

CLIMATE PARTNERSHIPS FOR A SUSTAINABLE FUTURE:

**An initial overview of South-South cooperation
on climate change in the context of sustainable
development and efforts to eradicate poverty**





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FOREWORD FROM THE ENVOY OF THE SECRETARY-GENERAL ON SOUTH-SOUTH COOPERATION AND DIRECTOR OF THE UNITED NATIONS OFFICE FOR SOUTH-SOUTH COOPERATION



The challenges of fostering sustainable development and addressing climate change are interrelated and mutually reinforcing. Climate change makes delivering on the sustainable development agenda more difficult since it creates new uncertainties and raises the costs of resilience. Despite international commitment to the climate challenge, as evidenced by the early entry-into-force of the Paris Agreement, there is much work to do. In fact, the United Nations Environment Programme has

noted that even if all Parties to the Paris Agreement achieve all the commitments contained within their intended nationally determined contributions, the world will still not meet the 1.5 degree and 2 degree targets set in the Agreement. Thus, more ambitious actions are required.

Achieving the 2030 Agenda for Sustainable Development and related frameworks such as the Paris Agreement will require engagement from all stakeholders, at all levels and in all countries, leveraging their diverse and unique advantages. There is no doubt that South-South cooperation and triangular cooperation, as a complement to North-South cooperation, will be vital modalities for action.

Increasingly the countries of the South are looking to the United Nations system for support to expand and capitalize upon the potential of their successes. In response, in April 2016 the United Nations created the Southern Climate Partnership Incubator (SCPI). Launched by the Executive Office of the Secretary-General and my Office, the United Nations Office for South-South Cooperation, the SCPI is designed to foster, support, and promote South-South cooperation and triangular cooperation in climate change.

Recently, the SCPI and United Nations Framework Convention on Climate Change secretariat released a report which explored the role that South-South cooperation could play in achieving the goals of the Paris Agreement. That report indicated that many countries see South-South cooperation as an important means for sharing home grown, contextually appropriate solutions in the spirit of mutual respect and understanding.

This report is an important complement to previous findings. It is a point-in-time snapshot of the state of South-South cooperation on climate change, both within and outside the United Nations system. It has been developed to map existing initiatives, identify gaps and challenges, and chart a way forward for how the United Nations system can best support Member States implement their nationally determined contributions and achieve sustainable development. We look forward

to working with Member States and fellow United Nations entities as we explore how to respond to the conclusions contained within.

I wish to take this opportunity to acknowledge the hard work and dedication of those who contributed substantively to the development of this important report, with particular thanks to our partners at the South Centre.

It is now time for the global community to move from ambition to action. The 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 the future we want for all.

A handwritten signature in black ink, consisting of a series of loops and strokes, likely belonging to Jorge Chediek.

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

FOREWORD FROM THE EXECUTIVE DIRECTOR OF THE SOUTH CENTRE



The adoption in 2015 of the 2030 Agenda for Sustainable Development, together with its Sustainable Development Goals, the Paris Agreement under the United Nations Framework Convention on Climate Change, the Addis Ababa Action Agenda on Financing for Development, and the Sendai Framework on Disaster Risk Reduction and Management, were significant decisions taken by the global community, from both the Global North and the Global South, to try develop a more effective, integrated and coherent multilateral framework for cooperation on sustainable development in the context of the myriad

development challenges that face many countries arising from climate change, increased natural disasters, and the impacts of the global financial crisis of 2008.

As the Parties to the Paris Agreement under the UNFCCC move progressively towards defining the rules for the effective implementation of the Paris Agreement, and as the United Nations system and United Nations Member States seek to put in place more integrated and coherent approaches towards the achievement of the SDGs, the role of South-South cooperation in the context of supporting developing countries' nationally-determined actions to address climate change and achieve sustainable development becomes more important. South-South cooperation plays a key complementary role to that of North-South and triangular cooperation in ensuring that resources, skills, and capacities provided and developed to enable developing countries to achieve their sustainable development goals and implement the Paris Agreement.

It is in this context that the South Centre, the intergovernmental policy research institution of developing countries, is pleased to have partnered with the United Nations Office for South-South Cooperation (UNOSSC) in producing this report that highlights valuable examples of the impact and utility to developing countries of South-South cooperation on climate change and the support provided by United Nations agencies, regional Southern organizations, and developed countries supporting triangular and South-South cooperation. The report conveys important messages that highlight the need to strengthen, from the South, the modalities and areas in which South-South cooperation on climate change can be undertaken. At the same time, it also highlights the need to ensure that such cooperation must be consistent with the sustainable development needs and priorities of the partner countries.

