Saving Resources

Actions that achieve both climate goals and the SDGs

A Report to COP 26 Delegates

A report from the APPG on the UN Global Goals for Sustainable Development in cooperation with the University of Sussex

September 2021

appg

THE ALL-PARTY PARLIAMENTARY GROUP
UN Global Goals

This is not an official publication of the House of Commons or the House of Lords. It has not been approved by either House or its committees. All-Party Parliamentary Groups are informal groups of Members of both Houses with a common interest in particular issues. The views expressed in this report are those of the group.

This report is co-produced by the University of Sussex. It was researched and written by Joseph Alcamo and Ruth Segal, Sussex Sustainability Research Programme (**SSRP**), University of Sussex. The researchers were supported by Alice Whitehead at the Secretariat for the APPG on the UN Global Goals for Sustainable Development.

We thank reviewers Amber Huff, Peter Newell, and Peter Smith.

Rt Hon Lord McConnell of Glenscorrodale and Theo Clarke MP worked with the researchers on this report. A full list of their interests can be found in the Register of Lords' Interests and the Register of Members' interests: **https://www.parliament.uk/mps-lords-and-offices/standards-and-financial-interests/parliamentary-commissioner-for-standards/registers-of-interests/**

APPG on the UN Global Goals for Sustainable Development: **https://www.appg-globalgoals.org/**

appg

UNIVERSITY OF SUSSEX

Contents

Foreword	04
Executive Summary and Recommendations	05
Chapter 1: Introduction	09
Chapter 2: Review of Policies and Measures	12
Chapter 3 : Equitable and Just Policies	38
Glossary	48
Endnotes	49

Foreword

At the launch of the UK's presidency of the 26th United Nations (UN) Climate Change Conference (COP26) in February 2020, the Prime Minister stated that it was critical for 2020 to be a defining year of action on tackling climate change and protecting the natural world.[1]

Since then the urgency of this task has only increased. We have seen a greater number of climate-related disasters devastate not only our natural environment, but also people's lives and livelihoods. In August 2021, the Intergovernmental Panel on Climate Change (IPCC) sounded the alarm on the climate emergency, highlighting that these issues are likely to become much worse as climate change takes hold. Only rapid and drastic reductions in greenhouse gas emissions in this decade can prevent such climate breakdown.[2]

The Covid-19 pandemic has also compounded the crisis, further exacerbating the vulnerabilities of both people and planet. UN Secretary General Antonio Guterres called the last eighteen months the "most challenging period the world has seen since the Second World War ... deepening inequalities, decimating economies and plunging millions into extreme poverty."[3]

Theo Clarke MP & Rt Hon Lord McConnell of Glenscorrodale
Co-Chairs, All-Party Parliamentary Group
on the UN Global Goals for Sustainable Development

But the pandemic has also shown us how important the universal and interconnected Sustainable Development Goals (SDGs) are, and how critical it is for us to increase action towards achieving them, delivering on the commitment to 'leave no one behind' by 2030.

The pandemic has shaken the global economy, and countries have focused on tackling the social, economic and health crises posed by Covid-19. The enormous costs of the pandemic have put available resources for achieving the SDGs and fulfilling the Paris Climate Agreement under pressure. But it is essential for us to build back better. This report outlines the actions that governments, businesses and civil society can take to simultaneously advance both of these important agendas, and we are grateful to the Sussex Sustainability Research Programme (SSRP) at the University of Sussex for their assistance in preparing the report.

Change is essential, but it is also possible. Global Britain has a crucial leadership role to play this year as it hosts the COP26 Summit. There is a short window for the global community to create a more sustainable, inclusive, equitable and resilient world for all – especially the most marginalised and excluded people. As Rt Hon Alok Sharma MP, COP President, said in May 2021, "This is our last hope ... our best chance of building a brighter future."[4]

Executive Summary

- Recent extreme weather events have vividly shown the consequences of climate change, while the latest UN reports urgently warn that we are missing key targets to slow these consequences. At the same time, the world is slipping on targets for several SDGs, and these have been further pushed off course by the global pandemic: the UN reported that during 2020 a further 41 million people became impoverished and 130 million undernourished.[13] Meanwhile, the enormous costs of the Covid-19 pandemic have put tremendous pressure on public resources left to tackle global goals. As we begin to see beyond the pandemic we face an urgent double dilemma: we are missing targets for climate protection and sustainable development and yet there are fewer resources for reaching them. The reality is that countries and communities have even more to do, with even less. And action is needed now!

- The good news is that there are many policies and measures that have *significant potential* to achieve *both climate goals and SDGs*. If scaled up and applied widely, these actions could provide an efficient way to achieve many global goals and save resources for doing more. This report compiles evidence of these policies and measures from an Inquiry of the All-Party Parliamentary Group on the SDGs, from the research literature, and from country reporting under the Paris Climate Agreement.

- "Significant potential" of joint climate-SDG policies is used here in the sense that a large population or geographic area will benefit from scaling up these policies. Examples include replacing fossil fuels with renewable energy, substituting traditional smoky cookstoves with energy efficient and clean varieties, and constructing green buildings. There is a particularly large number of policies of this type in the agricultural sector including the reduction of crop losses after harvest, increasing the carbon content of soils, and decreasing meat consumption.

- By implementing these, and many other policies and measures, national governments can work towards achieving climate goals while advancing one or more other SDGs. Achieving multiple goals through single actions avoids a duplication of efforts within and between government departments and other organisations. It enables them to use their resources more effectively, freeing up resources for further actions. Studies show that this effectiveness can translate into financial gains.

- National governments are best positioned to lead on harmonising the climate and SDG agendas because they are responsible for both implementing the global SDG framework and for achieving national climate targets. They should ensure that climate action is pursued vigorously but in a way that is consistent with the equity and other goals of the SDGs; climate policies must not leave the poor and disadvantaged behind. Likewise, governments should aim for overseas development aid being compatible with climate goals.

- Harmonising the climate and SDG agendas will require a high level of government "policy coherence" i.e. effective cooperation among departments in achieving joint objectives. Evidence also shows that cooperation between government, the business sector, non-governmental organisations and affected communities further increases the effectiveness of coordinated actions.

- Although these policies and measures have significant potential to achieve global goals, the extent to which they can be scaled up has not been determined. This scaling up will depend on their applicability to particular countries and communities, and this, in turn, will hinge on the national or local context, i.e. socio-economic conditions, organisational capacity, governance arrangements, climate and environmental conditions, and other considerations.

- Many countries are already pursuing policies and measures that advance both climate goals and SDGs. These are reported in their NDC (Nationally Determined Contributions) plans under the Paris Climate Agreement. For example, Chile is pursuing several actions of this type including "Sustainable management and recovery of native forests" and "Improving insulation standards". The large-scale potential of these and other such policies reported in NDCs has not yet been evaluated, but they may be transferable and useful to other countries.

- Many countries are also working with business actors and civil society to promote economic development that advances both environmental and social goals. For instance, in Uganda, the government is working with businesses and community groups to address their housing needs. Smart Havens Africa, a social enterprise business, provides sustainable and affordable housing, and advocates for the interests of low-income urban households. Learning from such initiatives could help other countries exploit similar opportunities.

- A very important point is that a coordinated climate-SDG policy is not necessarily an equitable policy. Unfortunately, there are many examples of actions to protect climate or encourage development that have led to injustices. For instance, there are cases in which developing hydroelectricity as a lower carbon form of energy has led to human rights violations against Indigenous people. Another example is that clean cookstove programmes have led to inequities with regards to the lower income women at the centre of these programmes.

- But it is possible, and it is urgent, to make joint climate-SDG policies just and equitable. How to do this has already been laid out in principle by the international community in global agreements such as the 2030 Sustainable Development Agenda and the Paris Climate Agreement. Other useful experience has been collected by UN institutions such as the IPCC (Intergovernmental Panel on Climate Change) and the REDD+ programme (Reduction of Emissions from Deforestation and forest Degradation).

- We draw on the preceding sources to propose guidelines that can be used by policymakers and stakeholders to help them incorporate justice and equity considerations into policies and measures that advance both climate goals and the SDGs. Many of the guidelines are relevant to all scales and stages of projects and policy processes. Some are more specific to the national and/or international level.

- The guidelines address:

  - "Distributive equity" which focuses on fairness in the distribution of costs, contributions and benefits. Many actions can be taken to ensure distributive equity including assessing the negative impacts of policies and measures on other SDGs and climate goals; taking into account the impact of actions on vulnerable and marginalised groups; and respecting and protecting Indigenous peoples' rights.

  - "Procedural equity" which aims to ensure fairness in the political processes concerned with the allocation of resources. Included here are, for example, taking steps to support tenure and resource rights of individuals and communities; ensuring flexibility in approaches and avoiding "one size fits all" solutions; and recognising and protecting gender rights.

  - "Contextual equity" which ensures that stakeholders have a fair position in negotiations about policies and resources that affect them. These guidelines include, for example, building the capacity of stakeholders to participate in policy processes; and creating international mechanisms that support countries to implement policies justly and equitably.

- Summing up, the world urgently needs to get back on track to meet climate goals and the SDGs. Considering the global squeeze on resources, we also need to do this efficiently. One way is to align the climate and SDG agendas and exploit the opportunity that many policies and measures advance both climate goals and SDGs. There is ample evidence that this is an efficient way to achieve multiple goals, save resources, and have resources left over to do more. But "efficiency" does not always go far enough. Policymakers and stakeholders should try to actively build justice and equity considerations into these policies to aim for them to be not only *efficient* but also *equitable*. Achieving goals has to be an enterprise that is fair to all. National governments have an important role to play here. They should lead by aligning their national climate and SDG agendas. It is vital that actions to achieve SDGs contribute to achieving climate targets, and actions to achieve climate goals are undertaken within the framework of the SDGs. And they must work closely with local governments and stakeholders, the UN, and the business community to make it happen.

Recommendations

There is a risk that actions to achieve climate targets could increase inequality and undermine development priorities, if not managed with care. But this report finds that it is possible to act on climate in ways that create opportunities to build equitable and sustainable communities. Based on the findings of this report, our key recommendation is for governments to align policy actions across climate goals and the SDGs as a matter of urgency. National governments, working within those global frameworks, should take the lead to build coordinated action across sectors.

But national governments alone cannot achieve the scale of change required. They must also create an enabling environment that encourages business and civil society initiatives. It is vital that actions to achieve SDGs contribute to achieving climate targets and that actions to achieve climate targets are undertaken within the framework of the SDGs. By creating and building on such synergies, we believe progress can be made on achieving both the SDGs and climate goals by 2030.

National governments should:

Establish mechanisms, such as national commissions or cross-department working groups, to build policy coherence across national implementation of SDG and climate agendas. These mechanisms could include:

- Develop a national action plan that brings together strategies on SDGs and climate policies. To develop such a plan, governments should look at harmonising SDG-related Voluntary National Reports (VNRs) with climate-related National Determined Contributions (NDCs), National Adaptation Plans (NAPs), and disaster risk reduction strategies. This includes developing a joint set of national targets to ensure coherence across reporting and data collection mechanisms.
- Identify a set of joint policies with high potential within the national context that achieve both climate goals and SDGs. These can be identified through rapid assessments supported by the scientific community and civil society actors. Governments should consider subjecting proposed policies to a stress test to ensure that they fulfil guidelines for equity and justice.
- For those climate and SDG policies that cannot be closely aligned, governments should develop review processes to ensure that climate policies do not undermine SDGs, and aim for development policies that do not have a negative impact on climate and environmental policies.
- Consider including in Covid-Recovery Packages policies and measures that simultaneously advance both climate goals and SDGs, focusing particularly on reversing the unequal impacts of both Covid and climate change on the most vulnerable communities.
- Adequately finance actions to advance climate goals and SDGs, ensuring joint priorities are reflected in ministerial budgets. This includes establishing appropriate parliamentary processes to ensure adequate scrutiny and accountability regarding expenditure on actions to address joint climate-SDG priorities.
- Provide local level government bodies with the skills, resources and autonomy to implement national climate and SDG policy priorities in ways that meet the needs of local communities.
- Provide leadership, and an enabling policy environment, to private sector actors to help them develop practices and processes to reduce their environmental impacts across all relevant SDGs, including climate; and to uphold all social SDGs. This should include developing monitoring systems to ensure businesses adhere to national and international standards on human rights, labour laws and environmental protections.

To support national governments, the UN should:

- Establish a virtual platform and organise activities to share experience and learning between countries on policies and measures that deliver climate goals within the framework of the SDGs. This could include establishing an interagency group to evaluate and catalogue policies that advance both climate goals and SDGs, focusing on the priorities of low- and middle-income states.
- Establish mechanisms to streamline and coordinate reporting systems on the SDGs and climate goals to encourage greater coherence across the two frameworks in national reporting.

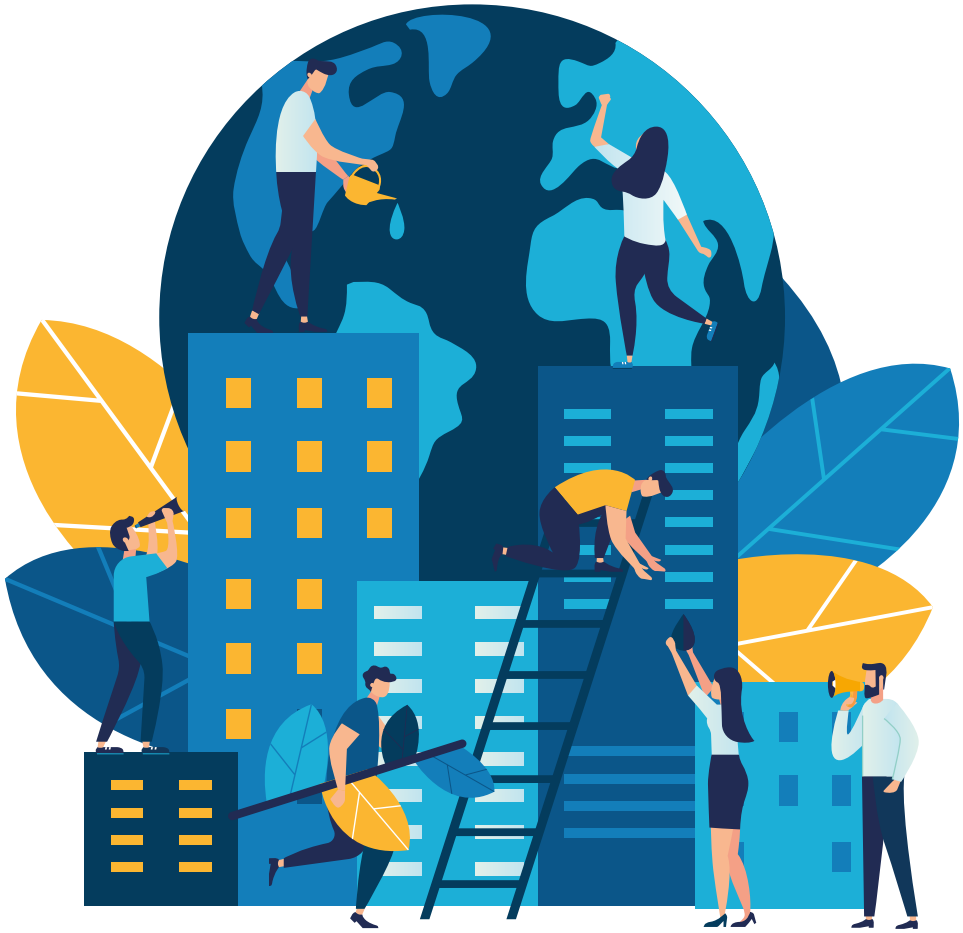
Businesses should:

Embrace business practices that advance both climate goals and SDGs. They can do so by:

- Measuring the social and environmental footprints of their products and supply chains, and then taking actions to reduce these footprints. Among other actions, they could, for example, set emission reduction targets and/or establish programmes to promote gender equality.
- Complying with climate and environmental protection standards while upholding human rights and labour rights. They should also adhere to national regulations and international frameworks such as the UN Guiding Principles on Business and Human Rights.

Civil society organisations and non-government organisations should:

Identify and promote policies and measures within their remit that advance both climate goals and SDGs simultaneously. Furthermore, they should work with government bodies to ensure that joint climate-SDG policies and programmes (and all policies and programmes) provide benefits to marginalised and vulnerable communities.



