even though agricultural production only contributes a relatively small percentage of the GDP, 3.45 % in 2019^[11], some regions nevertheless depend strongly on agriculture, which is now threatened by changing precipitation patterns. While Chile's economy is relatively strong^[12], wealth is distributed unequally and many systems are privatised. Due to this, Chile's middleclass is in a precarious position and highly indebted, and government revenue is limited – about half in percentage of GDP compared to Germany.^[13] Dissatisfaction with the situation came to a head during the raise of metro fares in Santiago in October 2018, and in October 2020, a 78 %-majority of Chileans voted in favour of rewriting the country's constitution (which still stemmed from the era of Pinochet's military dictatorship).^[14]

Climate Risk Profile and Resilience Policy Performance

Due to the country's elevation profile, climatic conditions vary widely from east to west despite the country's average east-west extension only spanning 177 km. About 40 % of Chile's almost 19 million inhabitants live in the Greater Santiago Metropolitan areas where heat islands combined with occurring heat waves expose an increasingly higher number of citizens, such as those with illnesses, older people or pregnant, in vulnerable situations with a direct threat to public health^[15]. Connected to heatwaves and droughts, Chile also experienced severe wildfires in 2014 and 2019.^[16] Additionally, extended flooding due to unusually heavy rainfalls has become a recurring issue for some regions in recent years, most notably in March 2015, when floods in Northern Chile damaged over 8.000 houses and caused at least 26 confirmed fatalities.^[17] Both 2019^[18] and 2020^[19] saw serious floods in the same region. Thus, Chile ranks 25th in the Climate Risk Index 2021.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **25** of 180

20-year rank: **83** of 180

Chile issued its National Climate Change Action Plan in 2008. It included an adaptation section and was the basis for sectoral adaptation plans, which provided more concrete avenues for action. However, a lack of capacities and clear responsibilities in ministries and regional and municipal administration currently hamper implementation. Chile was the eighth country to submit a National Adaptation Plan to the UNFCCC, followed by an action plan that includes objectives, measures and actions. Santiago metropolitan region, home to over a third of Chile's population, has also developed responses to climate impacts. However, these policies tend to address climate change through only incremental change.^[20] As a reaction to the prolonged drought, a series of (mostly 'hard') measures was introduced. While these measures were generally effective and efficient, they often were improperly coordinated and lacked participation of target groups.^[21] Participation processes do exist, but often lack real opportunities to engage in a meaningful way. As a result, poor and vulnerable communities are often left isolated. Chile's severe water issues also require more cross-border cooperation.^[22] The lack of funds does not provide much room for the implementation of more costly adaptation measures. Currently, an environment and climate law is in development, but since the roles of ministries will not be defined in this framework, our interviewees fear it could prove ineffective.

Mitigation Profile and Climate Protection Policy Performance

Chile's emission reduction target ranks high in the comparison of countries evaluated in the CCPI 2021. The country's enhanced NDC of 45 % net emission reduction by 2030 (compared to 2016-levels) shows comparatively high ambitions and commitment to climate mitigation action. However, it has to be noted that, according to CAT analysis^[23], Chile's climate policy strategy is not in line with the country's fair share for reaching the objectives of the Paris Agreement. Furthermore, achieving Chile's long-term mitigation target of becoming carbon neutral by 2050 will require continued commitment, including strengthening the implementation of the coal phase-out (currently scheduled to be completed by 2040, despite the 18 % share of coal in total primary energy supply in 2018). Additionally, targets to reduce energy use should be increased. Chile has taken a significant step forward in energy use with the enactment of the new Energy Efficiency Law in February 2021, including policies e.g., in the field of transport and buildings. The overall aim is to achieve an energy intensity reduction of 10 % by 2030 (compared to 2019 levels)^[24]. However, the concrete impact of this legislation, for example on the ever-growing transport emissions of the country, has yet to be seen.

Climate Policy Performance Index

(top ranks mean better mitigation performance)

2021 rank: **9** of 61

Having already reached its 2025 target of 20 % share of renewable energy in its energy mix in 2018, with renewable energy contributing 28 % of the total primary energy supply (TPES) in that year, Chile's performance in the field of renewable energy is ranked 'high' in the CCPI 2021. However, hydropower and traditional biomass make up a large share of the country's renewable energy, giving some cause for concern due the negative ecological impacts of both these energy sources. When hydropower and traditional biomass are excluded, Chile's renewable energy performance only ranks 'medium', with a share of 19 % renewable energy in TPES. Expanding the country's portfolio of renewable energy sources by for example fostering wind and solar power could improve its mitigation efforts. In November 2020, Chile presented its National Green Hydrogen Strategy, expressing its ambitions to establish green hydrogen in both its energy supply and its exports. The targets defined in the strategy include achieving 5 GW of electrolysis capacity by 2025, producing the world's cheapest green hydrogen by 2030, and becoming one of the top three hydrogen exporters by 2040.^[25]

In order to unlock potential and achieve a just and inclusive energy transition, government support for renewable energy projects at the regional and local level is necessary to achieve the nationally

set goals. In general, increased multi-sectoral and cross-level coordination could considerably facilitate Chile's energy transformation.

Beyond the energy sector, there is still much room for improvement in Chile's mitigation efforts. The agricultural sector remains dominated by water-intensive monoculture crops intended for export, and there are still too few incentives and policies in place to promote more sustainable agricultural processes. Further, sustainable reforestation is still lacking in Chile. The creation of a comprehensive plan for sustainable reforestation would allow the country to benefit from forest areas' effect as carbon sinks, contributing to its mitigation efforts. Increasing awareness of the value of co-benefits of wetlands and native forests that contribute to both mitigation and adaptation to climate impacts could help support a strengthening of environmental regulations.^[26]

Recommendations for areas of cooperation with Chile

Resilience Recommendation

#1

Building whole-society resilience by mainstreaming climate risk management

Adaptation to climate change needs to be understood and treated holistically, not just as additional aspect of development. As Chile's new NDC mentions, synergies with the SDGs should guide climate action. In this regard, inter-departmental cooperation in Chile is still worthy of improvement. Furthermore, projects should foster the inclusion of civil society and scientific and indigenous knowledge, as well as provide space for long-term knowledge co-creation.^[27] This is particularly important at the regional and local level where knowledge gaps are more substantial.^[28] The general lack of public participation is currently being addressed due to public pressure.

Role for international partners: Capacity training can increase the understanding of climate impacts and promote its mainstreaming, for example in development policies.

Resilience Recommendation

#2

Strengthening urban adaptation through stronger participation of civil society and investment in social safety nets

More than a third of Chile's population lives in greater Santiago. The city has acknowledged climate adaptation as a crucial task. Its comparably efficient governance structures are a good precondition for successful urban adaptation. However, adaptation is not yet sufficiently integrated into development and sectoral plans. Civil society in general and the vulnerable groups most affected by climate impacts in particular need to be empowered to participate in the development of urban adaptation solutions. Stronger social safety nets will need to be developed and financed in order to increase the resilience of the most vulnerable urban populations.

Role of international partners: Supporting municipal capacities for multi-level and inter-departmental cooperation.

Resilience Recommendation

#3

Developing South American cooperation on adaptation, particularly on water scarcity

Climate impacts do not stop at borders. South America's ecosystems are highly interconnected and many countries may share similar socio-economic challenges. Not only can countries therefore benefit from sharing of experiences and best practices, some ecosystems require coordinated cross-border action. GIZ already supports cooperation within Latin America via a triangular cooperation approach and is therefore in a good position to further foster such an approach.

Role for international partners: Facilitate cross-country exchange between countries that are exposed to similar climate impacts.

Mitigation Recommendation

#1

Accelerating an inclusive energy transition, anchored at the local and regional level

To unlock potential and achieve a just and inclusive energy transition, the Chilean government could recognise and finance regional and local governments' renewable energy projects. The expansion of renewable energy should be accelerated and existing German-Chilean cooperation on energy efficiency strengthened. Strong social and environmental safeguards should be developed and enforced to ensure that renewable energy expansion benefits local communities and does not lead to unintended negative consequences.

Role for international partners: Capacity development for local and regional renewable energy policies and projects, exchange of experiences at the local and regional level.

Mitigation Recommendation

#2

Supporting the development and implementation of a green hydrogen strategy

Chile's huge renewable energy potential, if harnessed in a socially and environmentally responsible manner, could be used to produce green hydrogen that could be the backbone for a new hydrogen economy – both for Chile's own economy and its exports. As both Germany and Chile have recently passed national hydrogen strategies, sharing knowledge and learning from each other's experience could allow both countries achieve their goals more quickly and efficiently. Especially considering Chile's ambition to deploy "green hydrogen diplomacy"^[29], Germany could be a strong partner both politically and economically.

Role for partners: capacity training and technology transfer.

Mitigation Recommendation

#3

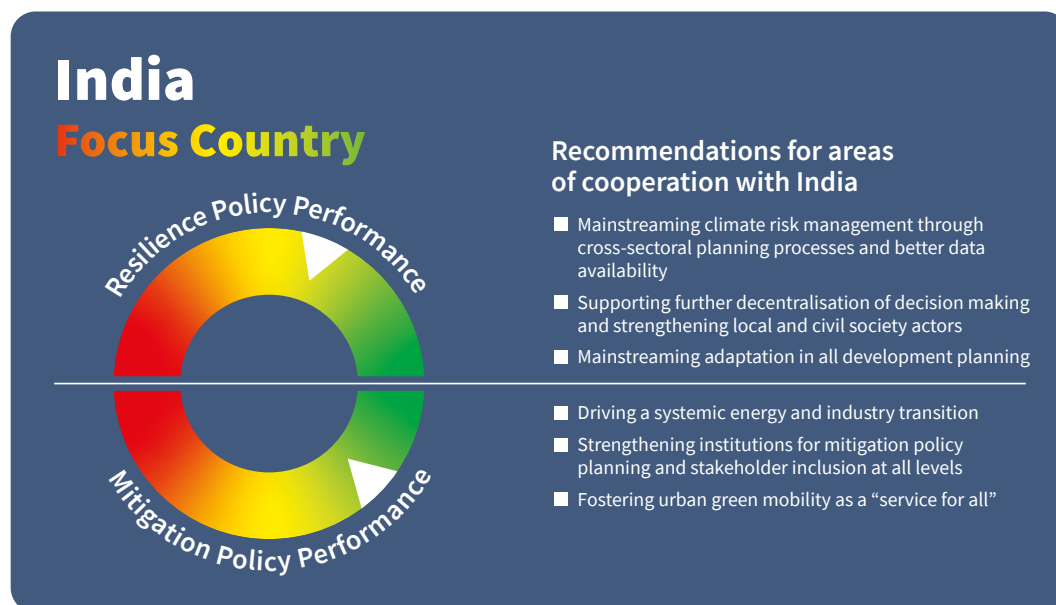
Decarbonising the transport sector through electrification

There is significant potential for more renewables that could also replace fossil fuels in the transport sector. Through GIZ, Germany is already collaborating with Chile to expand urban e-mobility in mid-size towns in Chile^[30]. This should be expanded, e.g. to larger cities. Germany's expertise in electric vehicles could make it a valuable partner for technological exchange.

Compared to direct electrification, the use of hydrogen-based fuels in road transport is inefficient and should be avoided. However, there are some uses in the transport sector where hydrogen might be an option, such as long-distance freight, aviation or shipping. As these questions are currently being debated both in Germany and Chile, exchanges to identify and promote the most efficient and environmentally beneficial uses of green hydrogen, could be beneficial.

Role for partners: capacity training and technology transfer.

India



India’s diversity is remarkable. With over 1.39 billion inhabitants in 2021^[31], India is the most populous democracy in the world. The subcontinent has a large variety of climate zones and ecosystems, which in the last few decades have come under threat from climate change. India has a coastline of over 7,500 km and 171 million people depend on coastal ecosystems^[32]. 400 million people live in the Ganges river basin^[33]. The country’s far north is characterized by the Himalayas – the highest mountain range in the world. This diversity of ecosystems and climate zones leads to a multiplicity of socio-economic effects resulting from climate change impacts.