The South Centre, working together with partners within the United Nations system and its Member States, other developing countries, and developed country partners, looks forward to contributing further to the research and analysis in this important area of South-South cooperation.

A handwritten signature in blue ink, appearing to read 'Khor', with a long horizontal stroke extending to the right.

Martin Khor
Executive Director
South Centre

DISCLAIMER

This report, titled “Climate Partnerships for a Sustainable Future,” is a joint publication of United Nations Office for South-South Cooperation (UNOSSC) and the South Centre (SC – www.southcentre.int). It has been commissioned by the United Nations Southern Climate Partnership Incubator (SCPI) initiative, which was jointly launched by the United Nations Executive Office of the Secretary-General (UNEOG – www.un.org/sg/en) and the UNOSSC (www.unsouthsouth.org).

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The report was prepared by a joint research team from UNOSSC and the South Centre that provided substantial research and analytical inputs that form the basis of the report. Research team members from the South Centre include Vicente Paolo Yu III, Mariama Williams, Usha Von Arx, Adriano José Timossi and Youba Sokona; research team members from the UNOSSC include Xiaohua Zhang, Teresa Liu, Michael Stewart, Ajita Singh, Liangchun Deng, and Haroldo de Oliveira Machado-Filho from the United Nations Development Programme (UNDP)-Brazil Country Office.

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ACRONYMS

AAAA	Addis Ababa Action Agenda on Financing for Development
ACPC	African Climate Policy Centre
ACTO	Amazon Cooperation Treaty Organization
ADB	Asian Development Bank
AFOLU	Agriculture, Forestry, and Other Land Use
AFDB	African Development Bank
AGN	African Group of Negotiators
AIIB	Asian Infrastructure Development Bank
ALBA	Bolivarian Alternative for the Americas
ALP	African Livelihoods Partnership
AMCEN	African Ministerial Conference on the Environment
AMICAF-SSC	Analysis and Mapping of Impacts under Climate Change for Adaptation and Food Security through South-South Cooperation
APCTT	Asia-Pacific Centre for Technology Transfer
APEC	Asia-Pacific Economic Cooperation
AU	African Union
AUC	African Union Commission
AREI	Africa Renewable Energy Initiative
ASCC	ASEAN Socio-Cultural Community
ASEAN	Association of Southeast Asian Nations
AWGCC	ASEAN Working Group on Climate Change
BAPA	Buenos Aires Plan of Action
BASIC	Brazil, South Africa, India, and China
BAU	Business-as-usual
BNDES	Brazilian Development Bank
BRICS	Brazil, Russia, India, China, and South Africa
BRT	Bus Rapid Transit
CAADP	Comprehensive Africa Agriculture Development Programme
CAF	Corporación Andina de Fomento/ Development Bank of Latin America
CAHOSCC	Committee of African Heads of State and Government on Climate Change
CAMI	Caribbean Agrometeorological Initiative
CAPSA	Centre for Alleviation of Poverty through Sustainable Agriculture
CARD	Coalition for African Rice Development
CARICOM	Caribbean Community
CCAF	Climate Change Adaptation Facility
CCCC	CARICOM Climate Change Centre

CDEMA	Caribbean Disaster and Emergency Management Agency
CDM	Clean Development Mechanism
CELAC	Comunidad de Estados Latinoamericanos y Caribeños/ Community of Latin American and Caribbean States
CEWSPIC	Climate Early Warning System in Pacific Island Countries
CICETE	China International Centre for Economic and Technical Exchanges
CO₂	Carbon Dioxide
COP	Conference of the Parties
CPLP	Community of Portuguese-speaking Countries
CREDP	Caribbean Community's Renewable Energy Development Programme
CRMI	Caribbean Risk Management Initiative
DFID	Department for International Development (UK)
ECCU	Economics of Climate Change Unit (ECLAC)
ENP	European Neighbourhood Policy Countries
ESC	Emerging and Sustainable Cities Program
FAO	Food and Agriculture Organization
FBS	Sustainable Biodiversity Fund
FFD	Financing for Development
G77	Group of 77
GCC	Gulf Cooperation Council
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHGs	Greenhouse Gases
GSTP	Global System of Trade Preferences among Developing Countries
GtCO₂	Gigatonnes of CO ₂
GW	Gigawatts
HIV	Human Immunodeficiency Virus
IBF	International Biofuels Forum
IBSA	India, Brazil, South Africa
ICLEI	ICLEI-Local Governments for Sustainability
ICSHP	International Center on Small Hydro Power
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
INBAR	International Bamboo and Rattan Organisation
INDCs	Intended Nationally Determined Contributions
IPCC	Intergovernmental Panel on Climate Change
IPCC AR5	IPCC Fifth Assessment Report
IPCC AR6	IPCC Sixth Assessment Report