Chapter 1
Introduction

Introduction

While the Covid-19 pandemic has rightly cornered the resources of countries, other urgent priorities wait on the side lines for the attention they warrant. High on this list is confronting the climate emergency with the demanding tasks of drawing down emissions to zero and building resilience to the impacts of a changing climate. Also queueing for attention are the Sustainable Development Goals (SDGs) with their 2030 targets for combatting hunger, poverty, environmental degradation and largescale inequities in the world.[5]

But even before the pandemic began, we were lagging behind in these efforts. The United Nations' (UN) Emissions Gap report in 2019[6] and the IPCC *Working Group I* report in 2021[7] show that we are missing key climate targets; current emission trends are heading towards a global warming far above the 1.5-2.0°C limit featured in the Paris Climate Agreement.[8] This is an alarming situation since the recent occurrences of wildfires, extreme heat waves, river flooding and intense tropical storms are a harbinger of global warming consequences. Although it is true that greenhouse gas (GHG) emissions declined along with economic activity during the initial phases of the pandemic, they are now quickly rebounding to near pre-pandemic levels.[9]

While we are falling behind on climate targets, we are doing the same with many SDGs. At the end of 2019, the UN reported that the pace of poverty reduction was too slow to meet objectives for ending extreme poverty.[10] The number of undernourished people in the world is increasing rather than trending towards the vital SDG target of zero hunger, with the UN Secretary-General reporting that one out of every nine people in the world still suffers from undernourishment.[11] Many environmental indicators are also off-track. For instance, one-fifth of the earth's land surface is still degraded, affecting one billion people; while the overall risk of species extinction is growing rather than declining.[12]

The Covid-19 pandemic has made things even worse: since its start a further 41 million people have become impoverished and 130 million undernourished.[13] Management of nature reserves have broken down in Peru, Brazil, Guinea-Bissau and other countries, threatening not only fragile forest habitats, but especially the Indigenous peoples living in these forests.[14] The list of unfavourable trends is long and discouraging.

It is clear we cannot afford to lose further ground on goals for protecting the climate and achieving sustainable development. But how can we get back on track considering that both the climate and SDG agendas require massive investments in new technology, infrastructure, and governance? Before the pandemic, we were already spending around US$510-530 billion each year to combat climate change.[15] The IPCC estimates that the energy sector alone up to 2050 requires annual investments of US$830 billion to stay within a global temperature limit of 1.5°C.[16] Yet in responding to the pandemic, G20 governments have directed more COVID-19 recovery support to fossil fuel production and consumption than to renewable energy, energy efficiency, and other low-carbon alternatives (US$ 233 billion vs. US$ 146 billion, as of November 2020).[17] As for achieving the SDGs, the UN reckons an additional annual investment of around US$ 2.5-3 trillion/year will be needed in the Global South up to 2030.[18]

Faced as we are with the tremendous added costs of the pandemic[19] it is clear that there is a squeeze on the resources available for climate and SDG investments. In 2020, developing countries saw a 13% decline in total investments from outside, and an 8.5% drop in their volume of trade[20] (although this was partly offset by a 3.5% global increase in foreign aid in 2020 over 2019[21]). Overseas development assistance (ODA) from thirteen countries fell in 2020, including from the UK.[22] The UK government has argued that the costs of the pandemic require a reduction in its international aid budget for 2021-22 from its commitment level of 0.7% of GDP down to 0.5%, a reduction of about £4 billion.[23]

As we begin to look beyond the pandemic, we are confronted with a double dilemma: the world is lagging behind global goals for climate protection and sustainable development, and there are fewer resources for reaching these goals, particularly in low and middle income countries.

Which raises the question: **In the face of shrinking resources during and after the pandemic, is it possible to align these two huge efforts so that they complement rather than compete with each other?**

This report answers, yes, the climate and SDG agendas can be coordinated and aligned; and making this possible is the large suite of existing policies and measures that simultaneously advance both climate goals and the SDGs. The numerous and varied examples include replacing fossil

fuels with renewable energy, substituting traditional smoky cookstoves with clean cookstoves, reducing post-harvest losses of crops, and improving livestock management. Policies and measures are available from many different sectors of the economy.

This report has two main objectives. First, to show how the climate and SDG agendas can be aligned by presenting evidence of policies and measures that advance both climate goals and SDGs. **If scaled up and applied widely, these policies can efficiently help achieve many climate goals and SDGs and save resources for doing more**. We believe that evidence of these policies can help countries and communities develop their own strategies for aligning their climate and SDG agendas.

Second, this report discusses **how to ensure that these policies and measures are just and equitable**. This is vital to the guiding principle of the SDGs, to "leave no one behind" and essential for achieving SDG 5 "achieve gender equality and empower all women and girls", SDG 10 "reduce inequality within and among countries", and SDG 16 "... provide access to justice for all...".

The report is organised according to these two objectives. Chapter Two provides a catalogue of policies and measures based on the research literature, country reports to the Climate Convention ("Nationally Determined Contributions"), and case studies from a UK All-Party Parliamentary Group (APPG) inquiry. Chapter Three reviews knowledge on just and equitable policies related to the climate and SDG agendas, drawing on international agreements, the scholarly literature and best practice experience. It presents guidelines on how to help ensure that policies and measures are developed, implemented and maintained in a just and equitable manner.

We hope this report will provide information useful to government officials, business leaders and civil society in developing policies and measures that efficiently and equitably advance both climate goals and the SDGs and save resources so that more can be done.

As we find our way out of the pandemic, some countries have recognised that reaching climate goals and SDGs should be part of a post-pandemic "green" recovery. The Organisation for Economic Cooperation and Development (OECD) reports that, as of July 2021, OECD and partner countries have allocated around US$336 billion to "environmentally positive measures" in their Covid-19 economic recovery packages, although this amounts to only 17% of the total.[24] These measures are a step in the right direction because they address climate goals and at least the SDGs related to nature. Nevertheless, it is vital that actions to address climate (and other environmental) goals do not themselves exacerbate social injustices. A "green" recovery must be rooted in principles of equity and leaving no-one behind. Investments are urgently needed to achieve critical goals for reducing poverty, ending hunger, expanding education, and lessening inequalities, including gender inequalities.

Now is the time to look carefully at policies and measures that can advance both the climate and SDG agendas, and ensure that they are carried out in a just and equitable manner.

Chapter 2
Review of Policies and Measures

Review of Policies and Measures

In this chapter we present a brief catalogue of policies and measures[25] that jointly help achieve both climate goals and other SDGs.[26] The catalogue is divided into two parts. Table 1 consists of policies and measures drawn from the research literature. Table 2 lists policies and measures taken from "Nationally Determined Contributions" reports (NDCs). These are regular reports under the Paris Climate Agreement that describe the progress of countries in mitigating and adapting to climate change.

We begin with some examples of policies and measures from the research literature in two key sectors – energy and agriculture – and then explain the background to these estimates. We then describe policies and measures from NDCs and case studies from the APPG Inquiry. Finally, we highlight the importance of achieving policy coherence in order to realise the synergies between climate goals and SDGs.

It is important to note that this chapter presents practices with significant *technical potential*. "Significant" is used in different ways by researchers and practitioners, and we will point out these differences as we present the data.

A very important point is that having technical potential does not necessarily mean that a policy will be either equitable or just. In fact, studies have shown that the opposite can be true; there are many cases in which top-down actions have negative consequences on the communities where they are implemented. For example, Panama built hydroelectric facilities to reduce carbon emissions but in so doing flooded the territory of Indigenous communities who subsequently have accused the government of human rights violations.[27] In Bangladesh, some national projects for protecting the coastline against flooding have led to land grabbing and dispossession of poor farmers.[28] There is some concern that, in general, experts developing climate policies do not give enough attention to the justice and equity dimensions of these policies (Box 2).

Hence, not only the technical potential of an action is important, but also how it is developed, implemented and maintained within a particular socio-political setting. These issues are addressed in Chapter 3.

Examples of Policies and Measures from the Research Literature

In this section we present examples of some of the interventions listed in Table 1.

Renewable Energy

One of the best documented and most obvious examples of a policy or measure with high potential to advance both climate goals and various SDGs is renewable energy. Replacing fossil fuels with renewable energies almost always reduces greenhouse gas emissions; in general, the larger the programme to replace fossil fuels, the larger the reduction or avoidance of these emissions. Already for decades, the science community has put the replacement of fossil fuels with renewable energy at the centre of virtually all scenarios for mitigating climate change.[29] Likewise, renewable energy is at the heart of national mitigation plans.[30]

Apart from being the centrepiece of climate mitigation, renewable energy is also known to have many co-benefits, and several of these are closely related to the SDGs. In particular, replacing fossil fuels with renewable energy has a noteworthy and beneficial knock-on effect in reducing air pollution and its health risks (SDG 3, Good health).[31] Later we present evidence of the cost savings associated with these beneficial health impacts.

A renewable energy strategy also reduces the damage to crops caused by air pollution, which is significant and growing, particularly in the Global South (SDG 2, End hunger).[32] Implementing renewable energy also provides access to clean, if not always affordable, energy (SDG 7, Affordable and clean energy) and produces less water pollution under many situations than fossil fuel alternatives (SDG 6, Clean water).[33]

But not all forms of renewable energy have completely beneficial effects on climate mitigation and SDGs. There is evidence that investment in industrial-scale renewables, including biofuels, solar and wind, can under some circumstances cause significant negative social and environmental impacts. This includes 'unaccounted for' deforestation, greenhouse gas emissions, and human rights violations. Hence, any renewable energy strategy seeking true decarbonization and environmental and social co-benefits should closely abide by environmental and social standards along the entire energy supply chain.

Clean Cookstoves

Another energy-related example is the replacement of traditional smoky cookstoves with cleaner and more fuel-efficient varieties. This is a major issue because it is estimated that about 2.5 billion people in the Global South use this type of stove.[34]

Cleaner stoves have multiple benefits from both the climate and SDG perspectives. Firstly, as compared to traditional types, clean cookstoves emit far fewer black carbon particles, and black carbon makes a significant contribution to global warming. As a result, clean cookstoves help achieve climate targets for reducing greenhouse gas emissions.[35, 36] Secondly, the indoor air pollution caused by the smoke of traditional cookstoves seriously threatens the health of women and children who are most exposed to this smoke. Therefore, replacing these stoves with cleaner varieties provides important health benefits[37] and addresses SDG Target 3.9, to "substantially reduce the number of deaths and illnesses from ... air pollution". Thirdly, efficient cookstoves burn biomass more efficiently and therefore reduce the amount of biomass harvested by communities from surrounding woodlands. This works towards achieving SDG Target 15.2, to "promote the implementation of sustainable management of all types of forests, halt deforestation, [and] restore degraded forests ...". Finally, the improved efficiency of the cook stoves addresses SDG Target 7.3, to "double the global rate of improvement in energy efficiency". In these ways, clean cookstoves are an example of a single concerted action that significantly promotes both climate goals and SDGs.

But the implementation of cookstove programmes is also an example of how measures with high technical potential do not always translate into social and economic benefits, especially for poor people. In the case of a clean cookstove programme in Kenya, poor women who purchased the new cookstoves did not fully share in the financial benefits coming from carbon credits associated with the programme.[38]

Reducing Food Losses and Waste

Many different agriculture-related policies and measures have been evaluated in the research literature and found to be effective in advancing both climate goals and other SDGs (Table 1). Here we consider two of them – reducing post-harvest food losses and reducing food waste. These measures both have the effect of cutting food losses in the supply chain, which amount to about one-quarter of all food produced globally.[39] "Post-harvest losses" refer to food losses in the production and processing part of the food chain due to storage and transportation deficiencies. "Food waste" refers to food losses in the retail and consumer part of the food chain. Post-harvest losses are more important in the Global South, and food waste losses elsewhere. There are many interventions available for reducing these losses. Post-harvest losses can be lowered by improving infrastructure for storage and transportation of crops; food waste can be reduced by better marketing practices and better meal planning at home.[40]

Reviewing the many studies available on this topic, Smith et al.[41] conclude that reducing these losses will save a substantial area of cropland. This, in turn, will help achieve climate goals by eliminating the emissions usually coming from this cropland caused by fertiliser application, livestock emissions, the decomposition of organic material in soils, and other sources. Reducing food losses will also help reduce land degradation and deforestation (SDG 15) because less cropland area translates into less pressure on land to produce food, and so less land degradation. Cropland expansion will slow, reducing the rate of deforestation. Goals for clean water (SDG 6) will be supported because the demands on water supply for irrigation water and the polluting impact of agricultural runoff will decrease.[42] The value and efficiency of pursuing these policies are evident from this example.

Background to the Research Literature Used in this Report

The examples above and other interventions listed in Table 1 come mostly from the large research literature on "co-benefits" of climate policies. The term "co-benefits" is used in different ways in different studies. Here we use the definition from the IPCC: "The positive effects that a policy or measure aimed at one objective might have on other objectives, thereby increasing the total benefits for society or the environment."[43] While the concept of co-benefit is commonly used in research, the actual boundaries of co-benefits (what is influenced and by how much) are not easy to articulate.[44]

While it might be useful to compile a comprehensive catalogue of actions, this is likely to be very long and contain many actions that are not widely applicable. Therefore, in Table 1 we concentrate on the actions identified by the research literature as having *"significant"* potential when scaled up. As noted above, "significant" does not have a standard meaning, so in the following paragraphs we explain how it is used in particular studies. As Table 1 shows, there is a preponderance of information from the agriculture sector so in the following paragraphs we focus on that sector.

We begin with a comprehensive assessment of the co-benefits of policies in agriculture, forestry and the food system which was carried out by Smith et al.[45]. This study is a spinoff of the IPCC Special Report on Climate Change and Land.[46] Smith et al. assessed the potential of 40 policies and measures ("practices" in their terminology) to simultaneously achieve the goals of reducing greenhouse gas emissions, promoting climate adaptation, reducing desertification and land degradation. and enhancing food security. Their estimates assume that the policies are scaled-up worldwide.

Smith and co-authors reviewed numerous published studies and then assigned the potential of a particular measure to one of seven categories ranging from "large negative" to "large positive".[47] They concluded from their assessment that nine measures[48] have moderate to high positive impact in achieving the four goals above. These are the first nine measures presented in Table 1. They also concluded that two other measures in Table 1 – dietary change and reducing food waste – do not have a large influence on climate adaptation, but yield medium to large benefits in reducing greenhouse gas emissions, reducing desertification and land degradation, and enhancing food security.

McElwee et al.[49] carried out another comprehensive assessment focusing on the impact of land and food policies (referred to as "interventions") on SDG 13 "Climate action", as well as the other sixteen SDGs. This research also stemmed from the IPCC Special Report on Climate Change and Land. As part of their analysis they qualitatively estimated the impact of each policy and measure on each SDG on a scale from "large negative impacts" to "large positive impacts". Table 1 includes the policies they judge to have a "high positive impact" on both SDG 13 "Climate Action" and other SDGs.

Since their study stemmed from the same IPCC report as Smith et al. it is not surprising that there is a small amount of overlap in the conclusions of the two studies. For example they both found significant potential for policies of agroforestry, fire management and reduced post-harvest losses.

McElwee et al. also point out that some of the policies that advance climate goals have potential trade-offs with other SDGs. Above we noted, as an example, that trade-offs may arise from industrial-scale applications of renewable energy. However, according to McElwee et al., the particular agricultural policies listed in Table 1 stemming from their studies either have no or low negative impacts on SDGs. In any event, all potential trade-offs at all scales should be considered before policies are implemented.

In another major assessment[50] of interest to this report, Kanter and Brownlie focused on the potential of joint nitrogen and phosphorus management to achieve climate goals and several SDGs simultaneously. Since nitrogen and phosphorus play an important role in many resource, environmental, and health issues, improving the management of these nutrients significantly helps to achieve multiple goals. They identified several measures with high potential (in their terminology "effective") to simultaneously reduce greenhouse gas emissions (particularly nitrous oxide) and help achieve sustainable food production systems (SDG 2), reduce illnesses due to water pollution (SDG 3), and restore freshwater ecosystems and fish stocks (SDG 6, 14 and 15) (Table 1).

Kanter and Brownlie's analysis covered 14 countries and the European Union which together account for over 75% of both global greenhouse gas emissions and consumption of nitrogen- and phosphorus-related products. Many of the high potential measures identified in their analysis overlap with measures identified by Smith et al. and McElwee et al., providing additional evidence of the significant potential of these measures (Table 1).

