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Catalysing the Implementation of Nationally Determined Contributions in the Context of the 2030 Agenda through South-South Cooperation



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FOREWORD FROM THE DEPUTY SECRETARY-GENERAL



With their universally accepted vision and concrete, time-bound and measurable goals and targets, the 2030 Agenda for Sustainable Development, the Addis Ababa Action Agenda and the Paris Agreement on climate change represent a once-in-a-generation opportunity to provide peace, prosperity, dignity and opportunity for all on a healthy planet.

Nevertheless, the clock is ticking. Continued unsustainable greenhouse gas emissions and growing water stress are deepening climate injustice and presenting severe challenges to food security and global public health. In addition, profound demographic changes, massive migrant and refugee flows, pervasive inequality and persistent extreme poverty threaten humanity's prospects for a peaceful and secure future.

The Secretary-General has declared that the prevention of conflicts and sustaining peace are priorities for United Nations action, and that pursuing sustainable development in all its dimensions is the best investment. The successful implementation of the 2030 Agenda depends on partnerships, global solidarity and each country acting with ambition towards a common cause. Not only must no one be left behind, but all countries must also fulfil their role and collective responsibility.

As we face the spectre of growing unilateralism, protectionism and isolationism, it is increasingly vital that we empower partnerships for sustainable development. In this context, the efforts of the global South are gaining traction. A growing number of developing countries are demonstrating a willingness, under the framework of South-South cooperation, to promote cooperation on climate action and sustainable development. Innovative financial instruments, such as green banks and climate bonds, also have great potential to drive the transition towards a sustainable green economy in developed, developing and emerging economies alike.

I am pleased to welcome the work undertaken by the Southern Climate Partnership Incubator and the secretariat of the United Nations Framework Convention on Climate Change to highlight the efforts of developing countries to reduce the causes and impacts of climate change and build resilience.

I commend this publication to all who wish to be inspired by the possibilities of South-South cooperation for achieving the Sustainable Development Goals and implementing the Paris Agreement.

A handwritten signature in purple ink, appearing to read 'A. Mohammed'.

Ms. Amina J. Mohammed
Deputy Secretary-General

FOREWORD FROM THE EXECUTIVE SECRETARY OF THE UNFCCC



The world is moving forward together on climate change. This is evidenced by last November's entry into force of the Paris Agreement and the most recent United Nations climate change conference in Marrakech, which emerged as an implementation conference with many announcements of ambitious action. As the era of implementation begins, nations of the world are more resolved than ever to act on climate change.

The model for growth and development is advancing towards lower emissions and more sustainability, as we address the interlinked challenges of climate change and responsible development. At this moment, two truths must be recognized and acted upon to seize the great opportunity presented by our shared goals.

First, cooperation is crucial. The developed world must increase cooperation and support for the developing world through finance, technology and capacity-building. And cooperation between developing nations in the global South must also increase. South-South cooperation with a focus on mutual learning, capacity-building and technical knowledge-sharing opens the door to accelerated action and increasing ambition.

Second, solutions must be sought from many sources. Our recent implementation conference in Marrakech showed that climate solutions are abundant, and that the dynamics of support are changing. It is now clear that no one country or continent has a monopoly on transformational ideas and solutions. Countries looking to fulfil their contribution to the Paris Agreement must explore all available solutions. Development bank support, regional cooperation and bilateral agreements within the developing world must be brought to bear to urgently move all nations in the same direction.

Our direction is clear. The Sustainable Development Goals and the Paris Agreement point the way forward. There is only one on-the-ground reality, so we must take a fully integrated approach to action. Such an approach holds great potential to positively benefit communities and secure success for these visionary agreements.

Action to fulfil the vision outlined in these multilateral agreements puts humanity on a path to development that is powered by clean energy and defined by resilience to climate impacts. It is a path that is sustainable over generations, good for the planet and good for all people. It is a path to meeting the needs of all people as our population grows and our world becomes more connected.

I am sure that policymakers and planners will use this report to hasten the transition to this new path. To encourage and enhance South-South cooperation, the United Nations is committed to supporting the global South. We commit our knowledge and resources to this effort and will mobilize other actors within the United Nations system whenever possible. This report is just the beginning. In this new era of cooperation and solution seeking, we can write a new chapter in human history as one world united by common aspirations. Action and ambition on climate change today delivers on the promise of a better tomorrow for all.

A handwritten signature in blue ink that reads "Patricia Espinosa C". The signature is written in a cursive, flowing style.

Patricia Espinosa
Executive Secretary of the United Nations Framework Convention on Climate Change

PREFACE



Climate change is one of the defining challenges of our time. At stake are recent gains in the fights against poverty, hunger and disease, and the lives and livelihoods of millions of people in the global South. Southern populations, including those in the least developed countries, landlocked developing countries, and small island developing States, will be those who are the first and most intensely affected by a changing climate.

The recent signing of the Paris Agreement was a significant step towards the carbon neutral and sustainable future that we want. Its historically rapid entry into force, in November of 2016, signalled the strong will of the international community to address the cross-cutting challenges posed by climate change.

However, we know that achieving the interconnected and interrelated goals of the 2030 Agenda and the Paris Agreement will be challenging. It will require engagement from all

stakeholders, at all levels and in all countries, to leverage their diverse and unique advantages.

There is no doubt that South-South and triangular cooperation, as a complement to North-South cooperation, will be key modalities for action. In fact, the countries of the South are already turning to these partnerships to share with each other Southern-grown knowledge, policies and best practices in the spirit of mutual respect and understanding.

Southern countries are increasingly turning to the United Nations system for support to capitalize on the opportunities afforded by South-South and triangular partnerships. It is in response to this interest in partnerships that in April of 2016 the United Nations created the Southern Climate Partnership Incubator (SCPI) initiative. The SCPI was jointly launched by the Executive Office of the Secretary-General and my Office, the United Nations Office for South-South Cooperation. Working closely with our United Nations system colleagues, the SCPI will leverage the capacity of the United Nations to foster, promote and support South-South and triangular cooperation for climate action.

The creation and dissemination of knowledge products are vital pillars of SCPI. The present report, which was commissioned by the initiative and developed in partnership with UNFCCC, explores Southern countries' plans and strategies for climate change adaptation and mitigation. It is an important establishing document and will be crucial in guiding how the United Nations system can support countries as they move towards a clean and green future. This support may be through assisting with the creation of partnerships, identifying successful policies, or exchanging and scaling up best practice case studies.

United Nations Office for South-South Cooperation stands ready to engage with all partners to ensure that South-South and triangular partnerships are supported and scaled-up towards building an equitable and sustainable future.

A handwritten signature in black ink, consisting of stylized, overlapping loops and lines.

Jorge Chediek
Envoy of the Secretary-General on South-South Cooperation
and Director, United Nations Office for South-South Cooperation

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The present report has been commissioned by the United Nations Southern Climate Partnership Incubator (SCPI) initiative. This initiative fosters partnerships that help developing countries to assist other developing countries from the global South to address climate change. The SCPI is implemented by the Executive Office of the Secretary-General (EOSG) with support from a range of relevant partners. SCPI welcomes comments on this report via e-mail to scpi@un.org. This and other reports can be downloaded from www.un.org/sustainabledevelopment/scpi.

The report was prepared by a team led by Xiaohua Zhang at EOSG. Team members at EOSG include Ajita Singh, Anita Raman and Liangchun Deng, and team members at the United Nations Framework Convention on Climate Change (UNFCCC) secretariat, include Bernd Hackmann and Claudio Forner.

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ACRONYMS

ADB	Asian Development Bank
AIB	Asian Infrastructure Investment Bank
BAPA	Buenos Aires Plan of Action
BRICS	Brazil, Russia, India, China and South Africa
CAMI	Caribbean Agrometeorological Initiative
CBD	Convention on Biological Diversity
CBDR	Common But Differentiated Responsibilities
COP	Conference of Parties
DAC	Development Assistance Committee
ECDC	Economic Cooperation among Developing Countries
ECIDC	Economic Cooperation and Integration among Developing Countries
ECOSOC	Economic and Social Council
EPTA	Expanded Programme of Technical Assistance
FAO	Food and Agriculture Organization
FDI	Foreign Direct Investment
FOCAC	Forum on China-Africa Cooperation
G20	Group of 20
GATT	General Agreement on Tariffs and Trade
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNI	Gross National Income
GST	Global Stocktake
GSTP	Global System of Trade Preferences among developing countries
HLC	High-Level Committee on South-South Cooperation
HFCs	Hydrofluorocarbons
IBSA	India, Brazil, South Africa
INDCs	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
LDCs	Least Developed Countries
LLDCs	Landlocked Developing Countries
LULUCF	Land-use, Land-use Change and Forestry
LRT	Light Rail Transit
MDGs	Millennium Development Goals
NAM	Non-Aligned Movement
NAP	National Adaptation Plan
NDB	New Development Bank
NDCs	Nationally Determined Contributions
NIEO	New International Economic Order
NSC	North-South Cooperation
ODA	Official Development Assistance
PFCs	Perfluorocarbons
REDD	Reduced Emissions from Deforestation and Forest Degradation
RET	Renewable Energy Technology
SCPI	Southern Climate Partnership Incubator
SDGs	Sustainable Development Goals
SF ₆	Sulfur hexafluoride
SIDS	Small Island Developing States
SMAPs	Sectoral Mitigation Action Plans
SSC	South-South Cooperation
SSCCC	South-South Cooperation on Climate Change
TCDC	Technical Cooperation among Developing Countries
TDB	Trade and Development Board (of UNCTAD)
TICA	Thailand International Cooperation Agency
TrC	Triangular Cooperation
UNCTAD	United Nations Conference on Trade and Development

UNCCD	United Nations Convention to Combat Desertification
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNEOG	United Nations Executive Office of the Secretary-General
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
UNISDR	United Nations International Strategy for Disaster Reduction
UN- OHRLS	United Nations Office of the High Representative for the Least Developed Countries, Landlocked Developing Countries and Small Island Developing States
UNOSSC	United Nations Office for South-South Cooperation
V20	Vulnerable 20
WFP	World Food Programme
WTO	World Trade Organization

EXECUTIVE SUMMARY

The Paris Agreement on climate change together with the 2030 Agenda paves pathways towards a prosperous and sustainable future.

The Paris Agreement on climate change, which entered into force in 2016, provides extraordinary possibilities for climate and sustainable development actions. It aims to strengthen the global response to the threat of climate change in the context of both sustainable development and efforts to eradicate poverty. This includes the global aim to keep the global temperature rise this century well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels.

In 2015, the United Nations Member States adopted the 2030 Agenda for Sustainable Development, which acknowledges global poverty and inequality and builds on the Millennium Development Goals (MDGs). This ambitious agenda is comprised of 17 Sustainable Development Goals (SDGs) with 169 specific targets, and is designed to balance the social, economic and environmental dimensions of development. Achieving and implementing these global agreements will require ambitious development strategies, policies and actions.

However, significant challenges are yet to be addressed to transform this great vision into reality, particularly in the developing world.

Many developing countries face challenges to sustainable developmental progress in the form of limited capacities in finance, knowledge, skills, technology and institutional arrangements. Many of the developing countries that face these challenges share socioeconomic status, geographic and climatic locations, and/or cultural lifestyles. Today, the greatest challenges and the largest gaps of capacity for implementation of these agreements prevail in the global South.

Enhanced collaboration and partnerships across countries offer an effective avenue for building more capacity to create and implement joint development solutions. These solutions are more important than ever in the new era of global agreement implementation.

South-South cooperation is gaining momentum in achieving sustainable development and climate actions in developing countries.

Over the past few decades, the global South has been engaging in South-South cooperation (SSC) through the exchange of experiences, and/or the provision of human, technical and financial resources mainly for supporting development priorities.

Additionally, many emerging and developing countries have been accumulating experience and unique knowledge through adopting sustainable, low greenhouse gas emission and climate resilient development pathways over the past few decades, and have been increasing their capacity and willingness to engage in partnerships with other countries with development needs. SSC has huge potential to continue growing today and in the future.

South-South cooperation provides diversified and practical solutions to address climate change in developing countries through catalysing the implementation of Nationally Determined Contributions (NDCs).

There is no one-size-fits-all solution. However, an analysis of NDCs clearly indicated that many developing countries share similar financial, capacity-building and technological needs and constraints in climate adaptation and mitigation areas that include energy, transportation, waste, land-use, agriculture, water, health and infrastructure. In the meantime, many developing countries have recently tackled numerous similar challenges related to sustainable development and climate change, which make them strong partners to collaborate with.

South-South cooperation provides an opportunity to bring countries closer to meeting many needs in a targeted manner. There is increasing willingness to engage more in South-South cooperation to share experiences and resources through partnerships.

Implementation of NDCs based on national development priorities will generate substantial co-benefits to the achievement of the SDGs.

Owing to the interconnected nature of social, economic and environmental issues, progress in climate action cannot be achieved in isolation. Achieving SDGs requires efforts in numerous sectors that are highly relevant to development. Agriculture, waste, water, energy, health, nutrition, education, infrastructure and biodiversity are key sectors that link climate actions and SDGs.

In this context, implementation of NDCs based on national development priorities provides an excellent point of entry to address climate change, but more importantly to achieve broader SDGs and further build a real low carbon and climate resilient economy. This is crucial for developing countries that need to address multiple challenges for climate change and SDGs but have limited capacity and lack of finance, technology and skill.

Developing countries can benefit from more Southern solutions that can address both climate change and multiple development challenges through South-South cooperation.

Concrete and successful cases from priority sectors for developing countries, i.e. energy, land-use, transportation, waste, agriculture and water, show how achieving one development goal can create co-benefits in achieving other development goals.

The close proximity, similar conditions and languages, and geopolitical and socioeconomic relationships between partners in these collaborations contribute to their ability to work together. Through SSC, countries can benefit from their comparative advantages and creativity and can transform challenges into opportunities thereby implementing the NDCs and achieving the SDGs.

The United Nations and international communities can play an important role in promoting SSC on development and climate actions, further unleashing its potential for the achievement of the Sustainable Development Goals.

Although SSC has gained momentum in recent years, challenges to scaling up remain due to limited operational capacity in the developing world. International communities, and in particular the United Nations system, have enormous knowledge, expertise and experience in supporting development cooperation that can be deployed to realize these global goals.

The United Nations system could further enhance its role as a conveyor and facilitator of South-South cooperation in order to help developing countries overcome their shared challenges related to sustainable development pathways, including ambitious climate action goals.

INTRODUCTION

The Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) is a historic achievement of multilateralism for the international community. With its adoption and rapid entry-into-force, the world has taken decisive steps towards a low carbon, climate resilient and sustainable world.

The Paris Agreement does not stand in isolation, but contributes to another triumph for the world in 2015: the 2030 Agenda for Sustainable Development. The 2030 Agenda sets out 17 ambitious goals and 169 targets aimed at achieving an equitable, peaceful and prosperous world. In response to these agreements, many countries have released national implementation plans.

Together, the Paris Agreement and the 2030 Agenda for Sustainable Development show an increasing momentum towards a transition from aspiration into implementation.

With these landmark agreements now in place, countries have entered the implementation phase, where climate action contributes to the broader goal of sustainable development at the national level. Central to the implementation of the Paris Agreement are countries' Nationally Determined Contributions (NDCs). The NDCs of each country express national climate-related strategies, policies and actions. Similarly, central to the implementation of the 2030 Agenda are the 17 Sustainable Development Goals and the 169 targets, which require a wide range of effort at the national level.

Given the ambitious goals and visions of countries around the world, the overwhelming majority of countries have highlighted a desire and need for enhanced international support for the implementation of their NDCs. Countries have agreed that collaboration and partnership for the Goals are critical elements underpinning each and every SDG, and have highlighted several Goals as sub-targets. They have also highlighted this need individually as Goal 17. A major rationale for this desire is the belief that no one should be left behind in this new era where the world faces challenges related to both climate change and opportunities for sustainable development.

Today, the greatest challenges and the largest gaps of capacity for implementation of these agreements prevail in the global South. Climate change represents one of the greatest challenges for the global South, particularly for the most vulnerable and least developed countries. With the world currently not being on track to limit the global temperature increase to below 2°C above pre-industrial levels, all countries need to increase their ambition in order to ensure the security of all.

Achieving the SDGs by 2030 will be a difficult task for developing countries, particularly for those countries that are already facing multiple development challenges and have little flexibility to mobilize necessary additional human and financial resources at home to enhance sustainability. Also, climate change will impact vulnerable populations in the Least Developed Countries (LDCs), Landlocked Developing Countries (LLDCs), and Small Island Developing States (SIDS), making the SDGs even more difficult to realize.

In a world where more implementation and international cooperation seems necessary, South-South cooperation on climate change is a rapidly increasing area of interest. Emerging economies in the South have been growing in economic strength, national capacity and environmentally sound technologies, and taking on strengthened global governance in the past few decades as well as increasing their capacity to engage in sustainable development at home and abroad.

Countries' new expertise and willingness to engage in collaboration with other countries of the South puts them in a position to engage more in areas of climate change and sustainable development. Some developing countries have included references to and

call for enhanced SSC in their NDCs, while others are advancing pragmatic cooperation with Southern countries on climate change and sustainable development. There is an increasing recognition of the importance and complementarity of new partnerships among and for developing countries; these partnerships show great potential to grow further.

When Chinese President Xi Jinping announced the establishment of a 3.1 billion dollar China South-South Climate Fund, countries' motivation to collaborate more and engage more on this topic was increased. Many stakeholders further expect SSC to play a greater role and have an enhanced impact on the global climate progress, as and when leadership from the developed world confronts major uncertainties.

This report is set within the above context and is a discussion of how South-South and triangular cooperation, which are growing fields in the areas of sustainable development and climate change, can contribute to the objectives of the Paris Agreement on climate change and create co-benefits in achieving the Sustainable Development Goals. The report further elaborates on the ways in which developing countries' NDC implementation can mutually support their national efforts to achieve the SDGs, while highlighting the synergies between integrated national development agendas. The primary sources of data in this report include historical and legal documents, results of statistical data from the United Nations and United Nations agencies, official writings, audio and video recordings, and speeches.

The report is structured into six chapters.

Chapter 1 provides an introduction to the Paris Agreement on climate change and the 2030 Agenda for Sustainable Development. This chapter introduces the reader to the goals of the agreements and shows how the Paris Agreement fits under a 2030 Agenda Framework. This chapter sets up the discussion on the linkages between both global agreements at the national level, and the ways that both of these agreements emphasize cooperation and support for their achievement.

Chapter 2 presents an overview of South-South and triangular cooperation as a means of cooperation and support, and includes a history of these mechanisms of collaboration over the past few decades. In addition, the chapter focuses on the new capacity of emerging economies to collaborate by demonstrating the rapid economic growth and trade of countries, and their outstanding achievements in areas such as renewable energy, infrastructure, and science and technology.