At the same time, India is the world’s fourth largest absolute emitter of greenhouse gases (after China, USA and EU),^[34] though per capita emissions still remain relatively low. India’s economy is the fifth largest in the world (GNP of USD 2.868 trillion in 2019) but 27.5 % of its population experience multidimensional poverty.^[35] Therefore, India’s economy is on a pathway of substantial growth with increasing energy consumption. So far, the economy largely depends on fossil fuels – especially coal – though the potential for renewable energy use in India is immense. At the same time, India is committed to fulfil the 2030 agenda and is working towards meeting the SDGs. While recent progress was made in water and sanitation, affordable and clean energy and industry, innovation, and infrastructure, the areas of nutrition and gender equality remain challenges.

Climate Risk Profile and Resilience Policy Performance

The Germanwatch Climate Risk Index indicates India’s high vulnerability to weather extremes: for example, most economic damages in the last 20 years were caused by floods.^[36] Since 2004, India has also experienced 11 of its 15 warmest recorded years^[37]. Since 1992, an estimated 25.000 Indians have died due to heatwaves^[38], and the country was among those regions most affected by extreme heat in both 2018^[39], and 2019^[40]. Contributing factors include increasing temperatures, the “El Niño Modoki” and the loss of tree cover, reducing shade as well as soil moisture^[41]. India is particularly vulnerable to extreme heat due to low per capita income, social inequality and a heavy reliance on agriculture^[42]. High urbanisation rates create challenges in coastal areas that lie in the path of tropical cyclones and where, further inland, water supplies can become scarce. At

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **7** of 180

20-year rank: **20** of 180

the same time, altered weather patterns have caused severe storm and flood damages in India. In 2019, an extended monsoon period brought 110 % of the normal rainfall, causing flooding that was responsible for 1.800 deaths across 14 states and led to the displacement of 1.8 million people^[43]. For the combined past twenty years, India scores 20 on Germanwatch's Climate Risk Index 2021, but it ranks at 7 for the year 2019.

In 2008, India introduced its National Action Plan on Climate Change (NAPCC) that includes mitigation, adaptation and capacity building goals. However, the NAPCC lacks a clear strategy^[44] and the general objectives were not backed up with financial resources until a couple of years ago – today, there are some financial resources, but they remain too low.^{[45][46]} Following the NAPCC, all Indian states have developed State Action Plans on Climate Change, which are also not properly aligned with budget planning so far.^[47] In 2015, India established its National Adaptation Fund for Climate Change to mobilize adaptation funding. India's resilience building efforts are also supported by the National Disaster Management Plan (2009). While the interviewed Indian policy experts consider implementation adequate, outcomes are – with some notable exceptions^[48] – still awaited. Financial resources are not the only bottleneck. Understanding of climate change and capacities to deal with the issue on the state and especially district level remain low, and infrastructure, water conservation and agriculture too often focus on siloed approaches. In general, the availability of robust climate risk data needs to be improved for risk-informed decision-making at national, state, and district levels. A Climate Risk Atlas (CRA) for India is currently in discussion. It seeks to identify, assess and predict both chronic and acute risks related to extreme climate events, heat and water stress, crop loss, vector-borne diseases, and biodiversity collapse. According to a recent study, a more chaotic monsoon season poses a threat to India's agriculture and economy, setting at risk the socio-economic well-being of the subcontinent.^[49]

Mitigation Profile and Climate Protection Policy Performance

India has set itself several mitigation goals, including the target of reducing the gross national product emission intensity by 33 %-35 % (compared to 2005-levels) by 2030, which, according to CAT analysis, is in line with a 2 °C-pathway. Considering the drastic impact of the ongoing Covid-19 pandemic in India, it remains to be seen how well these targets can be achieved. The Vivid Economics Greenness of Stimulus Index, which evaluates G20-countries's COVID-19 stimulus in light of climate action, evaluates India's stimulus measures as potentially harmful to the environment, when the large portion of the stimulus is concerned that is directed at environment unfriendly industries. However, it also includes some investment into biogas and cleaner fuels.^[50]

Climate Policy Performance Index

(top ranks mean better mitigation performance)

2021 rank: **10** of 61

In the field of renewable energy, India had set clear targets of 175 GW Renewable Energy capacity by 2022 and, though not binding, a 450 GW target by 2030. India's large population and consequently high energy demand are pushing the expansion of electricity generation capacities. Considering this, achieving India's renewable energy goals will require strong policies and significant investments specifically fostering the expansion of renewables, which accounted for a little over 86.3 GW (compared to India's total installed capacities of just under 369 GW) in January 2020.^[51] Despite ambitious targets and positive developments in policy frameworks to increase the share of renewables in India's energy mix, the country lacks long-term ambition and strategies. Currently, a long-term mitigation policy including a net-zero target is in discussion.^[52] Individual states have set objectives of not building new coal plants,^[53] but a concrete central policy for coal phase-out is not yet in place. On the contrary, the 2018 National Electricity Plan envisages net additions of 46GW coal generation between 2022 and 2027.^{[54][55]} Given that coal made up more than 73 % of India's electricity mix in 2018, making it a key driver in the country's growing energy emissions,

a clear phase-out strategy is essential for a just energy transition. In the scope of the CCPI 2021 climate policy assessment, experts suggest that the country should green its post-COVID recovery plan, including reducing fossil fuel subsidies, phasing out coal, improving coordination frameworks between the central and state governments, and increasing self-sufficiency by promoting domestic manufacturing in the renewables sector.^{[56][57]}

India's transport sector, and consequently also its transport emissions, continue to grow quickly, making the country's target of achieving 30 % electric vehicles by 2030 very ambitious. Electric cars made up 0.1 % of new car sales in India in 2019 and infrastructure for charging stations are being put in place in major cities, with the number of publicly accessible chargers having quintupled from 2018 to 2019.^[58] Additionally, India is trying to create incentives for consumers by providing purchase subsidies for electric cars and by waiving the road tax for electric vehicles, though it is unlikely that this will have a strong effect as long as the available electric vehicles remain in the premium price range.^[59] While India plans to sell only electric two-wheelers by 2026 and no more fossil fuel cars from 2030 onward^[60], a more comprehensive cross-national implementation of the national phase-out plan for fossil-fuel vehicles would be useful to ensure India achieves its ambitious goal. The country's e-mobility targets are currently at the national level, though the deployment of transport sector policies largely falls within the purview of state governments and the creation and implementation of e-mobility policies and strategies varies strongly between states. To improve energy efficiency in the most energy intensive industries, India has launched the Perform, Achieve and Trade (PAT) Scheme and seeks to expand it to eventually include all industries, as the industry sector made up 26 % of India's energy emissions in 2018.^[61]

Outside the field of energy, India has put several policies in place to make its agriculture and forestry more sustainable. However, its NDC target of increasing the country's total forest/tree cover to one third of its total area still seems out of reach. According to Global Forest Watch, India lost 115kha of natural forest in 2019 alone, equivalent to a carbon absorption capacity of 43.5Mt of CO₂.^[62] Strong deforestation control is therefore necessary in order to achieve India's forestation goal. In general, a periodic revisiting and re-evaluation of government policies may be necessary to ensure that India's mitigation targets can be met.

Recommendations for areas of cooperation with India

Resilience Recommendation

#1

Mainstreaming climate risk management through cross- sectoral planning processes and better data availability

By making climate risk data available in an understandable manner, cross-sectoral mainstreaming of climate risk management can be improved. This can enable the wide-spread use of warning tools like phone applications and other software to inform people directly in the case of imminent disasters such as cyclones and floods. These efforts, for example building on the Climate Risk Atlas, should be intensified and applied across states. Furthermore, available data on chronic and acute climate risks can support adaptation and resilience planning processes of states and state departments, increase disaster preparedness and help reduce the fatalities, loss and damages caused by climate related events.

Role for international partners: capacity training and technology transfer.

Resilience Recommendation

#2

Supporting further decentralisation of decision making and strengthening local and civil society actors

State level and district capacities for adaptation and risk management must be strengthened. State-level climate risk assessments could identify stressors and lead to improved policy measures. Indian states are currently in the process of submitting and reviewing their third round of sub-national climate plans; including such risks assessments and related actions would be a useful addition. In order for district officials to analyse and plan projects that address climate change, capacity building is key.^[63] This also involves supporting civil society actors, whose spaces have been shrinking in past years. They can help bring the voice of those affected to the table.

Role for international partners: capacity building and support for multi-actor cooperation on the local level.

Resilience Recommendation

#3

Mainstreaming adaptation in all development planning

While there are many efforts to increase resilience, the incorporation of climate change resilience into sectoral and cross-sectoral policies still leaves room for improvement. Such a holistic perspective also requires inclusion in the development planning – from national to local level. Economic development in river basins, for example, still does not take into account the effects of climate change. Linkages to related SDGs provide potential to addressing interconnected development challenges jointly.

Role for international partners: Support sectoral adaptation approaches and facilitate inter-departmental exchange.

Mitigation Recommendation

#1

Driving a systemic energy and industry transition

India needs to transition away from its fossil fuel fired economy. A systemic energy transition plan needs to be prepared in order to facilitate pathways towards a net-zero emissions economy. This also includes a strategy to increase the share of renewable energy towards 100 %, including framework conditions and legislative action as well as infrastructure requirements. Additionally, in particular the steel and cement industries need to reduce their fossil fuel dependency. Including more industries, such as even the aviation sector, in the energy efficiency standard could also reduce fossil fuel dependency within the wider economy.

Role for international partners: capacity building, financial support and technology transfer, cooperative action with companies from the same sector.

Mitigation Recommendation

#2

Strengthening institutions for mitigation policy planning and stakeholder inclusion at all levels

Strengthening institutional capacities will increase the effectiveness of climate governance. In order to implement existing mitigation policies and plan additional ones, a multi-level governance approach to mitigation is essential. This should improve the coordination among different levels of government, build further institutional capacity, and generate sufficient financing. Common reporting practises can inform potential donors and investors, and support efficient use of resources by highlighting the most severe gaps and most promising opportunities. Multi-level stakeholder integration at central, state and local level is another critical factor for improving implementation and policy planning.

Role for international partners: capacity building. Jointly identifying best practice examples for mainstreaming.

Mitigation Recommendation

#3

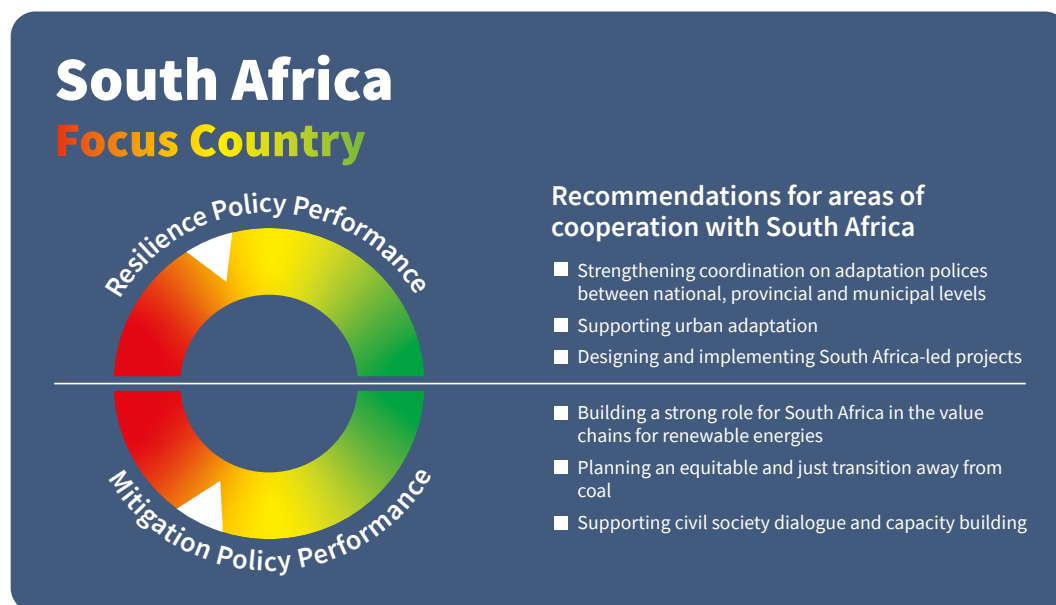
Fostering urban green mobility as a “service for all”

Integrated mobility concepts and urban planning under the motto “mobility as a service for all”, which focuses on the mobility for people and liveable cities, are crucial for sustainable and climate-compatible development in India. E-mobility will be a central aspect of this new mobility model. Moreover, it can accelerate the rate of expansion of renewable energies, as the batteries provide additional storage options, and support the circular economy and sustainable supply chains.