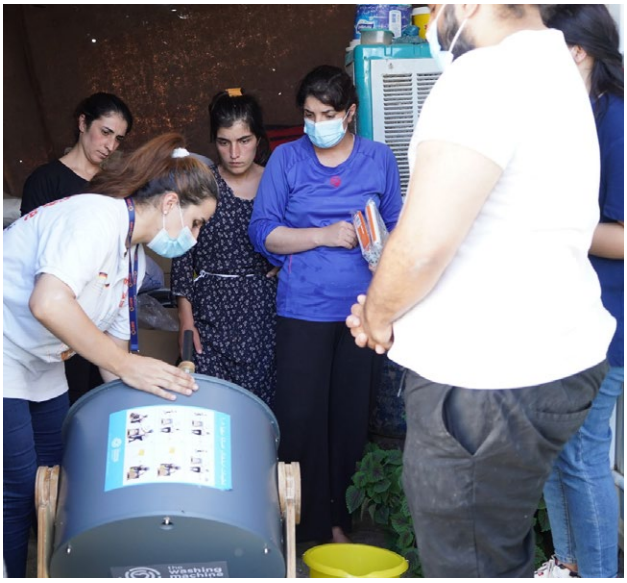
We note that other agriculture-related actions, such as expanding urban agriculture or managing the food supply-chain, may have high potential but are not included in Table 1 because of the lack of global estimates of this potential.[51]

In sum, the review of the research literature in previous paragraphs and in Table 1 shows that there are many policies and measures that advance both climate goals and SDGs and, if scaled up, can make a significant contribution to achieving these goals.

Country Climate Reports

As noted, the policies and measures in Table 1 mostly have a global perspective. While it is useful to understand the global potential of these measures, the impacts of their implementation are nevertheless context-specific, i.e. they depend on the particular location and social setting. Many local factors will influence their potential, their acceptability to citizens, and whether their implementation leads to trade-offs elsewhere. These depend on how the measure is implemented, including how trade-offs are recognised and taken into account, and how affected citizens and communities are involved in decisions about the proposed measures. These in turn depend on governance structures, institutional capacity and financial (and other) resources. These considerations are at the heart of the concept of a 'just transition'[52], i.e. how to implement policies and measures in ways that uphold the core values of SDGs 10 and 16. These issues are explored in Chapter 3.

While Table 1 identifies measures that have the potential to address both climate goals and SDGs, national-level policymakers must decide which of these measures are relevant to their national development priorities and achievable with their available resources and capabilities. These decisions are reflected in Nationally Determined Contributions reports (NDCs), National Adaptation Plans (NAPs), national development plans and sector-specific national plans.



The Washing Machine Project provides resource-efficient appliances, reducing unpaid labour in poor households and protecting the environment

Photo credit: The Washing Machine Project

Table 2 presents a selection of policies and measures identified by governments in their NDCs as having potential co-benefits between climate goals and a range of SDGs. A small number of countries make direct links between climate policies and SDGs including Cambodia, Chile and Lebanon. Other countries, including Zambia, Jordan and the Marshall Islands, list specific sustainable development co-benefits of their climate policies, but do not explicitly link them to the relevant SDGs. Many countries, including Jamaica and Pakistan, consider the importance of synergies between climate and other sustainable development issues in general terms, mentioning the need to align the agendas without specifying actions that might do so. The Climate Watch database[53] identifies 41 countries that at least mention the term 'SDGs' in their NDCs. However, data from the NDC-SDG Connections database[54], which has identified present, implied or potential SDG connections in all NDCs submitted, reveals a wide range of engagement with SDGs across countries' NDCs. For instance, Zimbabwe's NDC contains climate actions relating to 13 of the SDGs, while Australia's contains climate actions relating to only three SDGs. The NDC-SDG Connections data also reveals low levels of engagement with the SDGs for gender equality, reduced inequalities, and peace, justice and strong institutions (SDGs 5, 10 and 16). This is discussed further in Chapter 3.

A large number of countries have proposed policies and measures in their NDCs that are similar to measures listed in Table 2, but have not listed potential SDG-related co-benefits of those measures. In many cases, the NDC refers the reader to other documents, such as national development plans, where such details are elaborated. Additionally, some countries report in their NDCs that co-benefits are identified in national development plans, but do not list them in the NDCs. Also, some studies in the research literature have identified potential co-benefits of policies and measures proposed in NDCs, but these are not included in Table 2.

Examples in Table 2 are given from each world region, using information from NDCs only. The policies and measures listed in Table 2 are more numerous and detailed than those in Table 1. Most sampled NDCs include agroforestry and forest management measures. Several include measures to create green buildings. Wastewater treatment and solid waste management are also priorities for several sampled countries. However, as expected, Table 2 illustrates that countries are enacting policies that are context-specific.

FIA Foundation supports active travel initiatives for health and environment in Colombia – Bogota's Kids First programme aims to improve children's daily journeys to school as pedestrians, cyclists by increasing space.

Photo credit: Secretaría de Movilidad

For instance, fisheries, oceans and marine conservation are important for many nations, but these issues are not included in Table 1 because they are not widely discussed in the research literature focusing at the global level.

Case Studies from NGOs and Civil Society

In addition to the many examples contained in NDCs, respondents to the APPG's Inquiry, "Saving Resources: Aligning the Climate and SDG Agendas" provided examples of joint climate-SDG policies and measures from their experiences working with communities alongside local and national government bodies. The case studies demonstrate that joint approaches can often enhance the impact of policies and measures, and can achieve multiple goals simultaneously if they are focused on addressing the needs of local vulnerable and poor communities.

For instance, The Washing Machine Project[55] described the impact of its innovative 'Divya' machine, on the lives of women in low-income and displaced communities. The Divya, an off-grid manual washing machine, can reduce the time spent washing clothes by 75%. It also only requires 20 litres of water per load in comparison to

50-100 litres for an electric washing machine and 40 litres for handwashing clothes. By saving water, the Divya helps to achieve many targets under SDG 6 (Clean water and sanitation) including reducing the volume of untreated wastewater, achieving adequate and equitable sanitation and hygiene, and increasing water-use efficiency. As it does not use electricity, it also avoids producing greenhouse gas emissions.

Over the course of a year, not only do these washing machines reduce water and energy used in clothes washing (SDGs 6, 12 and 13), but they also save a single household 750 hours of unpaid labour. The OECD[56] found that if the unpaid labour of women was reduced to three hours a day, this could result in a 20% increase in paid labour or education. It therefore also addresses SDGs 5 and 10, by increasing gender and economic equality.

In the housing sector, the NGO "REALL" works to provide environmentally-friendly and affordable housing in Africa and Asia. REALL's partner *Smart Havens Africa* in Uganda is constructing houses using interlocking compressed earth bricks which, as well as being affordable, are made using minimal cement and require no firing. This manufacturing process almost entirely avoids carbon dioxide emissions generated by cement manufacturing. In addition, not firing the bricks avoids the large amounts of black carbon emissions produced by brick kilns which significantly contribute to both global warming and health risks through air pollution. As a result, these housing projects help achieve climate goals as well as SDG 3 (Good health and wellbeing) and SDG 12 (Sustainable production and consumption).

Underpinning Smart Havens' commitment to green building is its emphasis on social impact. Their target market sits firmly within the bottom 40% of the income pyramid. In this way it contributes to one of the targets of SDG 11 (Sustainable cities and communities) to "ensure access for all to adequate, safe and affordable housing…" Furthermore, they are dedicated to women's empowerment, prioritising female-headed households in the sale of their homes. They also provide much needed training and employment opportunities in construction, property management and financial literacy to local women, and hence support SDG 5 (Gender equality) and SDG 10 (Reduce inequality).

Smart Havens Africa provides environmentally-friendly and affordable housing in Uganda

Photo credit: Smart Havens Africa

Health, environment, climate and gender goals are also addressed by projects in Colombia and India focusing on developing safe, low carbon, accessible transport options, as described by the FIA Foundation. Transport is responsible for almost a quarter of all energy-related carbon dioxide emissions,[57] and the number of vehicles is set to continue to grow over the coming decades. But creating streets that are safe for walking and cycling can reduce emissions from car use and improve health – through increased mobility, fewer road traffic injuries (SDG 3.6) and improved air quality (SDG 11.6). Colombia and other countries are introducing intersecting policies that encourage active travel and the use of low-emission vehicles. These include improving rail infrastructure to reduce vehicle use on roads and setting standards for the commercialization of electric vehicles. However, care must also be taken to ensure that impacts on all groups are adequately considered. For instance, low-carbon mobility options may not be accessible to people with disabilities. Additionally, in some contexts, vulnerable groups may not feel safe using public transport. The NGO Safetipin in India has demonstrated that adolescent girls do not feel safe on public transport or walking in poorly-lit streets. The work of this organisation is a powerful example of how to involve communities in assessing the safety of their streets and advocating for change.

Projects such as these demonstrate how climate and SDG policies can be aligned, and the positive impact of ensuring that policies are designed and implemented in ways that meet the needs of all groups within a community.

Policy Coherence: Saving Resources for Doing More

In this section we discuss the kind of governance needed to carry out joint climate-SDG policies and the benefits that stem from this governance.

The common thread of the policies and measures in Tables 1 and 2 is that they have a potential positive influence on both climate goals and other SDGs. Since they are relevant to several different goals, they are likely to concern more than one sector of government. For example, a national policy to expand the use of renewable energy will be of interest to a national Environment Ministry because of this policy's importance to climate mitigation. However, since investments in renewable energy are also an essential part of energy and infrastructure planning, they will also concern the Energy Ministry and perhaps the Industry Ministry. Since this policy will substantially decrease air pollution and benefit public health, it will also be of concern to a nation's Health Ministry.

Taking another example from Table 1, a policy to reduce post-harvest food losses is likely to fall under the remit of a nation's Agriculture Ministry. But since it will also help draw down greenhouse gasses and reduce pressure on natural forests it will be of interest to a country's Environment Ministry.

Since all of the policies and measures in Tables 1 and 2 help achieve multiple goals in different sectors, they in principle do not fit easily into a typical governmental structure organised according to sectoral departments. Governments tend to work in "silos", with each department responsible for its own goals. Obviously, then, to implement the policies and measures described in this chapter it will be necessary to coordinate among government agencies and other actors. In the academic literature this type of governance and coordination is called "policy coherence", defined by OECD as "the systematic promotion of mutually reinforcing policy actions across government departments and agencies creating synergies towards achieving the agreed objectives."[58] Closely related terms are "policy integration" and the "nexus approach".[59] It is worth noting that this idea has a central place in the SDGs with Target 17.14 aiming to "Enhance policy coherence for sustainable development".

NGOs and others working directly with communities highlight the importance of policy coherence to ensure that proposed measures meet the needs of those affected by them. For instance, the FIA Foundation[60] reported that actions to reduce emissions from the transport sector could contribute to achieving SDG 3 (health) through reducing air pollution, increasing active transport options (i.e. walking or cycling), and reducing accidents. Such emission reductions can be achieved through implementing a suite of policies: improving vehicle fuel efficiency, improving public transport networks, enhancing pedestrian safety through improved street lighting, and designing accessible cities. This requires co-ordination between transport, housing and finance ministries, and coherence between national and city level policymaking.

Similarly, Action for Global Health[61] identified the need for policy coherence across health, environment and infrastructure sectors to ensure the resilience of health facilities in the face of climate-related extreme weather events. In such events, when healthcare is desperately

Box 1: What are the climate goals of the Paris Agreement?

The following are some of the important goals featured in the Paris Climate Agreement.

From Article 2:

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 ...

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

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

From Article 4:

d) 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 ... 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.

From Article 7:

e) 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 in the context of the temperature goal referred to in Article 2.

From Article 8:

f) Parties should enhance understanding, action and support ... with respect to loss and damage associated with the adverse effects of climate change.

needed, hospitals and clinics may be unable to function because of power cuts, flooding, road closures and disruptions to supply chains of essential medicines. Policy coordination and integration, for instance through the development of Health National Adaptation Plans, can help governments respond effectively to such intersecting challenges.

These, and other NGOs who provided evidence to the APPG Inquiry stressed the importance of taking action to overcome government departmental silos and promote positive interactions between different sectors.

> "...national platforms should be established to support cross-sectoral coordination between ministries and departments..."[62]

They also highlighted the need for mechanisms to ensure that the knowledge, concerns and interests of excluded groups are taken into account when policies and measures are designed. Developing "intersectional, multidisciplinary and inclusionary approaches that value community knowledge and expertise"[63] could help make inequality issues more visible and help to uphold the SDG principle of leaving no-one behind.

So, how to achieve policy coherence? There are many ways to do so and examples from different countries are given in Tables 2 and 3. According to OECD[64], common elements of these approaches are: political commitment and leadership; long-term vision and planning horizons; policy integration; policy and institutional coordination; regional and local involvement; stakeholder engagement analysis; assessments of policy impacts; and monitoring, reporting and evaluation.

The payoff of policy coherence with regards to climate and the SDGs is "efficiency" in two respects. First, it makes possible the multi-sectoral actions in Tables 1 and 2. Second, it avoids the duplication of efforts among departments and more efficiently utilises their limited

resources. The UN Climate Change Secretariat elaborates on these ideas by saying: "Improved coherence of action to implement the frameworks [for climate, SDGs and disaster reduction] can save money and time, enhance efficiency and further enable adaptation action." They further note that this efficiency stems from ""... the sharing of data between relevant actors, ... policy learning related to best practices and common issues, and [reallocation] of resources from operations and maintenance to innovation ..."[65]

Further evidence of greater efficiencies and cost savings is provided by the research literature on integrated assessment modelling. Here researchers have used global-scale models to quantify the co-benefits of climate mitigation policies. One group of studies focuses on the side-benefits of climate mitigation in reducing outdoor air pollution and its health risks. Replacing fossil fuels with renewable energies not only lowers greenhouse gas emissions but also under most circumstances leads to lower levels of air pollution. For this reason it can make a significant contribution to achieving SDG 3 (Good health and well-being). Rafaj et al.[66] estimate that climate mitigation measures very effectively reduce the levels of ground-level ozone and particulate matter. Consequently, these measures reduce the costs of otherwise necessary air pollution control (relative to a baseline) by 250 billion € in a scenario up to 2050. Meanwhile, West et al.[67] find the long term benefits of climate mitigation to health to be US$50–380 per tonne of CO_2 mitigated, exceeding marginal abatement costs in scenarios up to 2030 and 2050. These results show the extent of the resources that can be saved by implementing renewable energy to achieve both climate goals and SDG 3.

Another set of studies looked at the relationship between climate policies and multiple SDGs. Obersteiner et al.[68] concluded that "piecemeal approaches to SDG implementation", as compared to "compound SDG strategies", led to unfavourable outcomes for the environment and food security. Using integrated assessment modelling on the national scale, Pedercini et al.[69] compared different scenarios for implementing 80 SDG targets in Cote d'Ivoire, Mali, and Senegal. They concluded that clustering the targets led to considerable cost savings as compared to implementing them individually.

The academic research provides quantitative evidence that pursuing integrated policies and measures to achieve climate goals and SDGs can save resources. In addition, the case studies from NGOs indicate the potential for policy coherence to lead to more effective actions that take account of intersecting challenges affecting communities.

Limitations of this Report

The catalogue of policies and measures in Tables 1 and 2 could provide useful input to plans for achieving both climate goals and the SDGs, but the limitations of these data should be kept in mind.

First, as we noted previously, the actions in Table 1 are labelled as having "significant potential" but the different sources for the data used different definitions of "significant". Therefore, it is important to examine closely the publications behind these particular policies and measures to understand the meaning of "significant potential".

Second, the actions in Table 1 are based on studies that have uneven geographic and sectoral coverages. Most analyses have focused on co-benefits in the agriculture and forestry sectors, and Table 1 reflects this bias. Furthermore, most work in the research literature has been done on the global or multi-national level, with much less on the national and local scales, and there are relatively few studies from Africa or Oceania.[70]

Finally, as we have pointed out, the applicability of these policies and measures is very context-specific. As expressed by the IPCC[71], "co-benefits are often subject to uncertainty and depend on local circumstances and implementation practices, among other factors."