Chapter 3 illustrates many of the overlapping priority areas that developing countries highlight in their NDCs, as well as their interest in engaging in more international collaboration to meet their needs. This chapter was developed by analysing 148 developing countries that submitted NDCs and by identifying their similar mitigation and adaptation priority areas. The chapter also reviews the major needs highlighted by developing countries, which include financing, technology transfer and development, and capacity-building, as well as the interests of countries to engage in South-South cooperation to complement the implementation of their NDCs.

Chapter 4 points out the linkages between the priority areas that developing countries highlight in their NDCs and the co-benefits of achieving several SDGs. This chapter was developed by studying the 148 developing countries that submitted NDCs and by identifying linkages with SDGs. This chapter delves into the SDGs with the most linkages to the NDCs of developing countries and presents an understanding of how international collaboration for climate action can create several co-benefits.

Chapter 5 portrays cases where South-South and triangular cooperation is already being accomplished in some of the identified NDC priority areas owing to similar circumstances, interest in collaborating, shared cultures and languages, and shared geographical locations of countries in the South. The increase in capacity and expertise of some developing countries over the years, along with momentum for more South-South

cooperation, is shown to contribute to this success. In addition to implementing relevant climate actions, countries have been able to achieve several SDGs, which has multiple positive development impacts in their countries.

The report concludes with Chapter 6, or The Way Forward, which is a discussion on how to proceed given the growing relevance of South-South cooperation in the climate action and sustainable development space that was discussed in chapters 1 through 5. This chapter builds on the information and analysis of the report to offer ideas on how to enhance South-South and triangular cooperation in the future so as to contribute to the implementation of the NDCs and to achieve the SDGs.

1. OUR GLOBAL VISIONS AND GOALS ON SUSTAINABLE DEVELOPMENT

The Paris Agreement is a historic milestone achieved by the international community to address climate change. This Agreement, while having unique properties and processes, is also an integral part of the 2030 Agenda for Sustainable Development. Climate action influences the achievement of the 17 Sustainable Development Goals of the 2030 Agenda, which call for peace and security, development and human rights for all. Climate change is also recognized separately as one of the 17 Goals. Together with other agreements, including the Addis Ababa Action Agenda and the Sendai Framework for Disaster Risk Reduction, these significant agreements represent global commitments to shared goals and a clear step forward to a prosperous and sustainable future for the entire world.

In this new era of implementation of these global agreements, developing countries face both challenges and opportunities in their implementation of development agendas. International collaboration, including enhanced partnerships among and within developing countries, will be vital to turn aspirations into reality. These partnerships will maximize scarce resources, catalyse information sharing and technology development, and enhance capacities.

1.1. The Paris Agreement and Nationally Determined Contributions

The adoption of the Paris Agreement under the UNFCCC in December 2015 represents a milestone in the global response to climate change and, together with the adoption of the 2030 Agenda for Sustainable Development, a turning point towards a low carbon, climate resilient and sustainable future.

In an unprecedented manner, the Paris Agreement brings all countries into a common cause to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, with every Government recognizing its responsibility and commitment to act.

The Agreement includes the global aim to keep the global temperature rise this century well below 2°C and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. The Agreement further operationalizes this temperature goal by outlining a global greenhouse gas emission trajectory with the aim for global emissions to peak as soon as possible followed by rapid emission reductions towards a balance between anthropogenic emissions and removals of greenhouse gases in the second half of this century.¹ Additionally, the Agreement includes the aim to strengthen the ability of countries to deal with the impacts of climate change and it further aims to foster climate resilience and low greenhouse gas emissions development while making finance flows consistent with these development pathways.

To reach these ambitious goals, the Paris Agreement builds upon the UNFCCC and will put in place appropriate financial flows, a new technology framework and an enhanced capacity-building framework, thus supporting action by developing countries and the most vulnerable countries, in line with their own national objectives. The Agreement also provides for enhanced transparency of national climate action and climate related support activities and needs through a more robust transparency framework that applies to all Parties.²

The global commitment by Governments to the Paris Agreement, and the ambition of its purpose and scope in terms of international and national climate actions was again emphasized by the unprecedented speed of ratification of the Agreement. On 5 October

¹ United Nations Framework Convention on Climate Change, The Paris Agreement.

² United Nations Framework Convention on Climate Change, The Paris Agreement.

2016, the Paris Agreement crossed the threshold for entering into force when it was ratified by at least 55 Parties representing the producers of at least 55 per cent of global greenhouse gas emissions.³ The treaty entered into force on 4 November 2016.

A central element for implementing the Paris Agreement is the Nationally Determined Contribution (NDC) of each Party.⁴ NDCs are national climate plans highlighting climate related targets, policies and actions every Government aims to implement in response to climate change and as a contribution to global climate action. Central to the NDCs is the concept of national determination. It is this national determination that ensures that, based on each Party's national development priorities, its capacities and specific national circumstances, each country takes on its responsibility in reducing its emission, building resilience and cooperating with other countries.

The Agreement further recognizes that it will be implemented over a period of time and, therefore, builds on a ratcheting up of aggregate and individual efforts over a time span. To this end, countries will submit new or updated NDCs every five years, thereby establishing an NDC cycle to steadily increase their ambition in the long-term.

The underlying principle of progression ensures that each successive NDC will represent a progression beyond the previous NDC and thus result in a rising ambition until the global objectives of the Agreement are achieved. Meanwhile, the principle of ambition aims at ensuring that each Government is putting forward in each successive NDC its best efforts to support global climate action towards the objectives of the Paris Agreement.

Starting in 2023, and every five years thereafter, through the “Global Stocktake” (GST), Governments will jointly assess whether the collective efforts on climate action are sufficient for achieving the objectives of the Agreement or whether more ambition is required. This global stocktaking exercise should inform Governments when preparing new and updated NDCs and stimulate more ambition in each round of NDCs until the objectives of the Paris Agreement have been met.

Prior to the adoption of the Paris Agreement, an unprecedented number of countries, both developing and developed, had already submitted their intended nationally determined contributions (INDCs) to show their commitment for an ambitious global agreement.⁵ These INDCs will become the first NDCs for those Parties that do not indicate otherwise after depositing their instrument of ratification.⁶

A report on the aggregate effect of NDCs, published by the UNFCCC secretariat in November 2015 prior to the Paris Climate Change Conference and updated in May 2016, shows the strong commitment of all Parties to ambitious climate action and the new universal climate agreement.⁷ The NDCs indicate a significant increase in the number of countries taking climate action, which is often national in scope and covers a large number of sectors and greenhouse gases. The NDCs also indicate that many Governments are already integrating climate policies and actions with their social and economic development priorities. Many of the priorities link directly to one or more of the SDGs, such as reduced local air pollution and health benefits; improved access to energy and enhanced energy security; improved water quality and management; social progress, including poverty reduction, increased well-being and job creation; economic diversification; and food security.

The report concludes that while NDCs are expected to deliver sizeable emission

³ The Paris Agreement was signed by 194 countries and ratified by 141 countries on 1 April 2017 (see https://treaties.un.org/Pages/ViewDetails.aspx?src=TREATY&mtdsg_no=XXVII-7-d&chapter=27&clang=en).

⁴ More information on NDCs and all communicated NDCs (see http://unfccc.int/focus/ndc_registry/items/9433.php).

⁵ Available from http://unfccc.int/focus/indc_portal/items/8766.php.

⁶ Owing to almost universal participation, for all its analytical work, this paper refers to the communicated NDCs.

⁷ *Official Records of the United Nations, Twenty-second Session (FCCC/CP/2016/12)*.

reductions and slow down emissions growth in the coming decade, they will not be sufficient to reverse by 2030 the upward trend of global emissions. Furthermore, estimated annual aggregate emission levels resulting from NDC implementation still do not fall within the least-cost 2°C or 1.5°C scenario levels set forth by the Paris Agreement. Therefore, the ambition of global action must increase over time.

The synthesis report further states that the extent of emission reducing efforts (in line with the Paris Agreement's global objectives) will depend on the level of emission reductions before and after 2030. These emission reductions will be guided by long-term changes in key social, economic and technology drivers, catalysed by the implementation of the NDCs with the potential for long-term transformation towards a low carbon society and economy.

The global objectives of the Paris Agreement, paired with the understanding that more ambitious climate action is required over time to achieve these objectives, emphasizes enhanced international cooperation as central means for future climate actions and NDC implementation. Only by stepping up cooperation and ambition across all countries and the global economy, will it be possible to achieve the objectives of the Paris Agreement towards a sustainable future for all countries.

1.2. The 2030 Agenda for Sustainable Development

In September 2015, at the United Nations General Assembly, 193 world leaders agreed on the 2030 Agenda for Sustainable Development. The agenda includes 17 Sustainable Development Goals (SDGs) and 169 associated targets, which are integrated and indivisible.

The Agenda is a plan of action for people, planet and prosperity. It is a blueprint for action across all three pillars of United Nations work — peace and security, development and human rights — thus integrating and underlining the need to equally balance the social, economic and environmental dimensions of sustainable development. The Agenda is grounded in the Universal Declaration of Human Rights, international human rights treaties, the Millennium Declaration, the Declaration on the Right to Development and the 2005 World Summit Outcome.

The SDGs aim to end poverty and hunger everywhere; combat inequalities within and among countries; build peaceful, just and inclusive societies; protect human rights and promote gender equality and the empowerment of women and girls; ensure the lasting protection of the planet and its natural resources; and create conditions for sustainable, inclusive and sustained economic growth, shared prosperity and decent work for all, taking into account different levels of national development and capacities (United Nations 2015b).

The Agenda signifies a determination to mobilize the means required to implement the SDGs through a revitalized global partnership for sustainable development, based on a spirit of strengthened global solidarity, focused in particular on the needs of the poorest and most vulnerable and with the participation of all countries, all stakeholders and all people. The Agenda reaffirms all the principles of the Rio Declaration on Environment and Development.

The Agenda acknowledges that the United Nations Framework Convention on Climate Change is the primary international and intergovernmental forum for negotiating the global response to climate change. The Agenda reaffirms that the protocol, a legal instrument or agreed outcome with legal force under the convention applicable to all Parties shall address in a balanced manner, inter alia, mitigation, adaptation, finance, technology development and transfer and capacity-building, and transparency of action and support.

Social and economic development depend on the sustainable management of the planet's natural resources. Thus, the Agenda aims to conserve and sustainably use oceans and seas, and freshwater resources, as well as forests, mountains and drylands and to

protect biodiversity, ecosystems and wildlife. It aims to tackle water scarcity and water pollution; to strengthen cooperation on desertification, dust storms, land degradation and drought; and to promote resilience and disaster risk reduction.

Recognizing climate change as one of the “greatest challenges of our time” with its adverse impacts undermining the ability of all countries to achieve sustainable development directly and indirectly, and noting that the “survival of many societies and the biological support systems of the planet” are at risk, the SDGs include a dedicated goal of taking urgent action on climate change and its impacts, as well as climate-specific targets under SDG 1 (no poverty), SDG 2 (zero hunger) and SDG 11 (sustainable cities and communities).

In addition, there are strong inter-linkages between global greenhouse gas emissions and SDG 7 (affordable and clean energy), SDG 12 (responsible consumption and production) and SDG 15 (life on land). Furthermore, climate resilience is directly interlinked with SDG 1 (no poverty), SDG 3 (good health and well-being), SDG 6 (clean water and sanitation), and SDG 14 (life below water).

At the same time, many countries recognize in their NDCs that addressing climate change is intertwined with solutions for other development challenges and therefore directly linked to the achievement of the SDGs (UNFCCC 2016a).

1.3. Means of Implementation

At the implementation level, the Paris Agreement has important co-benefits for the achievement of the SDGs. Implementation of development agendas through resource mobilization, sound policy frameworks at the national, regional and international levels, enhanced collaboration and increased partnerships is fundamental to the achievement of the Paris Agreement and NDCs and SDGs. These international agreements depict that countries acknowledge the necessity of the transition from aspirations to implementation.

Similarly, Goal 17 of the 2030 Agenda for Sustainable Development, “Partnerships for the Goals” that focuses on finance, technology, capacity-building, trade and systematic issues such as policy and institutional coherence, multi-stakeholder partnerships, and data, monitoring and accountability, includes the following two priorities: (1) enhance North-South, South-South and triangular regional and international cooperation on and access to science, technology and innovation and enhance knowledge-sharing on mutually agreed terms and (2) enhance international support to implement all the Sustainable Development Goals, including through North-South, South-South and triangular cooperation.⁸

Partnerships allow for the mobilization of the best knowledge, technology and financial resources available in the world today, and act as a cross-cutting mechanism for countries to achieve the other 16 Goals and their associated targets of the 2030 Agenda for Sustainable Development and the NDCs. Partnerships create an opportunity for conversations that can sustain attention on mitigation, adaptation and the SDGs, and help countries transform their mindsets, behaviours and institutions in the long-term. Cooperation through partnerships is especially important for developing countries as they are the most vulnerable to climate change and require the most support for achieving the SDGs and the Paris Agreement.

The focus of Chapter 2 is to introduce the mechanism of South-South cooperation and its rising momentum and potential to help countries achieve the objectives of the major agreements.

⁸Available from <https://sustainabledevelopment.un.org/post2015/transformingourworld>.

2. SOUTH-SOUTH COOPERATION IN THE NEW CONTEXT

Development cooperation is rooted in the Charter of the United Nations, and the United Nations works to employ its international machinery to promote the economic and social advancement of all. The United Nations emphasis on South-South cooperation, which emerged as economic and technical cooperation among developing countries (ECDC/TCDC) in the 1960s and the 1970s, was based on the recognition of a need to increase horizontal exchanges among developing countries in order to complement the predominantly vertical North-South exchanges that had historically characterized international relations.⁹ At present, developed countries' assistance will continue to play a critical role, and a few emerging economies in particular are bringing in new momentum for international development cooperation.

2.1. Key features and modalities of South-South cooperation

South-South cooperation is shaped by the ideals of developing countries working together in a spirit of equality and mutual respect for each other's sovereignty and independence. This promotes their mutual development despite different national circumstances. SSC was rooted in the North/South¹⁰ dichotomy of the development disparity and a widening gap after the Second World War. United by their efforts to achieve independence and freedom for their Nations and Peoples, the Bandung Conference,¹¹ the Movement of Non-Aligned Countries (NAM)¹² and the creation of the Group of Seventy-Seven (G77)¹³ became historical milestones in the history of the global South. Thereafter, NAM and G77 have been the prime movers for cooperation among the under-developed¹⁴ or developing countries.

2.1.1. Principles of South-South cooperation

The United Nations¹⁵ recognizes the importance and unique history and particularities of South-South cooperation, and it affirms the view that South-South cooperation is a manifestation of solidarity among peoples and countries of the South and contributes to their national well-being, national and collective self-reliance and the attainment of the Sustainable Development Goals. The United Nations also reaffirms that South-South cooperation and its agenda must be set by countries of the South and should continue to be guided by the principles of respect for national sovereignty, national ownership and independence, equality, non-conditionality, non-interference in domestic affairs and mutual benefit.

The United Nations stresses that South-South cooperation is not a substitute for, but rather a complement to, North-South cooperation, and welcomes increased contributions to eradicate poverty and promote sustainable development. The United Nations encourages developing countries to voluntarily increase their efforts to strengthen SSC and to further improve its development effectiveness, in accordance with the provisions of the Nairobi outcome document¹⁶.

⁹*Official Records of the United Nations, Ninety-sixth Session (TCDC/9/3).*

¹⁰To differentiate from the term of the South of the United States, developing countries are referred to more specifically as "the global South".

¹¹Final Communiqué of the Asian-African Conference of Bandung, Djakarta: 1955 (see http://franke.uchicago.edu/Final_Communique_Bandung_1955.pdf).

¹²Belgrade Declaration of Non-Aligned Countries, Belgrade: 1961 (see [http://pustakahpi.kemlu.go.id/dir_dok/01st%20Summit%20of%20the%20Non-Aligned%20Movement%20-%20Final%20Document%20\(Belgrade_Declaration\).pdf](http://pustakahpi.kemlu.go.id/dir_dok/01st%20Summit%20of%20the%20Non-Aligned%20Movement%20-%20Final%20Document%20(Belgrade_Declaration).pdf)).

¹³Joint Declaration of the Seventy-seven Developing Countries made at the conclusion of UNCTAD, Geneva: 1964. And the Charter of Algiers: 1967.

¹⁴See Economic and Social Council resolution 6 (I) and A/RES/198 (III), while early United Nations texts also use "less developed countries".

¹⁵*Official Records of the General Assembly, Seventy-first Session (A/RES/71/244).*

¹⁶*Official Records of the General Assembly, Sixty-fourth Session (A/RES/64/222).*

2.1.2. Similarities and differences between SSC and NSC

SSC and NSC, as well as cooperation among or between various non-State actors, are all important models of international cooperation. On the basis of the Nairobi outcome document, the United Nations considers the operational definition of South-South cooperation as

“a process whereby two or more developing countries pursue their individual and/or shared national capacity development objectives through exchanges of knowledge, skills, resources and technical know-how, and through regional and interregional collective actions, including partnerships involving Governments, regional organizations, civil society, academia and the private sector, for their individual and/or mutual benefit within and across regions”.¹⁷

Since the twenty-first century, SSC and NSC have both supported achieving development goals by developing countries, including the MDGs and the SDGs. International public finance, channelled through ODA from the developed countries and complemented via South-South financial contributions, plays an important role in complementing the efforts of recipient countries to mobilize domestic resources for the development actions. Meanwhile, both SSC and NSC play the critical role of catalysing additional resource mobilization from other sources, public and private. Additionally, although methodologies and modalities notably differ, it is important for both SSC and NSC to improve results-oriented assessments for greater development effectiveness, including the focus on accountability and transparency.

There are also very important differences between NSC and SSC, as clearly acknowledged by the United Nations. Most prominently, Northern ODA represents a quantified and time frame specific commitment,¹⁸ while financial contribution via SSC is essentially voluntary. The General Assembly introduced the “1 per cent target”¹⁹ meaning that economically advanced countries would have to contribute 1 per cent of their GDP for ODA, as early as in 1960 and for UNCTAD in 1964,²⁰ and then in 1970 officially adopted for the first time the “0.7 per cent target”²¹ for ODA by the mid-1970s. Not only was this target endorsed by many developed countries (members of the Development Assistance Committee, DAC),²² but it was also endorsed by many key international agreements, including the 2030 Agenda for Sustainable Development and the Addis Ababa Action Agenda on financing for development. Additionally, there are also a few operational differences between NSC and SSC in practice. A brief comparison of Northern-South cooperation and South-South cooperation is presented in Table 1.

¹⁷ See SSC/17/3, A/RES/64/222, TCDC/13/3 and HLC Decision 2/9.

¹⁸ For origins of 1 per cent and 0.7 per cent targets, see also Development Cooperation, 1999 Report, OECD, Paris, 2000.

¹⁹The “1 per cent target” refers to that “the flow of international assistance and capital should be increased substantially so as to reach as soon as possible approximately 1 per cent of the combined national incomes of the economically advanced countries” (see A/RES/1522 (XV), 1960, A/RES/1711 (XVI), 1961).