Role for international partners: joint research, joint ventures and frameworks for funding.



South Africa



South Africa is a parliamentary republic with a population of almost 60 million people and the second biggest economy in Africa. It is an emerging economy, with about only one fifth of the US's GDP per capita.^[64] It is shaped by high socio-economic disparities,^[65] which were exacerbated by difficult economic circumstances in the last 10 years with high unemployment and a lacklustre economic outlook.^[66] With its National Development Plan being aligned with the SDGs, South Africa makes progress in the provision of clean water, electricity, sanitation, education and health while high levels of inequalities remain a reality and a just transition to a low carbon economy is still a challenge.

Climate Risk Profile and Resilience Policy Performance

South Africa's large land area is dominated by deserts and semi-deserts that are particularly vulnerable to climate change impacts. Rising average temperatures are increasing the frequency and intensity of dry spells and water scarcity leading to droughts, like the drought event in 2015 that put 11 million children at risk from hunger.^[67] At the same time, more frequent and more intense heavy rains and floods are occurring. Within the last 20 years, South Africa suffered annual damages of USD 650 million from extreme weather events, mostly from heat events. Floods caused most fatalities during that period, illustrating the multiple challenges South Africa has to deal with.^[68] In 2019, severe floods and mudslides due to torrential rains displaced more than 1,000 people in the city of Durban and surrounding areas, causing at least 60 fatalities.^[69] This, together with lesser events, caused South Africa to rise from rank 79 on Germanwatch's Climate Risk Index in 2020 to a less favourable 24 in 2021. The most recent flood event in the country occurred in early 2021 through rainfalls due to the Tropical Cyclone Eloise, causing severe damages in several provinces and killing over 30 people.^[70] South Africa scores 78 on Germanwatch's Global Climate Risk Index 2021 for the combined past twenty years.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **24** of 180

20-year rank: **78** of 180

South Africa has already passed its climate change adaptation strategy in 2019.^[71] While the latter covers most sectors except for urbanism^[72], research on selected sectors indicates that national plans do not have significant impact on the ground yet.^[73] One reason for this is the lack of align-

ment with the general development goals that focus on industrialisation, manufacturing, and mining. Among the most pressing issues for South Africa are the agricultural water supply and the high vulnerability of communities living in informal settlements, as housing projects are lagging behind demand and do not address climate change impacts. Institutional inefficiency is a general issue in the country, including for adaptation. Communication and coordination between national, provincial and local levels of government are poor and constrain local adaptation planning. Municipalities lack financial and technical adaptation support from the national government. This further undermines the implementation of rather ambitious policies. Outcomes prove to be lacklustre and the most vulnerable population suffers disproportionately, as the government's commitment to vulnerable people has not yet materialized on the ground.

With its support of flood management in eThekweni (Durban) via the C40 Finance Facility German development assistance already demonstrates commitment that can be built on.

Mitigation Profile and Climate Protection Policy Performance

Over 90 percent of South Africa's electricity is provided by coal and the share of renewables in its energy mix remains low.^[74] As a result, the country must be considered a major polluter.^[75] Recently, South Africa has announced to add further coal capacity in order to address power outages in its Integrated Resource Plan.^[76] According to the experts, the main governmental support mechanism for renewable energy (REIPPPP) does not perform well enough and the government's minimal interest in coal phase-out is insufficient to affect a true energy transition.^[77] Nevertheless, South Africa is integrating climate change into larger development plans, such as the National Development Plan, which provides a vision for 2030 and pathways to achieve it. Accordingly, South Africa ranks 37th in the CCPI 2021, remaining among the low-performing countries.

**Climate Policy
Performance Index**
(top ranks mean better mitigation
performance)

2021 rank: **37** of 61

Hard-stricken by the Covid-19 pandemic, South Africa has been most strongly focussed on economic recovery in 2020. This recovery plan prioritizes short-term economic stabilisation and therefore does not include provisions for transformation. The Vivid Economics Greenness of Stimulus Index finds that with its recovery policies, South Africa has reinforced its historical roll as a fossil fuel-based economy, e.g. through the deregulation of environmental standards and environmentally related bailouts in the sectors of energy and industry without green strings attached^[78].

In line with this development, the country shows limited climate mitigation ambition and action overall, with the 2020 low emissions development strategy (LEDs) failing to include clear plans to phase-out fossil fuel subsidies. On the contrary, there is continued interest in coal and gas in the country, with plans in place to expand the infrastructure for these fossil fuels. In 2020, coal fuelled 90 % of electricity produced in South Africa^[79], and the 2019 Integrated Resource Plan (IRP) for electricity infrastructure still envisions investments in 1,500 MW of new coal plants before 2030. Nevertheless, there is at least a general interest in renewable energy, and solar and wind are currently gaining more prominence. However, South Africa has not expanded its renewable energy capacities since it released its IRP, despite the IRP proposing an expansion of renewable energy capacities to 26,700 MW by 2030 from currently 3,800 MW (excl. large hydro), a negligible share in the energy mix^[80].

In general, CAT analysis shows that the NDC, aiming at a 17-78 % emission increase (compared to 1990 levels) by 2030, is highly insufficient in the context of what would South Africa's adequate contribution to reaching the objectives of the Paris Agreement^[81]. Despite earlier indications from politicians that South Africa's NDC would be enhanced in 2020, there has been no formal com-

munication on plans to update or enhance the NDC. This limited climate ambition translates to the weak nature of the LEDS as the main energy transition policy, not only due to the continued commitment to fossil fuels but also because of the absence of a comprehensive plan to improve energy efficiency. Aside from this being inconsistent with South Africa's commitment to net-zero emissions by 2050 in the LEDS, the lack of energy grid expansion is also surprising, as South Africa experiences blackouts regularly and its potential for effective solar and wind energy plants, as acknowledged in the LEDS, will only be able to be realized with an expanded grid. Nevertheless, the recent Risk Mitigation Power Purchase Programme largely excludes renewables in favour of gas. January 2021 brings the next phase of South Africa's renewable energy programme, so it remains to be seen whether commitment to renewable energy in the country will progress. The CCPI 2021 analysis clearly shows that a significant turnaround in South Africa's action and ambition in the important fields of GHG emissions and renewable energy, starting with a clear commitment to an overarching and just energy transition away from fossil fuels, is indispensable in order to reach its expected contribution in global climate mitigation.

In 2019, South Africa introduced a carbon tax in order to reduce emissions. While, in effect, this tax is still low, it nevertheless faces strong industry opposition. Considering that industry makes up 27 % of national GHG emissions, the target of 16 % energy consumption reduction for the manufacturing industry by 2030 (compared to 2015-levels) still contains significant room of enhancement. After the successful implementation of the Energy Efficiency Programme (2016-2021) and progressive policies in the building sector, the implementation of energy efficiency policies mentioned in the LEDS is currently uncertain. It has to be noted that increasing electricity prices are currently incentivising consumers to choose cheaper, often coal-generated power^[82]. The country is focussing on implementing energy efficiency standards in the transport sector. A shift towards electric cars and public transportation vehicles is currently not envisioned in the LEDS and would have a limited effect as long as the electricity supply is predominantly based on coal^[83].

Recommendations for areas of cooperation with South Africa

Resilience Recommendation

#1

Strengthening coordination on adaptation policies between national, provincial and municipal levels

Multi-level climate governance faces a myriad of challenges, including unclear mandates, fragmentation, limited access to finance and a lack of capacity. There is a need for better understanding of the opportunities and co-benefits of climate adaptation, the integration of climate change into development and sectoral plans and regulations, improved availability of funding, and better monitoring systems to provide evidence of the measures' effectiveness.^[84] Among other aspects, an increase in staff at all planning levels, equipped with technical expertise, could improve the situation in South Africa.

Role for international partners: Continued capacity support on provincial and municipal level regarding multi-level and inter-department cooperation as well as training and education in monitoring and reporting of climate action.

Resilience Recommendation

#2

Supporting urban adaptation

There is a need for enhanced urban level adaptation in South Africa as the growing population is increasingly moving to urban spaces. Cities like Cape Town, Johannesburg and eThekweni (Durban) have been among the pioneers in drafting climate adaptation strategies, but challenges still remain concerning their implementation. In addition, there is the general challenge of insufficient funding for urban infrastructure in South Africa. Sufficient infrastructure investment would allow addressing climate change in urban spaces, including the integration of climate risk assessments into urban planning processes. Fighting informality – both in housing and economic activity – has not proven successful, which is why many local officials suggest choosing an approach that embraces it. Climate risk planning must be supported as integrational part of urban planning in South Africa.

Role for international partners: Capacity support and implementation assistance for infrastructure rehabilitation.

Resilience Recommendation

#3

Designing and implementing South Africa-led projects

German development cooperation is already involved in many adaptation policy processes in South Africa. However, projects so far are often based on hiring consultants who are granted limited time and resources to fulfil overambitious expectations. This can lead to compromised outputs, exhaustion among consultant practitioners and a box-ticking approach e.g., in terms of public participation. Government officials often have to act as project managers rather than focusing on substantive issues and on building their own technical capacities. The focus should be shifted to locally-led approaches, which allow more space for creating knowledge within the administration. Projects should foster exchange and co-creation of knowledge and allow for flexibility to deal with emerging issues, which - due to its local character - is of particular importance in adaptation. Multi-actor partnerships could be an approach to address these challenges.

Role for international partners: ensuring a meaningful distribution of roles between development cooperation and locally led initiatives.

Mitigation Recommendation

#1

Building a strong role for South Africa in the value chains for renewable energies

Global markets and supply chains are changing and the Covid-19 pandemic has raised additional questions about the future of global value chains. In this context, it would be beneficial for South Africa to consider how the country could build a strong position in the value chain for renewable energy. Establishing, e.g., a wind energy value chain in South Africa would have many benefits: the development of local supply chains with employment opportunities and jobs in everything from manufacturing to operation and maintenance, the creation of new businesses and improvements in welfare. It is unlikely and unnecessary for South Africa to capture every step of the value chain for every renewable energy technology, but with the right policy support, important parts of the chain could be South African. In order for this to be successful, ambitious and credible renewable energy targets are a precondition. A focus on building a strong South African role in the supply chain would help build political support for the energy transition.

Role for international partners: Skill building and vocational training in many areas along the value chain.

Mitigation Recommendation

#2

Planning an equitable and just transition away from coal

The transition from coal to renewable energy is a crucial matter of equity - probably even more so in South Africa than in many other countries. For example, the unequal employment of different ethnicities in the two sectors of coal and renewable energy, creates additional equity challenges. Building net-zero emission pathways on the basis of equity considerations and in dialogue with labour unions may help in understanding how jobs could be shifted from coal to renewables or other new industries in an equitable manner.

Role for international partners: Fostering net-zero research and dialogue with labour unions.