While Table 2 presents examples of context-specific policies and measures, these are taken from NDCs only and focus on the actions governments may take. However, businesses, civil society organisations and citizens all have a role to play in working to achieve climate goals and SDGs. These actions have not been directly included in this chapter.

Summing Up

The research literature provides a considerable amount of evidence that many policies, if scaled up, can significantly help achieve both climate goals and SDGs. There is a preponderance of evidence from the agricultural sector, but there is also convincing evidence from the energy and other sectors. All of the policies and measures catalogued in Tables 1 and 2 are judged to have "significant" potential. "Significant" is defined differently in different studies but usually means that either a large population or a large geographic area will benefit from these policies.

Some countries are already pursuing policies and measures that advance both climate and development targets. We have presented several examples of these from country NDC reports under the Paris Climate Agreement.

But the applicability or relevance of a policy or measure to a particular country or community depends on the national or local context. Whether a specific policy will achieve climate goals and SDGs depends on climate and environmental conditions, organisational capacity, governance factors, economic factors and other considerations, including political will. Therefore, countries and communities should consider their specific circumstances in judging whether the policies and measures presented herein will work for them.

Table 1. **Policies and measures from the research literature.** Selected examples with significant potential to benefit both climate goals and other SDGs. Scientific analysis has shown these actions to have significant potential if scaled up.

POLICY OR MEASURE	GEOGRAPHIC COVERAGE & REFERENCES[72]	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals) (References the same as in column 2 unless otherwise specified)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13) (References the same as in column 2 unless otherwise specified)
AGRICULTURE, FORESTRY AND OTHER LAND USE			
Increased food productivity	Global [73,74] Review of multiple studies	a, b, d, e	SDGs 2, 15
Improved cropland management	Global [75,76] Review of multiple studies	a, b, d, e	SDGs 2, 15
Improved grazing land management	Global [77,78] Review of multiple studies	a, b, d, e	SDGs 2, 15
Improved livestock management	Global [79,80] Review of multiple studies	a, b, d, e	SDGs 2, 15
Agroforestry	Global [81,82,83] Review of multiple studies	a, b, d, e	SDGs 2, 5, 15
Improved forest management	Global [84,85] Review of multiple studies	a, b, d, e	SDGs 2, 15
Increased soil organic carbon content	Global [86,87,88] Review of multiple studies	a, b, d, e	SDGs 2, 5, 6, 15
Fire management	Global [89,90,91] Review of multiple studies	a, b, d, e	SDGs 2, 3, 5, 11, 15
Reduced post-harvest losses	Global [92,93,94] Review of multiple studies	a, b, d, e	SDGs 2, 3, 6, 8, 15

Table 1. **Policies and measures from the research literature.** *Continued.*

POLICY OR MEASURE	GEOGRAPHIC COVERAGE & REFERENCES[72]	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals) (References the same as in column 2 unless otherwise specified)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13) (References the same as in column 2 unless otherwise specified)
AGRICULTURE, FORESTRY AND OTHER LAND USE (CONTINUED)			
Reduced soil erosion and salinization	Global [95,96] Review of multiple studies	b, e	SDG 2
Reduced soil compaction	Global [97,98] Review of multiple studies	b, e	SDG 2
Dietary change	Global [99,100] 14 countries and EU[101] Reviews of multiple studies	a, d	SDG 2, 15
Reduced food waste	Global [102,103] 14 countries and EU[104] Reviews of multiple studies	a, d	SDG 2, 15
Crop residue recycling Overlaps with improved cropland management and increased soil organic C content.	14 countries and EU[105] Reviews of multiple studies	a, d Note, this and next four measures might also have positive benefits to climate adaptation, but these were not elaborated in.[106]	SDGs 2.3, 2.4, 3.9, 6.4, 6.6, 14.4, 15.1
Cover crops Overlaps with improved cropland management and increased soil organic C content.	14 countries and EU[105] Reviews of multiple studies	a, d	SDGs 2.3, 2.4, 3.9, 6.4, 6.6, 14.4, 15.1
Precision agriculture Overlaps with improved cropland management and increased soil organic C content.	14 countries and EU[105] Reviews of multiple studies	a, d	SDGs 2.3, 2.4, 3.9, 6.4, 6.6, 14.4, 15.1
Improved livestock feeding Overlaps with improved cropland management, increased soil organic C content, and improved livestock management.	14 countries and EU[105] Reviews of multiple studies	a, d	SDGs 2.3, 2.4, 3.9, 6.4, 6.6, 14.4, 15.1
Improved manure management Overlaps with improved cropland management and increased soil organic C content.	14 countries and EU[105] Reviews of multiple studies	a, d	SDGs 2.3, 2.4, 3.9, 6.4, 6.6, 14.4, 15.1

Table 1. **Policies and measures from the research literature.** *Continued.*

POLICY OR MEASURE	GEOGRAPHIC COVERAGE & REFERENCES[72]	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals) (References the same as in column 2 unless otherwise specified)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13) (References the same as in column 2 unless otherwise specified)
ENERGY			
Renewable energy pathway up to 2030 to de-carbonise the global economy & stay within 1.5/2.0 degree temperature limits. Indirectly may increase costs of SDG 2.2, 6.1, 6.2, 6.3, 6.4.	Global [107]	a, d	SDGs 3.9, 7.1
Replacing current smoky cookstoves with cleaner cookstoves	40 LMICs [108]; Mozambique [109], Global [110]	a, d	SDGs 3, 5, 7, 15 [111, 112]
CITIES AND TRANSPORT			
Policy packages to decarbonise urban transport including bicycling, public transportation, high density planning.	4 European cities [113] Review of modelling studies at different scales worldwide [114]	a, d	SDG targets 3.4, 3.6, 3.9, 11.2, 11.6 [115, 116]
Public transportation replacing auto transportation	9 cities worldwide [117]	a, d	SDGs 3.6, 3.9 [118]
Green buildings	Sample of US cities [119]	a, b, d, e	SDG 3.4
INDUSTRY, WASTE, WATER, OTHER			
Improved energy efficiency in cement industry	China [120]	a, d	SDG 3
Wastewater reuse in agriculture	14 countries and EU [121]	a, d	SDGs 6.4, 11.6, 12.4, 12.5
Wastewater treatment	14 countries and EU [121]	a, d	SDG 6

Table 1. **Policies and measures from the research literature.** *Continued.*

POLICY OR MEASURE	GEOGRAPHIC COVERAGE & REFERENCES[72]	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals) (References the same as in column 2 unless otherwise specified)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13) (References the same as in column 2 unless otherwise specified)
INDUSTRY, WASTE, WATER, OTHER (CONTINUED)			
Integrated water management	Global [122,123] Review of multiple studies	b, e	SDGs 1, 2, 3, 6, 15
Disaster risk management	Global [124,125] Review of multiple studies	b, e	SDGs 1, 2, 3, 4, 5, 8, 9, 11, 16

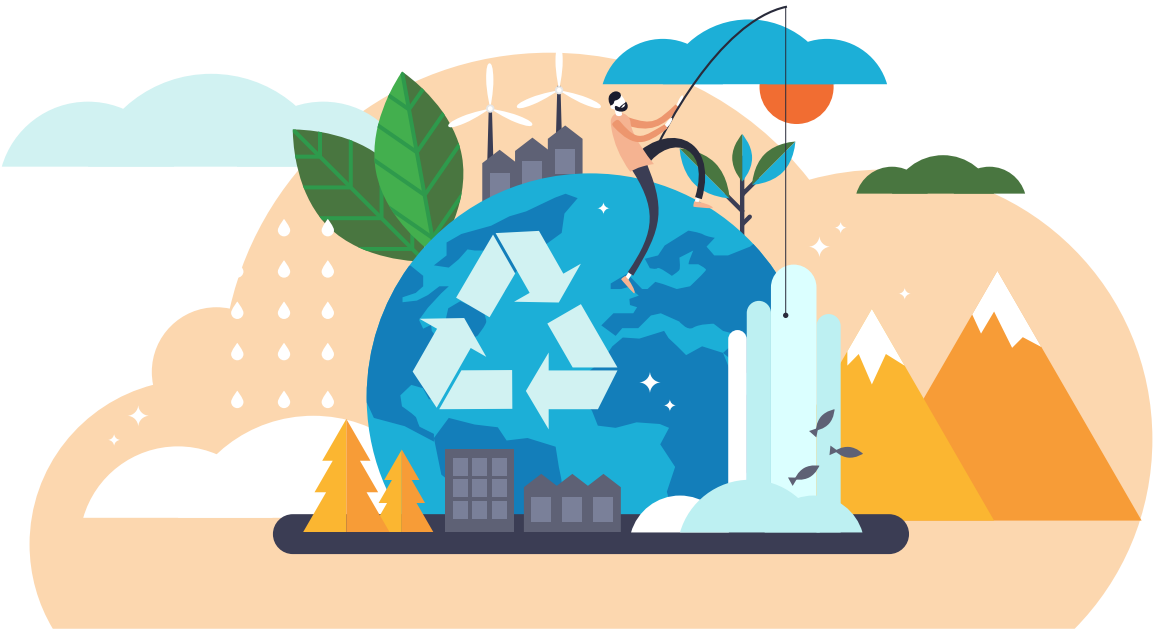


Table 2. Policies and measures from NDC (Nationally Determined Contributions) reports of countries. Included are examples from a selection of NDCs. The table is not intended to be comprehensive. It does not include all measures listed in the quoted NDCs, instead highlighting those measures with a range of co-benefits across several SDGs. Information is taken from the following NDCs: Cambodia 2020, Chile 2020, Colombia 2020, Lebanon 2020, Saint Lucia 2021, Zambia 2016. Estimates of their potential were not available in the NDCs. Additional information is given below each measure if available.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
AGRICULTURE, FORESTRY AND OTHER LAND USE			
Sustainable management & recovery of native forests 200,000 ha native forests, C uptake 0.9-1.2 Mt CO2 eq /yr by 2030	Chile	a, d	SDGs 15
National Plan for the Restoration of Landscapes Restoration of 1 million ha	Chile	a, d	SDGs 15
Reforestation, afforestation and land restoration activities Including rangeland management, reduction of soil erosion	Lebanon	a, b, d, e	SDGs 1, 8, 12, 15
Reforestation, afforestation and forest management	Zambia	a, b, d, e	SDGs 1, 6.6, 15.2, 15.5
Sustainably manage marine and terrestrial ecosystems To be considered in spatial planning implementation; enhance protected areas network; implement conservation activities for threatened species	Lebanon	a, b, d, e	SDGs 2, 4, 11, 12, 14, 15
Improved forest and mangrove management	Saint Lucia	a, b, d, e	SDGs 1, 2, 14, 15
Improved support services and capacity building for farmers Including trials and up-scaling of climate-resilient farming systems	Cambodia	b, d, e, f	SDGs 2, 5, 12

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
AGRICULTURE, FORESTRY AND OTHER LAND USE (CONTINUED)			
Improved support services and capacity building for farmers Including training for farmers, extension staff and technical staff on climate-smart agriculture, sustainable forest management and climate change planning.	Zambia	b, e	SDGs 1, 15, 17.17
Capacity building for [agricultural] producers on adapting to climate change Including 1 million producers receiving agro-climatic information; implementation of technical round-tables in high agricultural potential regions.	Colombia	b, e	SDGs 2, 12
Research to improve agricultural and aquaculture productivity and climate resilience	Cambodia	b, d, e, f	SDGs 2, 5, 14, 15
Establishment of Climate Resilient Agriculture Demonstration Centre	Saint Lucia	b, e	SDGs 1, 2, 12, 15
Implement strategies to reduce emissions from livestock sector Including development of silvo-pastoral systems; management of manure and other waste; restoration of grazing lands and others.	Colombia	a, b, d, e	SDGs 2, 12
Implement strategies to reduce emissions from cocoa, rice and coffee production Including development of agroforestry systems; improving efficiency of fertiliser use; improving irrigation use (rice) and post-harvest processing (coffee)	Colombia	a, b, d, e	SDGs, 2, 3, 5, 6, 8, 9, 12

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
AGRICULTURE, FORESTRY AND OTHER LAND USE (CONTINUED)			
Implement N_2O abatement strategies in fertiliser and production Including development of Monitoring, Reporting and Verification system	Colombia	a, b, d, e	SDGs 8, 9, 12
Implement National Restoration Plan of Action Restoration of 963,000 hectares of degraded forest ecosystems by 2030	Colombia	a, b, d, e	SDGs 5, 6, 11, 15
Implement Zero Deforestation Agreements with Meat, Dairy, Palm Oil, Cocoa and Timber supply chain actors Decrease the rate of deforestation by 50,000 hectares per year by 2030	Colombia	a, b, d, e	SDGs, 1, 2, 3, 5, 6, 8,11, 15
ENERGY			
"Strategy for Just Transition" Decarbonise energy system, protect rights of most vulnerable, ensure active participation of citizens in design and implementation.	Chile	a, b, d, e	SDGs 1, 8.4
Diversification of household and community energy generation sources Reduce household reliance on biomass for energy; incorporate renewable energy into energy mix	Cambodia	a, b, d, e	SDGs 5, 7, 8, 9, 11
Fuel switch from diesel and coal to renewable sources Including extension of energy provision in rural areas through use of micro-hydro, PV and wind	Zambia	a, b, d, e	SDGs 1, 3, 4, 5, 7, 8

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued.*

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
ENERGY (CONTINUED)			
Reduce use of wood as fuel in rural households Through the provision of efficient cookers and heaters	Colombia	a, d	SDGs 3, 7, 15
Sustainable charcoal production	Zambia	a, d	SDG 7.3, 15
Development and implementation of energy efficiency guidelines across key sectors. Focus on electricity production, hydrocarbons and mining	Colombia	a, d	SDG 5, 7, 17
CITIES AND TRANSPORT			
Climate-responsive urban planning Including green spaces in new cities; land-use planning considering climate risks; climate-resilient low-cost housing	Cambodia	a, b, d, e	SDGs 1, 5, 9, 10, 11, 15
Improving insulation standards New & existing housing. Aim to reduce demand for heating, and therefore reduced residential wood burning & emission of short-lived pollutants.	Chile	a,d	SDGs 3.9, 11.6
Establish and enforce energy standards in building codes	Cambodia	a, d	SDGs 5, 7, 8, 9, 11
Establish and implement disaster-resilient construction and infrastructure standards For public sector and community buildings including health and education facilities	Cambodia	a, b, d, e, f	SDGs 4, 5, 9

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
CITIES AND TRANSPORT (CONTINUED)			
Develop guidelines, criteria and tools to reduce the vulnerability of the housing sector to climate impacts	Colombia	a, b, d, e	SDGs 7, 11
Develop and implement guidelines for sustainable building design and construction including energy efficiency Prioritising social housing	Colombia	a, b, d, e	SDGs 7, 11
Implement energy efficiency measures relating to lighting, air conditioning and cooking in school buildings	Saint Lucia	a,d	SDGs 4, 7, 11
Establishment of off-road machinery emission standards	Chile	a, d	SDGs 3.9, 11.6
Shift long-distance freight movement from trucks to trains	Cambodia	a, d	SDGs 3, 5, 8, 9
Shift cargo transport from road to river	Colombia	a, d	SDGs 8, 11
Develop policy for climate change adaptation and disaster risk management for the transport sector Including risk assessment for climate-related impacts on transport infrastructure	Colombia	a, b, d, e, f	SDGs 7, 8, 9, 11, 12, 15
Implement pilot project for green road infrastructure	Colombia	a, b, d, e, f	SDGs 7, 8, 9, 11, 12, 15

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
CITIES AND TRANSPORT (CONTINUED)			
Establish regulatory and technical standards for the commercialisation and operation of electric vehicles Including a tariff scheme to create financial incentives to build market demand for EV	Colombia	a, b, d, e	SDG 11
Increase cycling, walking and public transport use in key cities Including through rehabilitation of rail infrastructure	Colombia	a, b, d, e	SDGs 8, 11
WATER			
Watershed Strategic Plans By 2030, for management of water resources in all hydrologic basins, incorporating climate adaptation.	Chile	b,e	SDGs 6.1, 6.5, 8.4, 12.2
Watershed Management Plans for three regions Including protection of catchment forests, improvement of water storage and water transfer infrastructure.	Zambia	a, b, d, e	SDGs 5, 6, 15
Watershed Management Plans for 24 watersheds and 135 river basins Prioritising watersheds supplying aqueducts in key municipalities	Colombia	a, b, d, e	SDG 6, 15
Inspection & registration of rural health systems To increase resilience of water supply to climate change and to ensure rural water quality drinking standards	Chile	b, e	SDG 6.1