²⁰ Final Act of UNCTAD I, 1964, Annex A.IV.2, Section III recommends that “each economically advanced country should endeavor to supply financial resources to the developing countries of a minimum amount approaching as nearly as possible to 1 per cent of its national income”.

²¹ A/RES/2626 (XXV) adopted the International Development Strategy for the 2nd United Nations Development Decade (1971-1980), including that “each economically advanced country will progressively increase its official development assistance to the developing countries and will exert its best efforts to reach a minimum net amount of 0.7 per cent of its gross national product (GNP) at market prices by the middle of the Decade”. GNP later was revised as GNI (gross national income).

²² It should be noted that DAC members generally accepted the 0.7 per cent target for ODA, at least as a long-term objective, with some notable exceptions: Switzerland — not a member of the United Nations until 2002 — did not adopt the target, and the United States said that it did not subscribe to specific targets or timetables.

Table 1: Differences between South-South cooperation and North-South cooperation

	South-South cooperation	North-South cooperation
Approach	Emphasis on cooperation as investment for mutual benefit and solidarity: “development investment”	Emphasis on cooperation as aid/assistance: “development assistance”
Relationship with other flows	Blending with non-concessional flows, hybrid instruments	Greater separation of development assistance from non-concessional ²³ and non-official flows
Modality	Predominantly project aid	Programme aid replacing project aid
Sectoral focus	Emphasis on, but not limited to, infrastructure and productive sectors	Emphasis on, but not limited to, social sectors and governance
Identification of priorities	Request-based: senior officials articulate specific projects for cooperation through high-level dialogue	Strategy-based: national development strategy outlines priority areas for donors, built up from technical discussions
Policy conditionality	Largely avoided	Largely practised

Source: Adapted from CSOPDE 2014.

Developed countries can also join developing countries in their development cooperation, as is the case of triangular cooperation (TrC). TrC involves Southern-driven partnerships between two or more developing countries supported by a developed country or countries, or by one or more multilateral organizations to implement the development cooperation programmes and projects.²⁴

2.1.3. South-South and triangular cooperation for the global goals

South-South and triangular cooperation are widely recognized as important complements to North-South cooperation and contribute to achieving the global Goals. Within the 2030 Agenda for Sustainable Development, South-South cooperation is embedded in SDG 17 on revitalizing the global partnership for sustainable development. SDG 17 targets on technology and capacity-building make specific reference to enhance South-South and triangular cooperation, on access to science, technology and innovation, and knowledge-sharing, as well as on implementing effective and targeted capacity-building in developing countries to support national plans to implement all the SDGs.²⁵

The Paris Agreement highlights the obligation of developed country Parties in providing financial, technology and capacity-building support to developing countries, as part of a global effort. It further addresses countries of the global South, with Article 11.3, stating that all countries “should cooperate to enhance the capacity of developing country Parties to implement this Agreement” and with Article 9.2 encouraging developing countries to “provide or continue to provide [financial resources to assist developing country Parties with respect to both mitigation and adaptation] voluntarily”.²⁶ At the 22nd Meeting of the Conference of the Parties (COP22, UNFCCC), heads of State, Government and delegations called for “strong solidarity with those countries most vulnerable to the impacts of climate change,” underscoring the need to support efforts aimed at enhancing their adaptive

²³ Pattern of non-concessional flows has changed overtime. For further information, see <https://www.brookings.edu/research/financing-for-development-international-financial-flows-after-2015/>.

²⁴ See SSC/17/3.

²⁵ Available from <http://www.un.org/sustainabledevelopment/globalpartnerships/>.

²⁶ In this context, UNFCCC Article 4.1(c) states that “all Parties [...] shall promote and cooperate in the development, application and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emissions of greenhouse gases not controlled by the Montreal Protocol in all relevant sectors, including the energy, transport, industry, agriculture, forestry and waste management sectors”.

capacity, strengthen resilience and reduce vulnerability.²⁷ They explicitly stated that South-South cooperation is an important mechanism for supporting these efforts.²⁸ Fifteen developing countries have highlighted South-South and triangular cooperation in their NDCs as a promising avenue for supporting the implementation of climate actions as a complement to national efforts and international support.²⁹

South-South cooperation has also been emphasized in other United Nations-facilitated intergovernmental processes that play an important role for the implementation of the 2030 Agenda and the Paris Agreement. The Sendai Framework for Disaster Risk Reduction adopted in 2015 states that “North-South cooperation, complemented by South-South and triangular cooperation, has proven to be key to reducing disaster risk and there is a need to strengthen cooperation in both areas further” (UNISDR 2015). The Addis Ababa Action Agenda recognizes South-South cooperation as “an important element of international cooperation for development as a complement, not a substitute, to North-South cooperation” (United Nations 2015a). Furthermore, countries have established a South-South cooperation action plan under the Convention on Biological Diversity (CBD), emphasizing that enhancing SSC&TC is a “critical element for the success of the 2011-2020 Strategic Plan of the CBD” (CBD 2010).³⁰

2.2. United Nations support of development cooperation among developing countries

The United Nations system has been the major intergovernmental and global platform for cooperation among developing countries. Since the mid-1960s and during the 1970s in particular, ECDC/TCDC became two important modalities in the United Nations, which were undertaken by several United Nations entities and institutionalized respectively within UNCTAD and UNDP for implementation. This was followed by increased strategic integration within the United Nations under the framework of South-South cooperation (SSC) and triangular cooperation (TrC). Many critical milestones highlighted United Nations efforts to support cooperation among developing countries in the field of development.

2.2.1. The establishment of UNCTAD and the promotion of ECDC

In the early days of the United Nations, many developing countries confronted huge challenges³¹ in the global context of expanding trade after the Second World War, due to the dependence of their economies on a narrow range of primary commodities. The success of cooperation among a few oil producing developing countries³² highlighted their collective interests, economic power and global impact. This triggered ECDC at the global level in the United Nations, impacted by the establishment of UNCTAD³³ in 1964 and its following sessions for advancing the institution.³⁴ The adoption of a few key documents³⁵ by the General Assembly during the early 1970s became prominent achievements of ECDC efforts, in particular the New International Economic Order (NIEO).³⁶ ECDC in the early days represented developing countries’ interests to claim joint positions with greater political impact in global platforms, for national and collective self-reliance, as well as for more

²⁷ Marrakech Action Proclamation (see https://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/marrakech_action_proclamation.pdf).

²⁸ High-Level Forum on South-South Cooperation on Climate Change.

²⁹ Including Afghanistan, Algeria, Benin, Brazil, Chile, China, Colombia, Cuba, Djibouti, Eritrea, India, Mexico, Singapore, South Sudan and Gambia.

³⁰ At the launch of SCPI, the former CBD Executive Secretary, Ahmed Djoghlaif, proposed the establishment of a similar action plan on climate change and South-South cooperation under the UNFCCC (UN SCPI 2016).

³¹ Such as low commodity price and price fluctuation, as well as trade obstacles and restrictions.

³² A highlight is the establishment of OPEC in 1960, with early success of safeguarding interests of oil producing countries.

³³ A/RES/1995 (XIX) and UNCTAD inauguration session adopt a general principle on promoting ECDC.

³⁴ Including the Unit in 1968, transferred into a Division in 1972 in the UNCTAD secretariat; and the ECDC Committee established under the UNCTAD permanent organ Trade and Development Board in 1976.

³⁵ These include General Assembly resolutions 2626 (XXV), 3281 (XXIX), 3362 (S-VII) and relevant follow-up resolutions.

³⁶ General Assembly resolutions 3201 (S-VI) and 3202 (S-VI).

favourable treatment in the global economic governance, such as via trade preferences.

Owing to severe economic problems beginning in the late 1970s,³⁷ the ECDC was notably downgraded during the 1980s and its ambitious work programmes were also not effectively implemented.³⁸ While the NIEO disappeared on the General Assembly agenda in the 1990s, the establishment of the World Trade Organization (WTO)³⁹ in 1995 became symbolic of the new norm of economic globalization and trade liberalization. The NIEO emerged again in the General Assembly in 2008,⁴⁰ stressing the importance of advancing common interests and to achieve global goals through partnership, cooperation and solidarity for all.⁴¹ UNCTAD's function on cooperation among developing countries was also reoriented, aiming at fully exploiting new opportunities for trade, investment, economic cooperation and regional integration among developing countries, with benefits extended to all regions.⁴² Economic cooperation of the global South features greater inclusiveness and mutual benefits at a wider scale, instead of favouring only developing countries themselves.

2.2.2. Buenos Aires Plan of Action (BAPA) for promoting and implementing TCDC

TCDC was a key instrument for promoting ECDC, but was separately anchored⁴³ at UNDP initially in early 1970s, owing to its powerful programming exercises with the mandate, as well as critical resources and capacities.⁴⁴ The focus of TCDC was to promote exchanges of the knowledge, experiences, skills, capacities, resources and technical know-how among developing countries. The adoption of BAPA⁴⁵ was a landmark in the history of South-South cooperation and it set out the comprehensive conceptual and operational framework for TCDC, while institutions⁴⁶ were also constantly enhanced to implement its mandate. BAPA created a tremendous legacy for South-South cooperation in the United Nations, and many of its key elements remain critical and relevant even until today.

The economic recession and debt crisis in the 1980s created major impediments for TCDC. Funding constraints were the primary challenge, particularly when a few oil producing developing countries downgraded their contribution to supporting cooperation among the countries of the global South. Budget allocation within the United Nations was also confronted with the divergence of interests, as some Member States and particularly a few contributors to the United Nations regular budget considered the modalities to be not sufficiently inclusive and not benefiting all countries, or would rather leave trade and development cooperation to other global platforms. The United Nations considered the need to achieve wider acceptance of TCDC as its most important challenge, both within and outside the United Nations system.⁴⁷

2.2.3. New Directions for TCDC

³⁷ Including declining prices for commodity exports, growing difficulties of economic growth and expanding debt crisis, etc. (See *The Challenge to the South: the report of the South Commission*, 1990).

³⁸ The crisis downgraded SSC in the priorities of developing countries, most of which were forced to concentrate on domestic economic management, short-term objectives and their relations with the developed countries.

³⁹ See "Results of the Uruguay Round of Multilateral Trade Negotiations: The Legal Texts, General Agreement on Tariffs and Trade (GATT)" secretariat, Geneva, 1994. WTO has no reporting obligation to the United Nations, but contributes on an ad hoc basis to the General Assembly and ECOSOC, and it rebalanced the role and impact of UNCTAD in global trade issues.

⁴⁰ *Official Records of the General Assembly, Sixty-third Session (A/RES/63/224)*.

⁴¹ *Official Records of the General Assembly, Seventy-first Session (A/RES/71/236)*.

⁴² In 2009, the Unit on Economic Cooperation and Integration among Developing Countries (ECIDC) was established under the Division on Globalization and Development Strategies.

⁴³ The UNDP Special Unit for TCDC was established in 1974 (A/RES/3251 (XXIX)).

⁴⁴ The establishment of UNDP consolidated the EPTA (A/RES/304 (IV)) and the Special Fund (A/RES/200 (III)).

⁴⁵ *Report of the United Nations Conference on TCDC, Buenos Aires, 30 August-12 September 1978*; and A/RES/33/134.

⁴⁶ BAPA strengthened the Special Unit/TCDC, while The High-Level Committee on South-South Cooperation (HLC) was established in 1980 for the intergovernmental review of TCDC. See A/RES/33/134 and A/RES/35/202.

⁴⁷ United Nations document TCDC/9/3, *New Directions for TCDC*: 1995.

The end of the Cold War in early 1990s set a new context of peace and development for international cooperation. Meanwhile, rapid expansion of economic globalization and trade liberalization had accentuated the continued validity and relevance of cooperation among developing countries. Such strategic narratives were deeply pondered over by the South Commission,⁴⁸ and the United Nations also urged relevant entities to act on its recommendations.⁴⁹ Cooperation among developing countries moved on a pathway of revitalization, with the United Nations stressing the high priority for and the need to mainstream TCDC⁵⁰ into the United Nations development system.

The endorsement of the report on New Directions for TCDC⁵¹ in 1995 is another important milestone. As core elements of the New Directions report, it was proposed that TCDC should focus on strategic initiatives that are likely to have a major impact on a large number of developing countries, and it also recommended closer operational integration between TCDC and ECDC. Strategic focuses were identified to encompass major developing issues and themes, such as trade and investment, debt, environment, poverty alleviation, production and employment, macroeconomic policy coordination, and aid management.

2.2.4. The Nairobi high-level United Nations conference on South-South cooperation

With the integration and consolidation efforts in the 1990s, the term of SSC became a generic concept that embraces all forms of cooperation among developing countries. In 1995, the United Nations Secretary-General released his first report entitled “State of SSC”,⁵² which has since become a biennial mandate. Triangular Cooperation (TrC)⁵³ and non-governmental participation were also identified as new funding modalities; the engagement of wider participation also contributed to enhanced inclusiveness of SSC. More importantly, the United Nations development system made concerted and intensified efforts to mainstream SSC. Many United Nations entities integrated SSC as a key modality in the design, formulation and implementation of their regular programmes, while continuously increasing the allocations of human, technical and financial resources to support SSC.

These efforts were highlighted by another major milestone, the 2009 Nairobi High-level United Nations Conference on SSC.⁵⁴ The Nairobi Conference was held in the context widely discussed as the rise of the global South (Justin Dargin, 2013), and it played a critical role in reinvigorating SSC within and beyond the United Nations system. The 2009 Nairobi outcome document set forth the rationale, principles, strategies and key actors of South-South and triangular cooperation, and it also identified the priority objectives of United Nations support on SSC.

2.2.5. The United Nations system support and instruments on South-South cooperation

The current structure of the United Nations system features the High-Level Committee on South-South Cooperation (HLC) of the General Assembly as the main policymaking body on SSC in the United Nations system, with the United Nations Office for South-South Cooperation (UNOSSC) serving as its secretariat. The UNOSSC is governed by

⁴⁸ The South Commission, *The Challenges to the South: The Report of the South Commission*, Oxford University Press, 1990. The South Commission was formally established in 1987 and as the follow-up after the report, the intergovernmental think-tank South Center was established by an Intergovernmental Agreement that came into force on 31 July 1995.

⁴⁹ *Official Records of the General Assembly, Forty-sixth Session, Plenary Meetings, 78th meeting* (A/RES/46/155).

⁵⁰ *Official Records of the General Assembly, Forty-sixth Session, Plenary Meetings, 78th meeting* (A/RES/46/159) and *Official Records of the General Assembly, Fifty-second Session* (A/RES/52/205).

⁵¹ See A/RES/49/96, HLC Decision 9/2, TCDC/9/3 and A/RES/50/119.

⁵² See A/RES/48/164 and A/RES/50/119.

⁵³ See HLC Decision 9/2, TCDC/9/3, and A/RES/50/119, A/RES/52/205 and A/RES/54/226. Major players of Trilateral cooperation are identified including Japan, the European Union, the Nordic countries, the United States and the Republic of Korea.

⁵⁴ See A/RES/64/222, with the mandate as early as in 1994 by A/RES/49/96.

the HLC in terms of its status, mandates and functions, as well as by the UNDP/UNFPA⁵⁵ Executive Board in terms of its funding and programming. It is the United Nations system coordinator and focal point on SSC, with functions to manage relevant Funds,⁵⁶ to organize the annual United Nations Day for SSC,⁵⁷ and to operate several key instruments to support SSC.⁵⁸ One of the Office's key functions is to coordinate⁵⁹ the United Nations system-wide efforts on supporting Member States via SSC and TrC, which involves many United Nations development system entities, including, among others, FAO, ILO, UNDP, UNEP, UNESCO, UNFPA, UNIDO and WHO, as well as regional commissions of ECA, ESCAP, ECLAC, and ESCWA.

To achieve the identified priority objectives of the United Nations, system-wide efforts are mainly focused on areas of policy dialogue and development; research and analysis; capacity development; brokering of knowledge via Southern networks and centres of excellence; sharing of data and information; financing and partnerships; and monitoring, evaluation and reporting of South-South cooperation programmes and other initiatives. By using these instruments, concrete activities mainly include fielding of experts; short-term study tours; training for capacity-building; technology showcase and exchange; match-making cooperation opportunities and events; as well as forums, workshops and policy dialogues for the exchange of knowledge and information. These broader and more flexible modalities are opening up a wide variety of SSC opportunities at policy, institutional and grassroots levels, with the highest possibilities of mobilizing the greatest possible actions and support. Geographically, United Nations support includes cooperation and integration at the bilateral, subregional, regional, interregional and multilateral levels, enabled greatly by the capacities of regional commissions and United Nations country teams.

2.3. Rapid growth of the global South

In the past few decades, developing countries have transformed their economies, increased trade and investment, and paved a new role in the global arena. Most importantly they have turned to more renewable and climate resilient solutions to fuel their development, and to South-South cooperation as a mechanism for sharing their new knowledge and technology in sustainable development. Going forward, countries continue to increase this momentum towards sustainable development solutions.

Increasing GDP and trade in the global South

In 2012, developing countries made up half of the global GDP, with this trend expected to continue; Brazil, China and India are projected to have a higher total GDP than the total GDP for Canada, France, Germany, Italy, the United Kingdom and the United States by 2020.⁶⁰ Brazil, Russia, India and China expanded from 12.2 per cent of global GNI in 1980 to 27.2 per cent of global GNI in 2015.⁶¹ Growth in these countries is allowing them to shelter developing and developed countries from global recessions and potential crises. South Africa, Turkey, Indonesia, Bangladesh, Chile, Ghana, Mauritius, Rwanda and Tunisia are showing significant economic progress in this same category.⁶²

⁵⁵ Available from

<http://ssc.undp.org/content/dam/ssc/documents/HLC%202012/1%20Mandate%20of%20SU%EF%80%A2SSC.pdf>.

⁵⁶ Including the United Nations Fund for SSC, the Pérez-Guerrero Trust Fund (PGTF) for ECDC/TCDC and the India-Brazil-South Africa (IBSA) Trust Fund against Poverty and Hunger.

⁵⁷ *Official Records of the General Assembly, Fifty-eighth Session* (A/RES/58/220).

⁵⁸ Including Global South-South Development Academy (<http://academy.ssc.undp.org/gssdacademy/>), the Global South-South Development Expo (see <http://ssc.undp.org/content/ssc/services/expo/main.html>) and the South-South Global Assets and Technology Exchange (see <http://ss-gate.info/>).

⁵⁹ Including the management of the multilateral Support Platform for South-South Focal Points of United Nations entities.

⁶⁰ *Official Records of the General Assembly, Sixty-ninth Session* (A/RES/69/153).

⁶¹ "The Role of BRICS in the Developing World" (Available from

http://www.ab.gov.tr/files/ardb/evt/1_avrupa_birligi/1_9_politikalar/1_9_8_dis_politika/The_role_of_BRIC_S_in_the_developing_world.pdf).