IRENA	International Renewable Energy Agency
IsDB	Islamic Development Bank
ISFD	Islamic Solidarity Fund for Development
ITEC	Indian Technology and Economic Cooperation
IWRM	Integrated Water Resources Management
JICA	Japan International Cooperation Agency
KEFRI	Kenya Forestry Research Institute
KOICA	Korea International Cooperation Agency
LAC	Latin America and the Caribbean
LDCs	Least Developed Countries
LLDCs	Landlocked Developing Countries
LURA	Lighting Up Rural Africa
LR	Local Renewables
MERCOSUR	Mercado Común del Sur/Southern Common Market
MINAE	Ministry of Environment and Energy (Costa Rica)
MRV	Measurement, Reporting, and Verification
NAM	Non-Aligned Movement
NAMAs	National Appropriate Mitigation Actions
NEPAD	New Economic Partnership for African Development
NDB	New Development Bank
NDCs	Nationally Determined Contributions
ODA	Official Development Assistance (North-South)
OFID	OPEC Fund for International Development
OPEC	Organization of Petroleum Exporting Countries
PAHO	Pan American Health Organization
PCRD	Post-Conflict Reconstruction and Development
PIF	Pacific Islands Forum
PV	Photovoltaic
RCREEE	Regional Center for Renewable Energy and Energy Efficiency
REDD+	Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries
RICCAR	Regional Initiative for the Assessment of Climate Change Impact on Water Resources and Socio-Economic vulnerability in the Arab Region
RMB	Chinese Yuan
SAARC	South Asian Association for Regional Cooperation
SADC	Southern African Development Community
SARI/EI	South Asia Regional Initiative for Energy Integration
SCP	Singaporean Cooperation Programme
SCPI	Southern Climate Partnership Incubator Initiative

SDGs	Sustainable Development Goals
SE4ALL	Sustainable Energy for All
SELA	Latin America and Caribbean Economic System
SIDS	Small Island Developing States
SGP	Small Grants Program
SOPAC	Pacific Islands Applied Geo-Science Commission
SPREP	South Pacific Regional Environmental Programme
SSC	South-South Cooperation
SSCCC	South-South Cooperation on Climate Change
TFM	Technology Facilitation Mechanism
UAE	United Arab Emirates
UN	United Nations
UNASUR	Unión de Naciones Suramericanas/Union of South American Nations
UNDESA	United Nations Department of Economic and Social Affairs
UNDP	United Nations Development Programme
UNDP-GEF	UNDP Global Environmental Finance Unit
UNECA	United Nations Economic Commission for Africa
UNECLAC	United Nations Economic Commission for Latin America
UNEOG	United Nations Executive Office of the Secretary-General
UNEP	United Nations Environment Programme
UNEP-CTCN	UNEP Climate Technology Centre and Network
UNEP-IEMP	UNEP International Ecosystem Management Partnership
UNESCAP	United Nations Economic and Social Commission for Asia and the Pacific
UNESCO	United Nations Educational, Scientific, and Cultural Organization
UNESCWA	United Nations Economic and Social Commission for Western Asia
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIDO	United Nations Industrial Development Organization
UNOSSC	United Nations Office for South-South Cooperation
UNU	United Nations University
UNU-EHS	United Nations University – Institute for Environment and Human Security
UNV	United Nations Volunteers
USAID	United States Agency for International Development
USP	University of the South Pacific
UWI	University of the West Indies
WASCAL	West African Science Service Center on Climate Change and Adapted Land Use
WAEMU	West African Economic and Monetary Union
WFP	World Food Programme

WHO	World Health Organization
WHR	Waste Heat Recovery
WIPO	World Intellectual Property Organization
WISE	World Institute of Sustainable Energy

EXECUTIVE SUMMARY

The scale of the sustainable development and climate change challenges are global in nature. 2015 was a landmark year for charting a new era of sustainable development, as the result of three high-level international meetings: the Third International Conference on Financing for Development; the special summit, held at the United Nations Headquarters, where the world embraced the 2030 Agenda for Sustainable Development, which is a framework for global actions to achieve a set of 17 Sustainable Development Goals (SDGs) by the year 2030; and the twenty-first session of the Conference of the Parties (COP) to the United Nations Framework Convention on Climate Change (UNFCCC), at which the Member States adopted the Paris Agreement to accelerate and intensify actions to tackle the threat of climate change.

Tackling climate change and fostering sustainable development agendas are two mutually reinforcing sides of the same coin. Climate change exacerbates threats, as well as makes delivering on the sustainable development agenda more difficult because it reverses positive trends, creates new uncertainties and raises the costs of adaptation and building resilience.