Mitigation Recommendation

#3

Supporting civil society dialogue and capacity building

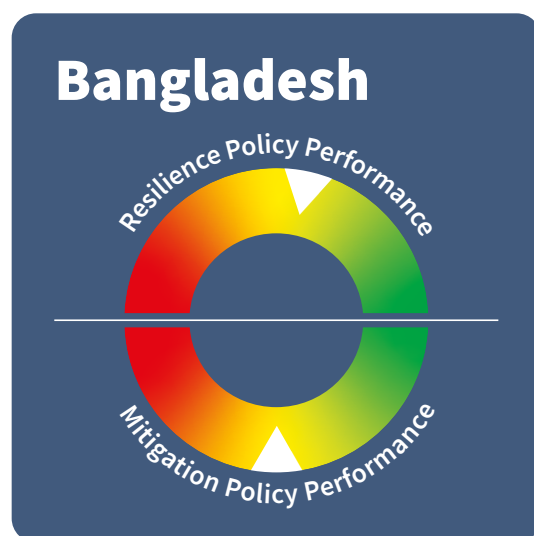
Civil society and other societal partners (including those included in existing multi-sector decision-making processes) do not always have sufficient access to expert knowledge and would strongly benefit from capacity building support.

Role for international partners: support for setting up South African – German civil society exchange platforms.

5.2. Non-focus countries

The non-focus countries include Bangladesh, Brazil, Colombia, Côte d'Ivoire, Indonesia, Kenya, Morocco, Peru, Philippines and Viet Nam. In the following chapter, their respective scores in the two Germanwatch indices – Climate Risk Index and Climate Change Performance Index - as well as their resilience and mitigation performance are analysed.

Bangladesh



Bangladesh is a least developed country located in South Asia at the Bay of Bengal, and has one of the highest population densities of the world. It also remains one of the poorest countries, despite considerable development gains in the past decades.

Climate Risk Profile and Resilience Policy Performance

Most of the country's land area is situated on deltas of large rivers originating in the Himalayas. The climate is tropical: its cool and dry season spans from November to March, followed by a hot and humid period from April to October with four months of Monsoon rains.

Bangladesh is more exposed to tropical cyclones than any other country, with for example Cyclone Fani causing devastating damage in May 2019.^[85] Not only is Bangladesh regularly hit by tropical storms, the country also suffers from severe floods like in 2004^[86], 2007 and 2017.^[87] With the monsoon rains, huge parts of the country are flooded every year, additionally to experiencing about two-fifths of the world's annual storm surges^[88]. Two-thirds of Bangladesh's land area is less than five meters above sea level, putting the country increasingly at risk as sea levels rise. Salt-water intrusion is putting increasing stress on food security, further exacerbated by an annual loss of 10.000 ha of land due to erosion, which in turn weakens natural coastal defence making it more vulnerable – also for the frequent cyclones. In contrast to the frequent flooding in the south of the country, Bangladesh's northwest and southwest are drought-prone areas, and poor communities regularly suffer from drinking water shortage and lack water for irrigation. Bangladesh is therefore very vulnerable to climate change and its affects.^[89] It is regularly one of the most high-ranked countries in the Germanwatch Global Climate Risk index, ranking at 13 for the 2021 CRI and coming in 7th for the timespan 2000 -2019.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **13** of 183

20-year rank: **7** of 181

Bangladesh began integrating and mainstreaming resilience policy in planning processes early on, and pursuing the SDGs is a high level political goal monitored by a unit integrated into the prime minister's office. Certain threats have already been addressed with impressive success, with for example the combination of a dense network of small cyclone shelters and a swift early-warning system having reduced storm fatalities dramatically.^[90] Bangladesh set up the Climate Change Trust Fund in 2009 to provide reliable resources for resilience action. An USD 100 million government budget is allocated annually.^[91] Additionally, a delta plan has been developed with support of the Netherlands.^[92]

Bangladesh started a process for the National Adaptation Plan (NAP) in 2019 focusing on long-term adaptation investment and capacity enhancement.^[93] Multi-level and sectoral integration mechanisms are in place^[94] and policy coherence will be a major theme in the next five-year-plan, which represents the main planning and development strategy of the country. In general, adaptation policies are a lot less politically controversial in Bangladesh than mitigation policies and are hence very ambitious. However, interview partners see difficulties in implementation due to lack of enforcement but also corruption. While outcomes have so far proved to be medium effective and efficient, there are deficits in reaching the poorest and most vulnerable in particular. With many people in urban areas at risk, German cooperation actors' focus on adaptation is justified in this case.

Mitigation Profile and Climate Protection Policy Performance

Bangladesh is currently in the process of updating its NDC from the current unconditional commitment of 5 % emission reduction by 2030 and the conditional commitment of 15 % emission reduction by 2030, both compared to a BAU-scenario. Including the emission-intensive land use and waste sector, which together account for 42 % of Bangladesh's national emissions (data for 2018, PRIMAP)^[95], the updated NDC aims to present a much more comprehensive mitigation strategy, covering all relevant sectors. In its interim NDC update document^[96], the government of Bangladesh points to recent mitigation policy initiatives such as forest and carbon inventories, the Energy Efficiency and Conservation Master Plan up to 2030 (covering the most relevant sectors for energy use, namely building, transport and industry) and several Renewable Energy initiatives. As several of those policies were part of the Roadmap and Action Plan for Implementing Bangladesh NDC, an enhancement of those policies is to be expected in the case of a substantial NDC enhancement. Considering these developments, the level of ambition and, subsequently, the level of implementation in Bangladesh's climate policies are currently subject to dynamic discussion, providing momentum for enhanced climate mitigation action.

This dynamic is also reflected in active discussions concerning the future power supply of the country, with the Power Second Master Plan expected to be outlined in the summer of 2021. In recent years, the electricity sector accounted for the biggest sectoral emissions increase, making up 47 % of Bangladesh's energy emissions in 2018 (IEA). Though being largely dominated by gas, which makes up 76 % of the electricity mix, oil products also play a rapidly growing role, accumulating to the point of heavily influencing the electricity mix. The country has declared its intention to at least partially abandon its large coal expansion plans after having only used 40 % of its power plants' capacity in 2020 and seeing rising project costs. Now, Bangladesh is at a crossroads concerning whether to further increase its focus on liquefied natural gas (LNG) in the power mix or to substantially scale up its renewable energy generation^[97]. So far, the country is dramatically lagging in achieving its 10 % renewable energy target by 2021, due to continued subsidisation of fossil fuel use and inadequate incentives to renewable energy. With LNG being neither an economically nor environmentally sustainable technology, Bangladesh's announced "aggressive efforts" for renewable energy generation in the scope of a new development strategy^[98] offer an opportunity to shape its power infrastructure in a way that will make it more sustainable and reliable in the long term, especially as the country has already proven its massive potential i.e. in off-grid solar power technologies.^[99]



Brazil



Brazil is the fifth largest country in the world, twice the size of the European Union. It covers nearly half of South America's land mass and spans a multitude of climatic regions. Brazil's landscape is dominated by the Amazon River and the world's largest rainforest. Not only do over a hundred million people directly depend on the Amazon rainforest, it also acts as a global carbon sink. However, commercial interests are endangering this precious ecosystem – not only through direct forest clearing but also indirectly, as the 2019 forest fires in the Amazon can be linked to deforestation.^[100] Such forest fire events are expected to increase in the future.^[101]

After two decades of strong economic growth and social progress, Brazil has become one of the world's leading economies. While quality of life has increased and the private and public consumption has grown, income inequality repeatedly leads to unrests in the country^[102]. As poverty is strongly linked to increased municipal vulnerability towards climate change, social inequality is likely to increase in the future,^{[103][104]} in particular as climate change deniers have gained hold in the current government.^[105]

Climate Risk Profile and Resilience Policy Performance

The combination of more volatile precipitation patterns, deforestation, droughts and rising temperatures that are drying out the rainforest may lead to a tipping point in the Amazonia's ecosystem that could turn eastern, southern and central Amazonia into a savannah-like ecosystem. With several heavy precipitation events and two major droughts in 2004-2005^[106] in the Amazon basin and the states Sao Paulo, Rio de Janeiro and Minas Gerais in 2013-2015^[107], Brazil scores 81 on Germanwatch's 20-year Climate Risk Index. In 2019, the country was again hit by several flood events in the highly populated Rio de Janeiro^[108] and São Paulo^[109], as well as prolonged drought^[110]. Therefore, Brazil takes position 27 on the Germanwatch Climate Risk Index 2021^[111].

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **27** of 183
20-year rank: **81** of 181

Brazil was one of the first countries to prepare a National Adaptation Plan, which includes a clear vision, principles and goals and sectoral and thematic strategies for adaptation, as well as an evaluation report after two years displaying decent progress.^[112] However, some success stories such as the São Francisco River Integration, a highly controversial river diversion programme, were initiated long before the NAP process. In general, adaptation is a more prominent topic on the local level, though national support and cooperation are currently insufficient^[113] and the technocratic Brazilian planning approach hampers a comprehensive integration of climate change.^[114] Measures in protected areas are also still poorly understood and insufficiently implemented.^[115] Furthermore, recent political development has upended some of the country's policies. Increased deforestation in the Amazon and the government's denial regarding the connection to widespread fires illustrate that short-term commercial interests currently prevail over not only mitigation but also adaptation policies. The government's stance on climate change currently blocks any meaningful action in that regard.

Mitigation Portfolio and Climate Protection Policy Performance

Due to the comparatively high current share of renewable energy in its energy mix, Brazil presents itself as a front-runner in energy and power sector sustainability (compared to other countries evaluated in the CCPI). As of 2018, Renewable energy makes up over 49 % of the national energy supply and over 80 % of the electricity supply (both incl. significant hydropower contributions). Recent policy developments however indicate a change in direction, as the government is increasingly promoting LNG, e.g. through the NatGas Plan^[116]. Similar tendencies are reflected in the countries response to the economic crisis caused by the Covid-19 pandemic, which includes unconditional support to the airline industry and a deregulation of environmental standards in agriculture, energy and industry, as pointed out in the Vivid Economics Greenness of Stimulus Index^[117]. These recent developments strongly counteract former progress made in the energy sector. Furthermore, decarbonisation of the transport sector (which made up 50 % of energy emissions in 2018) and strong energy efficiency policies in the industry sector (22 % of 2018 energy emissions) could be key strategies to reduce the emission intensity of the energy sector. There are however currently no plans to phase-out internal combustion engine cars and a lack of initiative to enhance current energy efficiency policies in the industry sector, which only cover 8 % of Brazil's industrial energy use (IEA)^[118].

Climate Policy Performance Index

(top ranks mean better mitigation performance)

2021 rank: **25** of 61

The most lagging topic in Brazil's climate mitigation policy remains the forestry and agricultural sector, which made up almost half of the country's GHG emissions in 2018. CCPI experts point to the government's declared intent to dismantle the existing environmental protection framework and weaken law enforcement agencies, despite its commitment to "zero illegal deforestation by 2030" under the first NDC. This assessment is underscored by reports stating that the government's current budget for environmental protection is the smallest in at least 13 years, while government data simultaneously shows that deforestation in Brazil hit a 12-year high in 2020^[119]. Overall, this shows a clear lack of ambition and action both in environmental protection and global climate mitigation.



Colombia



The South American country Colombia is rich in biodiversity and natural resources. Though it holds an upper-middle income status, about 36 % of Colombians were living under the national poverty line in 2019^[120], illustrating the country's high inequality. Due to different climatic conditions, the crops that are farmed in Colombia are very diverse. The export of non-renewable resources like gold, coal and petroleum play an important role in Colombia's economy. Agriculture only made up nearly 7 % of the country's GDP in 2019^[121], but represented about 16 % of total employment in Colombia in the same year^[122].

Economic development goals are partly unaligned with environmental and climate policies and regulations,^[123] despite climate change impacts exacerbating existing risks and inequalities.^[124] Colombia has suffered from an armed conflict between the government and paramilitary groups, crime syndicates and communist guerrillas for over half a decade. A peace deal was signed in 2016, however, fighting soon resumed. Since the beginning of the conflict, more than five million people have been internally displaced,^[125] making them particularly vulnerable – also to extreme weather.