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
WATER (CONTINUED)			
Improve planning and delivery of rural water supply and sanitation to communities and health care facilities	Cambodia	a, b, d, e	SDGs 3, 5, 6
Increase wastewater treatment. By 2030, reduce non-treated sewage 25%.	Chile	b, e But will increase emissions of GHG methane unless further action taken	SDG 6.3
Increase wastewater treatment. By 2030, achieve 68% of urban domestic wastewater treatment, including integrated management of biogas	Colombia	a, b, d, e	SDGs 6, 11
Increase use of renewable energy in water supply system For both agriculture irrigation and drinking water	Lebanon	a, b, d, e	SDGs 1, 3, 8, 9, 11, 12, 15
Introduce renewable energy technologies into Water and Sewerage Company operations	Saint Lucia	a, b, d, e	SDGs 6, 7, 11
Develop effective legal and institutional frameworks for management of the water sector To enable the development of sustainable and efficient services	Lebanon	a, b, d, e	SDGs 1, 3, 8, 9, 11, 12, 15

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
WATER (CONTINUED)			
Reduce vulnerability of coastal water supplies to climate change impacts Assess risks of sea-water intrusion into aquifers; increase protective capacity of coasts against storm surges and sea-level rises	Lebanon	b, e	SDGs 6, 9, 10, 14
Implement technologies for water saving, recycling and management For household, agriculture and industrial use; develop hydro-power facilities	Zambia	a, b, d, e	SDGs 2, 6, 7, 8, 9
INDUSTRY			
Public-private roundtable To gain private sector participation in mitigation measures.	Chile	a, d	SDGs 7, 8.1, 9.2
Develop Circular Economy Roadmap Focus on transition towards a circular economy with short, medium and long-term measures.	Chile	a, b, d, e	SDGs 9.2, 12
Promote financial green Instruments Identify a project portfolio compatible with the GHG emissions neutrality goal by 2050.	Chile	a, b, d, e	SDGs 8.10, 9.2
Increase energy efficiency and reduce pollution from industries Particularly in the latex and rubber processing industries	Cambodia	a, b, d, e	SDGs 5, 7, 8, 9, 11

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
FISHERIES AND OCEANS			
Establish new marine protected areas Also develop appropriate implementation and management	Chile	b, e	SDG 14
Establish coastal biosphere reserve	Saint Lucia	b, e	SDG 8, 14
Implement management programmes to protect and sustainably use coastal ecosystems Prioritise ecosystem-based adaptation actions to protect mangrove and seagrass environments	Colombia	b, e	SDGs 1, 14
Develop programmes for beach management and coastal erosion control	Saint Lucia	b, e	SDGs 8, 14
Implement fuel efficient technologies for aquaculture and fisheries operations	Saint Lucia	a, d	SDGs 7, 14
WASTE			
Hazardous waste management Construction of sanitary landfills with landfill gas extraction systems, reducing emissions by up to 1.12 MtCO2e by 2030	Cambodia	a, b, d, e	SDGs 5, 8, 9, 11
Management of municipal solid waste Production of refuse-derived fuel; construction of bio-digesters	Cambodia	a, b, d, e	SDGs 5, 8, 9, 11
Management of municipal solid waste Biogas collection and use for electricity production; increase recycling	Colombia	a, b, d, e	SDGs 11, 12

Table 2. **Policies and measures from NDC (Nationally Determined Contributions) reports of countries.** *Continued*.

POLICY OR MEASURE	COUNTRY	CLIMATE GOALS BENEFITTED (Refer to Box 1 for goals)	SDGS BENEFITTED (Goals or targets; in addition to SDG 13)
GOVERNANCE			
Development of Strategy for Capacity Development and Climate Empowerment Includes education, citizen participation and gender mainstreaming	Chile	a, b, d, e	SDGs 4, 5, 8, 16
Development of Integrated Information System on Vulnerability, Risk and Adaptation to Climate Change To monitor and evaluate adaptation across the country	Colombia	b, e	SDGs 1, 6, 11, 14

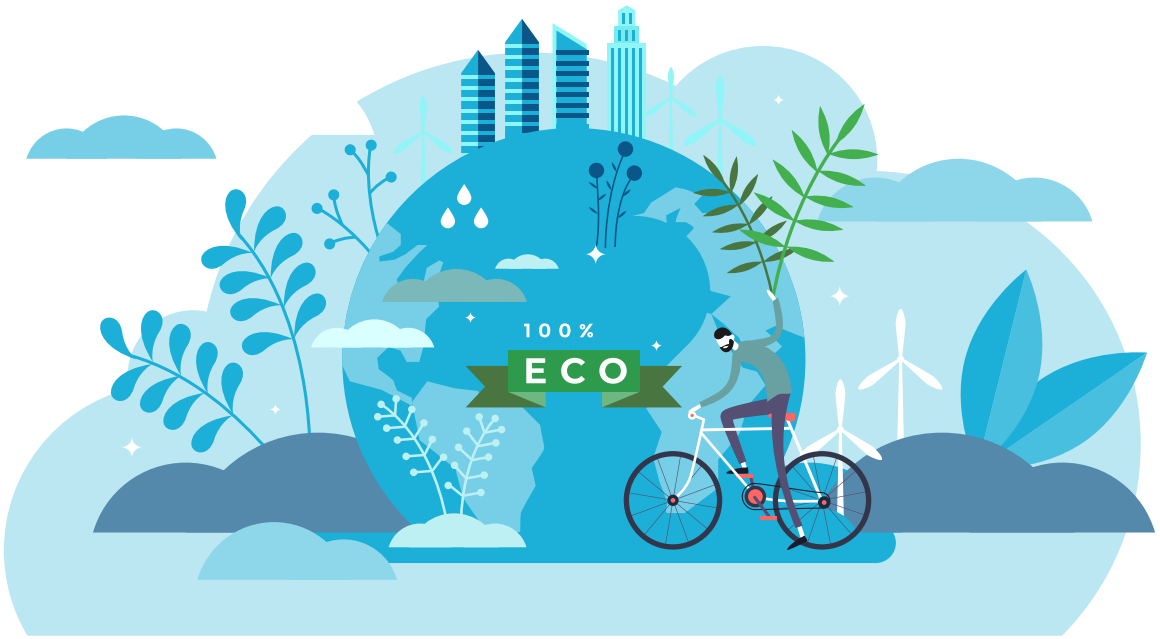


Table 3. Examples of institutional arrangements at the national level that promote policy coherence in achieving the SDGs. Sources: OECD[126] , UN[127]

Australia	Since the adoption of the SDGs, the Australian Government has convened an interdepartmental group of senior officials with portfolio responsibilities that link to one or more of the SDGs. It has also established cross-government groups on specific aspects such as data or communications.
Czech Republic	The regular discussion of sectoral documents between departments in government advisory bodies and inter-ministerial co-ordination groups provides a basic mechanism for policy integration.
Denmark	An inter-ministerial working group to guide implementation of the Government's Action Plan for the SDGs. This technical working group carries out regular consultations with civil society.
Greece	An inter-ministerial coordination network for SDGs established in 2016 supports mainstreaming of the SDGs and the integration of the three dimensions of sustainable development into thematic legislation, strategies, policies and initiatives.
Luxembourg	The Government's Inter-Departmental Commission on Sustainable Development supports the integration of sustainable development in sectoral policies, including through the development of the National Sustainable Development Plan. The Government's Committee for Development Cooperation makes recommendations relating to policy coherence.
Spain	A main function of the recently created High Level Group for 2030 Agenda is to foster integration of the SDGs and targets into national policy frameworks.
Turkey	A task force within the Ministry of Development composed of experts in relevant areas was mandated to integrate SDGs into public documents at all levels, including the National Development Plan, regional plans, and sectoral strategies.
Vietnam	An Inter-Sector Working Group on the SDGs builds coherence between SDG and NDC implementation processes through integration of the SDGs into the National Adaptation Plan.

Chapter 3
Equitable and Just Policies

Equitable and Just Policies

Chapter Two presents a list of policies and technical measures that have significant potential to address both climate goals and one or more of the Sustainable Development Goals. While this may be good news for saving resources, it does not necessarily mean that they will be either just or equitable. In practice, policies can have a wide variety of positive or negative impacts on a wide range of different groups depending on how the policies are designed and implemented.[128] These impacts need to be considered in order to ensure that policies and measures are just and equitable and that the transformative agenda set out by the SDGs is achieved.

The aim of this chapter is two-fold:

First, we review experience and scholarship about justice and equity as they are related to climate- and SDG-relevant policies and measures. This review takes into account concerns across social groups and generations, and between countries. In particular, we review ideas about justice and equity expressed by the international community in such documents as the 2030 Sustainable Development Agenda, the Paris Climate Agreement, the REDD+ safeguards, and IPCC reports.

Second, based on these documents, we propose guidelines to help ensure that policies and measures are designed, implemented and maintained in a just and equitable manner.

Disproportionate Impacts of Climate Change on the Poor

We take as a starting point the observation that the impacts of climate change are not borne equally by all.[129] Climate impacts disproportionately affect poor and marginalised groups and often exacerbate the causes and consequences of vulnerability and exclusion.[130] Vulnerable groups are least able to respond to, and build resilience to, the impacts of climate change.

Respondents to the APPG's Inquiry highlighted the importance of considering the differential impacts of climate change on poor and marginalised communities when developing policies and measures to achieve both climate goals and the SDGs. Several respondents described the ways in which extreme weather events worsen the poverty and exclusion of communities they work with, and reduce their capacity to respond and recover.

For example, the Leprosy Mission[131] reported on the impacts of extreme weather on the more than 200,000 people affected by leprosy in Bangladesh. Many live in northern areas of the country that experience climate change-related disasters such as cyclones, floods and droughts, and where there are high levels of poverty. These factors interact with, and exacerbate, each other, increasing the vulnerability of people living with leprosy and the disabilities arising from it.

Research has shown that 83% of disabled people in rural areas depend on agriculture for their livelihoods. This means that they are likely to be starkly affected by severe weather events. For instance, in July 2019, heavy monsoon rain across the Bandarban region led to flooding and landslides, destroying homes and crops and killing livestock. About 70,000 people were left homeless and at risk of starvation, including more than 4,000 people affected by leprosy.

People affected by leprosy may struggle to escape from a disaster because of mobility limitations. They also suffer from stigma and discrimination in the community, making it difficult for them to go to community shelters, or stand in line to receive relief goods. On top of that, when roads, medical centres and other facilities are destroyed by a landslide, people with leprosy cannot access the medical treatment they require, or even obtain clean water, which is essential to reduce the development of further leprosy-related disabilities. In these ways, people affected by leprosy face multiple barriers in addition to coping with the impacts of climate change.

The Institute of Development Studies outlined the impacts of climate change on poor health conditions and gender inequality in low-income farming communities in Indonesia.[132] Through their work with a water, sanitation and hygiene (WASH) project in Indonesia, they found that climate change and variability are adversely affecting agricultural production and incomes. As a result, men migrate out of their villages for work, leaving women to take up the burden of WASH responsibilities. Extended dry seasons increase the distance women and girls have to walk to collect water. This impact is felt most by poor households, who do not have tanks for storing water. This means they have to walk to collect water more frequently and are vulnerable to running out of water during droughts.

In addition, drought conditions make pour-flush toilets unusable, and this leads to more open defecation, increasing the likelihood of children becoming ill, and increasing women's risk of harassment and threats to their personal safety. Conversely, heavy rainfall and flooding contaminate drinking water. It also causes landslides and makes walking routes harder to navigate, placing an extra burden on pregnant women, elderly people and people with physical disabilities.

Just as the Covid-19 pandemic has highlighted and exacerbated existing social and economic inequalities, climate impacts increase vulnerabilities and reduce the capacity of marginalised communities to recover. Because of this, a failure to address justice and equity issues[132] threatens to block achievement of any of the other SDGs.

Unjust and inequitable policies

Decisions about policies are always highly political, and contested, and policymakers have to balance competing interests and work within the limitations created by political power dynamics. Research on the implementation of the SDGs has shown that SDG10 (reduced inequalities) has not yet been given adequate attention in NDCs or in Voluntary National Reports (VNRs). So far, justice both within and between countries has not been central to considerations of how to achieve either the SDGs or the climate goals.

To address this, it is essential that SDGs for Reduced Inequalities (SDG 10) and Peace, Justice and Strong Institutions (SDG 16) underpin the design and delivery of implementation strategies for policies and measures such as those listed in Tables 1 and 2.

Box 2: Justice, equity and synergies between climate goals and SDGs

Based on a presentation by Lisa Hiwasaki at SSRP's international online Symposium "Evidence for Action: Aligning the Climate and SDG Agendas" July 20-22, 2021.

Scholars recognised early on, that dealing with climate change separately from the broader issue of sustainable development results in undesirable trade-offs and takes away resources for important sustainability issues. Equality and equity are issues that have been left behind in the parallel global processes. A review of post-2015 literature that identifies concrete linkages and synergies between the SDGs and the Paris Agreement—whether through modelling or analysing the connections between the SDGs and NDCs—makes it clear that these connections focus on certain SDGs while others have been "left behind". While linkages with the Paris Agreement appear frequently for SDGs 2, 3, 4, 6, 7, 9, 11, 12, 13, 14, and 15, those SDGs that are considered more "social"—most notably, 1, 5, 10 and 16—do not.[138,139,140,141,142] Further, poverty, equity and inequality are identified as SDGs (1, 5, 10) where most trade-offs were found within NDCs.[143]

The lack of processes to support the coherence of these agreements at the global level is detrimental to the integration of implementation of these policies at the national and sub-national levels.[144] Studies show many examples from countries around the world the link between policies that have better baseline outcomes in terms of development, but worsen climate vulnerability, and vice versa.[145,146] Such policy incoherence, mostly felt at local levels,[147] hurts marginalised groups suffering the most from inequality.

We present below some examples of how the kinds of policies reviewed in Chapter 2 can lead to negative outcomes for some stakeholders.

The Great Green Wall in the Sahel[148]

The Great Green Wall (GGW) is planned as a 15 km wide wall of trees over a stretch of 8,000 km from Senegal to Djibouti. The project was approved by the African Union as a Pan-African project in 2007. It has received financial support from international bodies including the World Bank and the Global Environment Facility, and received global support at the 2015 climate summit in Paris.

The GGW is an example of a major effort to achieve climate goals and other associated SDGs. It plans to restore 100 million hectares of degraded land, create 10 million jobs, and sequester 250 million tons of carbon by 2030. So far, most of the tree planting has taken place in Senegal in areas of low rainfall where the local population consists primarily of pastoralists.

Pastoralism has, however, not been taken into account in the design, planning or implementation of the GGW. Instead, pastoral dependence on access to land has been neglected by the project, and pastoralism has been seen as an obstacle to afforestation activities. This has undermined pastoralist livelihoods and increased their marginalisation.[149]

For instance, in the Ferlo region of Senegal, pastoralists have been blocked from grazing on newly enclosed afforested areas. Additionally, tree plantations in these areas compete for water with livestock. Ironically, this means that the Great Green Wall results in natural resource scarcity for the local pastoralist population.

Traditional and elected leaders of local communes are also largely neglected by the project. They have not been consulted on issues such as the location of areas to be afforested. In addition, forest legislation is strict with few local rights of access to forest products. Local people are fined for using tree products or when livestock are found in afforested areas.[150]

The GGW is conceived as a climate mitigation project, and received much donor interest at the Paris Climate Summit. However, its failure to recognise the rights and interests of the local population means that it is undermining local livelihood strategies, and may lead to increased poverty, food insecurity and local scarcity of natural resources.

Adaptation Actions in Bangladesh[151]

Bangladesh has implemented a range of climate change policies under its National Adaptation Programme of Action. These have included coastal afforestation projects and large-scale coastal protection schemes such as building embankments, dykes and other infrastructure to protect coastal lands from sea-water inundation, flooding and storm surges.