⁶² Available from http://hdr.undp.org/sites/default/files/reports/14/hdr2013_en_complete.pdf.

Increase in investment and trade

Over the past few decades, countries of the global South have increased trade and attracted foreign direct investment, which has caused their rapid economic growth. These countries have driven exports and decreased their import tariffs, both of which have escalated growth in their countries.⁶³ Between 1980 and 2010, developing countries increased merchandise trade from 25 per cent to 47 per cent and the share of their world output from 33 per cent to 45 per cent.

In 2015, developing countries made up 44 per cent of total Foreign Direct Investment (FDI) inflow, with East Asia leading as the top recipient of FDI and as one-third of global FDI.⁶⁴ The outward-oriented approach to development has attracted incredible foreign direct investment into developing countries, which provides employment, new technologies and higher productivity.^{65,66} This in turn has led to countries with more technical competencies and specialization in many areas of development, which has given them more self-reliance and political capital.⁶⁷

Developing countries have concurrently increased their FDI outflow. As of 2015, developing countries were more than one third of FDI outflow, with Asia investing more in FDI than any other region. China, Singapore, the Republic of Korea, Malaysia, Kuwait and Chile are a few of the countries from the South among twenty of the world's largest investor countries.⁶⁸ Southern countries are increasingly investing in each other, as South-South FDI grew by two thirds from 2009 to 2013.⁶⁹

2.3.1. Global governance

The growth of developing countries has led to many of them playing more important roles in global governance. These countries are demanding that their voice be heard in international meetings and even creating new institutions that specialize in their interests.

More specifically, Brazil, Russia, India, China and South Africa (BRICS countries) have shown solidarity in partnership and proactivity in the international space to enact reform. These countries form alliances at international meetings, such as the G20, and hold informal meetings to discuss their views and strategy for influencing topics that affect the developing South.⁷⁰ Before the 2016 G20 meeting, for example, the BRICS countries came to mutual decisions on embracing the achievement of sustainable development goals, the G20 Action plan for the 2030 Agenda for Sustainable Development and the G20 Initiative on Supporting Industrialization in Africa and Least Developed Countries, and agreed to pursue their principles at the G20 meeting⁷¹.

BRICS also holds summits, agreeing upon topics, which they will voice in the international space; at the 2011 BRICS summit, these countries called upon international financial institutions to have more representation from the global South, which was eventually implemented by the G20.^{72,73} Consequently, during the sixth BRICS Summit in

⁶³ Available from <https://www.imf.org/external/np/exr/ib/2001/110801.htm>.

⁶⁴ Available from http://unctad.org/en/PublicationsLibrary/webdiaeia2016d1_en.pdf.

⁶⁵ Report of the Secretary-General on promotion of South-South cooperation for development: a thirty-year perspective.

⁶⁶ Available from <https://www.imf.org/external/np/exr/ib/2008/053008.htm>.

⁶⁷ Report of the Secretary-General on promotion of South-South cooperation for development: a thirty-year perspective.

⁶⁸ Available from http://unctad.org/en/PublicationsLibrary/wir2015_en.pdf.

⁶⁹ Available from

<http://ssc.undp.org/content/dam/ssc/documents/HLC%20Decisions/2015%20Report%20of%20the%20SG%20on%20SSC.pdf>.

⁷⁰ "The Role of BRICS in the Developing World" (Available from

http://www.ab.gov.tr/files/ardb/evt/1_avrupa_birligi/1_9_politikalar/1_9_8_dis_politika/The_role_of_BRICS_in_the_developing_world.pdf).

⁷¹ "BRICS Leaders' Informal Meeting on the Margins of the G20 Summit" Available from

<http://www.brics.utoronto.ca/docs/160904-hangzhou.html>).

⁷² Available from <https://www.imf.org/en/News/Articles/2015/09/28/04/53/sp111609>.

Fortaleza (2014), the leaders signed the Agreement establishing the New Development Bank (NDB).⁷⁴

2.3.2. Outstanding achievements in key areas of sustainable development

In recent decades, many developing countries have made sustainable development and climate action priorities when considering development. In meeting growing energy demands, infrastructure needs, and science, technology and innovation priorities, many developing countries have become world-recognized for their efforts to create solutions that are sustainable as well as scalable and transferable.

Some developing countries emphasize the global South's competitive advantage in transitioning to sustainable, low greenhouse gas emission and climate resilient societies owing to their ability to start fresh rather than having to modify already existing systems and infrastructure.

Developing countries are already incorporating more renewable energy into their development strategies, and are surpassing developed countries in many of their pledges, investments and actions. According to the 2016 United Nations Global Trends in Renewable Energy Report, for the first time in history, developing countries invested more in renewable energy than did developed countries, with China, India and Brazil investing \$156 billion dollars in this sector. These three countries in addition to South Africa, Mexico and Chile became six of the top 10 countries investing in renewable energy in 2015. Morocco, Uruguay, Philippines, Pakistan and Honduras also invested more than \$500 million dollars in the renewable energy sector, making developing countries major leaders in the path towards a clean energy future.⁷⁵

In addition, with the trend towards renewable energy costs dropping, storage mechanisms improving, quicker timing for building solar and wind farms, as opposed to coal plants, and an abundance of renewable resources, such as sunlight, developing countries are leading the way in incorporating clean energy solutions into their country's development pathway. Countries such as the United Arab Emirates (UAE) have been able to reduce costs of solar energy to half of the global average owing to their new solar plant in Dubai. For most of 2016, 98 per cent of Costa Rica's electricity was from renewable sources including hydropower, geothermal, wind, solar and biomass technologies⁷⁶. China has been pushing forward small hydropower plants in developing countries in order to provide alternatives to fossil fuels.

Developing countries are also leading the transition into sustainable infrastructure and sustainable cities. Given that 60 per cent of the world will be in urban areas and 95 per cent of the transition from rural to urban areas will be in developing countries by 2030, countries are incorporating sustainable development planning into their cities' development from the beginning. Rio De Janeiro in Brazil, which has a large portion of the population living in slums or favelas, has created "green houses" and pavement to reduce carbon emissions, increased LED and recycled materials usage, and has urbanized 68 favelas to benefit more than 65,000 people.⁷⁷ Shenzhen, in China, introduced 6,000 new zero emission vehicles including 3,050 energy buses and 850 electric taxis, which has cut emissions in the city by 160,000 tons and brought the air quality to one of the top ten cities in the country. Singapore has created an "intelligent transport system", which provides traffic data to taxis as well as an electronic toll system in order to decrease traffic congestion.⁷⁸ Buenos Aires has expanded their metro system, created a new bus

⁷³ Available from <http://brics5.co.za/about-brics/summit-declaration/first-summit/>.

⁷⁴ Available from <http://www.ndb.int/about-us/essence/history/>.

⁷⁵ Available from http://fs-unep-centre.org/sites/default/files/publications/globaltrendsrenewableenergyinvestment2016lowres_0.pdf.

⁷⁶ Available from <http://www.independent.co.uk/environment/costa-rica-renewable-energy-electricity-production-2016-climate-change-fossil-fuels-global-warming-a7505341.html>.

⁷⁷ Available from <http://www.c40.org/profiles/2013-riodejaneiro>.

⁷⁸ Available from <http://www.c40.org/profiles/2013-singapore>.

transportation system, started the country's first bike sharing programme, and created safer paths for pedestrians and for bicycles, and decreased congestion through better traffic systems.⁷⁹

Developing countries are beginning to gain more expertise in sustainable technology and innovation through the creation of new knowledge, and the implementation of more projects. Colombia has created national research institutes on sustainable energy, Singapore universities have been working on water projects and green infrastructure, and Barbados has similarly been prioritizing solar and biomass science.⁸⁰ Given this new knowledge and dedication to innovation over the last few decades, countries have the opportunity to share these new solutions.

2.3.3. Increasing momentum of South-South development cooperation

Developing countries have included SSCCC on the agendas of several entities that will support more research and specialization on how they specifically can collaborate to address climate change and the SDGs. The South Centre, founded in 1995, is an intergovernmental think tank created by countries of the developing South and has made sustainable development and climate change key areas of research. The Centre regularly releases policy briefs and publications on these topics, and is currently working on a report with the United Nations on the status of South-South Cooperation on Climate Change. The Climate Vulnerable Forum (CVF), an organization composed of 43 developing countries, was founded in 2009. The group advocated for no more than 1.5°C of warming during the Paris Negotiations and also advocates for shared best practices and resources among developing countries for climate change adaptation and resilience.⁸¹ The Vulnerable 20 (V20) is linked to CVF and is another SSC among foreign ministers to potentially increase investment in mitigation of and adaptation to climate change.⁸² IBSA, or the India, Brazil, South Africa Fund, has additionally been working with the United Nations to implement projects in the global South.

Two major development banks were also formed recently and include South-South cooperation on Climate Change in their portfolio: the Asia Infrastructure Investment Bank (AIIB), and the New Development Bank. AIIB began in 2015 with 57 founding members and focuses on infrastructure development in the Asia region, and also lists the following other areas as important: energy and power, transportation and telecommunications, rural infrastructure and agriculture development, water supply and sanitation, environmental protection, urban development and logistics. AIIB has signed Memorandums of Understanding (MoUs) with the Asian Development Bank, the European Bank for Reconstruction and Development, and the European Investment Bank to finance and implement said projects. In June 2016 an AIIB representation said that they are expected to reach the \$0.5 billion to \$1.2 billion lending range, and the organization's philosophy is to be "lean, clean and green", with the last highlighting their focus on environmental preservation and sustainability.⁸³ The New Development Bank is led by BRICS and similarly works to fund infrastructure projects in the developing South. Members are working to create partnerships with other multilateral development banks and plan to engage more in knowledge-sharing and partner with initiatives that drive sustainable development.⁸⁴

All of the organizations above can become key players in the goal of increasing funding and attention towards the countries of the developing South. These organizations focus on a low greenhouse gas emission, climate resilient and sustainable future, and can prove to be powerful assets for new research and for implementing activities.

⁷⁹ Available from <http://www.c40.org/awards/2013-awards/profiles/2>.

⁸⁰ UNDESA Policy Report (Available from http://www.un.org/en/development/desa/policy/wess/wess_current/2011wess_chapter5.pdf).

⁸¹ Available from <http://www.thecvf.org/>.

⁸² Available from <http://www.thecvf.org/v20-founding-communique/>.

⁸³ Available from <https://www.aiib.org/en/index.html>.

⁸⁴ Available from <http://www.ndb.int/about-us/>.

3. PRIORITY AREAS OF DEVELOPING COUNTRIES⁸⁵ TO ADDRESS CLIMATE CHANGE⁸⁶

This chapter showcases the priority areas for action on mitigation and adaptation as identified in the NDCs of most developing countries, and provides an overview of the support and cooperation elements that are integral parts of developing countries' NDCs.

The NDCs of each Party are key elements towards implementing the Paris Agreement. In their NDCs, Governments outline their national climate plans in response to the threat of global climate change. Developing countries in particular have highlighted in their NDCs national development strategies that include climate related targets, policies and actions. All of the sources of INDCs/NDCs mentioned are cited at the end of the report.

All developing countries have specified in their NDCs goals, targets or strategies, plans and actions for the reduction of greenhouse gas emissions. Some countries have submitted adaptation actions and/or economic diversification plans resulting in mitigation co-benefits. One hundred thirty-six developing countries have also included an adaptation component that describes how their country is already adversely impacted by climate change and what the country intends to do to adapt to these impacts. It should be noted that in this regard many developing countries stress the need for prioritizing adaptation actions.

The NDCs of developing countries show that despite being prepared against the backdrop of specific national circumstances and development priorities, many developing countries often have similar development priorities or have identified similar focus areas for climate action, both relating to the areas of mitigation and adaptation. Further, many of these priority areas are linked to SDGs and form part of an integrated development strategy that aims at achieving socioeconomic as well as low emission and climate resilient development (for further information see section 4).

Owing to the commonalities regarding respective development priorities and focus areas for climate action, many developing countries might face similar economic, technological and capacity-related challenges and constraints when implementing policies and measures towards achieving their development priorities as well as low emission and climate resilient development. On the other hand, these similarities also offer the opportunity for mutual learning and cooperation towards overcoming development barriers and achieving common goals.

The NDCs further indicate that developing countries require financial, technical and capacity-building support in order to implement their NDCs. It also shows the increasing interest of many developing countries in enhanced cooperation, including South-South cooperation, to implement climate action in line with their NDCs, including in specific areas such as sustainable energy, low carbon agriculture, biofuels, forest monitoring systems, restoration and reforestation activities, and sustainable transport.

South-South cooperation, with its focus on the principles of equality, mutual benefit, national ownership, non-conditionality, non-interference and bringing together practical knowledge relating to similar sociocultural and economic backgrounds, could play a critical role for many developing countries in addressing and overcoming the challenges

⁸⁵ Available from http://unfccc.int/parties_and_observers/parties/non_annex_i/items/2833.php.

⁸⁶ The analysis in this report is based on the NDCs communicated by developing country Parties to the UNFCCC secretariat. In cases when an NDC has not been submitted, or the Party has not ratified the Paris Agreement, this analysis uses the information communicated in a Party's INDC. In this section of the report the term "NDC" is used to describe both the NDCs and INDCs. Although some NDCs differ from previous INDCs, most INDCs have been converted directly into a Party's NDC, as per decision 1/CP.21, paragraph 22. From the 154 countries considered as developing countries under the UNFCCC, 100 of these countries have communicated an NDC by 1 April 2017, and 149 developing countries have submitted an INDC.

and constraints of implementing climate actions towards achieving development priorities and the implementation of their NDCs. A potential starting point for South-South cooperation in this regard could become the priority areas of many developing countries outlined in their NDCs.

3.1. Mitigation

Countries can respond to climate change by reducing greenhouse gas emissions and enhancing sinks and reservoirs. The capacity to do so depends on socioeconomic and environmental circumstances and the availability of information and technology. To this end, a wide variety of policies and instruments are available to Governments for creating incentives for mitigation action. Mitigating the most prevalent and potent greenhouse gases is essential to meet the objective of the UNFCCC to stabilize greenhouse gas concentrations in the atmosphere and of the Paris Agreement to strengthen the global response to the threat of climate change by holding the increase of 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.⁸⁷ The gases covered under the UNFCCC, their sources and their relative contributions to global emissions are listed in Table 2.

Table 2: Greenhouse Gases covered under the UNFCCC⁸⁸

Greenhouse Gas	Source	Share of Global Emissions in 2010
Carbon Dioxide	Fossil Fuels, Deforestation	76% (with 65% from fossil fuels)
Methane	Agricultural Activities, Energy Production, Waste	16%
Nitrous Oxide	Agricultural Activities	6%
Hydrofluorocarbons (HFCs)	Used as substitutes for ozone-depleting substances	2%
Perfluorocarbons (PFCs)		
Sulfur hexafluoride (SF6)		

Source: Mitigation of Climate Change, Working Group III Contribution to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change

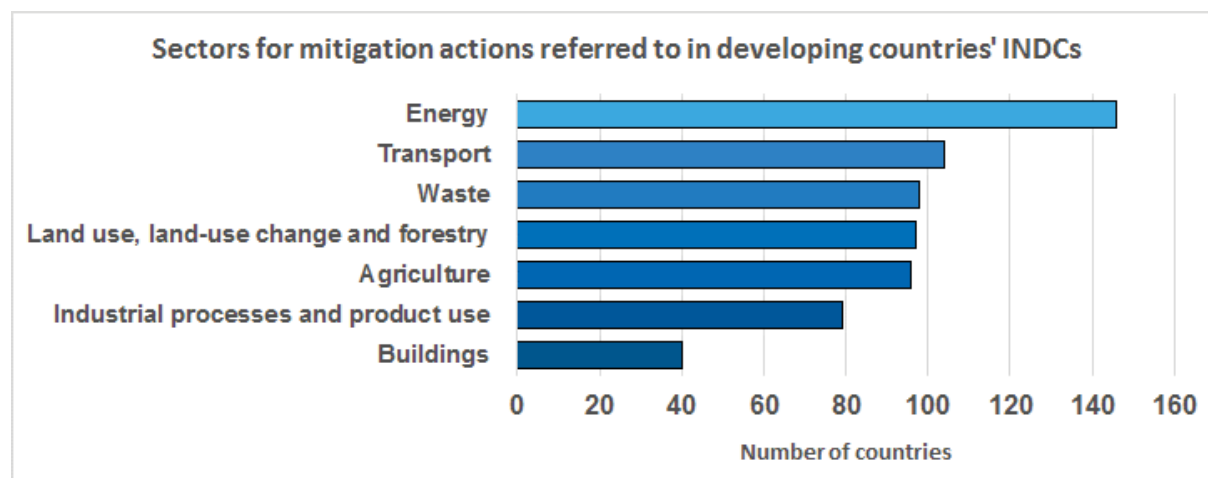
Many of the developing country NDCs cover most or all of the greenhouse gases in Table 2 along with the five sectors identified in the 2006 IPCC Guidelines for National Greenhouse Gas Inventories as the main categories of emissions by source and removals by sinks, namely: energy, including transport; industrial processes and product use; agriculture, forestry and other land use; waste; and other. The most common sectors with mitigation actions outlined in developing countries' NDCs are energy; land use, land-use change and forestry (LULUCF); transport; waste; agriculture; industries; and buildings (see Figure 1). The following sections focus on the first five most prioritized sectors.

⁸⁷ United Nations Framework Convention on Climate Change, The Paris Agreement.

⁸⁸ Available from

https://unfccc.int/files/press/backgrounders/application/pdf/press_factsheet_mitigation.pdf.

Figure 1: Sectors in which developing countries intend to reduce greenhouse gas emissions as presented in NDCs



Source: United Nations Climate Change secretariat analysis

3.1.1. Energy

The NDCs show that developing countries have collectively made clean energy one of the highest priorities for mitigation activities and are acknowledging the significant co-benefits of low emission development pathways, such as enhanced access to electricity as well as energy security. One hundred forty-six, or 99 per cent, of developing countries identified the energy sector as a key area for climate action.

One hundred seventeen developing countries have highlighted their intention to build or transform their energy systems towards the increased use of renewable energy technologies, with 75 countries having set quantified national renewable energy targets as newly installed capacity or share of the national energy mix. Furthermore, 51 developing countries identify actions related to renewable energies as priority areas with high mitigation potential critical for the implementation of their INDCs/NDCs. Many developing countries have also highlighted the importance of increased application of renewable energy technologies for their social and economic development pathways, given their growing energy needs in the future. In this context, Angola indicates that renewable energy technologies are a priority of the Angolan energy sector strategy, contributing to the sustainable development of the country by enhancing energy security, reducing greenhouse gas emissions and reducing local air pollution (INDC Angola).