Climate Risk Profile and Resilience Policy Performance

In the past years, Colombia has suffered from repeated heavy rain events with following floods and mudslides. In 2019, Colombia was again hit by several flood events, the most extensive flooding in the northwest affecting an estimated 10.000 people^[126], ranking the country at 28 in the 2021 CRI. Similar extreme weather events struck Colombia in the subsequent years, most recently in March 2021.^[127]

Colombia ranks 38th in the CRI for the combined previous 20 years, as flooding and landslides are not a new phenomenon and have left hundreds dead and thousands homeless over the years, particularly harmfully in 2010^[128] and 2011.^{[129][130]} After La Niña in 2011, which created severe damage, the government improved adaptation and risk prevention policies.^[131] Colombia is one of 22 countries that have submitted a National Adaptation Plan to the Climate Convention by early 2021. The country's NDC contains an adaptation part and sectoral adaptation plans based on the NAP are under development. However, policies have so far not necessarily always resulted in positive outcomes. In the renewable energy sector, policies have long been predominantly reactive and have not yet succeeded in reducing vulnerability.^[132] While the government promotes the topic, and the general awareness is high, there is still a lack of a common understanding of the main challenges, limited cross-sectoral cooperation, and inadequate multi-level coordination, leading to unsatisfactory implementation. Furthermore, there is insufficient participation of local actors and civil society in adaptation planning and resilience building, which can be attributed to both the lack of organisation and funding of NGOs and resistance from the government.^[133] Participation processes are often conducted in a tick-box manner without significant opportunities for civil society to contribute. Indigenous and other minorities do have special rights but they are not always properly enforced and not all vulnerable people fall under these categories.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **28** of 183

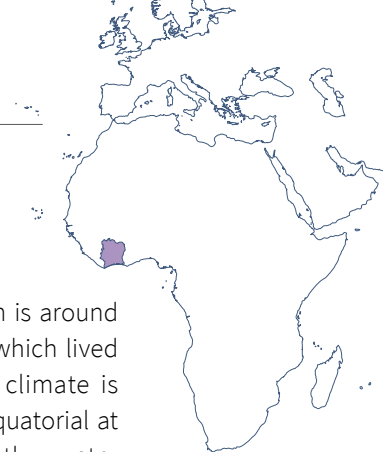
20-year rank: **38** of 181

Mitigation Profile and Climate Protection Policy Performance

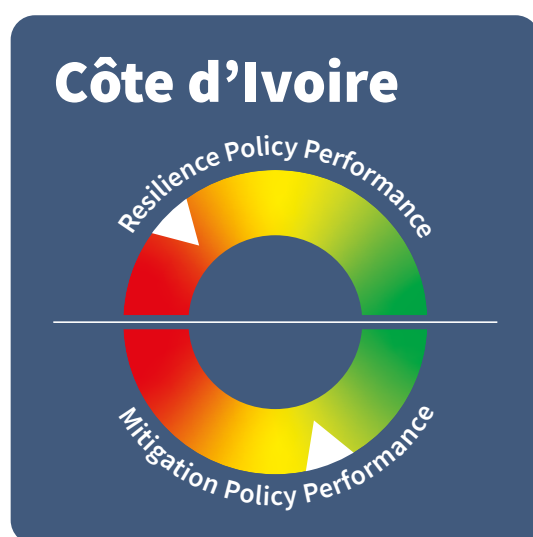
In December 2020, Colombia announced its significantly enhanced NDC, committing to a 51 % emission reduction below BAU by 2030. Through this, the country is aligning its mid-term strategy to its 2050 carbon neutrality target and positioning itself as one of the frontrunners in the region when it comes to mitigation targets^[134]. In addition, the country's response to the COVID-19 induced economic crisis also contains significant steps towards a sustainable green economy, funding and supporting renewable energy projects, environmental protection and reforestation projects.^[135] On the other hand, however, coal continues to play a large role in the country's economy, providing not only 12 % of the country's TPES, but also making up 18 % of its total exports.^[136] Thus, the socio-economic importance of Colombia's transition to clean energy is more than just a matter of reliable national energy supply.

Examining Colombia's national emissions profile, it becomes evident that the agricultural sector, making up 32 % of the overall national emissions, and the transport sector, accounting for the largest share in the energy emissions of the country, provide key opportunities for Colombia to achieve its climate mitigation goals. With the updated NDC, the government recognizes this potential in the enhanced land and transportation targets. In the transport sector, Colombia announced measures to increase bicycle mobility in urban areas (NAMA TAnDEM), expand the existing Bus Rapid Transit system (BRTs) and support electro mobility with the National Strategy of electro mobility.^[137] The initiative has been reinforced through the Law 1964 (2019), including concrete measures and targets promoting sustainable electric mobility^[138], as well as with the establishment of the Railway Master Plan in November 2020. In the land use and forestry sector, Colombia has now committed to net-zero deforestation by 2030, which it plans to achieve through several projects as part of its NDC and other initiatives such as the Initiative 20X20 to protect and restore 1 million hectares of land, alongside the implementation of the REDD+ scheme^[139].

Colombia's power sector accounts for only 19 % of the country's energy emissions and thus appears to be a comparatively small factor in the sustainable transformation of the country, especially compared to the above-mentioned sectors of transport and agriculture. It is, however, worth pointing out that though being comparably less fossil-fuel dependent, Colombia's electricity supply is heavily dependent on hydropower, which account for 75 % of the national electricity mix (2018). Considering the environmental implications of this technology and concerns regarding its power supply reliability, combined with an even growing electricity demand as the transport sector shifts towards electricity, a diversification of the power sector will be key to ensure a sustainable and reliable energy supply in the future.



Côte d'Ivoire



Côte d'Ivoire's growing population is around 25 million^[140], over 13 million of which lived in urban areas in 2019^[141]. The climate is warm and humid, ranging from equatorial at the southern coast to tropical in the centre and semiarid in the far north. As the world's leading cashew nut and cocoa producer and a successful oil and gas exporter Côte d'Ivoire continues to be one of Africa's most vibrant economies. While still recovering from the post-election conflict in 2010 to 2011, Côte d'Ivoire is the second largest economy in West Africa. It has a thriving manufacturing sector and is classified as a low middle-income country with substantial growth rates. However, this growth is not, as of yet, inclu-

sive.^[142] As half of its working population is employed in agriculture,^[143] Côte d'Ivoire's work force and economy are vulnerable to weather and climate fluctuations, as well as to external shocks to its export business.^[144] However, the country has no consistent and enduring overall climate policy, mainly due to the political crisis. The recent National Development Plan covers neither climate mitigation nor adaptation.^[145] Climate change is considered in the national development programme and the NDC, identifying water, agriculture, coastal protection, and energy as topics of priority.^[146] At the same time, the country had the second highest proportional rise in rainforest loss in 2018 globally. Deforestation can be conclusively linked to cocoa cultivation and illegal mining activities, but these do not account for all the losses.^[147]

Climate Risk Profile and Resilience Policy Performance

From 1970 to 2015, the average temperature in Côte d'Ivoire already rose by 1° C, with unclear consequences for precipitation patterns. Floods and droughts are a recurring risk in Côte d'Ivoire, with numerous events causing challenges all over the country in the past twenty years. Flooding is a particularly concentrated in the coastal provinces.^[148] In 2018, a flood event in the economic capital Abidjan and killed dozens and left hundreds of families displaced^[149], and severe flooding in October 2019 affected almost 13,000 people^[150]. Floods and landslides due to heavy rainfall events continue to be a recurring threat, most recently in the shape of flash flooding and landslides in the same region in 2020.^[151] For the period of 2000 to 2019, the country scores 153 on Germanwatch's Global Climate Risk Index, and ranks 129 for the events of the year 2019.

Climate Risk Index (top ranks mean greater risk)

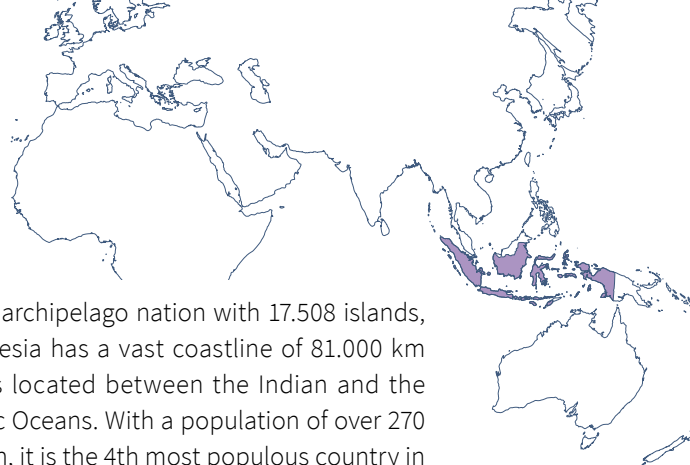
2021 rank:	129 of 183
20-year rank:	153 of 181

Climate change adaptation is still insufficiently reflected in the country's policies. The NDC Support Programme –among others – currently aims to strengthen the institutional framework and achieve the integration of the NDC into sectoral plans. Adaptation planning support is currently provided through UNDP,^[152] but further support is needed in order to achieve climate action to the local level^[153] and strengthen the capacity of local governments^[154] as well as develop resilient agriculture practices and early warning systems.^[155]

Mitigation Profile and Climate Protection Policy Performance

With the national Action Plan to Reduce Short-Lived Climate Pollutants, which contains 16 mitigation measures in five key sectors developed through strong collaboration between ministries, Côte d'Ivoire has set itself ambitious targets to simultaneously improve air quality and reduce the country's contribution to climate change.^[156] Additionally, Côte d'Ivoire has included a set of sector-specific policies to make its agriculture more sustainable and includes measures in the energy and transport sector in its NDC, which aims at a 28 % reduction in emissions by 2030 compared to BAU.^[157] While the level of implementation of those plans remains to be seen, the future of climate mitigation in Côte d'Ivoire is darkened by the country's construction of two new 350MW coal units as part of its plan to grow the proportion of coal in its energy output to 26 % in 2030 from 0 % in 2018.^[158]

The two key sectors defining Côte d'Ivoire's current emissions profile are agriculture and energy. Energy emissions in 2018 were dominated by electricity (34 %) and transport (41 %), though it is important to note that the energy sector of Côte d'Ivoire is split between the commercial fossil fuel industry, making up 40 % of the energy mix, and domestic use of biofuels, providing the remaining 60 % of the energy supply.^[159] In its NDC, the country has announced support policies to develop new renewable energy capacities beyond hydro plants, which can be seen as a positive sign both for power supply reliability and for the environment, as hydro technology comes with negative ecological impacts. Côte d'Ivoire aims to diversify its electricity mix, currently dominated by hydro and gas with 29 % and 70 % respectively. However, with only 16 %, the country has set itself a low target of share of renewable energy in the electricity supply.^[160] At the same time, Côte d'Ivoire plans with an almost 60 % fossil-fuel based electricity supply by 2030. As the country has significant potential for renewable energy, enhancing the share of renewables in the energy mix would be a positive signal for further sustainable energy development. Creating financial and infrastructural frameworks for such technologies is an important first step envisioned in the NDC, to enable a subsequently concrete implementation of renewable energy capacities in the electricity supply strategy. Beyond the energy sector, detailed measures to reduce deforestation are under development in Côte d'Ivoire,^[161] thus aiming to preserve carbon sinks as well as protecting biodiversity.



Indonesia



As an archipelago nation with 17,508 islands, Indonesia has a vast coastline of 81,000 km and is located between the Indian and the Pacific Oceans. With a population of over 270 million, it is the 4th most populous country in the world.^[162] Half of the population is concentrated on the island Java, and despite the large number of inhabitants Indonesia has areas with some of the highest levels of biodiversity on the globe. Indonesia is the largest economy in Southeast Asia and the 10th largest economy in terms of purchasing power parity. Up to the Covid-19 pandemic, the country had made great progress in poverty reduction, but authorities recorded an increase in the national poverty rate from

9.78 % to 10.19 % between March and September 2020.^[163] The emerging lower middle-income country scores 107 on the Human Development Index in 2020.^[164] The envisioned development, however, comes at the cost of nature depletion. Energy policy, deforestation and climate change are interlinked. Coal based energy production is on the rise and emissions from land use and land use change (LULUCF) are immense, the latter with a clear link to the expansion of oil palm. Disasters also put a strain on the country's development.