However, such schemes often require the enclosure of previously public land, and reduce the availability of land for other purposes, including agriculture. Under the Coastal Afforestation Scheme, local villagers were excluded from cultivating new forest areas to protect the seedlings. This led to loss of livelihoods, the displacement of communities and the closure of institutions such as schools and community buildings.[152] Such schemes can also entrench existing inequalities, for instance when enclosure of land for afforestation projects increases the price of nearby agricultural land, thus indirectly displacing poorer communities. In addition, communities benefit unequally from such projects, depending on which communities are protected by the schemes and who is employed in their construction.

In this way, projects designed to address climate adaptation priorities, may limit livelihood opportunities for poorer communities and undermine achievement of several SDGs including SDGs 1 (end poverty), 2 (achieve food security), 4 (education), 5 (gender equality) and 10 (reduce inequality).

Lessons from Examples

There is agreement across the academic literature[153, 154, 155] that a particular policy or measure to achieve an SDG can have variable impacts both on its intended target and on affected stakeholder groups. Furthermore, attempts to address specific SDGs can either undermine or inadequately account for equity and justice issues,[156] including those related to gender. Negative impacts can arise when there is a clash of interests between local actors. Such clashes often occur in sectors, such as mining, forestry or agriculture, that are characterised by informal labour, poverty and invisible women's labour.[157]

These examples show that, by not paying attention to who are the winners and losers from policy implementation, existing inequalities can be reinforced. However, it is

possible to design mitigation and adaptation projects that lead to positive outcomes for diverse communities. To do so it is necessary to consider differential impacts on diverse stakeholders, and to take care that costs and benefits are distributed fairly to reduce local inequalities.

This requires policymakers and project planners to be aware of the mechanisms through which project implementation may harm specific vulnerable groups. Included here is their own role in reinforcing existing unequal power dynamics and social harm,[158] for instance through channelling funding through local elites.

Policymakers therefore need to have a complete picture of all local stakeholders, including marginalised groups who may be hard to reach, and are often left out of decision-making processes. The first step is to recognise who might be vulnerable and why, thinking beyond widely acknowledged groups such as elderly or disabled people to groups who are less visible, such as those discriminated against because of class, caste or sexuality.[159]

Additionally, it is important to understand not just who is vulnerable, but what their priorities and interests are. For instance, actions to increase income that undermine other livelihood strategies may increase, not reduce, poverty.[160] To address this, effective and meaningful community participation is vital.

Considering who benefits and who bears the costs of any intervention includes thinking about impacts on different sectors and in different locations. As the examples above show, an intervention in one community may displace problems to another community, or have unintended consequences on another sector. This is also true across scales, from local to national and international (and vice versa).

This displacement issue can be addressed by building policy coherence and ensuring good governance, as discussed in Chapter Two. Although the SDGs were conceived as a holistic interlinked framework, in practice it is necessary to take explicit action to ensure that measures to achieve one goal do not have adverse impacts on other goals. This is particularly relevant for the SDGs, whose global ambition can only be achieved through local level implementation.

Equity and Justice in International Agreements and Frameworks

We have seen in the previous examples how policies for combining climate goals and the SDGs can lead to inequities and injustices. However, both the Paris Climate Agreement and the 2030 Sustainable Development Agenda make clear commitments to achieving their goals in just and equitable ways and spell out the principles for doing so. Considering the almost universal adherence to these treaties, countries are not only urged, but actually have a duty to carry out these principles. We also use these principles as a foundation for the guidelines below.

2030 Sustainable Development Agenda

The aspirations set out in 2030 Sustainable Development Agenda provide a blueprint for a set of principles to guide just and equitable policy design and implementation. By signing up to Agenda 2030[161] nations commit to "...acting in collaborative partnership...".

They pledge to:

"...seek to realize the human rights of all..."

"...achieve gender equality and the empowerment of all women and girls."

"...ensure that all human beings can fulfil their potential in dignity and equality ..."

"...foster peaceful, just and inclusive societies which are free from fear and violence."

"...combat inequalities within and among countries..."

They pledge that "...no one will be left behind" and commit to act in "...a spirit of strengthened global solidarity, focussed in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people."

Additionally, the "integrated and indivisible" nature of the SDGs requires a commitment to policy coherence across sectors. This includes a call for governments to evaluate how implementing one SDG might positively or negatively affect other SDGs. Examples are given in Chapter Two. Policy coherence is particularly important to ensure that policies related to economic development (SDGs 8, 9, 12, and others) do not lead to trade-offs with SDGs related to the environment and social equity.[162]

Agenda 2030 also recognises the responsibility of the global community towards low-income countries, including addressing inequities between countries:

"We acknowledge the importance for international financial institutions to support…the policy space of each country, in particular developing countries. We recommit to broadening and strengthening the voice and participation of developing countries…in international economic decision-making, norm-setting and global economic governance."

The Paris Climate Agreement

The centrality of justice and equity concerns in the 2030 Sustainable Development Agenda is clear. These same principles are intrinsic to the Paris Climate Agreement, which acknowledges the impact of climate change on different groups with varying vulnerabilities and different responsibilities and capabilities. By signing the Paris Agreement, nations commit to[163]

"…respect, promote and consider their respective obligations on human rights, the right to health, the rights of indigenous peoples, local communities, migrants, children, persons with disabilities and people in vulnerable situations and the right to development, as well as gender equality, empowerment of women and intergenerational equity…"

All actions in the Paris Agreement are to be undertaken "… on the basis of equity, and in the context of sustainable development and efforts to eradicate poverty." They also are undertaken on the basis of "…reflecting its common but differentiated responsibilities and respective capabilities, in the light of different national circumstances." This includes "…developed country Parties taking the lead" in moving towards sustainable consumption and production.

Regarding adaptation:

"Parties acknowledge that adaptation action should follow a country-driven, gender-responsive, participatory and fully transparent approach, taking into consideration vulnerable groups, communities and ecosystems, and should be based on and guided by the best available science and, as appropriate, traditional knowledge, knowledge of indigenous peoples and local knowledge systems, with a view to integrating adaptation into relevant socioeconomic and environmental policies and actions, where appropriate."

Frameworks of the IPCC and REDD+

The IPCC is not an international agreement but rather a UN institution (under the authority of UN Environment Programme and the World Meteorological Organisation) and is made up of scientists with the task to assess and interpret knowledge about climate change for policymakers and stakeholders. Of relevance here, it has also reviewed the academic discourse about equity issues related to climate change.

The IPCC[164] "describes equity as having three dimensions: intergenerational (fairness between generations), international (fairness between states), and national (fairness between individuals)."

It also describes four asymmetries in relation to the distribution of climate change costs and benefits:

- "…differential contributions to the problem: the observation that the benefits from industrialization have been unevenly distributed and those who benefited most historically also have contributed most to the current climate problem and so bear greater responsibility…
- "…differential impact: the worst impacts tend to fall on those least responsible for the problem, within states, between states, and between generations…
- "…asymmetry in capacity to shape solutions and response strategies, such that the worst-affected states, groups, and individuals are not always well represented…
- "…asymmetry in future response capacity: some states, groups, and places are at risk of being left behind as the world progresses to a low-carbon economy…"

The IPCC asserts that climate equity considerations can be addressed by applying human rights instruments. These define "substantive rights (such as to life, health, and shelter) and procedural rights (such as to information and participation). Human rights instruments prioritise the rights of marginalised groups, children, vulnerable and indigenous persons, and those discriminated against on grounds such as gender, race, age or disability (OHCHR, 2017)."[165]

Another non-treaty institution that deals with issues of equity and justice is the UN REDD+ programme (Reducing Emissions from Deforestation and forest Degradation). From an early stage in the programme member states and stakeholders raised concerns that forestry projects

were routinely approved without the consent of affected populations. Furthermore, it was asserted that some projects exacerbated land grabs and human rights abuses against forest defenders, and that the payments for carbon sequestrations were not benefitting local communities.[166]

To address these negative impacts, REDD+ developed "safeguards" to achieve social and environmental goals in project implementation, for example by requiring that local interests are taken into account.[167] These safeguards take the form of guidelines for implementation rather than recommendations for specific actions, which means that stakeholders have the flexibility to design locally-relevant interventions. These safeguards have been elaborated by NGOs in publications associated with the REDD+ programme.[168, 169] One of these publications[170] defines the three dimensions of equity, as follows:

"Distributive equity relates to fairness in the distribution or allocation of costs, contributions, risks and benefits among stakeholders, as a result of policy or resource management decisions.

Procedural equity refers to fairness in the political processes that facilitate decision-making, allocation of resources and dispute resolution. It involves representation, recognition/inclusion, voice and participation in processes. Procedural equity also refers to procedures being applied evenly - i.e., no corruption, favouritism, nepotism etc.

Contextual equity links the other two dimensions of equity by taking into account the pre-existing political, economic and social conditions under which people engage in procedures and distributions – and which limit or enable their capacity to do both. Contextual equity incorporates the concepts of individual capabilities (such as education, political recognition), access (to natural resources as well as to capital, labour, market networks, etc.) and power (to gain and maintain access to resources)."

Guidelines to Help Ensure Equity and Justice in Climate-SDG policies

We propose here guidelines that can be used by policymakers and stakeholders to help them incorporate justice and equity considerations into joint climate-SDG policies and measures. These are summarised in Box 3.

For these guidelines we draw on ideas expressed by the international community as described in the previous section. We organise these guidelines according to the three types of equity elucidated in the REDD+ safeguards: distributive, procedural and contextual.[171]

Many of these guidelines are relevant to all stages of project and policy processes: design, planning, financing, implementation, monitoring, evaluation, review and re-design. Additionally, many of the guidelines are applicable at all scales: local, national and international, and for NGO and community implementers as well as national governments. For instance, the issue of participation in policymaking processes is relevant at both the international and local scales. We point out where a specific guideline is more relevant to a particular stage or scale.

We also recognise that these guidelines alone will not ensure truly just and equitable policies, and that more far-reaching actions are needed at the national and international scales.

Box 3: Summary of guidelines to help ensure equity and justice of climate-SDG policies and measures. Explanation presented in text.

I. Distributive equity

Ensure fairness in the distribution or allocation of costs, contributions, risks and benefits among stakeholders.

At all levels:

- Assess potential negative impacts of policies and measures on other SDGs and climate goals.
- Consider the impact of actions on vulnerable and marginalised groups.
- Protect livelihoods, especially of the poorest.
- Respect and protect Indigenous rights.
- Consider the impact of actions on nature.
- For funding organisations ... provide predictable and accessible funding across scales.

At the national level ... take responsibility for improving conditions in global commodity supply chains.

II. Procedural equity

Ensure fairness in the political processes that facilitate decision-making, allocation of resources and dispute resolution

At all levels:

- Recognise roles, responsibilities and rights of stakeholders at different scales. This includes gender rights, tenure rights and prior consent.
- Recognise and protect rights of all affected stakeholders
- Ensure flexibility in approaches and avoid "one size fits all" solutions.
- Enact strong policy coherence.
- Build inclusive and transparent governance structures.

At the national and international levels:

- Set clear standards, protocols and accountability mechanisms.
- Integrate transparency and accountability safeguards into laws and regulations.
- Put in place mechanisms to enable access to justice.

III. Contextual equity

Enhance the capability of stakeholders to hold a fair position in negotiations about resources, taking into consideration their pre-existing political, economic and social conditions.

At all levels:

- Create enabling environments.
- Target actions where measures will have the biggest impact on goals.

At national and international levels:

- Establish effective laws and regulations to uphold human rights.
- Enact effective laws and regulations to hold corporate actors to account.
- Agree on international mechanisms that support countries in implementing policies justly and equitably.
- Take global action to ensure coherence across finance, investment and aid contributions.

I. Distributive equity

"Distributive equity" is fairness in the distribution or allocation of costs, contributions, risks and benefits among stakeholders.

At all levels:

Assess potential negative impacts of policies and measures on other SDGs and climate goals. Policies and measures should minimise the displacement of impacts onto others – within and between countries. For instance, a policy to import biofuels for reducing greenhouse gas emissions domestically should not lead to social and ecological impacts in the country producing the biofuels.[172]

Consider the impact of actions on vulnerable and marginalised groups. At a minimum, ensure actions do not increase or entrench existing inequalities. This can be done by focusing on social (e.g. race, class, gender) justice alongside economic justice.

Protect livelihoods, especially of the poorest. At a minimum, ensure actions do not undermine livelihoods of affected communities; aim to design actions that enhance livelihoods and labour rights, including women's labour rights.

Respect and protect Indigenous rights: "Respect ... the knowledge and rights of indigenous peoples and members of local communities, by taking into account relevant international obligations, national circumstances and laws, and noting that the United Nations General Assembly has adopted the United Nations Declaration on the Rights of Indigenous Peoples."[173]

Consider the impact of actions on nature by, at a minimum, taking into account the targets contained in the SDGs and other relevant international agreements, such as the Convention on Biological Diversity.

For funding organisations, provide predictable and accessible funding across scales to support long-term development actions and build local capacity and institutions.

At the national level, take responsibility for improving conditions in global commodity supply chains. For instance, countries should take into account labour rights and environmental standards in relation to imports.[174]

II. Procedural equity

"Procedural equity" is fairness in the political processes that facilitate decision-making, allocation of resources, and dispute resolution

At all levels:

Recognise roles, responsibilities and rights at different scales. Ensure that stakeholders responsible for implementing a policy decision are able to provide input to decisions and have adequate resources to act on the decision. For example, where national policies are implemented by local government departments, local actors should be able to choose locally-relevant actions, and have financial and other resources to act effectively.

Recognise and protect rights of all affected stakeholders. This includes:

- **Tenure and resource rights**. Support the rights of local communities to use and have access to local land with its resources.
- **Gender rights**. Act to address gender-based economic, social and political inequalities through project or policy design. For example, take action to include women in decision-making processes and consultations affecting community resources such as land or forests; provide financing for initiatives enhancing women's rights.
- **Obtain free, prior and informed consent (FPIC)** from all relevant stakeholders prior to implementing programmes and policies.

Ensure flexibility in approaches and avoid "one size fits all" solutions. Policies and measures should be adapted to local considerations to the greatest extent possible. This includes responsive monitoring and learning systems (e.g. gender-responsive climate action) and flexible finance.

Enact strong policy coherence. This means establishing robust coordination across governance structures to enable policymakers to take into account the impact of policy decisions in one sector on other sectors and their stakeholders. One example is Namibia's National Climate Change Committee, which works closely with its National Planning Commission on the implementation of the National Development Plan which addresses all 17 SDGs.[175] As discussed in Chapter Two, policy coherence has the potential to ensure diverse interests are taken into account, improve the efficiency of implementing policies, and help save resources.

Build inclusive and transparent governance structures to ensure accountability in policy design and implementation, to reduce the risk of policy reversals, and to increase the opportunity for lock-in of sustainable practices. This includes:

- **Clear, transparent and inclusive approaches to stakeholder consultation** including regular reporting on progress, use of funds, and how agreements are being respected. Provide mechanisms to enable all affected stakeholders, including women, to participate in decision-making processes, and access policy spaces. This includes capacity building for civil society groups such as grassroots organisations representing marginalised communities.[176]
- Monitoring, evaluation and review procedures to adjust policies if negative impacts arise
- Accountability and compliance mechanisms across scales

At the national and international levels:

Set clear standards, protocols and accountability mechanisms across industries, including those that are less visible such as commodity traders. Ensure private sector actors uphold principles and standards laid out in the UN's Business and Human Rights guidelines.

Integrate transparency and accountability safeguards into laws and regulations. These could include rules for local participation, monitoring compliance, and establishment of grievance mechanisms to address conflicts.

Put in place mechanisms to enable access to justice and remedies for climate-related harms, at both national and global levels. Establish robust and transparent negotiation procedures with all relevant stakeholders to arrange fair compensation for possible negative effects of policies and measures.

III. Contextual equity

"Contextual equity" means boosting the capability of stakeholders to hold a fair position in negotiations about resources, taking into consideration their pre-existing political, economic and social conditions.

At all levels:

Create enabling environments. Governments must make it possible for citizens to take actions, such as low-carbon options, without bearing unfair costs. An example of an enabling environment is "building infrastructures for transport, housing, food and energy use that enable behaviour change by locking in affordability, accessibility and sustainability..."[177] Such enabling environments can make sustainable actions accessible and affordable, both of which are key components of equity.

Target actions where measures will have the biggest impact on goals. For instance, focus on changing the behaviour of the largest greenhouse gas emitters (countries, industries or individuals).[178]

At national and international levels:

Establish effective laws and regulations to uphold human rights including gender rights, land rights, labour rights and the rights of Indigenous peoples.