The global nature of these challenges calls for the widest possible cooperation aimed at accelerating the reduction of global greenhouse gas emissions and adapting to the adverse impacts of climate change, in the context of sustainable development and efforts to eradicate poverty.

Scenarios projecting emissions growth indicate that there will be a substantial gap between the maximum global emissions levels that will occur and those that need to be achieved to keep to the 1.5°C and 2°C pathways under the Paris Agreement unless much greater levels of emissions reductions are undertaken. Scenarios using baseline, current policies, and intended nationally determined contributions (INDC scenarios) into 2025 and 2030, all note with grave concern the significant gap between the aggregate effect of Parties' mitigation pledges in terms of annual emissions of greenhouse gases (GHGs) by 2020 and aggregate emission pathways consistent with having a likely chance of holding the increase in global average temperature below 2 °C or 1.5 °C above pre-industrial levels. Therefore, significant mitigation efforts should be done beyond the INDCs after 2030 to address such a gap. At the same time, significant adaptation efforts at all levels would also have to be done to address the increasing adverse impacts of climate change, particularly in developing countries.

The Paris Agreement affirms the importance of cooperation at all levels, and encourages greater levels of international cooperation on climate change by laying out a plan of action that progresses over time, and recognizes the need to support developing country Parties. The Paris Agreement represents an international consensus to enhance individual and collective action to address climate change threats, including greenhouse emissions avoidance and reductions, adaptation, the provision of the means of implementation to developing countries (including fi-

nance, technology, and capacity building), information exchange, periodic reviews of the actions taken, and facilitating compliance. The Paris Agreement clearly states that it “will be implemented to reflect equity and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances,” and lays the foundation upon which future actions can be motivated and incentivized, creating a baseline from which more ambitious actions must flow.

Traditional North-South development cooperation models will not be sufficient on their own for countries to achieve the bold ambition of either the Paris Agreement or the Sustainable Development Goals (SDGs). A more diverse landscape for international cooperation is required that can bring together new partners and new approaches to complement long-standing North-South international development cooperation.

South-South cooperation complements traditional North-South development cooperation in areas like climate change, helping to broaden the range and scope of the development partnerships through which developing countries can pursue their national sustainable development priorities and objectives. The recent evolution of South-South cooperation, and the rising prominence of such cooperation on climate change, provides important lessons about its role in enhancing ownership and strengthening the capacity of developing countries in their national development efforts as well as in working with each other in mutually supportive and beneficial ways.

South-South cooperation is a means by which developing countries can voluntarily assist each other undertake climate change actions, in the context of sustainable development and poverty reduction. In addition to multilateral coordination and cooperation in the UNFCCC negotiations, many developing countries have been active in South-South cooperation activities over the past decades as part of their respective foreign and economic policy and diplomacy frameworks. In recent years, some developing countries have incorporated cooperation with other developing countries in addressing climate change impacts and challenges into their South-South portfolios. In addition to growing political momentum, trends in climate change related collaboration through South-South cooperation reflect a movement towards increased climate cooperation on the ground.

South-South cooperation has been shown to be an effective mechanism through which the international community can tackle the emerging challenges brought about by climate change in developing countries. South-South cooperation on climate change (SSCCC) provides a new connectivity to the developing world, a new store of knowledge, and a new policy imperative to address climate change. SSCCC has risen to prominence particularly since the adoption of the 2030 Agenda for Sustainable Development and the Paris Agreement under the UNFCCC. These instruments have led to concrete commitments by individual countries to promote climate cooperation with the objective of achieving sustainable development. The 2030 Agenda for Sustainable Development stresses the importance of South-South cooperation in the implementation and achievement of the Sustainable Develop-

ment Goals. Goal 17, in particular, puts emphasis on the importance of the role of South-South and triangular cooperation.

The current report provides an overview of the various initiatives relating to SS-CCC that have been undertaken by various developing countries in recent years, including triangular cooperation. This overview is intended to provide an illustrative description of the ways in which SSCCC initiatives are being undertaken by and in developing countries and the ways that SSCCC (including initiatives supported by the United Nations system and other multilateral organizations, as well as developed countries) can be used to support the implementation of the Paris Agreement under the UNFCCC, in the context of the achievement by developing countries of the Sustainable Development Goals (SDGs) under the 2030 Agenda for Sustainable Development in the light of climate impacts and their continuing development challenges.

In presenting examples of enhanced cooperation on SSCCC, this report addresses current trends of thematic areas, modalities of action and types of activities.