The NDCs also show a trend among developing countries towards renewable energy targets, with some aiming to achieve a 100 per cent renewable energy supply. This trend can be observed in countries across all regions, particularly in Small Island Developing States (SIDS). Tuvalu (NDC Tuvalu) and Fiji (NDC Fiji), which comparable to many SIDS depend on imported fossil fuels, indicate in their respective NDC the objective of obtaining 100 per cent of their electricity from renewable energy sources by 2020 and 2030, respectively. The NDCs highlight that both Governments pursue a diversified renewable energy portfolio including solar, wind, biomass, hydro, geothermal and ocean energy sources.

In addition to the deployment of renewable energy technologies, 105 developing countries across all regions highlight in their NDCs plans to take action specifically in the area of energy efficiency, including through introducing energy efficiency standards for appliances, buildings and industries, increasing efficiencies in power generation and a shift to LED lighting. The variety of different measures ranges from energy efficient lighting policies in Bahrain (NDC Bahrain); to the distribution and installation of LED technology in the residential sector and for public lighting in Cuba (NDC Cuba); to promoting energy efficiency in appliances, buildings and industrial processes and technologies in Bhutan

(INDC Bhutan); to energy efficiency building codes in Grenada (NDC Grenada) or the implementation of awareness activities on energy efficiency in Azerbaijan (NDC Azerbaijan).

Thirty-five of these countries have communicated quantitative energy efficiency targets in their NDCs. In this context, Yemen sets forth its plan for efficient power generation, transmission and distribution towards a 15 per cent increase in energy efficiency in the power sector until 2025. It further provides information on the launch of energy efficiency programmes through establishing energy efficiency standards, energy use regulations and labelling and public awareness in residential and commercial sectors (INDC Yemen). Saint Vincent and the Grenadines aims to achieve a 15 per cent reduction in national electricity consumption compared to a business as usual scenario by 2025, through multiple measures including the retrofitting of street lighting nationally, a new building code and an energy labelling scheme for appliances (NDC Saint Vincent and the Grenadines). Eritrea provides information on its plans to reduce their transmission and distribution losses by 50 per cent and introduce rail transportation for more efficient travel as a substitute for higher emission vehicles such as large busses (INDC Eritrea).

3.1.2. Land use, land-use change and forestry (LULUCF)

Ninety-seven developing countries have identified mitigation actions in the land use, land-use change and forestry sector in their NDCs. While the LULUCF sector has significant mitigation potential, in particular in developing countries, such mitigation actions can also be used to promote sustainable management of forests, which enhances ecosystem services and provides co-benefits for local livelihoods.

One of the major opportunities for developing countries to realize mitigation actions in the LULUCF sector is the implementation of REDD-plus activities.⁸⁹ Fifty countries have highlighted their REDD-plus activities in their NDCs, including developing countries from all geographical regions. For example, countries such as Colombia (INDC Colombia), the Democratic Republic of the Congo (INDC Democratic Republic of the Congo) and Nepal (NDC Nepal) are aiming to reduce emissions from deforestation and forest degradation, and have already undertaken additional efforts for transparent implementation by submitting a forest reference emission level and/or forest reference level for technical assessment. Many countries also make a more generic reference in their NDCs that their implementation of REDD-plus pilot programmes or development of a national REDD-plus strategy will contribute to mitigation actions in the LULUCF sector (for example Belize, Burundi and Myanmar). Some developing countries highlight that REDD-plus is a cooperative effort and that the implementation of REDD-plus activities and the permanence of results achieved require the provision of adequate and predictable results-based payments in accordance with the relevant COP decisions.

Another important contribution included in several NDCs is the enhancement of forest carbon stocks through afforestation, reforestation and restoration activities, which can be part of a national REDD-plus strategy, but can also be implemented separately. For example, Namibia aims to reforest an area of 20,000 hectares annually as from 2018 (NDC Namibia), Lao intends to increase forest cover to 70 per cent of land area by 2020 (NDC Lao People's Democratic Republic), and Brazil aims to restore and reforest 12 million hectares of forests for multiple purposes by 2030 (NDC Brazil). Given the challenges with uncertainties in greenhouse gas measurements in the LULUCF sector, very few countries have given concrete emission reduction numbers expressed in CO₂ equivalent. One such example is the Democratic Republic of the Congo, which is targeting 3 million hectares of reforestation by 2025 and estimates that this would amount to removals in the range of 3 million tons CO₂ equivalent (INDC Democratic Republic of the Congo).

⁸⁹ In decision 1/CP.16, paragraph 70, the Conference of the Parties encouraged developing country Parties to contribute to mitigation actions in the forest sector by undertaking the following activities: reducing emissions from deforestation; reducing emissions from forest degradation; conservation of forest carbon stocks; sustainable management of forests; and enhancement of forest carbon stocks. For further information, see <http://redd.unfccc.int/>.

3.1.3. Transportation

In their NDCs, developing countries highlight the critical role of the transport sector towards reducing emissions but also towards achieving sustainable development, including the reduction of local air pollution. One hundred four developing countries indicate in their NDCs that they are planning to reduce greenhouse gas emissions in the transport sector.

Eighty-nine developing countries highlight in their NDCs the plan to develop sustainable transport systems as a priority area by aiming at enhancing energy efficiency through measures such as improving public transport, expanding the fleet of electric and biofuel vehicles, limiting the import of inefficient vehicles and using fuel efficiency standards. A broad variety of communicated policies and measures include, among others, Nepal's vehicle and transport policy aimed at increasing the share of electric vehicles by up to 20 per cent by 2020 (NDC Nepal); Barbados' tax incentives for alternative vehicles and fuel (NDC Barbados); Kazakhstan's concept on transition to a green economy, including planned regulations of greening of vehicles (NDC Kazakhstan); and the Lao People's Democratic Republic's plan to increase the share of biofuels to 10 per cent by 2025 (NDC Lao People's Democratic Republic).

The NDCs indicate a trend among developing countries towards a shift from individual transport, mainly passenger cars, to enhanced public transport, including busses and railways. Of these countries, 36 plan to achieve emission reductions through the further development of public passenger transport, in particular in urban areas. Twenty-three countries include specific provisions in their NDCs to reduce emissions from road transport by increasing in the share of transportation via railways. In this context, India indicates its focus on low carbon infrastructure and public transport systems such as its "Dedicated Freight Corridors" and energy efficient railways to reduce their environmental impact. India further highlights its endeavour to increase the share of railways in total land transportation from 36 per cent to 45 per cent, thereby decreasing the load on less efficient diesel operated road traffic (NDC India). Bangladesh aims to achieve a shift in passenger traffic from road to rail of up to around 20 per cent by 2030 through the development of underground metro systems and bus rapid transit systems in urban areas, which will reduce congestion, and improve air quality and traffic safety (NDC Bangladesh).

3.1.4. Waste

Reducing emissions from the waste sector is indicated by 98 developing countries in their NDCs, with a number of countries setting specific targets on solid waste and wastewater management to recycle, reduce and reuse, and on waste-to-energy programmes. Thirty developing countries highlighted in their NDCs plans for action regarding waste, which is critical for implementing their NDCs, including recovering methane emissions and establishing waste management and recycling programmes, and waste-to-energy facilities.

Some developing countries have highlighted solid waste management as a priority area for mitigation in their NDCs. In this context, Costa Rica is approaching Integrated Waste Management as a strategy for reducing emissions from solid waste, with a focus on separating waste and creating more programmes to recycle the waste from the system (NDC Costa Rica). Sri Lanka is developing a Solid Waste Management strategy for between 40 per cent to 60 per cent of its local authorities and plans for this strategy to be in place before 2030 (NDC Sri Lanka). Venezuela highlights its work towards optimizing the collection and transport of waste and the handling of waste in the municipal area (INDC Venezuela). Morocco aims at improving the collection of household waste to achieve an urban collection rate of 90 per cent by 2020 and 100 per cent by 2030. Morocco further aims at establishing landfill and recycling centres for household waste for the benefit of all urban areas by 2020 (NDC Morocco).

Several NDCs indicate also the opportunities of waste-to-energy facilities both as a means of greenhouse gas emission reductions and as renewable energy sources. Cabo Verde has communicated its plan to build at least 1 landfill equipped with gas-to-energy

systems (INDC Cabo Verde); Burundi is planning to recover fermentable urban waste such that it can be used for biogas fuel on a large scale (INDC Burundi); and Lesotho has suggested the domestic potential for biogas digesters in 20 per cent of homes for providing energy to services such as cooking in households (NDC Lesotho).

3.1.5. Agriculture (Mitigation)

The livelihoods of many populations are dependent on agriculture, in particular in developing countries. This is also the most climate sensitive sector. Thus, most developing countries consider adaptation a higher priority than the implementation of mitigation actions in the agriculture sector. At the same time, many countries also acknowledge in their NDCs that current agricultural practices can be improved in order to increase the efficiency of production and reduce greenhouse gas emissions, while at the same time benefiting other development priorities, such as enhancing food security and the eradication of poverty. Ninety-six developing countries included mitigation actions in the agriculture sector in their NDCs.

Countries mention a variety of low carbon agriculture practices in crop production, from the reduction of fertilizer application in countries such as Afghanistan, Malawi and Turkey, to using conservation and organic agriculture practices, for example, in Bhutan and Madagascar, to the implementation of agroforestry approaches such as in Honduras and Nigeria. A few countries also include quantitative contributions. For example, according to its NDC, China aims to achieve zero growth of fertilizer and pesticide utilization by 2020. Reducing emissions from rice cultivation also plays a role in the NDCs of some countries, such as Bangladesh (NDC Bangladesh) and Togo (INDC Togo). Brazil intends to strengthen the Low Carbon Emission Agriculture Programme (ABC) as the main strategy for sustainable agriculture development, which includes restoring an additional 15 million hectares of degraded pasturelands by 2030 and enhancing 5 million hectares of integrated cropland-livestock-forestry systems by 2030 (NDC Brazil).

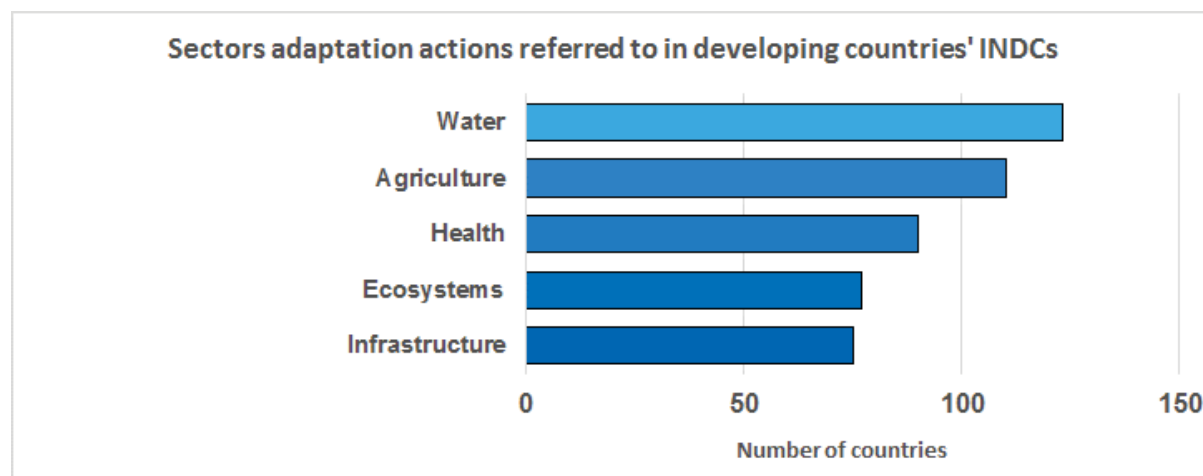
Mitigation options in the livestock subsector are also included in the NDCs of developing countries. The main emissions associated with livestock stem from enteric fermentation and manure management. Tunisia is addressing such emissions through improvements in the quality of manure and organic recovery of animal waste (NDC Tunisia). Uganda explores the mitigation potential through livestock breeding research and manure management practices (NDC Uganda). Mongolia is developing a comprehensive plan for emission reductions in the livestock subsector for implementation between 2020 and 2030 (NDC Mongolia). Emphasizing that it cannot mitigate climate change at the expense of food production, Uruguay presents its target as emission intensity per kilogram of beef, aiming to reach a reduction of 33 per cent from 1990 values by 2030 with domestic resources and a potential total reduction of 46 per cent if adequate additional means of implementation were to be made available (NDC Uruguay).

3.2. Adaptation

By 20 February 2017, 140 countries had included an adaptation component in their NDCs. Some countries in their NDCs stressed that adaptation is their main priority for addressing climate change, in particular as they see it to be strongly linked to national development, sustainability and security.

In terms of adverse impacts of climate change, the main concerns identified by most developing countries in their NDCs are flooding, drought, higher temperatures, sea level rise and storms, depending mainly on national circumstances. These affect practically all socioeconomic areas, with water, agriculture health, ecosystems and infrastructure included by most countries in their NDCs as areas for action (see Figure 2). Most of the priority areas for adaptation action are directly linked to development objectives such as poverty eradication, economic development or improvement of living standards, environmental sustainability, security and human rights.

Figure 2: Priority areas where developing countries plan to increase resilience to climate change as presented in their NDCs



Source: United Nations Climate Change secretariat analysis of developing countries' NDCs.

3.2.1. Water

The NDCs show that water security is one of the key development priorities for developing countries. Water scarcity or the lack of water to meet the demand of a population is a critical issue for more than 40 per cent of the world population and affects over 1.7 billion people.⁹⁰ Given these immense challenges, 21 developing countries highlighted water security as a priority in their NDC reports, and also provided information on specific actions within these areas to conserve water, increase water supply and the quality of water, promote water sanitation, wastewater treatment and water efficiency, increase water management efforts, and broaden access to and allocation of water resources.

In their NDCs, many developing countries outlined various water-saving measures and techniques, such as developing water-saving irrigation systems, using desalination (including with renewable energy), constructing water conservation facilities for farmlands, building a man-made lake, constructing reservoirs for glacier melt water harvesting and watershed management. Some countries outlined more specific techniques in this regard, such as digging wells, rainwater harvesting or substituting water withdrawal from aquifers with surface water.

Many NDCs show a prioritization of setting quantitative or qualitative targets relating to their water security and quality. For example, Eritrea indicates in its NDC that it plans to increase the safe drinking water supply from 75 per cent to 100 per cent by 2030 (INDC Eritrea). Antigua and Barbuda states that it aims to increase the desalination capacity by 50 per cent from the 2015 levels (from 5.4 to around 8 million gallons per day) (NDC Antigua and Barbuda) and Mongolia describes in its NDC that it plans to introduce drip irrigation technology to reduce water use by a factor of 2.5 to 5 (NDC Mongolia).

Furthermore, the NDCs highlighted broader considerations in relation to water, such as mainstreaming climate change adaptation in the water sector (e.g. by considering climate criteria in water management efforts), implementing a national water master plan, putting in place integrated water management systems or building a water-saving society. In this context, Bolivia describes in its NDC that it has adopted a national index of adaptive capacity of water, and aims to increase this index from 0.23 to 0.69 by 2030 (NDC Bolivia). India refers in its NDC to its National Water Mission that applies integrated water resources management to pursue water conservation, equitable distribution and 20 per cent higher water use efficiency (NDC India). Guyana highlights in its NDC that it is working to

⁹⁰ Available from <http://www.un.org/sustainabledevelopment/water-and-sanitation/>.

establish an integrated water management infrastructure, including conservancies and canals, sanitation, water supply, sea defences and hydroponics (NDC Guyana).

3.2.2. Agriculture (Adaptation)

Agriculture adaptation strategies vary with agricultural systems, location and scenarios of climate change. One hundred eight developing countries' NDCs emphasize the importance of adaptation in the agriculture sector to ensure food security, improved livelihood of farmers and improved environmental services. Almost all of these countries provide examples of planned actions in the agricultural sector, including sustainable agriculture and land management, improving irrigation systems and water use, increasing irrigated land, adopting agricultural calendars (e.g. adjustment of planting dates and crop variety and water storage, water reuse and conservation techniques), utilizing methods to reduce erosion, and forecasting meteorological and early warning systems.

In addition, many of these NDCs include information relating to specific agricultural methods for addressing climate-related problems, such as methods for pest management, including integrated pest management, introduction of heat-, drought- and disease-resistant crops, fodder types and livestock breeds, and the distribution of medicine and vet services. Furthermore, Governments also highlighted measures related to affordable insurance, climate research, use of information and traditional knowledge and early warning systems. Examples of adaptation efforts in agriculture range from, inter alia, South Sudan's objective to prioritize the enhancement of climate resilience in the agricultural sector through the promotion of climate-smart agriculture, livestock improvement, enhancement of fisheries productivity and soil erosion control (INDC South Sudan); to Sierra Leone's plan to adopt climate-smart and conservation agriculture through best agricultural practices that enhance soil fertility and improve crop yields (NDC Sierra Leone); or Liberia's objective to enhance resilience to increasing rainfall variability through the diversification of crop cultivation and small ruminants rearing (INDC Liberia).

Similar to adaptation measures in the priority area of water, a number of countries have articulated quantitative targets for adaptation efforts in agriculture, including: Afghanistan's plan to increase the size of irrigated agricultural land to 3.14 million hectares (NDC Afghanistan); to the Central African Republic's aim to maintain a 6 per cent annual growth in the agricultural sector (NDC Central African Republic); to Madagascar's aspiration to maintain, by 2030, paddy production of 4 tons per hectare in agricultural centres that apply Resilience Agriculture Integrated Models (NDC Madagascar).

3.2.3. Health

Human health is cited by 89 developing countries as a priority area for adaptation action. Many refer to the importance of disease surveillance and control measures and highlighted health services and assessments in their NDCs. A number of countries are aiming to achieve an overall integration of climate impacts and/or the identification of priority actions in the health sector; an enhanced understanding of climate-health connections and changing disease patterns; and enhanced management systems or contingency plans for public health to improve the adaptive capacity of public medical services. In this context Uganda provides information in its NDC that it seeks to develop early warning systems for outbreaks as well as health contingency plans, to build hospitals and enhance water safety to combat water-borne disease (NDC Uganda). Peru highlights in its NDC that it will focus efforts on increasing the adaptive capacity of national health services (NDC Peru). Viet Nam expresses its aim to provide 100 per cent access to health care for its population (NDC Viet Nam).

Other measures include early warning systems with epidemiological information, health surveillance programmes and contingency plans in the event of heat-waves. Benin highlights the need to build capacity in areas of monitoring and information on the impacts of climate change on health (NDC Benin).

Many developing countries note the increased number of cases of malaria as a major impact relating to climate change in the health sector. In terms of more specific measures to combat vector-borne diseases, NDCs referred to, for example, protecting pregnant women and children under five against vector-borne diseases, suppressing mosquito populations and distributing test kits for vector-borne diseases. Examples of targets and actions include, inter alia, the aim to eliminate malaria by 2030 through its national vector-borne disease control programme in India (NDC India); to national sanitation plans aiming to combat vector-borne diseases in Venezuela (INDC Venezuela); to plans to distribute test kits for vector-borne diseases in Malaysia (NDC Malaysia).