Climate Risk Profile and Resilience Policy Performance

Indonesia is prone to multiple natural (non-climatic) hazards such as earthquakes, tsunamis and volcanic activity, as it is located in the highly seismic Pacific Ring of Fire. Additionally, weather-related floods and landslides occur frequently and are likely to be exacerbated by climate change as many meteorological, hydrological and climatological events are linked to the weather phenomena El Niño Southern Oscillation (ENSO), which will be further intensified through global warming.^[165] Almost 90 % of disasters that occurred between 1982 and 2012 were weather-induced.^[166] Overall, the country scores 72 on Germanwatch's Global Climate Risk Index (CRI) for the timespan 2000-2019, due to major incidents such as floods in 2013 which caused chaos in the capital Jakarta^[167] and the northern part of Java in 2014,^[168] as well as devastating peatland and forest fires of 2015 that exposed thousands to toxic air conditions, destroyed crops and soils and lead to immense greenhouse gas emissions.^[169] In 2018, flash floods and landslides caused fatalities with different hotspots across the island^[170], ranking Indonesia at position 77 for the 2020 Climate Risk Index. In 2019, Indonesia experienced recurring serious flooding and landslide events, the most severe of which affected over 35,000 people^[171], causing the country to rise to rank 14 in the CRI 2021.

As an archipelago, Indonesia is also threatened by sea level rise. In 2018, two islands were eroded and swallowed by the sea^[172], with thousands at risk following.^[173] This effect is exacerbated for some regions by the fact that land is also sinking, causing concern about the long-term viability of some densely populated areas like the current capital Jakarta.^[174] Additionally, agricultural, water and fishing industries account for the majority of livelihoods in Indonesia while also being those most at stake due to climate change. Protecting these key industries from effects of climate change is therefore a priority.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **14** of 183
20-year rank: **72** of 181

Indonesia's NDC recognizes climate change risks for natural resources and describes a strategic approach to current and planned adaptation efforts. It mentions the National Action Plan on Climate Change Adaptation (RAN-API, 2018) with a framework for adaptation initiatives that has been mainstreamed into the National Development Plan.

Mitigation Profile and Climate Protection Policy Performance

With its GHG emissions on the rise, Indonesia currently shows insufficient ambition to mitigate further increase in its national emissions. The country's NDC is, according to Climate Action Tracker analysis, highly insufficient to meet a pathway well below 2 °C, and the country has no long-term emission reduction strategy in place. Meanwhile, Indonesia's emission increase can largely be attributed to the emission-intensive energy sector, making up 63 % of the total emissions in 2018. Especially the dramatic rise of coal and gas in the electricity mix (making up 56 % and 21 % of the share respectively) and the 93 % fossil fuel domination in the transport sector (being the second largest contributor to energy emissions after the electricity sector) show the clear dominance of fossil-fuel based technology in Indonesia's energy mix. The government's current energy plans reinforce the above-mentioned trends, planning overall additional capacities of 27 GW coal power by 2028.^[175]

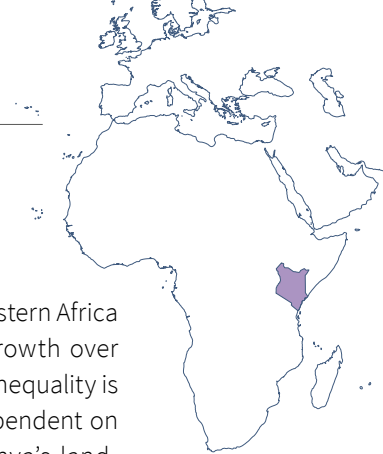
Climate Policy Performance Index

(top ranks mean better mitigation performance)

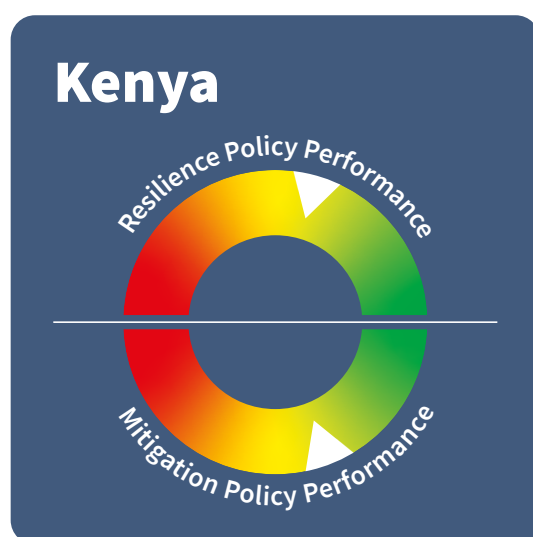
2021 rank: **24** of 61

On the other hand, there have been some positive developments in the field of renewable energy, which currently make up 18 % of the energy mix (incl. hydro and excl. traditional biomass). Additionally, there is currently a presidential regulation under discussion that would include a feed-in tariff for renewable energy that would provide significant support for the further development of renewable energy capacities.^[176] This type of support for the renewables sector is much needed in order to meet the goal of 23 % renewable energy in the electricity mix by 2025 (current share: 12 %).^[177] In the scope of the annual climate policy evaluation in the CCPI, national experts furthermore expressed their concern with regard the New and Renewable Energy law (still under discussion) and the "omnibus law" (which came into force in October 2020). The former includes higher efficiency coal plans, blocking a coal-phase out scenario in the near future, and the latter is widely criticized for eliminating environmental protection standards in favour of creating economic relief in the scope of the COVID-19 induced economic crisis.^[178]

A clear shift away from coal, including a concrete coal-phase out strategy, is indispensable for a sustainable energy transition. Further opportunities for Indonesia to strengthen its climate mitigation efforts include finalising the carbon trading regulation, which is currently still under discussion^[179] and the implementation of which remains to be seen. Considering emission-intensive energy use sectors like transport and industry (making up a combined 50 % of the energy emissions), an overarching energy efficiency and energy use strategy, alongside with a decarbonisation strategy of the transport sector, would be vital additions to the above-mentioned carbon trading system, enabling a holistic approach to sustainable energy transition.



Kenya



Kenya is the largest economy in Eastern Africa and has experienced constant growth over the last decade. Nevertheless, its inequality is high and the country is highly dependent on global economic outlook.^[180] Kenya's landscape is defined by a diverse climate, ranging from humid coastal regions to hot and semiarid bushlands in the north and east to the rift valley and central highlands, which are characterised by moderate temperatures and two rainfall periods.

Risk Profile and Resilience Policy Performance

Impacts of climate change can already be identified: increased heat waves, more erratic rainfall patterns, coral bleaching and glacier melting on Mount Kenya, as well as a wider geographical spread of Malaria. Considering its high reliance on climate sensitive sectors such as tourism, rain-fed agriculture and pastoralism as well as the sizeable effects of floods on infrastructure, Kenya has to be considered highly vulnerable to climate effects, in particular extreme weather conditions like heat, heavy rainfalls or droughts. From October to December 2019, Kenya experienced extremely high rainfall during the short rain seasons that caused floods and landslides displacing roughly three million people in East Africa and killing at least 250, with half of the fatalities occurring in Kenya.^[181]

In May of the following year, widespread flooding in 29 of the country's 47 counties killed an estimated 200 people within the space of three weeks.^[182] Additionally, Kenya is currently affected by the ongoing locust infestation, the root causes of which have also been attributed to changing weather patterns.^[183]

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **25** of 183

20-year rank: **34** of 181

Kenya has strategies and regulations in place to address climate change impacts, reaching back to a National Climate Change Response Strategy in 2010. It includes a National Adaptation Plan with a 2015-2030 timeframe and a National Climate Change Action Plan, the second phase of which began in 2018. It is also in the process of setting up a National Climate Change Council with the aim of mainstreaming climate action on all levels of government and establishing corresponding entities on county level. For the agricultural sector, a strategy with a timeframe until 2026 is in place. Furthermore, Kenya has a disaster risk management and finance strategy. However, these strategies have been criticised since their creation for not effectively increasing resilience.^[184] Separated budget lines and a lack of capacity on local and county levels impede more effective action on the ground.^[185] Communities' limited knowledge of adaptation practice further increases vulnerability.^[186] While interview partners evaluated the policies very positively, they therefore stressed the need for the improvement of implementation on county level to create better outcomes.

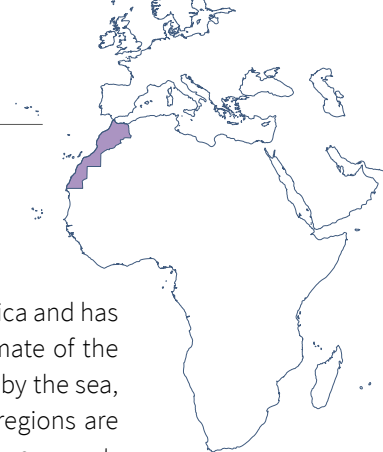
Mitigation Profile and Climate Protection Policy Performance

Overall, Kenya performs medium to high in its mitigation efforts. In December 2020, the country enhanced its NDC to 32 % emission reduction below BAU by 2030, which is considered 2 °C-compatible by the Climate Action Tracker (CAT). Seeing that the country is on track to achieve this target according to CAT policy projections, and that the enhanced NDC does not yet meet the

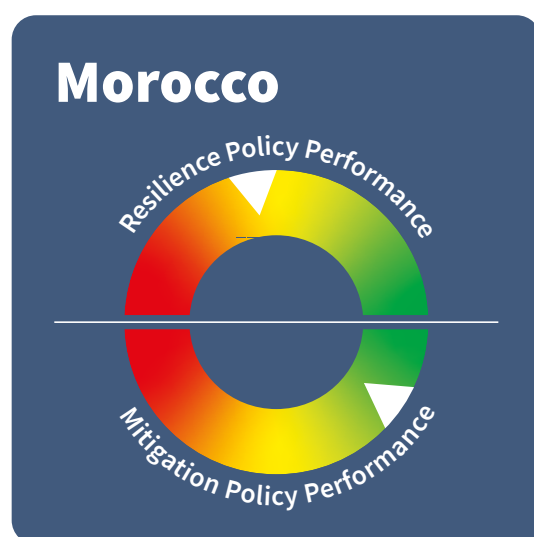
country's fair share imposed under the Paris Agreement, Kenya has potential to even strengthen its climate mitigation ambition. Under its first NDC, Kenya set out sectoral plans to specify the implementation strategy of the NDC.^[187] A similar approach on the enhanced NDC would be vital to enhance transparency and maybe access further mitigation potential than currently envisioned in the economy-wide approach. The legal and political framework for NDC implementation is provided by the National Climate Change Action Plans (NCCAPs) which are periodically updated.^[188]

In 2019, Kenya's new Energy Act passed into law without mentioning targets for sectoral emissions reduction, missing out on an opportunity to anchor climate mitigation in national development plans. In fact, Kenya recently disincentivised clean cooking and solar energy products through newly introduced taxes in the Finance Bill 2020 and harbours concrete plans for coal expansion. Kenya's intention to build two new coal-fired power stations and to further develop domestic coal mining, reinforced in its updated NDC, is highly inconsistent with the goals of the Paris Agreement and jeopardizes the country's progress towards a sustainable energy sector so far.^[189] Between 2016 and 2018, the country was able to flatten its growing energy emissions to the level of less than 16 Mt CO₂. In 2019, over 85 % of installed power capacities were made up of renewable energy technologies, leading to a relatively low-emission power sector. Despite the above-mentioned Finance Bill, the contribution of renewable energy to Kenya's power sector is likely to improve in the future thanks to tax incentives and other support measures that the Kenyan government has put in place to foster renewables with the Energy Act 2019.