- ▶ Thematic areas may be related to both mitigation (energy systems; agriculture, forestry, and other land use; urban systems and other settlements; buildings; transport; industry) and risks, adaptation and sustainability for systems impacted by climate change (terrestrial and freshwater ecosystems and their services; ocean and coastal ecosystems and their services; water; food, fibers, and other ecosystems products; cities, settlements and key infrastructure; health, wellbeing and the changing structure of communities; and poverty, livelihoods and sustainable development), as well as cross-sectoral activities that address multiple areas.
- ▶ South-South cooperation on climate change occurs through a wide arrangement of modalities, which increase the impact of climate development actions: bilateral; triangular; trilateral, including UN-facilitated; regional, including international development bank-facilitated; as well as multilateral or globally-focused.
- ▶ South-South cooperation on climate change tends to be focused on the following types of activities: capacity building/technical support; provision of financial support; technology development and transfer; infrastructure development; and support for institution building.

SSCCC activities that offer the greatest potential are those that enhance the ability of developing countries to develop their nationally determined contributions (NDCs) and implement climate action in line with national development priorities, and which encourage direct cooperation among countries through national, regional or multilateral institutions. These activities will have to be diverse. As practically applied to the development of NDCs, effective South-South cooperation could include supporting the creation of a broad community of national-level developing country expertise through cross-country exchanges in relation to the preparation of, readiness for, and implementation of NDCs. This would include looking at

ways to help build or strengthen national and regional institutions that can support the strategic and sustainable development-oriented integration of NDCs (including mitigation and adaptation components) into national long-term development plans and programmes. Such a mechanism would allow NDCs to be developed and implemented in a manner that becomes country-owned, nationally appropriate and nationally determined, and consistent and coherent with the country's national development objectives, poverty eradication, and industrialization policies and strategies.

An increasing number of developing countries are undertaking traditional and innovative modalities of South-South cooperation, as a way to extend such cooperation to mutually addressing global challenges such as climate change. From the limited sampling of initiatives of SSCCC that have been covered in this report, it is evident that Southern partners view their cooperation with each other on climate change issues to be a valuable means of sharing their experiences and of learning from each other, based on mutual trust, partnership, and understanding, and consciously avoiding having a donor-recipient relationship.

However, clear and comparable information about the level of implementation of South-South cooperation initiatives continues to be difficult to obtain. Though it is difficult to obtain a comprehensive overview view because there is little uniformity in the information available from different agencies and Member States, the cases researched for the preparation of this report show that developing countries have emerged as international players in the climate sector.

South-South cooperation on climate change can serve as a framework for enhancing South-South cooperation in other areas of concern to developing countries that are closely linked to climate change. These areas include the management of shared water resources; the prevention or reduction of floods, siltation, and erosion; the management of irrigation systems; the generation and use of various forms of energy, particularly from new and renewable sources; in regional seas or coastal areas, the management of exclusive economic zones, offshore oil exploration, and pollution control; the management of tropical forests; the prevention of desertification; the conservation of wildlife, genetic resources, and generally of ecosystems; the financing of climate change actions; and the development, innovation, diffusion, use and transfer of climate change-related technologies. All of these areas are closely linked to climate change actions that call for close South-South cooperation within groups of developing countries.

The scope of South-South cooperation on climate change has significantly expanded, but additional efforts are needed to promote political momentum and enhanced partnerships on climate action. The success of South-South cooperation initiatives depends on high-level political support for, and commitment to, such cooperation among the partners involved. South-South cooperation mechanisms and institutional arrangements need to be further enhanced and improved. One of the shortcomings of South-South cooperation, both in the past and currently, continues to be relatively weak organizational and institutionalized technical support, both at the international level and within most countries. In many cases, the national and intergovernmental institutions of the Global South that have been set up to

advance South-South cooperation either lack or continue to require greater levels of institutional capacity and financial resources. However, this situation is now rapidly changing with the rise of new Southern-led institutions and the strengthening of existing ones; the establishment of national agencies to undertake South-South cooperation; and a more pronounced priority placed by the United Nations system and its specialized agencies on supporting South-South cooperation, including on climate change.

South-South cooperation has become more fully and explicitly incorporated into the operational programmes of United Nations bodies and agencies, although a stronger coordinating and consultative mechanism to support South-South cooperation is needed. Given the importance of the Paris Agreement under the UNFCCC, the 2030 Agenda for Sustainable Development, and the Addis Ababa Action Agenda on Financing for Development (AAAA) as key policy documents that will shape United Nations agency activities, programmes and projects towards 2030, it is important that this integration of South-South cooperation occurs, consistent with various General Assembly resolutions and the decisions of the United Nations High-level Committee on South-South Cooperation, as well as that a stronger coordinating and consultative mechanism to support such cooperation be established. This is particularly important with respect to United Nations agencies undertaking activities and programmes that support South-South cooperation on climate change, in order to ensure that such activities and programmes are consistent with the priorities of the South-South cooperation partners. Additionally, the mainstreaming of South-South cooperation, in particular on climate change, in the United Nations system should include enhanced modalities for reporting and capturing both qualitative and quantitative indicators of the support provided by the United Nations system to developing countries' South-South cooperation initiatives.