3.2.4. Ecosystems

Ecosystems have been rendered in NDCs as a priority area for adaptation by some 77 developing countries, including in the context of biodiversity conservation. Many identify impacts, vulnerabilities and adaptation actions on various types of ecosystems, including land, oceans, mountains, rivers and forests. For example, coral bleaching is causing the loss of marine ecosystems; higher temperatures are triggering changes in species behaviour and location; and mountain ecosystems are experiencing dramatic changes.

Many NDCs highlighted ecosystems-based adaptation as a key approach for implementing adaptation in this area, and biodiversity conservation and resilience, and the rehabilitation of ecosystems were identified as important measures. Actions identified by countries include biodiversity corridors, protection of moorlands, conservation of species, recovering ecosystems and monitoring impacts on biodiversity. In this context, Singapore provided information on activities, such as developing an index for biodiversity of cities, and a SGBioAtlas smartphone app for biodiversity tracking (NDC Singapore). Nigeria highlighted its national biodiversity strategy and an action plan (INDC Nigeria); and India's NDC includes information on its National Mission for Sustaining the Himalayan Ecosystem (NDC India).

Some countries also provided quantified objectives related to the preservation of ecosystems and biodiversity in their NDCs. Examples of such objectives include a target of zero per cent deforestation rate by 2030 in Mexico (NDC Mexico); an objective to protect 20 per cent of marine environments by 2020 in the Bahamas (NDC Bahamas); and a target to regenerate 40 per cent of degraded forests and rangelands in Afghanistan's NDC (NDC Afghanistan)

3.2.5. Infrastructure

Enhancing the resilience of infrastructure has been highlighted in the NDCs of 75 countries as an adaptation priority. The NDCs show that, on the one hand, infrastructure is at risk from various climate impacts. For example, transportation infrastructure, such as roads and ports, can be damaged by sea level rise and extreme weather. Water infrastructure, such as drainage systems and water reservoirs can be impaired by changes in hydrological regimes. Energy infrastructure is at risk of damage from extreme weather, lower efficiencies of thermal generation due to higher temperatures, the decrease of access to cooling water and supply chain disruptions. The NDCs also indicate that on the other hand, poor infrastructure quality increases the vulnerability of populations and reduces the capacity to respond to the impacts of climate change.

In this context, measures highlighted by Parties include risk assessments and hazard maps, building codes and standards for locating infrastructure, infrastructure protection measures and contingency plans. Some NDCs highlight insurance schemes that countries are developing to incentivize climate-proof construction. Specific examples include the measures outlined by Mexico relating to infrastructure relocation, developing adaptation criteria for public projects and guaranteeing dam security and transportation infrastructure (NDC Mexico). Kenya also provides information in this regard, highlighting its objective to climate proof infrastructure for energy, transport, buildings and information technology (NDC Kenya). Eritrea, in its NDC, outlines its plans to build 90 new dams and 120 ponds by

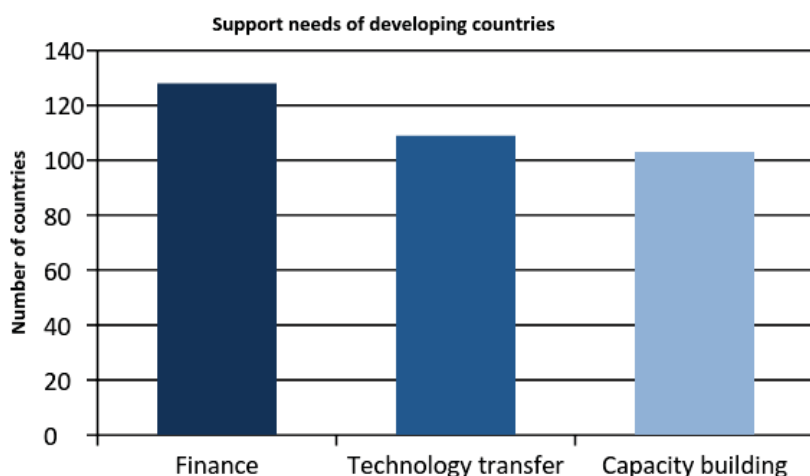
2030 to strengthen the water and energy infrastructure (INDC Eritrea). Singapore’s NDC highlights its activities on developing performance standards for energy and telecommunications, creating flood barriers for subway stations and undertaking a regular review of building codes (NDC Singapore).

3.3. Needs expressed by developing countries in their NDCs

The NDCs of developing countries show an increasing interest in cooperating towards implementing climate actions and raise ambitions for the future. These countries also refer to the need for enhanced cooperation to enable developing countries to enhance domestic actions related to climate change and to address related challenges collectively in the future, in particular as many developing countries have to overcome a range of economic, technological and capacity-related barriers to achieve the objectives of their NDCs.

Information on support needs is an integral element of 90 per cent of developing countries’ NDCs, with 81 per cent of developing countries identifying the provision of international support as a condition for the full implementation of their NDCs and for enhancing ambition over time. The vast majority of developing countries emphasized the need for enhanced international support in the form of finance, technology development and transfer, and capacity-building (see Figure 3).

Figure 3: Types of needs for support referred to in developing countries’ NDCs



Source: United Nations Climate Change secretariat analysis of developing countries’ NDCs.

Most developing countries highlighted the need for enhancing existing institutional arrangements for delivering international financial, technology and capacity-building support, including mechanisms under the UNFCCC, such as the Green Climate Fund (GCF), the Global Environment Facility (GEF), the Adaptation Fund⁹¹ and the Technology Mechanism, and for increasing the scale of, and expanding the access to, financial support for climate change action from bilateral and multilateral sources.

Some countries specify financial needs for only mitigation or only adaptation, and others specify a sum total required for both mitigation and adaptation. Some countries do not include a quantitative financial needs estimate but instead state that they are in the process of calculating their needs. Some countries identify specific sectors and specific projects that need funding, while others do not include a cost breakdown or project type and indicate only the total amount of financing required up to 2030.

Specific examples of needs for support for the implementation of developing

⁹¹ The Adaptation Fund is covered by the UNFCCC Kyoto Protocol.

countries' NDCs include technical and capacity-building support for the strengthening of national and local institutions; the development of cross-sector climate change policies as well as renewable energy policies, programmes and projects; technologies to increase adaptive capacities, including in the areas of climate observation, modelling and monitoring, early warning systems, water resources management, coastal zones, resilient transportation systems, sustainable or climate-smart agriculture, forestry and land management; research, data and information, including in the areas of climate forecasting and modelling, satellite data and regionally downscaled climate data; and education and awareness-raising on climate impacts and adaptation. Furthermore, some countries list specific needs for equipment, such as energy efficient cook stoves.

Developing countries' NDCs vary greatly in their degree of detail and methodologies for their development. Some NDCs are based on existing national policies and development plans; others will require substantial work to be translated into concrete policies, plans and projects at the national and local levels.

3.3.1. Developing countries' South-South cooperation expectations

Fifteen developing countries refer directly to South-South cooperation in their NDCs.⁹² Eight of these countries mention that they consider South-South cooperation a suitable complement to North-South cooperation for both mitigation and adaptation actions, in particular regarding technology transfer and innovation as well as capacity-building in the areas of agriculture, disaster risk reduction, energy, forestry, transport and waste.⁹³ One country mentions the Caribbean Risk Management Initiative as a specific example that holds great potential for continued effective South-South cooperation through international support (NDC Cuba).

3.4. Efforts to promote South-South cooperation

Brazil, China, Colombia and India include information in their INDCs/NDCs on their plan to enhance South-South cooperation. Other countries have mentioned South-South cooperation in different ways.

Brazil states that it will undertake best efforts to enhance cooperation initiatives with other developing countries with a focus on forest monitoring systems, low-emission and climate resilient agriculture, restoration and reforestation, and capacity-building for national communications and other obligations under the UNFCCC. Brazil aims to particularly support other Portuguese-speaking developing countries⁹⁴ and invites developed countries and international organizations to further support such initiatives (NDC Brazil).

Brazil's NDC has a broad scope including mitigation, adaptation and means of implementation. Brazil considers adaptation to be a fundamental element of the global effort to tackle climate change and its effects. The implementation of policies and measures to adapt to climate change contributes to building resilience of populations, ecosystems, infrastructure and production systems by reducing vulnerability and through the provision of ecosystem services. Brazil's National Adaptation Plan (NAP) aims to implement knowledge management systems, to promote research and technology development for adaptation, and to develop processes and tools in support of adaptation actions and strategies at different levels of government.

The social dimension is at the core of Brazil's adaptation strategy, bearing in mind the need to protect vulnerable populations from the negative effects of climate change and enhance resilience. Brazil seeks to enhance its national capacity in water security (National

⁹² See INDCs/NDCs of Afghanistan, Algeria, Benin, Brazil, Chile, China, Colombia, Cuba, Djibouti, Eritrea, India, Mexico, Singapore, South Sudan and Gambia.

⁹³ See INDCs/NDCs of Afghanistan, Algeria, Benin, Chile, Cuba, Gambia, Mexico and South Sudan.

⁹⁴ In addition to Brazil, this group of countries includes Angola, Cabo Verde, Guinea-Bissau, Mozambique, Sao Tome and Principe and Timor-Leste.

Water Security Plan) and conservation and sustainable use of biodiversity (National Strategic Plan for Protected Areas, as well as the implementation of the Forest Code, particularly concerning protected areas) (NDC Brazil).

China states in its NDC that it will further strengthen South-South cooperation, including through its newly established China South-South Climate Fund,⁹⁵ provide assistance and support to other developing countries and promote “mutual learning, mutual support and mutual benefits as well as win-win cooperation”. China also plans to “engage in extensive international dialogue and exchanges on addressing climate change, enhance policy coordination and concrete cooperation in related areas, share positive experiences and good practice, promote climate friendly technologies and work together with all Parties to build a beautiful homeland for all human beings (NDC China).” At COP 21, Chinese President Xi Jinping reiterated China’s commitment to South-South cooperation, emphasizing renewable energy, disaster risk reduction, climate-smart agriculture, low carbon urban development and financing capacity as areas for cooperation with other developing countries.

At COP 22, China co-hosted a High-Level Forum on South-South Cooperation on Climate Change at the China Pavilion with the United Nations and the COP 22 President, Morocco, which brought together high-level leaders, ministers, and senior experts in the field of SSCCC. China stated that it has created a plan to establish a nation-wide Emission Trading Scheme. Also at the event, China highlighted their contribution to the Africa Renewable Energy Initiative.

Colombia provides information on scaling-up South-South and triangular cooperation with a focus on sharing knowledge on climate change mitigation and adaptation with other developing countries in Latin America and the Caribbean (INDC Colombia). Colombia’s adaption contribution provides information on the country’s focus on other global targets that contribute to increasing resilience, such as those put forth at the Convention on Biological Diversity (CBD), the 2030 Development Agenda and the United Nations Convention to Combat Desertification (UNCCD), as well as the Sendai Framework for Disaster Risk Reduction 2015-2030.

Colombia provides information on its aims to create climate change innovation clusters, through the promotion of private investment, public-private partnerships and foreign direct investment, with special emphasis on scientific research and knowledge and technology transfer. To achieve its mitigation goal, Colombia has prioritized mitigation measures through eight Sectoral Mitigation Action Plans (SMAPs) that aim to maximize the carbon efficiency of economic activities at the national and sectoral levels and in turn contribute to social and economic development. Colombia will identify financial resources and develop a climate-finance strategy.

India, in its NDC, identifies external cooperation as a critical enabler of climate action. India states that it will continue to support the transfer of technologies to other developing countries (NDC India). It further calls for bilateral cooperative initiatives. India mobilizes domestic resources for mitigation and adaptation actions through its National Clean Environment Fund and a National Adaptation Fund. It aims to mobilize domestic and additional funds from developed countries.

Chile mentions in its NDC that it is collaborating in the development of South-South joint actions to support the building and strengthening of climate capacities for coordinated action by the Convention (NDC Chile). Chile realizes that there is potential in implementing

⁹⁵ China’s South-South Cooperation Climate Fund was launched in December 2014. In September 2015, President Xi Jinping announced China’s initial pledge of 20 billion Chinese Yuan (approximately USD 3 billion) to the Fund. For further information on the development and objectives of the Fund see Weigel 2016. The first publicly announced pledge by the Fund is a USD 5.5 million contribution to a regional Adaptation Fund project involving China, Thailand and Viet Nam, subject to the approval of the project. The project proposal is available from https://www.adaptation-fund.org/wp-content/uploads/2016/08/Regional_UNEP_concept.pdf.

South-South-North collaborative projects. Chile has begun to introduce the challenges and opportunities of Climate Change in school curriculums, which it believes should gain in popularity as part of South-South cooperation (NDC Chile).

Djibouti, in its NDC, explicitly credits South-South partnership with other countries that have made progress in the domain of energy management (NDC Djibouti). Gambia mentions that it would require international and South-South cooperation, collaboration and support for the development of its own technologies as well as for technology transfer and innovation to increase its mitigation and adaptive capacities (NDC Gambia).

Mexico iterates that capacity-building requires cooperation from both the developed and developing countries. It expresses the need for international support for the development of its own technologies as well as for technology transfer and innovation to increase its adaptive capacity (NDC Mexico).

Besides countries such as Brazil, Chile, China, Colombia, Djibouti, India, Gambia and Mexico, there are other countries that have not directly pledged South-South cooperation in their INDCs/NDCs, but have in like manner been practicing South-South cooperation. For example, Thailand has increased its cooperation with other nations over the years.⁹⁶

⁹⁶ “South-South in Action: Sustainability in Thailand, Experience from Developing Countries”. Available from <http://ssc.undp.org/content/dam/ssc/documents/news/2017/UN-Thailand-low-res.pdf>.

4. LINKAGES BETWEEN THE IMPLEMENTATION OF NATIONALLY DETERMINED CONTRIBUTIONS AND THE ACHIEVEMENT OF THE SUSTAINABLE DEVELOPMENT GOALS⁹⁷

There is no one-size-fits-all solution to the multiple challenges across sectors experienced by developing countries. However, climate adaptation and mitigation actions provide an entry point to building resilient, low carbon economies that will co-benefit the SDGs. Countries have seen the links between climate change and sustainable development for many years. The Delhi Ministerial Declaration on climate change and sustainable development at the eighth session of the COP reconfirms climate actions in the context of sustainable development in areas of water, energy, health, agriculture and biodiversity.⁹⁸ Similarly, the high-level segment of the twenty-second session of the Marrakech Action Proclamation for Climate and Sustainable Development highlights that the 2030 Agenda for Sustainable Development would receive significant support from climate adaptation and mitigation efforts.⁹⁹

Building on the interconnectivity of climate actions and the SDGs, this section provides an introduction to the linkages between the NDCs of developing countries and the SDGs of the 2030 Agenda for Sustainable Development, thus highlighting the fact that climate actions, in particular for developing countries, cannot be considered a means to an end. It becomes apparent that NDCs include climate actions that are part of national development strategies, including sustainable development.

4.1. Linkages between developing countries' NDCs priority areas and the SDGs

A comprehensive analysis on the interlinkages between the actions and priority areas communicated in NDCs by developing countries and the SDGs has been conducted. In order to understand and assess the linkages between the NDCs and SDGs in this context, each NDC from a developing country was individually analysed to identify explicit and implicit linkages to each of the 17 SDGs. The term “linkages” between the NDCs and SDGs in this section is used for cases when climate actions (both relating to mitigation and adaptation) as described in individual NDCs contribute to the achievement of one or several SDGs. It does not cover climate impacts on areas related to SDGs (e.g. the impacts of climate change on freshwater).

The visions, goals and targets specified in NDCs mostly relate to addressing the reduction of greenhouse gas emissions and increasing the resilience of countries against the adverse impacts of climate change. At the same time, they are closely linked with development objectives such as poverty eradication, food security, economic development or improvement of living standards, environmental sustainability and resilience. As such, these visions, goals, and targets are fundamental for the achievement of SDGs.

While only nine countries make direct reference to the SDGs in their NDCs,¹⁰⁰ several developing countries highlight the linkages between their actions to address climate

⁹⁷ The analysis in this report is based on NDCs communicated by developing country Parties to the UNFCCC secretariat. In cases when an NDC has not been submitted, or the Party has not ratified the Paris Agreement, this analysis uses the information communicated in a Party's INDC. In this section of the report the term “NDC” is used to describe both the NDCs and INDCs. Although some NDCs differ from previous INDCs, most INDCs have been converted directly into a Party's NDC, as per decision 1/CP.21, paragraph 22. From the 154 Parties considered as developing countries under the UNFCCC, 100 of these countries have communicated an NDC by 1 April 2017, and 149 developing countries have submitted an INDC.

⁹⁸ “The Delhi Ministerial Declaration on Climate Change and Sustainable Development”, Available from http://unfccc.int/cop8/latest/1_cpl6rev1.pdf.

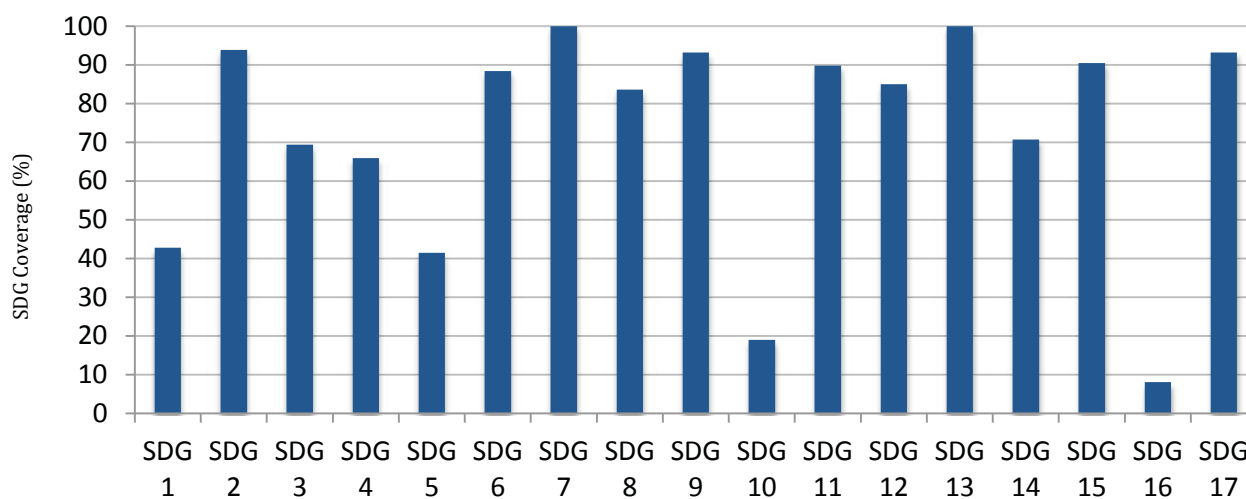
⁹⁹ “Marrakech Action Proclamation for our Climate and Sustainable Development”, Available from http://unfccc.int/files/meetings/marrakech_nov_2016/application/pdf/marrakech_action_proclamation.pdf.