In tackling national energy emissions, it is therefore important to look beyond electricity, as this sector only accounts for 12 % of Kenya's energy emissions. Measures should also target energy use sectors, especially the transport sector, which accounts for 53 % of national energy emissions, and the agriculture sector, the largest contributor to Kenya's overall emissions. Respective ministries for agriculture and transport have presented plans to reduce emissions in order to meet or even surpass the sectoral targets of the first NDC^[190]. Enhanced ambition and measures in this area provide high potential for strengthening Kenya's climate mitigation action.



Morocco



Morocco is located in Northern Africa and has two major climate zones. The climate of the North of the country is influenced by the sea, while the southern mountainous regions are mostly semi-arid. Morocco has a long coastline along the Mediterranean Sea and the Atlantic. Morocco is highly dependent on the agriculture and food sector, especially for export. Until the Covid-19 pandemic, Morocco's economy maintained positive growth, though poverty and inequality remained considerable. The impacts of the pandemic have however caused the Moroccan economy to enter its first recession since 1995.^[191]

Risk Profile and Resilience Policy Performance

Morocco is already experiencing increasing extreme weather events, ranging from droughts and floods through increasingly erratic^[192] rain patterns^[193] to cold waves.^[194]

Morocco's north-eastern coast has become particularly vulnerable to storms, flooding and sea-level rise.^[195]

For the year 2019, Morocco scores 90 on Germanwatch's Global Climate Risk Index, a significant drop from the previous year, where it ranked 135. For the combined past 20 years, Morocco ranks at 106 in the index. Climate change awareness and political momentum are very much present in Morocco, especially since UNFCCC's COP22 took place in Marrakesh 2016. Since then, Morocco has been a leader for this topic in the African Group. The National Adaptation Plan is almost completed and the NDC clearly identifies the country's main vulnerabilities.^[196] As a result of Morocco's high vulnerability, climate finance focusses on adaptation.^[197] While it addresses agricultural resilience, the powerful Ministry of Agriculture focusses in increasing overall production capacity and tends to omit questions of water scarcity. The Moroccan Competence Center for Climate Change is the main actor in coordinating and facilitating exchange of information between government ministries, the private sector and civil society. Nevertheless, coordination issues remain present and civil society actors could be included even more sufficiently.^[198] Another challenge is the availability of relevant data. Adaptation monitoring has been rolled out in three regions. Still, Morocco faces a certain shortcoming in capacity to acquire, manage and consolidate data on climate impacts and vulnerability.^[199] In general, policies are rated high, while implementation and, hence, outcomes are still in their initial stages.

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **90** of 183
20-year rank: **106** of 181

Mitigation Profile and Climate Protection Policy Performance

Morocco's emission reduction target in its unconditional NDC, aiming at 17 % below BAU-scenarios by 2030, is among the most ambitious among the countries evaluated in the CCPI and is found to be compatible with a 1.5 °C pathway by the Climate Action Tracker. The main pillar of Morocco's climate mitigation strategy consists of accelerating its renewable energy capacities in order to achieve a 52 % share of renewable energy in the electricity mix by 2030 (from 34 % in 2018)^[200]. Currently, Morocco largely depends on imported fossil fuels to feed its energy consumption, so the country is keen to diversify its energy use. Morocco has a very high potential for renewable

energies, especially solar power due to the high amount of sun hours it receives. However, the country still needs to build a consistent legal framework to back up realise its renewable energy ambition and accordingly set out any long-term strategy beyond 2030. CCPI 2021 climate policy analysis found that Morocco's renewable energy potential excels the country's current plans in this area. A decentralisation of renewable energy projects would be highly conducive to an overall more reliable and more sustainable electricity supply framework. Moreover, the Morocco's energy strategy could in a next step consider phasing out coal. It would be recommendable to pursue a decarbonisation of power generation, which, according to IPCC findings, must be achieved by 2050 at the latest if the Paris goals are to be achieved.^[201]

Climate Policy Performance Index

(top ranks mean better mitigation performance)

2021 rank: **7** of 61

Beyond the power sector, the energy sector is largely dominated by oil products, making up 61 % of TPES. In this context, the decarbonisation of the transport sector could be regarded as a key measure to stop the increase of transport emissions, which was responsible for 33 % of the country's overall energy emissions in 2018. Morocco is showing first steps in this direction with significant investments into rail infrastructure and the development of incentives for electric vehicles. These measures are accompanied by energy efficiency policies in the scope of the National Energy Efficiency Strategy 2030, covering both the transport sector and the emission-intensive sectors of residential buildings and industries. Similarly, the country shows high commitment in mitigation emissions in the forestry and land-use sector, the largest GHG-emitter after the energy sector, through both forestry regulations and afforestation programs. CCPI experts thus underline that Morocco has already put strong climate mitigation policy frameworks in place in the field of energy use, as well as in the non-energy sector. It is the implementation and gradual enhancement of these frameworks that will make the Kingdom achieve consistent climate mitigation on national level.



Peru



Peru is an upper middle-income country^[202] that has achieved significant economic growth over the last decade – mostly based on export, with raw materials accounting for a significant share. However, as fishing, agriculture and mining are all vulnerable to climate change, these recent advances in living conditions are threatened,^[203] which may increase the risk of social conflict.^[204] Due to its complex topography and numerous microclimates, Peru's diversity of ecosystems and climate zones is astonishing. The eastern lowlands present an equatorial climate with hot weather and all-year rain. Significant parts of the country are shaped by the Andes with rainy summers and very dry winters. The country has an arid and semi-arid coastline of over 2,400 km.

Risk Profile and Resilience Policy Performance

Peru's environmental particularity leads to a multiplicity of challenges when it comes to meeting climate change impacts. Some key environmental hazards are linked to the weather phenomenon El Niño Southern Oscillation (ENSO), which will be further intensified through climate change^[205]. Associated hazards are droughts, cold and heat waves as well as heavy precipitation events which

lead to floods and mudslides. The impacts of those hazards position Peru at the Germanwatch Climate Risk index at rank 44 for the past 20 years. In 2017, massive rainfall caused flooding and mud slides, killing 67 and displacing thousands.^[206] The inhabitants of informal settlements in the regional capital Piura and also in Lima were particularly vulnerable to the flooding.^[207] Also the country's vital agricultural sector was hit severely, destroying a substantial share of the yield and rising questions of food security. In total, seven thousand agricultural producers experienced losses, out of which 80 % were small-scale farmers.^{[208][209][210]} While subsequent flooding events have been less severe in their individual effects, repeated flooding and landslides due to heavy rainfalls remain a recurring threat, with affecting five regions of Peru in 2019^[211], ranking the country 45 in the 2021 CRI. The latest flood and landslide events hit the regions Piura^[212] and Madre De Dios^[213] in early 2021.

Peru identified priority areas for adaptation in its INDC framework law on climate change in 2018. In October 2019, Peru kicked off its NAP process, which involves peer-learning from neighbouring Colombia.^[214] Its measures and indicators focus on forests, agriculture, fisheries and aquaculture, health and water.^[215] In 2018, the Peruvian government issued its first legal framework on climate change, though it has so far not addresses all adaptation challenges.^[216] Nevertheless, Peru's prominent role in the 2021 Bicentennial Plan shows that the national government takes adaptation to climate change seriously.^[217] In general, however, adaptation policy has not been effectively mainstreamed so far, nor has it been not properly linked with the overall development strategy.^[218] Clear steps and budget allocation are also often missing.^[219] In addition, subnational actors lack preparation and capacities, which impedes the implementation of adaptation strategies.^[220] There is a general lack of relevant, up-to-date climate data and the countries M&E system is still in early stages.^[221] More than three out of four Peruvians live in cities, which is why urban adaptation

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **46** of 183

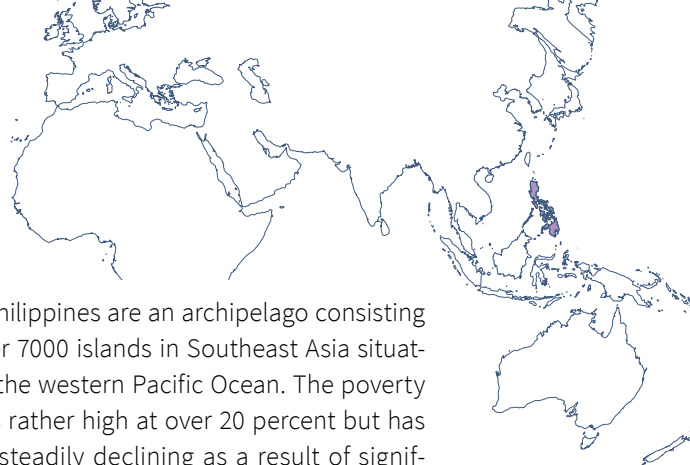
20-year rank: **45** of 181

needs to become a primary goal. On the positive side, Peru, as the first country in the world, has an Indigenous Climate Platform.^[222]

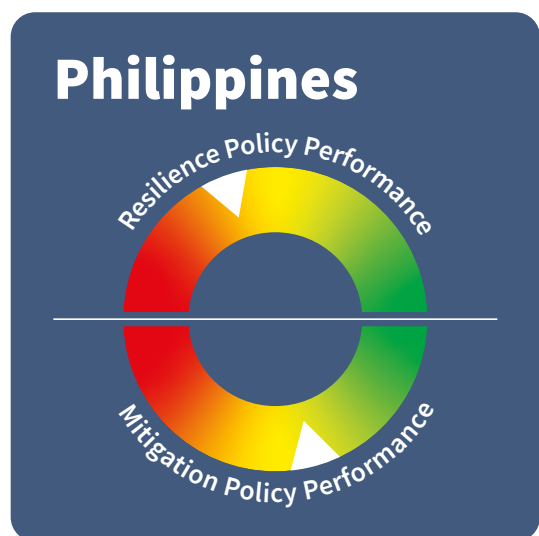
Mitigation Profile and Climate Protection Policy Performance

In 2019, Peru embedded its climate mitigation policies, including its NDC, into its legal system with the Framework Law on Climate Change. In 2020, Peru announced intent to enhance its NDC from 30 % to 35 % emission reduction compared to BAU by 2030, aiming for carbon neutrality by 2050. Despite limited information available on concrete sectoral implementation of the NDC, the Climate Action Tracker so far considers the announcement of the enhanced NDC as “an opportunity for Peru to become a frontrunner in the climate sphere by setting up more ambitious targets that are both realistic and in line with the temperature goals of the Paris Agreement”.^[223] With a carbon-off-set deal between Peru and Switzerland signed in October 2020, Peru will receive financial support for climate mitigation projects while Switzerland will credit the respective emission reductions to its own NDC. Opinions on the consequences of the agreement diverge, with experts hoping that on the one hand climate mitigation action in Peru may accelerate, while on the other hand the country may be less likely to fully achieve its own emission reduction targets. Further uncertainty is caused by the fact that robust rules for such transfers are not yet agreed under Article 6 of the Paris Agreement.^[224] They will hopefully be decided upon at COP26.

Key areas to build on the trend of stabilisation in Peru’s overall emissions are the transport sector, which contributes 50 % of energy related GHG emissions, and the land use sector, the most emission-intensive sector outside of the energy sector. Recent mitigation measures in the transport sector include tax incentives for electric vehicles, the development of cycling infrastructure and expanding public transport facilities. Raising Peru’s ambition in phasing-out fossil fuel cars beyond the current target of 5 % EV in transport share by 2030 could be an accelerator for the decarbonisation of the country’s energy sector, especially considering the country’s already relatively low-emission electricity mix. Peru plans to further diversify its electricity mix, which is currently dominated by gas and hydropower, through support policies for renewable energy technologies. Endorsement and implementation of those plans would be an important step to ensure sustainable energy supply in the future. Positive development can also be seen in the land use sector,^[225] with the current decreasing trend in deforestation being attributed to the National Forest Conservation Program, which was recently extended for ten more years and has set the target of protecting 10 million forest hectares by 2030.^[226] Regardless, deforestation remains a critical issue to Peruvian environmental policies, with projections of the Climate Action Tracker projecting an historical growth rate of emissions from deforestation by 82-84 % between 2012 and 2030 under current policies. This indicates a clear need for further action.