In order to sustain the current momentum on climate cooperation and scale up the impact, the international community should support developing countries to find ways to make South-South climate cooperation inclusive. Apart from the current South-South climate cooperation actors, other Member States, regional actors, and the private sector are critical for the development of inclusive climate development strategies. Moreover, it is crucial to involve those who will be disproportionately impacted by the adverse impacts of climate change, particularly vulnerable populations in the least developed countries (LDCs), landlocked developing countries (LLDCs), small island developing States (SIDS), and other developing countries. The promise of the 2030 Agenda is that no one should be left behind; this promise should also apply to combating the threat of climate change.

The current report aims to present a common-sense, pragmatic and flexible approach with which to enable the future incorporation of additional lessons learned and best practices of SSCCC. Thus, an online tool is available on the UNOSSC website, in which Member States and international organizations are welcome to record current activities related to SSCCC, which will serve as inputs for future reports.

I. INTRODUCTION

In April 2016, the United Nations Secretary-General launched the Southern Climate Partnership Incubator (SCPI) initiative. This initiative was implemented by the United Nations Office for South-South Cooperation (UNOSSC) in cooperation with other United Nations agencies. The work of the SCPI includes the preparation of a global landscaping report on South-South cooperation on climate change (SSCCC).

The objective of this report is to provide an overview of the multitude of initiatives relating to SSCCC that are being undertaken by various developing countries, as well as those that are supported by the United Nations system.

This overview is intended to provide an illustrative description of the ways in which SSCCC initiatives are being undertaken by and in developing countries and how those activities (including those supported by the United Nations system) can be used to support the implementation of the Paris Agreement under the UNFCCC, in the context of the achievement by developing countries of the 2030 Agenda for Sustainable Development, in the light of climate impacts and their continuing development challenges.

The report is structured as follows: after this Introduction, Section II looks at the global context in which SSCCC is taking place, in particular the pace and trajectory of climate change and the global conditions that may affect the conduct of SSCCC by developing countries, and the support for SSCCC provided by the United Nations system. Section III looks at thematic areas of SSCCC. Section IV seeks to identify the common modalities or approaches of SSCCC. Section V presents the main types of activities that may be determined from such initiatives. Section VI presents the main findings of this report and the way forward.

Examples of SSCCC initiatives undertaken by developing countries themselves are presented throughout Sections III, IV and V. Table 1 below introduces the thematic areas, modalities of action and types of activities on SSCCC that informs the structure of Sections III, IV and V.

Table 1 - Thematic areas, modalities of action and types of activities of South-South cooperation on climate change

Thematic areas		Modalities of action	Types of activities
Mitigation	Risks, adaptation and sustainability for systems impacted by climate change		
<ul style="list-style-type: none"> ▶ Energy systems ▶ Agriculture, forestry, and other land use (AFOLU) ▶ Urban systems and other settlements ▶ Buildings ▶ Transport ▶ Industry ▶ Cross-sectoral 	<ul style="list-style-type: none"> ▶ Terrestrial and fresh-water ecosystems and their services ▶ Ocean and coastal ecosystems and their services ▶ Water ▶ Food, fibre, and other ecosystems products ▶ Cities, settlements and key infrastructure ▶ Health, wellbeing and the changing structure of communities ▶ Poverty, livelihoods and sustainable development ▶ Cross-sectoral 	<ul style="list-style-type: none"> ▶ Bilateral ▶ Trilateral ▶ Triangular (including United Nations facilitated) ▶ Regional ▶ Multilateral or globally-focused 	<ul style="list-style-type: none"> ▶ Capacity building/ Technical cooperation ▶ Financial support ▶ Technology development and transfer ▶ Infrastructure development ▶ Support for institution building

The information in this table is intended to be illustrative, rather than exhaustive. Moreover, the application of the framework proposed in this table does not limit the range of interconnections that can be identified within the examples covered in this report. Thematic areas, modalities of action and types of activities are not isolated compartments, but rather interconnected, and there are certainly overlaps among examples of SSCCC. For instance, an example within transport (one of the thematic areas) can be a trilateral cooperation of technology development and transfer, while a case presented as regional can involve capacity building on biofuels, which is also related to agriculture, forestry and other land use.

Methodology

Report Development Process

This report was developed iteratively over the space of 12 months. The iterative process included a thorough review of available literature, consultations with various United Nations Member States and selected United Nations entities, and a survey questionnaire answered by some United Nations entities. The authors believe that this report presents a comprehensive but by no means exhaustive overview of current South-South and triangular initiatives related to climate change.