¹⁰⁰ See INDCs/NDCs of Bolivia, Cuba, Egypt, Guatemala, Indonesia, Jordan, South Sudan, Swaziland and Uganda.

change presented in their NDCs and their development priorities, including social and economic development as well as poverty eradication. In this context, countries highlight the need to further integrate climate change related objectives into national economic and social development plans. Some countries include concrete examples of specific co-benefits of their intended climate actions, such as health benefits from reduced air pollution; improved energy access and security; improved water quality and management; social progress, including poverty reduction, increased well-being and job creation; economic diversification; and synergies between adaptation and mitigation actions towards building resilience, particularly in areas of agriculture and forestry, as well as relating to food security.

The NDCs show linkages between climate action and achieving specific SDGs and how that relates to each of the SDGs (see Figure 4). Linkages between climate action and achieving specific SDGs vary. SDGs 2, 6, 7, 8, 9, 11, 12, 13, 15 and 17 have linkages to more than three quarters of developing countries' NDCs. Furthermore, SDGs 3, 4 and 14 are addressed in more than half of developing countries' NDCs (see Figure 4). The SDGs with most linkages to the NDCs are further summarized in the subsequent subsections below.

Figure 4: Percentage of developing countries' NDCs addressing SDGs



Source: Climate Change secretariat analysis of developing countries' NDCs.

SDG 13 – Climate Action

Climate change is a global challenge that has a multiplier effect on many other development issues. It has the potential to disrupt economies and human lives. Changing weather patterns, rising sea level and more extreme weather events are deteriorating human and environmental health.

The NDCs indicate concrete areas for undertaking action to address climate change, focusing on, inter alia, renewable energy and energy efficiency, sustainable transport, carbon capture and storage, and conservation and sustainable management of forests, as well as reducing non-CO₂ gases.¹⁰¹ They also highlight measures such as aligning development, adaptation, disaster risk reduction; enhancing risk sharing and transfer, including setting up insurance schemes; strengthening institutional arrangements and legislative frameworks; strengthening early warning systems; enhancing building codes and land-use planning; and promoting social protection to reduce the damage of climate change.¹⁰² Goal 13 of the 2030 Agenda for Sustainable Development also aims to take urgent actions against climate change and to improve education, awareness-raising, and

¹⁰¹ Official Records of the United Nations, Twenty-second Session (FCCC/CP/2016/12).

¹⁰² Official Records of the United Nations, Twenty-second Session (FCCC/CP/2016/12).

human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning. Implementing the NDCs will thus contribute towards achieving SDG 13.

SDG 7 – Affordable and Clean Energy

Affordable, reliable and modern energy is vital for sustained development. Around 1.1 billion people worldwide still live without access to electricity, most of them in Africa and Asia. Another 2.8 billion rely on wood or other biomass for cooking and heating, resulting in indoor and outdoor air pollution that causes about 4.3 million deaths each year.¹⁰³ A majority of the developing countries outlined the need to transform their energy systems and move them towards an increased use of renewable energy technologies as a key mitigation measure. Many developing countries face the challenge of shortages in power supplies and their unreliability and poor quality.

All NDCs from developing countries include information on their climate related policies, measures and actions. Goal 7 of the 2030 Agenda for Sustainable Development also aims to expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries. Addressing energy security and energy efficiency and shifting to renewable energy production in developing countries, as well as setting up sustainable energy systems, would benefit the implementation of most NDCs, while simultaneously contributing to SDG 7.

SDG 2 – Zero Hunger

Hunger and malnutrition pose a threat to health worldwide. The World Food Programme (WFP) estimates that one in nine people do not get enough food to be healthy and lead an active life.¹⁰⁴ According to Food and Agriculture Organization (FAO) statistics from 2015, 795 million suffer due to hunger in the world and 98 per cent of them live in developing countries. Goal 2 of the 2030 Agenda for Sustainable Development aims to end hunger, achieve food security, improve nutrition and promote sustainable agriculture by 2030.¹⁰⁵

Ninety-four per cent of NDCs from developing countries include information on climate related policies, measures and actions that are directly linked to SDG 2 on zero hunger, mainly owing to adaptation actions in the agriculture sector to enhance resilience and ensure food security. Addressing health and food security issues will support the implementation of many NDCs as well as the achievement of SDG 2.

SDG 9 – Industry, Innovation and Infrastructure

Basic infrastructure such as roads, information and communication technologies, sanitation, electrical power and water remains scarce in many developing countries. Undeveloped infrastructure limits access to health care and education. Inadequate infrastructure leads to a lack of access to markets, jobs, and information and training, thereby creating a major barrier to doing business. Goal 9 of the 2030 Agenda for Sustainable Development aims to build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation.

Ninety-three per cent of the NDCs prioritize infrastructure development and actions in the industry sector as key elements of their NDCs, both in terms of mitigation and adaptation, and outline this sector as a vulnerable one in developing countries,¹⁰⁶ mainly owing to adaptation actions relating to increasing resilience of various types of infrastructure or mitigation actions in the industry sector.

¹⁰³ Available from <http://www.worldbank.org/en/topic/energy/overview#1>.

¹⁰⁴ Available from <http://www1.wfp.org/zero-hunger>.

¹⁰⁵ “The State of Food Insecurity in the World 2015” (see <http://www.fao.org/hunger/en/>).

¹⁰⁶ *Official Records of the United Nations, Twenty-second Session (FCCC/CP/2016/12)*.

SDG 17 – Partnerships for the Goals

Mobilizing financial resources, building capacity at different levels, leveraging access to science, technology and innovation, and increasing trade require international support and cooperation. Goal 17 of the 2030 Agenda for Sustainable Development also aims to strengthen the means of implementation and revitalize the global partnership for sustainable development.

Ninety-three per cent of the NDCs are linked to SDG 17, as most NDCs emphasize the need for enhanced international support and cooperation for the implementation of their NDCs and for enhancing ambition. These NDCs refer to international and regional cooperation and partnerships in specific areas, including: sustainable energy; low carbon agriculture; biofuels; forest monitoring systems; restoration and reforestation activities; international exchanges on best practices; and partnerships with research centres, the private sector, technology funds and financing institutions in the context of global decarbonization. In this context, the importance of South-South cooperation has been highlighted in the NDCs as well.¹⁰⁷ The role of cooperation to address sustainable development and implement climate actions is critical and key to a sustainable, low greenhouse gas emissions and climate resilient future.

SDG 15 – Life on Land

Forests cover some 31 per cent of total land area and support about 80 per cent of terrestrial biodiversity.¹⁰⁸ It provides homes for people and wildlife. Some 1.6 billion people rely on food, fresh water, clothing, traditional medicine and shelter that forests provide.¹⁰⁹ The world's forests continue to decline as the result of population growth and increased demand for land. Agriculture is estimated to be the proximate driver for around 80 per cent of deforestation worldwide.¹¹⁰ Mining, infrastructure and urban expansion are some of the other drivers. As forests decline, soil erosion and floods lead to land degradation that impact human lives and the environment. Goal 15 of the 2030 Agenda for Sustainable Development aims to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and biodiversity loss.

Ninety per cent of the NDCs include actions that are linked to SDG 15 mainly owing to efforts to reduce emissions from deforestation and activities to conserve biodiversity. Addressing deforestation and its drivers will have positive impacts on sustainable development pathways for many developing countries while supporting the implementation of their NDCs and the achievement of SDG 15.

SDG 11 – Sustainable Cities and Communities

More than half of the world's population lives in cities. By 2030, it is projected that six out of 10 people will be urban dwellers. The world's cities occupy just 3 per cent of the earth's land, but account for 60 to 80 per cent of global energy consumption and about 75 per cent of global carbon emissions.¹¹¹ Goal 11 of the 2030 Agenda for Sustainable Development aims at making cities and human settlements inclusive, safe, resilient and sustainable.

Ninety per cent of the NDCs show linkages to SDG 11, mainly due to mitigation actions in the transport sector and adaptation actions to increase resilience of urban areas. Sustainable transport is highlighted in several NDCs through measures such as improving

¹⁰⁷ *Official Records of the United Nations, Twenty-second Session (FCCC/CP/2016/12).*

¹⁰⁸ Available from <http://www.un.org/sustainabledevelopment/biodiversity/>.

¹⁰⁹ Available from <http://www.worldwildlife.org/threats/deforestation>.

¹¹⁰ "Drivers of Deforestation and Forest Degradation, A Synthesis Report for REDD+ Policymakers" (Available from https://www.forestcarbonpartnership.org/sites/fcp/files/DriversOfDeforestation.pdf_N_S.pdf).

¹¹¹ Available from <http://www.un.org/sustainabledevelopment/cities/>.

public transport, limiting the import of inefficient vehicles and using fuel efficiency standards.¹¹² The climate change mitigation and adaptation measures mentioned in the NDCs could help make cities and communities resilient and sustainable. These actions are also in line with the Sendai Framework for Disaster Risk Reduction 2015-2030, as both aim to invest in disaster preparedness, disaster relief and recovery, and early warning systems.

SDG 6 – Clean Water and Sanitation

Water is critical for food and energy security. Livelihoods, industries and environmental health depend on access to water. Climate change poses a threat to roughly 1 billion people living in monsoonal basins and 500 million people living in deltas.¹¹³ Goal 6 of the 2030 Agenda for Sustainable Development also aims to ensure availability and sustainable management of water and sanitation for all.

Many countries' NDCs provide information on the impact of climate change on their water supply and water quality. As the demand for water increases as temperatures rise, populations grow and cities expand: climatic events could severely affect the availability and quality of water. They might also affect the infrastructure that facilitates transportation and delivery of water. The NDCs also highlight the dependence of entire countries on climate sensitive sectors such as water.¹¹⁴ Eighty-eight per cent of NDCs show linkages to SDG 6, mainly owing to adaptation actions to improve access to and ensure the quality of clean water and improving irrigation systems. Focusing on implementing these actions would support the implementation of many developing countries' NDCs as well as the achievement of SDG 6.

SDG 12 – Responsible Consumption and Production

Economic growth and development require a sustainable production of goods and services. Unplanned consumption and production leads to environmental degradation. For example, each year, an estimated one third of all food produced — equivalent to 1.3 billion tons worth around \$1 trillion — ends up rotting in the bins of consumers and retailers, or spoiling due to poor transportation and harvesting practices.¹¹⁵ Goal 12 of the 2030 Agenda for Sustainable Development also aims to promote resource and energy efficiency, and minimize the use of natural resources and toxic materials.

Eighty-six per cent of NDCs are linked to SDG 12, mainly owing to mitigation actions in the waste sector, including plans to implement policies and measures to reduce CH₄ and other non-CO₂ gases by improving crop and livestock production, promoting low carbon agriculture and establishing waste management and recycling programmes as well as waste-to-energy facilities.¹¹⁶

4.2. SSC towards a climate resilient and low greenhouse gas emissions development pathway

The NDCs illustrate that climate actions to achieve low greenhouse gas emissions and climate resilient development have direct implications for the achievement of SDGs and that addressing climate change translates into Governments integrating climate actions into key socioeconomic development strategies. The NDCs show that in pursuing development goals, Governments have at their disposal a suite of measures, which result in different levels of emissions and resilience. Integrating climate and development objectives takes place whenever a Government pursues a development option which delivers the same development benefits but is at the same time less carbon intensive and/or achieves higher resilience.

¹¹² *Official Records of the United Nations, Twenty-second Session* (FCCC/CP/2016/12).

¹¹³ Available from <http://documents.worldbank.org/curated/en/727451467992501490/The-water-global-practice-a-water-secure-world-for-all>.

¹¹⁴ *Official Records of the United Nations, Twenty-second Session* (FCCC/CP/2016/12).

¹¹⁵ Available from <http://www.un.org/sustainabledevelopment/sustainable-consumption-production/>.

¹¹⁶ *Official Records of the United Nations, Twenty-second Session* (FCCC/CP/2016/12).

Mainstreaming the response to climate change into Governments' development strategies and approaches at all levels could realize both the objectives of the Paris Agreement and the 2030 Agenda for Sustainable Development.

Also, many developing countries see the important role of South-South cooperation in achieving their development needs; with some of the developing countries directly and indirectly referencing SSC in the NDCs (see section 3.4). SSC can be leveraged to scale up sustainable solutions that address multiple challenges and realize sustainable development and climate actions.

The case studies in section 5 of this report reflect on linkages between development priorities, the SDGs and climate actions. The case studies highlight the ways in which SSC provides opportunities to cooperate on common development challenges and solutions on the basis of shared priorities, proximity and socioeconomic development pathways of countries in the South.

5. CASE STUDIES OF SOUTH-SOUTH COOPERATION APPROACHES TO SUPPORT CLIMATE ACTION

Developing countries are increasingly developing good practices in climate action and sustainable development. Many of these countries are affected by the adverse impacts of climate change and therefore have a great sense of urgency to adapt. They also recognize the significant co-benefits of low emission and climate resilient development pathways, such as energy access and energy security, enhanced health conditions, and reduced economic and social costs of the prevention of environmental degradation.

This chapter presents six case studies of South-South and triangular cooperation for priority areas identified by developing countries in their NDCs as summarized in chapter 2. The goals and outcomes are hand-in-hand with several of the SDGs and can serve as models for scaling up and replication.

5.1. Energy: Innovative triangular cooperation on renewable energy technology transfer in Ghana and Zambia

Increasing rural electrification is an area of priority for many developing countries, given their interest in providing widespread access to better welfare and economic opportunities for all people. More recently, renewable energy has become a more prominent source of energy for rural electrification in developing countries, and China has become a leader of these efforts on a large scale. China's Renewable Energy Development Project provided 400,000 rural households access to electricity powered by solar and wind power,¹¹⁷ and in 2002, the country launched the Township Electrification Program, which is one of the largest renewable energy rural electrification programmes in the world.¹¹⁸ China's rapid development in its own sector over recent decades, lessons learned and priority to engage in South-South cooperation made it possible for the country to collaborate with both Ghana and Zambia on improving their rural electrification, which is currently 40 per cent¹¹⁹ and 3 per cent,¹²⁰ respectively.

The China-Ghana-UNDP and China-Zambia-UNDP projects on Renewable Energy Technology (RET) transfer, launched in 2014, are pioneering a new triangular cooperation model by taking a holistic approach to RET transfer through creating and strengthening enabling environments for RET deployment and up-scaling, thereby removing market barriers for introduction of RETs and invigorating China's capacity for South-South cooperation. Denmark is providing full funding for both projects as part of its support for South-South cooperation to enable better and more coherent cooperation between China and countries in Africa, in particular with a view to promoting the United Nations Sustainable Energy for All initiative (SE4ALL)¹²¹.

These projects establish and strengthen regulatory frameworks for promoting RETs by building on China's experiences. The development of a Renewable Energy Master Plan in Ghana is currently in the draft phase and set to be finalized in 2017. Ghanaian experts are receiving feedback from China's experts who have been involved with China's Five Year Plan. China has worked to engage with technology companies and research institutes to support RET in Ghana and Zambia, with specific site visits in 2016 by Chinese delegations to help Government entities and local communities develop RET business models and learn

¹¹⁷ Available from <http://www.worldbank.org/en/news/feature/2011/04/06/solar-systems-for-400000-rural-households-china>.

¹¹⁸ Available from <http://www.nrel.gov/docs/fy04osti/35788.pdf>.

¹¹⁹ Available from

http://www.gh.undp.org/content/ghana/en/home/operations/projects/environment_and_energy/china-ghana-south-south-cooperation-on-renewable-energy-technolo.html.

¹²⁰ Available from <http://www.cn.undp.org/content/china/en/home/operations/projects/south-south-cooperation/overview-trilateral-cooperation-projects/china--zambia-undp-trilateral-cooperation.html>.

¹²¹ Available from <http://www.se4all.org/>.


about challenges and opportunities in this area. In addition, these collaborations are expected to have pilot projects that will focus on solar (photovoltaic, thermal, water pumping), wind, mini-hydro and biogas technologies.

In this process, China is strengthening its project management capacity and refining its approach to South-South cooperation on RET transfer by learning from Ghana's and Zambia's experiences with past RET projects. The projects involve a wide range of stakeholders from the private sector to research institutions in China, Ghana and Zambia, and create communities of practice in the sphere of renewable energy that will facilitate continued cooperation beyond the projects.

Trilateral South-South cooperation projects on climate change such as these can have significant co-benefits in many areas of sustainable development. This project emphasizes affordable energy for people living in rural communities as well as access to clean energy. Using international cooperation as the mechanism, countries are contributing to provide more energy access to communities in Ghana and Zambia, who are in great need for these services.

This project targets poor communities who have not had access to the electricity mobilization and resources that are prevalent in more urban communities. It aims to ensure that the poor have equal opportunity to economic resources and technologies that can reduce their poverty and increase their standard of living. Given the many potential uses for energy in rural communities, this project provides opportunities for farmers to use solar powered technologies for irrigation of agriculture and improve agricultural production and productivity. Small businesses in Ghana and Zambia can also operate before sunrise and after sundown, increasing opportunities to make more money, employ more people and reduce poverty in these areas.

This project provides renewable, clean energy as an alternative to biomass for cooking, which has been associated with respiratory diseases from carbon monoxide. Improved health translates into more days that children can go to school and employees can go to work, allowing for co-benefits in reducing poverty and providing decent work. Electrification of rural areas before sunrise and after sundown can translate into more time for children to study and learn, and improving educational opportunities and health can translate into better jobs and reduction of poverty. Having an alternative to biomass for lighting and cooking additionally reduces the human impact on the natural environment.

Implementing entities:	Ministry of Science and Technology of China, Energy Commission of Ghana; Ministry of Mines, Energy and Water Development of Zambia; and UNDP country offices in China, Ghana and Zambia
Scope of projects:	Approximately USD 5.3 million
Type of support provided:	Capacity-building, technology and finance
Time frame:	2014-2018
Countries involved:	China, Denmark, Ghana and Zambia
SDGs:	

5.2. Land use, land-use change and forestry: Reducing emissions from deforestation and forest degradation in Mozambique


Developing countries comprise a significant proportion of the world's forests and biodiversity, have been experiencing rapid deforestation, and are prioritizing afforestation, reforestation and forest management in order to mitigate climate change and promote sustainable development (see section 3.1.2). Brazil, which is close to 60 per cent forest as a percentage of land area and contains some of the most important biodiversity in the world in the Amazon rainforest, experienced a massive deforestation between 1990 and 2004. Through prioritizing REDD-plus, command and control measures, policies and satellite monitoring systems, the country was able to reduce their deforestation rate by 78 per cent over the past 10 years.¹²² Having several years of lessons learned experience, Brazil is sharing this knowledge with other countries, such as Mozambique, which similarly has a large expanse of forest areas and is in need of assistance with building their capacity to meet deforestation and climate change challenges.