Philippines



The Philippines are an archipelago consisting of over 7000 islands in Southeast Asia situated in the western Pacific Ocean. The poverty rate is rather high at over 20 percent but has been steadily declining as a result of significant economic development.^[227] However, this progress is threatened by the impacts of climate change, especially as one third of the population works in agriculture.^[228]

Risk Profile and Resilience Policy Performance

Sea level rise will endanger low-lying urban areas in the Philippines, and more cyclones of higher intensity will hit the country more

frequently, particularly impacting the poorer population. The Philippines are frequently exposed to tropical cyclones such as Bopha 2012, Hayan 2013 and Mangkhut 2018, which is reflected in the high ranking within the Global Climate Risk Index, where it scores 4 for the combined past 20 years. The northern part of the Philippines was severely affected in September 2018 by category 5 typhoon Mangkhut, directly impacting more than 250.000 people across the country and killing 59 with its aftermath. Tropical storms continue to strike the Philippines regularly. 2019 saw several storms sweep the country, causing widespread flooding and landslides. Tropical depression 'Usman' caused over 100 fatalities in January of 2019^[229], and flooding on Mindanao Island displaced over 40.000 people in June of the same year.^[230] This, along with several lesser events, placed the Philippines at 17 in the 2021 CRI. In 2020, the most severe of recent events struck the country in the shape of Typhoon Vamco that caused at least 173 incidents of flooding and 38 incidents of landslides, affecting over 1.7 million people, including an estimated 67 fatalities.^[231]

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **17** of 183

20-year rank: **4** of 181

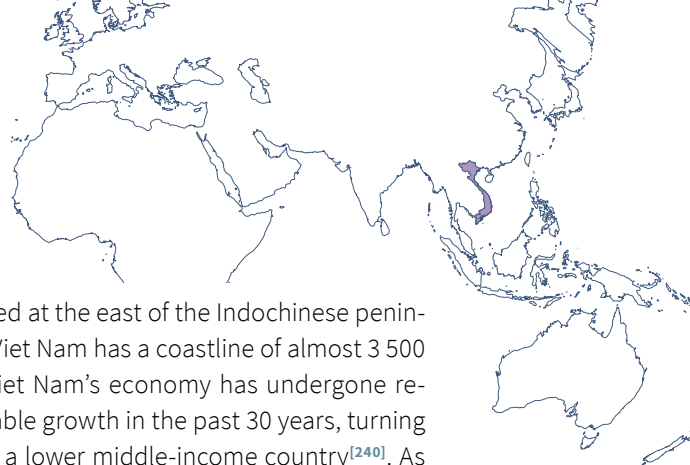
Being particularly vulnerable, the Philippines spent around 95 % of their climate action resources on adaptation. Climate action mainstreaming and vertical integration goes back to the Climate Change Act that also established the Climate Change Commission (CCC). Other important legislation includes a National Framework Strategy on Climate Change and a National Climate Change Action Plan (NCCAP). The People's Survival Fund (PSF) provides USD 20 million for adaptation projects annually^[232] and was initiated to underpin policies and requirements of local governments such as the establishment of local climate change action plans with funding. The National Disaster Risk Reduction and Management Council develops strategies that manage and reduce risk, but while progress in developing an integrated approach has been made, fragmentation is still evident.^[233] Many efforts are driven by the national government and rely on external funding, knowledge gaps regarding context specific and culturally sensitive adaptation measure remain.^[234] Local governments often lack expertise and the capacity to access funds such as the PSF, and consequently rely heavily on funds from the central government. This is especially true for rural areas.^[235] This undermines the implementation and outcomes of generally positively viewed policies. The quality of the local climate action plans is still very heterogeneous and there is no quality control or monitoring and evaluation in place. The CCC tries to address this problem but its resources are limited. The needs of the vulnerable are only addressed very broadly, making it possible for some groups to remain unnoticed.

Mitigation Profile and Climate Protection Policy Performance

The Philippines' conditional NDC target of 70 % emission reduction by 2030 compared to BAU-levels is found to be compatible with a 2 °C-pathway by the Climate Action Tracker. However, it has to be noted that this is still not in line with the well-below-2 °C pathway implied by the Paris Agreement and, moreover, that the Philippines are not on track to meet its current NDC.

Current climate mitigation policies, especially with regard to the country's long-term energy infrastructure, are in a dynamic progress, as energy demand drops induced by the COVID-19 economic crisis have uncovered the negative impacts of a coal-dominated and thus inflexible power sector. Between 2013 and 2018, the share of coal in the electricity mix almost doubled to 52 % in 2018, and is a key driver for growing energy emissions and, consequently, the country's overall growing emissions. While there is still a significant coal pipeline in place and the Philippines Energy Plan 2017-2040 envisions 30 % of the country's energy supply in 2035 to be covered by coal^[236], the recent announcement of a coal moratorium might indicate a policy shift in this field. With the announcement of the moratorium in October 2020, the endorsement of new coal-power projects by the Department of Energy have been stopped. Despite several details on the policy still being unclear, it can be regarded as a sign of President Duterte's declared ambition to diversify the country's electricity mix and in particular reduce its dependence on the import of traditional energy sources like coal and gas^[237]. At the same time, recent plans the government however show its intent to expand the role of gas in the electricity system, currently making up 22 % of the electricity mix, which, though being less emissions intensive, is neither conducive to a more independent power sector, nor to a decarbonisation of the sector in the near future. In contrast, its success in growing the share of renewable energy in the power sector and providing a clear framework to further develop the renewable energy capacities identifies the National Renewable Energy Programme (NREP 2011-2030)^[238] as a potential basis of a coal phase-out plan, ensuring both a just transition and reliable power supply in the long term.^[239]

The Philippines has recognized the land use sector as a key field to achieve its NDC, aiming to meet 40 % of the 70 % emission reduction envisioned in its NDC through forestry, and has thus implemented policies accordingly (e.g. REDDD+, Philippines Master Plan for Climate Change Resilient Forestry, Philippines Development Plan). In contrast, the Climate Transparency Report shows the Philippines' clear lack of action in the transport sector, despite being the second largest contributor to national energy emissions. Climate mitigation is becoming a priority in the Department of Transport, and developing a coherent emission-reduction framework in the transport sector could significantly contribute to the country's overall climate mitigation efforts.



Viet Nam



Located at the east of the Indochinese peninsula, Viet Nam has a coastline of almost 3 500 km. Viet Nam's economy has undergone remarkable growth in the past 30 years, turning it into a lower middle-income country^[240]. As a result, its dependency on agricultural produce has reduced significantly – nevertheless it remains a crucial sector of the economy with a high export rate. The human development index rating has increased steadily as well.^[241] However, climate change now threatens this development.

Risk Profile and Resilience Policy Performance

Viet Nam faces severe challenges as climate change progresses. Saline intrusion could render many agricultural areas unusable and the impacts of typhoons and storm surges are exacerbated by higher sea levels. By 2050, more than seven million people could be affected by coastal flooding – especially in the Mekong river delta region.^[242] Viet Nam is frequently hit by several extreme weather events within a short period of time. In 2017, for example, it was hit by storms in April^[243] and typhoons in summer^[244] and in November.^[245] In addition, it suffered from flash floods, resulting landslides^[246] and droughts that very year.^[247] In comparison to the previous years, Viet Nam suffered from fewer and less severe extreme weather events in 2019^[248], allowing the country to drop to rank 38 on Germanwatch's Global Risk Index. Nevertheless, Viet Nam still ranks 13th on the CRI for the last 20 years, and was struck by several extreme weather events in 2020, with the most serious floods and landslides claiming over 100 lives.^[249]

Climate Risk Index

(top ranks mean greater risk)

2021 rank: **38** of 183

20-year rank: **13** of 181

Early on, Vietnam prioritised adaptation over mitigation action in its National Target Programme to Respond to Climate Change.^[250] It includes Climate Action Plans, which the government requested all cities and provinces to prepare. The plans were predominantly prepared by consultants, often without consultation of impacted people, and are consequently of poor quality, containing unrealistic recommendations for concrete implementations.^[251] Further, the local government systems lack capacity especially in the rural areas.^[252] There is also room for improvement regarding risk management and risk financing tools.^[253] A closely related problem is the unavailability of relevant data. Vietnam faces a lack of capacity to acquire, manage and consolidate data on climate impacts and vulnerability.^[254] Further, regulation still encourages economic development unfit to meet climate change impact challenges.^[255] In general, cross-sectoral cooperation in Viet Nam receives rather negative ratings by interviewees, as does multi-level governance. Adaptation in the crucial tourism sector lacks a clear strategy so far and what adaptation measures are implemented predominantly short-term.^[256] These challenges lead to lacklustre implementation of policies and, hence, so far unsatisfying outcomes.^[257] In addition, approaches are rather technical and do not properly address different vulnerabilities.^[258]

Mitigation Profile and Climate Protection Policy Performance

Under current policy projections, Viet Nam is expected to meet its critically insufficient NDC of unconditionally reducing 9 % emissions compared to BAU by 2030 and conditionally reducing 27 % emissions compared to BAU by 2030^[259]. The so far overall insufficient ambition in climate mitigation policies presented in the NDC translates to incoherent and unambitious policy schemes in relevant sectors, lagging behind the country's actual climate mitigation potential.

Since 2013, the share of coal in the power mix of Viet Nam had roughly tripled to 47 % in 2018. This has led to fast-growing electricity emissions, driving a significant emissions-increase of the energy sector. The draft Power Development Plan (PDP 8), which is expected to be released by May 2021, envisions a much more diversified power mix (compared to the current power mix made up by coal, gas and hydropower).^[260] However, fossil fuels are still expected to play a key role in the electricity supply. The PDP 8 2030 scenarios assume a 27 % share of coal in the power mix (listing 18 GW of new coal between 2020 and 2025) and put a large of focus on expanding gas capacities to provide up to 23 % of the installed power capacities. The PDP 8 calculates a potential of 108 GW of LNG fired power plants by 2040, indicating a political shift towards gas since the last PDP, which set out 19 GW capacities of natural gas and LNG by 2030.^[261]

The focus on fossil fuels as the predominant source of energy despite their environmental implications is even more destructive considering the momentum and potential of new renewable energy technologies in recent years. In October 2020, the largest solar farm in South East Asia started operating in Viet Nam and the country is a regional leader in floating solar plans. Even though the PDP 8 enhanced renewable energy targets compared to the PDP 7, striving towards 28 % new renewable energy in the electricity sector by 2030, the Institute for Energy Economics and Financial Analysis assessed that the PDP 8 focus on traditional energy sources “conflicts with the most important trends shaping global power markets as well as with the planners’ objectives to ensure energy security and minimize overall system cost including power costs, and health and environmental externalities.” Viet Nam is thus missing an opportunity to take advantage of key opportunities like its fast-growing renewable energy market to enhance its overall climate mitigation policy.^[262]

Outside the supply side of the energy sector, Viet Nam has acknowledged the relevance of its industry sector as the second-largest polluting sector, which makes up 28 % of the country's energy emissions (PRIMAP). The country has now included the sector into its 2020 NDC emission projections and targets a reduction of up to 10 % of the total final energy consumption by 2030 (compared to BAU) in the National Energy Efficiency Programme (VNEEP).^[263] Similarly, the country has various policies in place to mitigate the emissions-intensive agricultural sector (24 % of overall emissions) and transport sector (16 % of energy emissions), which have immense potential to contribute to achieve higher-ambitioned climate mitigation policies.

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