Selection of Member States for Country Case Studies

At the beginning of the report development process, a small number of Member

States were selected as a primary focus for country case studies, due to acknowledged time and resource limitations. These Member States were selected based on their current high profile role in supporting and undertaking South-South and triangular cooperation on climate change due to their expertise and known financial and non-financial resources; the selection process also took regional balance into account. The Member States selected were: Brazil; China; India; Indonesia; Qatar; Saudi Arabia; Singapore; South Africa; and the United Arab Emirates.

The sampling of SSCCC activities and programmes undertaken by these selected Member States, as outlined in this report, should be considered as illustrative of the range and diversity of activities that developing countries are undertaking in relation to South-South cooperation on climate change. It is acknowledged that there are certainly a multitude of other activities being undertaken in developing countries that have not been included in this report.

Comprehensive notes on the SSCCC activities of the various Member States sampled are included as an online annex to this report.

Initial Literature Review

An initial review of literature was conducted in late 2016. This involved reviewing and identifying literature from websites of various Member States, United Nations entities, and other key stakeholders such as intergovernmental organizations and development banks. Reports were reviewed to extract information and case studies. This review formed the basis for the initial draft of the report.

Consultations with Member States

Invitations were sent to representatives from identified various Member States to contribute to the report. Member States were invited to submit information regarding their South-South cooperation on climate change activities. Member States were also offered the opportunity to review and validate the drafted sections of the report. In-person consultations with Member State representatives were held during UNFCCC COP 22 in November 2016, and in Geneva in May 2017.

Consultations with United Nations Entities

The report team developed a survey that was distributed to selected United Nations entities in August 2016 requesting information regarding their activities in South-South and triangular cooperation on climate change. In-person consultations were held with representatives during UNFCCC COP 22 in November 2016 and in Geneva in May 2017. Entities were given the opportunity to review and validate sections of the report.

A copy of the distributed survey is included as an online annex to this report.

Collection of Case Studies

Once consultations had been concluded, a secondary literature review was conducted to gather additional case study examples. This review was aimed at complementing the information already gathered by widening the search for literature beyond the selected Member States and selected United Nations entities. Websites of Member States, United Nations entities, intergovernmental organizations including development banks, research institutes, and other stakeholders were searched for reports, policy papers, and other relevant literature. More than 200 unique case

studies were identified through this process. Some of the case studies are presented in different sections of this report, but the complete list is included as an online annex to this report.

Acknowledged Limitations

There are a number of acknowledged limitations to the methodology. Therefore, the sampling of cases outlined in this report should be considered as illustrative of the range and diversity of activities that developing countries are undertaking in relation to South-South cooperation on climate change, but by no means exhaustive.

Acknowledged limitations:

- ▶ *Selection of Member States and United Nations entities:* as noted above, due to time and resource limitations it was decided to focus on a small group of selected Member States and selected United Nations entities.
- ▶ *Availability of literature:* the report team was predominately only able to access information about activities, cases, and programmes that was publicly available online. Whilst selected Member States and select United Nations entities had an opportunity to review and provide input into sections, others did not. This report, therefore, only includes information on cases that have been published. In addition, the review of the literature was restricted to publications written in English.
- ▶ *Publication bias:* it is acknowledged that it is more likely that successful activities, cases, and programmes will be reported on and highlighted. It is possible that there are additional activities, cases, and programmes that are being undertaken but have not been reported on, and which therefore do not appear in this report.
- ▶ *Research strategy:* this report is not intended to be a systematic review. Whilst the research team did attempt to be systematic and identify as many relevant reports and papers as possible, it is acknowledged that there will be activities, cases, and programmes that have been left out.
- ▶ *Identification of cases:* during the literature review stage it became evident that a number of activities, cases, and programmes were related to climate change adaptation and/or mitigation but had not been classified as climate change projects – for example, activities related to increased access to anti-malarial medications. It is likely that additional similar climate change-related cases exist but were not found during the literature search.

In spite of the acknowledged limitations, this report aims to present a common, pragmatic and flexible approach to enable the future incorporation of additional lessons learned and best practices of SSCCC.

II. GLOBAL CONTEXT FOR SOUTH-SOUTH COOPERATION ON CLIMATE CHANGE, IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT AND POVERTY ERADICATION

A. Global Sustainable Development Landscape and Climate Change Impacts

Climate change, as a change of climate attributed directly or indirectly to human activity due to the release of GHGs into the atmosphere, has long been recognized as a global issue that needs to be addressed at the global level through multilateral policy solutions. This is the underlying rationale for the negotiation and adoption of the UNFCCC in the early 1990s, which was subsequently expanded to its related instruments (such as the Kyoto Protocol and the Paris Agreement; see Box 1).