Mozambique has a total of 40.1 million hectares of forest, and the country's communities are highly dependent on forests for their well-being; however, their forests are at a decline of .58 per cent per year. The combination of a lack of capacity to improve farming practices and a high demand to meet the needs of a growing population are causing a significant measure of deforestation in the country. This has motivated Mozambique and Brazil to engage in a South-South partnership to reduce emissions from deforestation and forest degradation and promote sustainable management of forests, and conservation and enhancement of forest carbon stocks (REDD-plus).

Learning from Brazil's experiences in this area and adapting approaches and lessons learned to local contexts and capacities, Mozambique successfully established a REDD-plus process at the national level, which resulted in a draft national REDD-plus strategy and REDD-plus readiness preparation proposal. The latter allowed Mozambique to access additional international funding for the completion of the national strategy and the implementation of a pilot project in six provinces (IIED 2012). Funded by Norway and supported by the International Institute for Environment and Development, the partnership has enabled Mozambique to embark on the implementation of REDD-plus.

The pilot project has a strong mitigation and climate change component but also has significant co-benefits in areas of sustainable development. A reforestation framework that, when implemented, allows for more trees to preserve nutrients in soils can translate into improved agricultural yields, improved nutrition and more work opportunities. Reforestation also naturally improves the quality of air and promotes better protection from respiratory diseases. In addition, the project promotes the survival of more biodiversity by protecting natural habitats and food sources for species in the region.

¹²² "High Level Forum on SSSCC Report", COP 222.

Implementing entities:	Ministry for Coordination of Environmental Affairs of Mozambique, Ministry of Agriculture through the National Directorate of Lands and Forests of Brazil, Foundation for Sustainable Amazonas
Scope of project:	Approximately USD 1.2 million
Type of support provided:	Capacity-building
Time frame:	2009-2012
Countries involved:	Brazil, Mozambique and Norway
SDGs:	

5.3. Transportation: Achieving low emission transportation in Ethiopia

Many developing countries are prioritizing greenhouse gas emissions reduction in the transportation sector and are looking towards low carbon development pathways and the inclusion of more railways as part of their transportation infrastructure (see chapter 3). Ethiopia, for example, has committed significant resources to invest in improved transportation systems (e.g. railway) that utilize clean and renewable energy, and their investments will be complemented by an urban planning transition towards mixed use, compact and polycentric cities, resulting in shorter distances travelled to reduce transport/traffic related greenhouse gas emissions. A main focus area of Ethiopia's Climate Resilient Green Economy Strategy (FDRE 2011) is to reduce emissions in the transportation sector through a shift of freight and passenger transport from road to rail.

Concurrently, China has built its capacity to engage in sizeable transportation infrastructure projects. In 2015, China Railway Group became the largest infrastructure company in the world.¹²³ China's capacity to undertake large projects, corresponding international reputation and its priority to cooperate more with Southern countries contributed to South-South cooperation with Ethiopia on sustainable transportation projects. In September 2015 and October 2016, the countries engaged in a South-South cooperation partnership for the creation of two major projects for achieving Ethiopia's Climate Resilient Green Economy Strategy, namely, the Addis Ababa Light Rail Transit (LRT) and the international railway line from Addis Ababa to Djibouti Port, respectively.


The LRT financed by the China Export-Import Bank up to 85 per cent and built by the China Railway Group in three years (Ethiopian Railway Corporation), is the first urban metro-light rail scheme to be built in a Sub-Saharan country outside of South Africa. Similarly the Ethiopia-Djibouti railway line is another of Sub-Saharan Africa's first international electrified railway. It connects landlocked Ethiopia via the 752 kilometre route from Addis Ababa to Port of Djibouti at the Red Sea. The Port of Djibouti handles about 90 per cent of Ethiopia's imports and exports. This USD 3.4 billion railway project was financed by the China Export-Import Bank, the China Development Bank and the Industrial and Commercial Bank of China and built by the China Railway Group and China Civil Engineering Construction Corporation (EPA 2016). Similar to the LRT, the railway is initially mainly operated by Chinese controllers, technicians and station managers until the training of Ethiopian and Djiboutian staff will have been completed in approximately five years (UN-OHRLS 2016).

This project has important climate change benefits, including the use of renewable

¹²³ Available from http://www.enr.com/toplists/2015_Top_150_Global_Contractors1.

energy as opposed to fossil fuels. Emission reductions from moving freight and passengers from road to rail are estimated at 9 million tons of CO₂ equivalent per year given that electricity for the railway is mainly generated through hydropower (UNFCCC 2016b). This project also has several sustainable development co-benefits.

The Ethiopia Djibouti railway line is expected to transport the same amount of freight as 200 trucks, and reduce the amount of transportation time from 3 days to 10 hours.¹²⁴ This investment in transportation allows for shorter travel times and provides a strong incentive for people within the country to choose clean transportation over polluting vehicles. The construction of this railway offers several opportunities, including training on controlling and maintaining the railway system and employment for many workers in both Ethiopia and Djibouti. This railway could lead to cleaner air quality owing to fewer trucks on the road, which is linked to better health.

Implementing entities:	Ethiopian Railways Corporation, China Railway Group, Shenzhen Metro Group
Scope of projects:	Approximately USD 3.9 billion
Type of support provided:	Finance, technology and capacity-building
Time frame:	2011-2016
Countries involved:	China, Djibouti and Ethiopia
SDGs:	

5.4. Waste: Mitigating climate change through waste reduction in Cambodia and Thailand

Developing countries have been prioritizing waste management, given the potential for waste energy and recycling of products, as well as the costs and emissions of waste disposed in landfills. In recent years, Thailand has been creating and archiving knowledge on waste management and setting new waste management goals, such as their Waste Management Roadmap. Between 1997 and 2007, Thailand engaged with Germany in a community waste management project in Phitsanulok, which led to 84 per cent of greenhouse gas emissions being reduced from the municipality’s waste sector by avoiding disposal in landfills. Thailand’s lessons learned and interest in engaging with other Southern countries led to a new partnership with Cambodia on waste reduction.

In many of Cambodia’s waste disposal sites, organic, recyclable and other wastes remain mixed together and dumped into landfills, resulting in methane emissions. With many people rapidly moving into urbanized areas, Government and local cities could have limited capacity to effectively treat the increasing accumulation of waste.¹²⁵ The city of Phitsanulok in Thailand cooperated with the city of Battambang in Cambodia on promoting urban organic waste utilization to reduce greenhouse gas emissions from the waste sector.

The Government of Japan and the Institute for Global Environmental Strategies

¹²⁴ Available from <https://www.ft.com/content/42d7af2e-d95a-11e6-944b-e7eb37a6aa8e>.

¹²⁵ Available from https://pub.iges.or.jp/system/files/publication_documents/pub/policyreport/2549/IGES2011-Promoting-OWU-Cambodia-printed.pdf.

supported the South-South knowledge transfer project between the cities of Phitsanulok and Battambang for Global Environmental Strategies. The project included the development of a directive and a system for waste reduction and separation in consultation with the municipal governments, market organizers and vendors, waste collectors, waste facility managers and residents. The project also entailed an awareness-raising campaign on the separation of compostable and non-compostable waste and the improvement of waste collection points and storage areas. The project has achieved greenhouse gas emission reductions of about 378 tons of CO₂ equivalent per year (IGES 2013).

This project provides a good example of mitigating emissions in the waste sector, which will have positive benefits on the climate. Some of the sustainable development co-benefits include increased economic activities; direct and indirect employment opportunities; and less of a negative impact on the atmosphere.

Implementing entities:	Phitsanulok city (Thailand), Battambang city (Cambodia), Institute for Global Environmental Strategies
Scope of project:	Approximately USD 20 million
Type of support provided:	Capacity-building and finance
Time frame:	2012-2013
Countries involved:	Cambodia and Thailand
SDGs:	

5.5. Agriculture: Increasing climate resilience in the Caribbean through the improved dissemination of weather and climate information


Developing countries are prioritizing food security, and climate change variability has the potential to change existing agricultural trends in various regions. The Caribbean’s increasing climate variability and the effects of climate change are making it difficult for farmers to determine when best to plant their crops, since the planting and the type of crop planted at a given time of year depends on the amount of rain expected. This impacts GDP, and some countries, such as Dominica, are already seeing a decline in GDP due to climate related impacts on crop survival (INDC Dominica).

Supported by the European Union, the Caribbean Agrometeorological Initiative (CAMI) brought together the meteorological and agricultural agencies of Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago to jointly develop and implement effective ways for delivering climate services to farmers. CAMI sought to increase and sustain agricultural productivity at the farm level in the Caribbean region through improved dissemination and application of weather and climate information using an integrated and coordinated approach. To meet this objective, the Initiative functioned as a forum for regional climate dialogue and information sharing, and it built capacity within and among the partner countries.

CAMI assisted the farming community in the Caribbean region through provision of information on the rainy season potential and development of effective pest and disease forecasting systems for improved on-farm management decisions; preparation and wide diffusion of a user-friendly weather and climate information newsletter; and the organization of regular forums with the farming community and agricultural extension

agencies to promote a better understanding of the applications of weather and climate information and to obtain feedback to provide better products from the meteorological services for use by the farming community.

This South-South cooperation project has impacts on how developing countries can adapt to climate change and also has important sustainable development co-benefits. Specifically, the use of forecasting is important for achieving food security and better nutrition, which has impacts on health and education. Given the weight of socioeconomic dependence on agriculture in these countries, food security is vital for securing the well-being of the people in the region. It is also important for poverty reduction and acts as an engine of overall economic growth in the Caribbean region (USAID 2014).

Implementing entities:	Caribbean Institute for Meteorology and Hydrology together with the national meteorological and hydro-meteorological services of Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago
Scope of projects:	Approximately USD 1.2 million
Type of support provided:	Capacity-building and finance
Time frame:	2010-2013
Countries involved:	Antigua and Barbuda, Barbados, Belize, Dominica, Grenada, Guyana, Jamaica, Saint Lucia, Saint Vincent and the Grenadines and Trinidad and Tobago
SDGs:	


5.6. Water: Fostering water security across Africa

Developing countries are highlighting water security as a priority and are focused on promoting water access and water availability in their regions. The availability of water is of paramount importance for the United Nations Environment Programme and research institutions, which prioritize developing and implementing solutions in areas that have a need for capacity and financing in water security. Under the United Nations Environment Programme (UNEP)-China-Africa Cooperation Programme on the Environment, 17 Chinese research institutes collaborated with 16 African countries on enhancing water security in the areas bordering the Nile, Lake Tanganyika and the Sahara Desert.

A total of 10 projects were implemented from 2008-2014 on enhancing the capacity for monitoring shared water resources, drought early warning systems, reusing wastewater for forest plantation, promoting rainwater harvesting, technologies for safe water supply, water quality and ecosystem monitoring and demonstration of waste water treatment technologies, and water saving techniques. The projects were implemented in two phases, and resulted in training programmes on water management for more than 200 people from Africa; demonstrations of new technologies on water quality, water treatment and water saving techniques; and education on drought early warning systems and ecosystem management. The projects were funded by China and implemented by Chinese research institutions in collaboration with their African counterparts and technical support and coordination by UNEP (UNEP 2015a).

This adaptation project is a response to several of the climate impacts that are affecting many of these countries and is helping many countries to improve their climate policymaking and planning in order to become more resilient in the face of climate impacts. In addition, there are many sustainable development co-benefits related to these projects. Many of the provisions from this project, including educational and work opportunities in water management help reduce poverty. Improving water management and early warning systems as it relates to agriculture provides more food security to countries across Africa. Better agricultural practices can also lead to good nutrition and improved quality of life.

Many of the provisions in this project are also focused on promoting clean water and sanitation, including promoting safe drinking water for all, halving the proportion of wastewater, protecting ecosystems and enhancing international cooperation for the purpose of helping developing countries to enhance their capacity to manage water systems. Ecosystem management as part of water management is important for preserving life below water. Working towards limiting pollutants entering the ecosystems will help to conserve the natural resources that aquatic life needs to survive. This project includes ecosystem monitoring in the water management framework to ensure that life on land would be conserved.

Implementing entities:	Ministry of Science and Technology of China, Chinese research institutes, African research institutes, UNEP
Scope of projects:	Unknown
Type of support provided:	Capacity-building, Technology and Finance
Time frame:	2008-2014
Countries involved:	Algeria, Burundi, China, the Democratic Republic of the Congo, Egypt, Eritrea, Ethiopia, Kenya, Mauritania, Morocco, Niger, Nigeria, Rwanda, Sudan, South Sudan, Tanzania, Uganda and Zambia
SDGs:	

5.7. Summary of the Cases

As shown by these examples, South-South cooperation and triangular cooperation provide opportunities to achieve goals in the various sectors that are of priority to the advancement of developing countries, including but not limited to energy, transport, agriculture, waste, water and land-use change with direct implications for implementing climate action and achieving the SDGs.

SSC can take place bilaterally and across continents, subsequent to a developing country sharing knowledge gained from North-South cooperation, through triangular cooperation or among many countries in the same region, as well as through many other mechanisms, such as those that were described in Chapter 2.

The examples show that SSC on climate action is based on the needs and development priorities identified by developing countries. Many developing countries, which in these examples include China, Brazil and Thailand, made statements highlighting their commitment to international cooperation.

The case studies also illustrate that developing countries' recent experience with low emissions and climate resilient development provide ample opportunities for South-South cooperation in order to not only support the implementation of climate action and NDCs but also the SDGs. In cooperating and achieving development priorities, developing countries are also implementing their NDCs with many additional co-benefits as showcased by the various examples in section 5.

6. THE WAY FORWARD

South-South cooperation (SSC) provides great opportunities for developing countries to advance sustainable development pathways, in line with the Paris Agreement on climate change, individual NDCs, and the Sustainable Development Goals of the 2030 Agenda. SSC has great potential owing to its emphasis on mutual benefits, learning from experiences to address similar challenges and respecting development priorities. These characteristics become ever more important as some developing countries are successfully adopting low carbon and climate resilient development pathways and some are experiencing similar development challenges to the implementation of NDCs and climate actions in line with the Paris Agreement.

While it is clear that developed countries need to continue to provide support to developing countries in order to implement the Paris Agreement, the Agreement highlights the need for cooperation and also encourages complementary forms of support, such as SSC. The Buenos Aires Plan of Action (BAPA) for technical cooperation among developing countries provides an incredible opportunity to scale up development efforts, enhance collaboration and embrace SSC for climate action and sustainable development. Governments and intergovernmental institutions, including the United Nations and the multilateral development banks, can play a critical role in facilitating, supporting and enhancing SSC aimed at achieving sustainable development and promoting climate actions.

Mainstream climate action into sustainable development strategies

There are strong interlinkages between climate actions communicated in NDCs and the SDGs. Climate actions to achieve low emissions and climate resilient development have direct implications for the achievement of SDGs and vice versa. At the national and subnational levels, NDCs portray that developing countries pursue the implementation of their climate policies and plans by integrating climate actions into key socioeconomic aspects of their sustainable development strategies.

Further mainstreaming the response to climate change into all aspects of the development strategies and approaches of Governments has a potential to create and further enhance the synergy between the NDCs and the SDGs. The existing linkages between climate actions and sustainable development could evolve into strategic opportunities for the partners of South-South cooperation in advancing and implementing national development strategies. Therefore, there is tremendous potential in collaboration among the global South countries for sustainable development for the purpose of achieving global objectives, both under the Paris Agreement and the 2030 Agenda for sustainable development.

Consider NDCs as an entry point for South-South cooperation on climate action and sustainable development

The NDCs exhibit that many developing countries have prioritized similar climate adaptation and mitigation goals (see section 3). Several developing countries face shared economic, technological and capacity-related challenges and constraints when implementing policies and measures towards achieving low emission and climate resilient development. These similar challenges provide opportunities for mutual learning and cooperation. The recent successful experiences of developing countries in priority development areas illustrate some of the ways these goals can be achieved (see section 5).

SSC could be a viable approach to sharing experience, knowledge and expertise between developed and developing countries with regard to climate policy development and implementation.

Foster broader partnerships, including triangular cooperation

The NDCs of many developing countries highlight the need to strengthen cooperation and partnership, with enhanced finance, technology transfer and capacity-building support to enable and scale up development action. Among others, a few developing countries in their NDCs also point to the need to identify, explore and implement further cooperation opportunities for the purpose of addressing climate change, including through enhanced SSC.

The case studies indicate that partnerships for sustainable development and climate actions are advancing and can take different forms. Some of the partnerships include developed countries and multilateral organizations, while some are between non-State actors. This proves that SSC on sustainable development and climate action can go beyond Governments; a multi-stakeholder approach could potentially enable greater cooperation among all stakeholder groups, including multilateral organizations, the private sector, academia and civil society.

Providing a platform and forum for different stakeholder groups to advance SSC with a view to fostering sustainable development and climate action could bring various stakeholders together. This will open avenues for broad cooperation towards innovative partnerships and resource mobilization beyond the resources of Governments. In this context, triangular cooperation models could be enhanced to further strengthen the inclusiveness, recognition and resource mobilization for the global South, driven by the priorities and needs of developing countries.

Enhance information dissemination on available support and showcase good examples of cooperation

Effective modalities and platforms are required for developing countries to benefit from increased experience in the area of sustainable, low emission and climate resilient development and the presence of broad range success stories of cooperation. These platforms enhance the exchange of information and experience; however, not many platforms are available for developing countries to exchange knowledge, best practices and information. This is particularly relevant as many developing countries face similar development priorities, socioeconomic constraints and implementation challenges as indicated in their NDCs (see also section 3).

Governments and partner organizations could work together at different levels in order to make crucial information available and support the creation of spaces for facilitating an exchange of experience and knowledge among various actors. It could include the gathering and compilation of available relevant information from national Governments, relevant ministries and other key stakeholders. Some case studies and reports from the United Nations¹²⁶ are making contributions in this regard.

Advance South-South and triangular cooperation initiatives with the help of United Nations entities

This NDC report also illustrates that many United Nations entities are actively engaged in facilitating and supporting South-South and triangular cooperation initiatives. The United Nations system could further enhance its role as a conveyor and facilitator of SSC in order to help developing countries overcome their shared challenges related to sustainable development pathways, including ambitious climate action goals.

As indicated in section 4, cooperation initiatives could generate momentum to ensure effective and efficient support for the implementation of developing countries' NDCs and the 2030 Agenda for Sustainable Development.

¹²⁶ Examples include “UNOSSC: Good Practices in South-South and Triangular Cooperation for Sustainable Development”; and “United Nations High-level Committee on South-South Cooperation report SSC/19/1”.

The case of the United Nations Southern Climate Partnership Incubator (SCPI) is one such example. SCPI fosters partnerships among the global South in the areas of renewable energy, climate resilience, smart cities and big data application. With the Secretary-General's leadership and as a priority to advance the progress on climate change, SCPI capitalizes on the United Nations strengths to incubate, innovate and facilitate leaderships and collaborative partnerships from the global South. Such initiatives and efforts are critical to the successful implementation of the Paris Agreement and the 2030 Agenda for Sustainable Development.

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