Enact effective laws and regulations to hold corporate actors to account, particularly across national borders (regulation, engagement, compliance, certification)

Agree on international mechanisms that enable countries to implement policies justly and equitably. These include fair and equitable global trade rules and stable financing.

Take global action to ensure coherence across finance, investment and aid for achieving net zero emissions economies. For example, donors should build climate concerns into development funding; prioritise aid and other funding to countries with high levels of climate vulnerability to ensure funds are targeted according to need.

Summing Up

Principles of equity and justice underpin both the SDGs and the Paris Agreement, and many stakeholders from international policy actors to local communities are acting to uphold those principles. The guidelines outlined above can inform actions by all stakeholders, including national governments, the corporate sector, civil society, global institutions and national governments acting at the global level. Such actions can be mutually-reinforcing both across the SDGs and climate goals, and between different parts of the global system. For instance, demands from citizens and consumers can lead to governments and corporate actors changing their policies, while changes in government policy can create the space for citizen engagement.[179]

However, experience shows that taking an integrated approach to sustainable development and climate issues is extremely challenging because most governments work through sector-specific ministries and a large fraction of development funding is project-based and time-bound. For instance, research on efforts in Zambia to coordinate the implementation of development priorities found that administrative arrangements and financial flows were fixed and inflexible within sectors. In addition, local government bodies lacked the resources, enabling structures or capacity to work collaboratively.[180] This important need for "policy coherence" in government was discussed in Chapter 2.

There is therefore a great deal of work to be done to support policymakers in designing interventions that address justice and equity issues.

Glossary

APPG	All Party Parliamentary Group
FPIC	Free, Prior and Informed Consent
GGW	Great Green Wall
GHG	Greenhouse gasses
IPCC	Intergovernmental Panel on Climate Change
LNOB	Leave No-One Behind
NAP	National Adaptation Plan
NDC	Nationally Determined Contributions
ODA	Overseas Development Assistance
OECD	Organisation for Economic Cooperation and Development
REDD+	Reduction of Emissions from Deforestation and Forest Degradation
SDG	Sustainable Development Goal
UN	United Nations
VNR	Voluntary National Report
WASH	Water, Sanitation and Hygiene

Endnotes

1 UK Government (2020). *PM speech at COP26 launch: 4 February 2020*. [online]. www.gov.uk. 4 February 2020. Available at: https://www.gov.uk/government/speeches/pm-speech-at-cop-26-launch-4-february-2020

2 Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.) (2021). *Climate Change 2021: The physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press.

3 Guterres, A. (2021). *76th General Assembly gets underway at UN Headquarters in New York*. [online]. news.un.org. 14 September 2021. Available at: https://news.un.org/en/story/2021/09/1099912

4 Sharma, A. (2021). *Pick the Planet*. [online]. www.gov.uk. 14 May 2021. Available at: https://www.gov.uk/government/speeches/pick-the-planet

5 Climate change is part of the SDGs but it is "more than just one of the 17 Sustainable Development Goals ... It is a threat multiplier." (Zhenmin, L., and Espinosa, P. (2019). Tackling climate change to accelerate sustainable development. *Nature Climate Change*, 9(7), 494-496). Climate change policy has its own infrastructure and governance processes including the machinery of the Secretariat of the United Nations Framework Convention on Climate Change (UNFCCC), a dedicated multi-billion dollar financing institution (the Green Climate Fund), and an enormous research apparatus made up of numerous dedicated scholarly journals and its own elaborate international scientific assessment mechanism (the Intergovernmental Panel on Climate Change).

6 UNEP (2019). *Emissions Gap Report 2019. Executive summary*. United Nations Environment Programme, Nairobi.

7 IPCC (2021). *Summary for Policymakers. In: Climate Change 2021: The physical science basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*. [Masson-Delmotte, V., P. Zhai, A. Pirani, S.L. Connors, C. Péan, S. Berger, N. Caud, Y. Chen, L. Goldfarb, M.I. Gomis, M. Huang, K. Leitzell, E. Lonnoy, J.B.R. Matthews, T.K. Maycock, T. Waterfield, O. Yelekçi, R. Yu, and B. Zhou (eds.)]. Cambridge University Press.

8 UNEP (2019). op. cit.

9 IEA (2021). *Global Energy Review 2021 Assessing the effects of economic recoveries on global energy demand and CO2 emissions in 2021*. International Energy Agency, Vienna.

10 UN (2019a). Report of the Secretary-General on SDG Progress 2019. Special Edition. United Nations, New York.

11 UN (2019a). op. cit.

12 UN (2019a). op. cit.

13 UN (2020). *The Sustainable Development Goals Report 2020*. United Nations, New York.

14 SSRP (2020). *Submitted testimony to the UK All-Party Parliamentary Group (APPG) on the UN Global Goals for Sustainable Development Inquiry on "The Sustainable Development Goals: Covid-19 and the Decade of Action and Delivery"*. Sussex Sustainability Research Programme (SSRP), University of Sussex. Available at: https://www.sussex.ac.uk/webteam/gateway/file.php?name=ssrp-testimony-on-sdgs-and-covid-pandemic-030720-final.pdf&site=492

15 Yeo, S. (2019). Where climate cash is flowing and why it's not enough. *Nature* **573**, 328-33.

16 IPCC (2018). *Global warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels an related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. [V. Masson-Delmotte, P. Zhai, H.O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor and T. Waterfield (eds.)]. World Meteorological Organization, Geneva, Switzerland

17 SEI, IISD, ODI, E3G, and UNEP. (2020). *The production gap report: 2020 special report*. Available at: http://productiongap.org/2020report

18 UNCTAD (2014). *World Investment Report 2014. Investing in the SDGs: an action plan*. United Nations Conference on Trade and Development, Geneva.

19 Estimates suggest the pandemic cost US$11.7 trillion in 2020. Oxfam International (2020). *2.7 billion people have had no social protection to cope with Covid-19 economic crisis*. [online]. Oxfam.org. 15 December 2020. Available at: https://www.oxfam.org/en/press-releases/27-billion-people-have-had-no-social-protection-cope-covid-19-economic-crisis

20 OECD (2021). *COVID-19 spending helped to lift foreign aid to an all-time high in 2020 but more effort needed*. [Online]. OECD Newsroom, 13 April 2021. Available at: https://www.oecd.org/newsroom/covid-19-spending-helped-to-lift-foreign-aid-to-an-all-time-high-in-2020-but-more-effort-needed.htm

21 OECD (2021). op. cit.

22 OECD (2021). op. cit.

23 BBC News (2020). *Spending review: backlash over Rishi Sunak's overseas aid cut*. [online]. bbc.co.uk. 25 November 2020. Available at: https://www.bbc.co.uk/news/uk-politics-55064019

24 OECD (2021). *Focus on green recovery*. [online]. oecd.org. Available: https://www.oecd.org/coronavirus/en/themes/green-recovery#Green-recovery-database.

25 With regards to the meaning of "policies and measures": "A *policy* is commonly understood as the overarching framework to achieve certain objectives, which sets the overarching frame for actions. A policy may include several measures. Examples are: Renewable Energy Strategy, Green Fund ...

A *measure* is commonly understood as concrete actions undertaken to implement a certain policy. A measure is more concrete than a policy. Examples are: Introduction of a carbon tax, insulation of buildings...

Source: EEA (2019). *Guidelines for reporting on policies and measures by member states under regulation (EU) No 525/2013*. European Environment Agency.

26 Note, "climate action" is part of the SDGs as goal 13.

27 Finley-Brook, M. Thomas, C. (2011). Renewable energy and human rights violations: illustrative cases from indigenous territories in Panama. *Annals of the Association of American Geographers*, 101 (4), 863-872.

28 Sovacool, B. (2018). Bamboo beating bandits: conflict, inequality, and vulnerability in the political ecology of climate change adaptation in Bangladesh. *World Development*, 102, 183-194.

[29] Nakicenovic, N., Alcamo, J., Davis, G., Vries, B.D., Fenhann, J., Gaffin, S., Gregory, K., Grubler, A., Jung, T.Y., Kram, T. and La Rovere, E.L., (2000). *IPCC special report on emission scenarios. Intergovernmental Panel on Climate Change*. Geneva

[30] EC (2020). *An EU-wide assessment of national energy and climate plans*. COM (2020) 564 final. European Commission, Brussels.

[31] Chang, K.M., Hess, J.J., Balbus, J.M., Buonocore, J.J., Cleveland, D.A., Grabow, M.L., Neff, R., Saari, R.K., Tessum, C.W., Wilkinson, P. and Woodward, A. (2017). Ancillary health effects of climate mitigation scenarios as drivers of policy uptake: a review of air quality, transportation and diet co-benefits modeling studies. *Environmental Research Letters*, 12(11), p.113001.

[32] Tai, A. P., Martin, M. V. and Heald, C. L. (2014). Threat to future global food security from climate change and ozone air pollution. *Nature Climate Change*, 4(9), 817-821.

[33] Vezmar, S., Spajic, A., Topic, D., Sljivac, D. and Jozsa, L. (2014). Positive and negative impacts of renewable energy sources. *International Journal of Electrical and Computer Engineering Systems*, 5(2), 47-55.

[34] Wright, C. Sathre, R. and Buluswar, S. (2020). The global challenge of clean cooking systems. *Food Security*, 12, 1219–1240

[35] Shindell, D., Borgford-Parnell, N., Brauer, M., Haines, A., Kuylenstierna, J.C.I., Leonard, S.A., Ramanathan, V., Ravishankara, A., Amann, M. and Srivastava, L. (2017). A climate policy pathway for near-and long-term benefits. *Science*, 356(6337), pp.493-494.

[36] Note that clean cookstoves also require fuels that produce greenhouse gases. However, depending on the scenario, the global warming potential of clean, efficient cookstoves could be lower than the traditional stoves they replace. See: UNEP (2011). *Near-term climate protection and clean air benefits: actions for controlling short-lived climate forcers*, United Nations Environment Programme (UNEP), Nairobi, Kenya, 78pp

[37] UNEP (2011). op. cit.

[38] Yang, Y. and Corson, C. (2014). The making of a 'charismatic' carbon credit: clean cookstoves and 'uncooperative' women in western Kenya. *Environment and Planning A*, 46.

[39] Kummu, M., de Moel, H., Porkka, M. and Siebert, S. (2012). Lost food, wasted resources: Global food supply chain losses and their impacts on freshwater, cropland, and fertiliser use 2012. *Science of the Total Environment*, 438, 477–489.

[40] Kummu, et al. (2012). op. cit.

[41] Smith, P., Calvin, K., Nkem, J., Campbell, D., Cherubini, F., Grassi, G., Korotkov, V., Le Hoang, A., Lwasa, S., McElwee, P. and Nkonya, E. (2020). Which practices co-deliver food security, climate change mitigation and adaptation, and combat land degradation and desertification? *Global Change Biology*, 26(3), pp.1532-1575.

[42] Kummu, et al. (2012). op. cit.

[43] Matthews, J.B.R. (ed.) (2018). Annex I: Glossary. In V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. World Meteorological Organization, Geneva, Switzerland.

[44] Karlsson, M., Alfredsson, E. and Westling, N. (2020). Climate policy cobenefits: a review. *Climate Policy*, 20(3), 292-316.

[45] Smith, et al. (2020). op. cit.

[46] Shukla, P.R., Skea, J., Calvo Buendia, E., Masson-Delmotte, V., Portner, H.-O., Roberts, D.C., Zhai, P., Slade, R., Connors, S., van Diemen, R., Ferrat, M., Haughey, E., Luz, S., Neogi, S., Pathak, M., Petzold, J., Portugal Pereira, J., Vyas, P., Huntley, E., Kissick, K., Belkacemi, M. and Malley, J. (eds.) (2019). *Climate change and land: an IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse gas fluxes in terrestrial ecosystems*. Cambridge University Press. IPCC.

[47] For example, a measure was deemed to have a "moderate positive" impact if studies in the literature showed that it led to a global emissions reduction of 0.3-3.0 Gt CO2 eq/year, if it increased the climate adaption capabilities of 1-25 million people, reduced desertification on 0.5-3 million km^2 of land, reduced land degradation on 0.5-3 million km^2 of land, and positively impacted the food availability of 1 to 100 million people.

[48] Increased food productivity, improved cropland management, improved grazing land management, improved livestock management, agroforestry, improved forest management, increased soil organic carbon content, fire management, and reduced post-harvest losses.

[49] McElwee, P., Calvin, K., Campbell, D., Cherubini, F., Grassi, G., Korotkov, V., Hoang, A. L., Lwasa, S., Nkem, J., Nkonya, E., Saigusa, N., Soussana, J.-F., Taboada, M.A., Manning, F., Nampanzira, D. and Smith, P. (2020). The impact of interventions in the global land and agri-food sectors on Nature's Contributions to People and the UN Sustainable Development Goals. *Global Change Biology*, 26, 4691–4721.

[50] Kanter, D. and Brownlieb, W. (2019). Joint nitrogen and phosphorus management for sustainable development and climate goals. *Environmental Science and Policy*, 92, 1–8.

[51] Smith, et al. (2020). op. cit.

[52] Newell, P., and Mulvaney, D. (2013). The political economy of the just transition. *Geographical Journal, 179(2)*,132–40

[53] *Climate Watch Database*. (2021). [online]. Available at: https://www.climatewatchdata.org/. Climate Watch is managed by the World Resources Institute.

[54] NDC-SDG *Connections Database*. (2021). [online]. Available at: https://klimalog.die-gdi.de/ndc-sdg/. NDC-SDG Connections is a joint initiative of the German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) and Stockholm Environment Institute (SEI).]

[55] The Washing Machine Project (2021). [online]. Available at: https://thewashingmachineproject.org/

[56] Ferrant, G., Pesando, L.M. and Nowacka, K. (2014). *Unpaid care work: the missing link in the analysis of gender gaps in labour outcomes*. OECD Development Centre. Available at: https://www.oecd.org/dev/development-gender/Unpaid_care_work.pdf

[57] IEA (2020). *Tracking Transport 2020*. IEA. Paris. Available at: https://www.iea.org/reports/tracking-transport-2020

[58] Anon. (2021). *National action plans on business and human rights*. Available at: https://globalnaps.org/issue/policy-coherence/

[59] One set of authors has observed that "policy coherence" is used mostly in development studies, "policy integration" in studies of climate and environmental policy, and "nexus" in the context of linkages between climate, energy, food and water policies: Tosun,

J. and Leininger, J. (2017). Governing the interlinkages between the Sustainable Development Goals: approaches to attain policy Integration. *Global Challenges*, 1, 1700036

60 Based on FAI Foundation's submission to the APPG Inquiry, May 2021.

61 Based on Action for Global Health's submission to the APPG Inquiry, May 2021.

62 Action for Global Health's submission to the APPG Inquiry, May 2021.

63 Action for Global Health's submission to the APPG Inquiry, May 2021.

64 OECD (2019). Policy coherence for sustainable development 2019: *Empowering people and ensuring inclusiveness and equality*. Available at: https://www.oecd-ilibrary.org/sites/a90f851f-en/index.html?itemId=/content/publication/a90f851f-en&_csp_=73b15b213fdb1ee6ffc1405b658b178f&itemIGO=oecd&itemContentType=book

65 Anon. (2017). *Opportunities and options for integrating climate change adaptation with the Sustainable Development Goals and the Sendai Framework for Disaster Risk Reduction* 2015–2030. UN Climate Change Secretariat. Bonn, Germany.

66 Rafaj, P., Schöpp, W., Russ, P., Heyes, C. and Amann, M. (2013). Co-benefits of post-2012 global climate mitigation policies. *Mitigation and Adaptation Strategies for Global Change*, 18(6), pp.801-824.

67 West, J.J., Smith, S.J., Silva, R.A., Naik, V., Zhang, Y., Adelman, Z., Fry, M.M., Anenberg, S., Horowitz, L.W. and Lamarque, J.F. (2013). Co-benefits of mitigating global greenhouse gas emissions for future air quality and human health. *Nature climate change, 3*(10), 885-889.

68 Obersteiner, M., Walsh, B., Frank, S., Havlík, P., Cantele, M., Liu, J., Palazzo, A., Herrero, M., Lu, Y., Mosnier, A. and Valin, H. (2016). Assessing the land resource–food price nexus of the Sustainable Development Goals. *Science advances*, 2(9), p.e1501499.

69 Pedercini, M., Arquitt, S., Collste, D. and Herren, H. (2019). Harvesting synergy from sustainable development goal interactions. *PNAS*. 116 (46), 23021-23028.

70 Deng, H.M., Liang, Q.-M., Liu, L.-J. and Anadon, L.D. (2018). Co-benefits of greenhouse gas mitigation: a review and classification by type, mitigation sector, and geography. *Environmental Research Letters*, 12, 123001

71 Matthews (2018). op. cit.

72 The references here refer to comprehensive assessments of a wide range of policies and measures based on numerous primary references from the research literature.

73 Smith, et al. (2020). op. cit.

74 IPCC (2019). Climate change and land: An IPCC special report on climate change, desertification, land degradation, sustainable land management, food security, and greenhouse. Geneva, Switzerland: Available at: https://www.ipcc.ch/srccl-report-download-page/

75 Smith, et al. (2020). op. cit.

76 IPCC (2019). op. cit.

77 Smith, et al. (2020). op. cit.

78 IPCC (2019). op. cit.

79 Smith, et al. (2020). op. cit.

80 IPCC (2019). op. cit.

81 Smith, et al. (2020). op. cit.

82 IPCC. (2019). op. cit.

83 McElwee et al. (2020). op. cit.

84 Smith, et al. (2020). op. cit.

85 IPCC (2019). op. cit.

86 Smith, et al. (2020). op. cit.

87 IPCC (2019). op. cit.

88 McElwee et al. (2020). op. cit.

89 Smith, et al. (2020). op. cit.

90 IPCC (2019). op. cit.

91 McElwee et al. (2020). op. cit.

92 Smith, et al. (2020). op. cit.

93 IPCC (2019). op. cit.

94 McElwee et al. (2020). op. cit.

95 McElwee et al. (2020). op. cit.

96 IPCC (2019). op. cit.

97 McElwee et al. (2020). op. cit.

98 IPCC (2019). op. cit.

99 McElwee et al. (2020). op. cit.

100 IPCC (2019). op. cit.

101 Kanter, D. and Brownlieb, W. (2019). Joint nitrogen and phosphorus management for sustainable development and climate goals. *Environmental Science and Policy 92*: 1–8.

102 Smith, et al. (2020). op. cit.

103 IPCC (2019). op. cit.

104 Kanter, et al. (2019). op. cit.

105 Kanter, et al. (2019). op. cit.

106 Kanter, et al. (2019). op. cit.

107 McCollum, D.L., Zhou, W., Bertram, C., De Boer, H.S., Bosetti, V., Busch, S., Després, J., Drouet, L., Emmerling, J., Fay, M. and Fricko, O. (2018). Energy investment needs for fulfilling the Paris Agreement and achieving the Sustainable Development Goals. *Nature Energy, 3*(7), 589-599.

108 Rosenthal J., Quinn A., Grieshop A., Pillrisisetti A. and Glas R. (2018). Clean cooking and the SDGs: Integrated analytical approaches to guide energy interventions for health and environment goals. *Energy for Sustainable Development, 42*, 152-159.

109 Anenberg S., Henze D.K., Lacey F., Irfan A., Kinney P., Kleiman G. and Pillarisetti A. (2017). Air pollution-related health and climate benefits of clean cookstove programs in Mozambique. *Environmental Research Letters, 12*, 025006.

110 UNEP (2011). *Near-term climate protection and clean air benefits: actions for controlling short-lived climate forcers*, United Nations Environment Programme (UNEP), Nairobi, Kenya.

111 Rosenthal et al. (2018). op. cit.

112 Anenberg et al. (2017). op. cit.

113 Creutzig, F., Muehlhoff, R. and Roemer, J. (2012). Decarbonizing urban transport in European cities: four cases show possibly high co-benefits. *Environmental Research Letters*, 7, (4), p.044042.

114 Chang et al. (2017). op. cit.

115 Creutzig et al. (2012). op. cit.

116 Chang et al. (2017). op. cit.

117 Kwan, S. and Hashim, J. (2016). A review on co-benefits of mass public transportation in climate change mitigation. *Sustainable Cities and Society*, 22, 11–18.

[118] Health Target 3.9 because of air pollution reduction, especially reduction of particulate matter/black carbon and ozone precursors; Health Target 3.6 because of reduction in traffic injuries.

[119] Houghton, A. and Castillo-Salgado, C. (2019). Associations between green building design strategies and community health resilience to extreme heat events: a systematic review of the evidence. *International Journal of Environmental Research and Public Health*. 16(4), 663.

[120] Yang, X., Teng, F. and Wang, G. (2013). Incorporating environmental co-benefits into climate policies: A regional study of the cement industry in China. *Applied Energy*, 112, 1446-1453.

[121] Kanter et al. (2019). op. cit.

[122] McElwee et al. (2020). op. cit.

[123] IPCC (2019). op. cit.

[124] McElwee et al. (2020). op. cit.

[125] IPCC (2019). op. cit.

[126] OECD (2019). op. cit.

[127] UN (2019b). *Global conference on strengthening synergies between the Paris Agreement on climate change and the 2030 Agenda for Sustainable Development*. UN DESA.

[128] IPCC (2018). Summary for Policymakers. In: V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. World Meteorological Organization, Geneva, Switzerland.

[129] Fleurbaey M., S. Kartha, S. Bolwig, Y.L. Chee, Y. Chen, E. Corbera, F. Lecocq, W. Lutz, M.S. Muylaert, R.B. Norgaard, C. Okereke, and A.D. Sagar, (2014). Sustainable Development and Equity. In O. Edenhofer, R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.). *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change*. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA

[130] Newell, P., Srivastava, S., Otto, Naess, L.O., Torres Contreras, G.A., and Price, R. (2021). Toward transformative climate justice: An emerging research agenda. *Wiley Interdisciplinary Reviews: Climate Change*, e733.

[131] Based on The Leprosy Mission England and Wales' submission to the APPG Inquiry, May 2021

[132] Megaw, T., Kohlitz, J. and Chong, J. (2020). *Socially-inclusive responses to climate change impacts on WASH: case study in Manggarai, Flores, Indonesia*. Prepared for Plan International Indonesia by ISF-UTS. Available at: https://multisitestaticcontent.uts.edu.au/wp-content/uploads/sites/57/2021/01/25083436/Case-Study-CCRIW-Indonesia-2.pdf

[133] We use 'equity' to refer to fairness in outcomes, ensuring that all groups have the resources and access to decision-making to lead to equal outcomes. This can require additional support for disadvantaged groups. We use 'justice' to refer to the dismantling of systemic societal barriers facing some groups or communities, which lead them to needing additional support to achieve equity.

[134] Dzebo, A., Janetschek, H., Brandi, C. and Iacobuta, G. (2019). *Connections between the Paris Agreement and the 2030 Agenda: the case for policy coherence*. SEI Working Paper. Stockholm Environment Institute, Stockholm.

[135] CDP Subgroup on voluntary national reviews (2020). Voluntary National Reviews Reports – What do they (not) tell us? CDP *Background Paper, no. 50*. CDP.

[136] Kelman, I. and Gaillard, J. C. (2010). Embedding climate change adaptation within disaster risk reduction. In R. Shaw, J. M. Pulhin, and J. Jacqueline Pereira (eds.), *Climate Change Adaptation and Disaster Risk Reduction: Issues and Challenges* (Vol. 4, pp. 23–46). Emerald Group Publishing Limited.

[137] Swart, R., Robinson, J., and Cohen, S. (2003). Climate change and sustainable development: Expanding the options. *Climate Policy, 3*, S19–S40.

[138] Campagnolo, L. and Davide, M. (2019). Can the Paris deal boost SDGs achievement? An assessment of climate mitigation co-benefits or side-effects on poverty and inequality. *World Development*, 122, 96–109.

[139] Campagnolo, L. and De Cian, E. (2020). Can the Paris Agreement Support Achieving the Sustainable Development Goals? In W. Buchholz, A. Markandya, D. Rübbelke, & S. Vögele (eds.), *Ancillary Benefits of Climate Policy* (15–50). Springer Nature.

[140] Dzebo et al. (2019). op. cit.

[141] Iyer, G., Calvin, K., Clarke, L., Edmonds, J., Hultman, N., Hartin, C., McJeon, H., Aldy, J., and Pizer, W. (2018). Implications of sustainable development considerations for comparability across nationally determined contributions. *Nature Climate Change*, 8(2), 124–129.

[142] Roy, J., Tschakert, P., Waisman, H., Halim, S. A., Antwi-Agyei, P., Dasgupta, P., Hayward, B., Kanninen, M., Liverman, D., Okereke, S., Pinho, P. F., Riahi, K. and Suarez, A. G. (2018). Sustainable development, poverty eradication and reducing inequalities. In V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. World Meteorological Organization, Geneva, Switzerland.

[143] Shawoo, Z., Dzebo, A., Hägele, R., Iacobuta, G., Chan, S., Muhoza, C., Osano, P., Francisco, M., Persson, Å., Linner, B.-O., and Vijge, M. J. (2020). *Increasing policy coherence between NDCs and SDGs: A national perspective*. Stockholm Environment Institute.

[144] Bowen, K. J., Murphy, N., Dickin, S., Dzebo, A., and Ebikeme, C. (2021). Health synergies across international sustainability and development agendas: pathways to strengthen national action. International *Journal of Environmental Research and Public Health, 18*(4), 1664.

[145] Barnett, J. and O'Neill, S. J. (2012). Islands, resettlement and adaptation. *Nature Climate Change, 2*(1), 8–10.

[146] Jafino, B. A., Hallegatte, S. and Rozenberg, J. (2021). Focusing on differences across scenarios could lead to bad adaptation policy advice. *Nature Climate Change, 11*(5), 394–396.

[147] Moure, M., Sandholz, S., Wannewitz, M. and Garschagen, M. (2021). No easy fixes: Government workers' perception of policy (in)coherence in the implementation of the Post-2015 agenda in Mexico. *Climate Risk Management, 31*.

[148] Benjaminsen, T. A., Svarstad, H. and Shaw, I. (forthcoming) 'Recognising recognition in climate justice'.

[149] Mugelé, R. (2018). *La grande muraille verte: géographie d'une utopie environnementale du Sahel* (Doctoral dissertation, Paris 1).

[150] Mugelé (2018). op. cit.

[151] Sovacool (2018). op. cit.

[152] World Bank Group (2015). *Bangladesh - First Phase of the Coastal Embankment Improvement Project: resettlement plan: Resettlement action plan (English)*. Washington, D.C.: World Bank Group. Available at: http://documents.worldbank.org/curated/en/726681468212375296/Resettlement-action-plan

[153] Singh, G.G., Cisneros-Montemayor, A.M., Swartz, W., Cheung, W., Guy, J.A., Kenny, T.A., McOwen, C.J., Asch, R., Geffert, J.L., Wabnitz, C.C. and Sumaila, R. (2018). A rapid assessment of co-benefits and trade-offs among Sustainable Development Goals. *Marine Policy*, 93, pp.223-231.

[154] Dzebo et al. (2019). op. cit.

[155] Buss, D., Rutherford, B., Kumah, C. and Spear, M. (2021). Beyond the rituals of inclusion: The environment for women and resource governance in Africa's artisanal and small-scale mining sector. *Environmental Science and Policy*, 116, 30-37.

[156] Newell, P., Taylor, O., Naess, L.O., Thompson, J., Mahmoud, H., Ndaki, P., Rurangwa, R. and Teshome, A. (2019). Climate Smart Agriculture? Governing the Sustainable Development Goals in Sub-Saharan Africa. *Frontiers in Sustainable Food Systems*, 3:55.

[157] Hirons, M. (2020). How the Sustainable Development Goals risk undermining efforts to address environmental and social issues in the small-scale mining sector. *Environmental Science and Policy*, 114, 321-328.

[158] Sovacool (2018). op. cit.

[159] Hooper, K., Fellingham, L., Clancy, J., Newell, P., and Petrova, S. (2021). *Gender, race and social inclusion – net zero transitions: a review of the literature*, Department of Business, Energy and Industrial Strategy, December 2021

[160] Swan, S. and Walcott, J. (2017). REDD+ safeguards information systems: practical design considerations. *UN-REDD Programme Technical Brief v2.0*. UN-REDD Programme. Available at: https://www.unredd.net/documents/redd-papers-and-publications-90/un-redd-publications-1191/technical-brief-series/14729-technical-brief-1-redd-safeguards-information-systems-practical-design-considerations.html

[161] UN (2015a). *Transforming our world: the 2030 Agenda for Sustainable Development*. Available at: https://sdgs.un.org/2030agenda

[162] Shawoo et al. (2020). op. cit.

[163] UN (2015b). *The Paris Agreement*. Available at: https://unfccc.int/sites/default/files/english_paris_agreement.pdf

[164] Allen, M.R., Dube, O.P., Solecki, W., Aragón-Durand, F., Cramer, W., Humphreys, S., Kainuma, M., Kala, J., Mahowald, N., Mulugetta, Y., Perez, R., Wairiu, M. and Zickfeld, K. (2018). Framing and context. In V. Masson-Delmotte, P. Zhai, H.-O. Pörtner, D. Roberts, J. Skea, P.R. Shukla, A. Pirani, W. Moufouma-Okia, C. Péan, R. Pidcock, S. Connors, J.B.R. Matthews, Y. Chen, X. Zhou, M.I. Gomis, E. Lonnoy, T. Maycock, M. Tignor, and T. Waterfield (eds.) *Global Warming of 1.5°C. An IPCC Special Report on the impacts of global warming of 1.5°C above pre-industrial levels and related global greenhouse gas emission pathways, in the context of strengthening the global response to the threat of climate change, sustainable development, and efforts to eradicate poverty*. World Meteorological Organization, Geneva, Switzerland.

[165] Allen et al. (2018). op. cit.

[166] Durbin, J., Lhumeau, A., Franks, P. and Quesada A. (2014). *Experiences, challenges and lessons learned about REDD+ safeguards information systems (SIS)* REDD+ SES Initiative.

[167] The REDD+ safeguards, also called the Cancun safeguards were agreed at the UNFCCC COP16, in 2010. They are available here: https://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf

[168] RECOFTC (2014). Equity in climate change and REDD+. A handbook for grassroots facilitators. Questions and answers. Available at: https://redd.unfccc.int/uploads/2_99_redd_20150826_recoftc_equity_in_redd-handbook_english.pdf

[169] Roe, S., Streck, C., Pritchard, L. and Costenbader, J. (2014). *Safeguards in REDD+ and Forest Carbon Standards: a review of social, environmental and procedural concepts and application*. ClimateFocus. Available at: https://climatefocus.com/sites/default/files/safeguards%20-%20paper%203.pdf

[170] RECOFTC (2014). op. cit.

[171] RECOFTC (2014). op. cit.

[172] Simpson, N.P., Mach, K.J., Constable, A., Hess, J., Hogarth, R., Howden, M., Lawrence, J., Lempert, R.J., Muccione, V., Mackey, B. and New, M.G. (2021). A framework for complex climate change risk assessment. *One Earth*, 4(4), 489-501.

[173] UN-REDD Programme (2021). Safeguards. [online]. unredd.net. Available at: https://www.unredd.net/knowledge/redd-plus-technical-issues/safeguards.html

[174] Wills, T. (2021). We need a UK law to stop companies profiting from destruction and abuse. [online]. 7 April 2021. *Green Alliance blog*. Available at: https://greenallianceblog.org.uk/2021/04/07/we-need-a-uk-law-to-stop-companies-profiting-from-destruction-and-abuse/

[175] UN (2019b). op. cit.

[176] PACJA (2020). *An analysis of the progress of the implementation of the Paris Agreement and Sustainable Development Goals in Zambia*. Pan African Climate Justice Alliance. Available at: https://www.pacja.org/pacja-impact/publications

[177] Newell, P., Daley, F. and Twena, M. (2021). *Changing our ways? Behaviour change and the climate crisis*. Cambridge Sustainability Commission on Scaling Behaviour Change. Available at: https://www.rapidtransition.org/wp-content/uploads/2021/04/Cambridge-Sustainability-Commission-on-Scaling-behaviour-change-report.pdf

[178] Newell, Daley and Twena (2021). op. cit.

[179] Newell, Daley and Twena (2021). op. cit.

[180] PACJA (2020). op. cit.