More recently, 2015 was a landmark year for charting a new era of sustainable development, as the result of three high-level international meetings. The first was the Third International Conference on Financing for Development, held in Addis Ababa in July, where an Action Agenda¹ was adopted, with the aim of providing a foundation for a revitalized global partnership. The second was the special summit, held at United Nations Headquarters in New York in September, where the world embraced the new and universal 2030 Agenda for Sustainable Development² to serve as the framework for global actions to achieve a set of 17 sustainable development goals (SDGs) by the year 2030. The third was the twenty-first session of the Conference of the Parties (COP) to the UNFCCC, held in Paris in December, at which Member States adopted a new agreement to accelerate and intensify actions to tackle the threat of climate change.

These international meetings highlighted the idea that tackling climate change and fostering sustainable development are two mutually reinforcing sides of the same coin. Climate change exacerbates threats, and makes delivering on the sustainable development agenda more difficult because it reverses positive trends, creates new uncertainties, and raises the costs of adaptation and building resilience.³

The global nature of these challenges calls for the widest possible cooperation aimed at accelerating the reduction of global greenhouse gas emissions and addressing adaptation to the adverse impacts of climate change, within the wider context of sustainable development and efforts to eradicate poverty.

International, regional, and national cooperation, including South-South cooperation, will be key towards ensuring that sustainable development is achieved, particularly in developing countries, while also effectively addressing climate change causes and effects. The role of such cooperation will be crucial in ensuring that de-

¹ United Nations General Assembly, Resolution 69/313 (A/Res/69/313), Annex, Addis Ababa Action Agenda of the Third International Conference on Financing for Development (Addis Ababa Action Agenda).

² United Nations General Assembly, Resolution 70/1 (A/Res/70/1), Transforming our world: the 2030 Agenda for Sustainable Development.

³ United Nations General Assembly (A/69/700), "The Road to Dignity by 2030: Ending Poverty, Transforming All Lives and Protecting the Planet: Synthesis Report of the Secretary-General on the post-2015 Agenda", paragraph 21.

veloping countries are supported and assisted in strengthening their capacity to undertake climate-adapted sustainable development pathways consistent with their national development strategies and objectives. As the United Nations noted: “[w]hile the 2030 Agenda for Sustainable Development respects the mechanisms by which countries make their own policy choices, it also recognizes the importance of development cooperation, especially within the context of countries with special needs.”⁴

International, regional, and national cooperation, including South-South cooperation, on climate change that is linked to the achievement of sustainable devel-

BOX 1 - Multilateral Climate Change Policy Regime⁶

The UNFCCC entered into force on 21 March 1994, as the framework for international cooperation to combat climate change. Today, it has near-universal membership, given that 197 countries have ratified the Convention.

The ultimate objective of the Convention is to stabilize greenhouse gas concentrations “at a level that would prevent dangerous anthropogenic (human induced) interference with the climate system.” It states that “such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened, and to enable economic development to proceed in a sustainable manner.”

The UNFCCC recognizes that the historical responsibility for greenhouse gas emissions rests in large part with developed countries, that per capita emissions in developing countries are still relatively low, and that the share of global emissions originating in developing countries will grow to meet their social and development needs.⁷ The UNFCCC then accepts that developed countries take the leadership both in their own mitigation actions⁸ and in assisting developing countries to take their climate actions, through the provision of finance and technology.⁹ The UNFCCC also recognizes that developing countries have development imperatives,¹⁰ which they must pursue as a priority.¹¹ Their ability to undertake climate action depends on the extent of support they receive from the developed countries.¹²

This framing of the common but differentiated responsibilities of developed and developing countries with respect to climate change and their respective commitments under the UNFCCC and its related instruments (such as the Kyoto Protocol and the Paris Agreement) are particularly important because it provides the legal and policy architecture for the multilateral climate change policy regime.

By 1995, countries launched negotiations to strengthen the global response to climate change, and, two years later, adopted the Kyoto Protocol, which has been ratified by 192 Parties. The Kyoto Protocol legally binds developed country Parties to emission reduction targets. The Protocol's first commitment period started in 2008 and ended in 2012. The second commitment period began on 1 January 2013 and will end in 2020.

The 2015 Paris Agreement, adopted in Paris on 12 December 2015, marks the latest step in the evolution of the United Nations climate change regime and builds on the work undertaken under the Convention. The Paris Agreement, which has been ratified by 166 Parties of the 197 Parties of the Convention, establishes a new course in the global effort to combat climate change.

The Paris Agreement seeks to accelerate and intensify the actions and investment needed for a sustainable low carbon future. Its central aim is to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. The Agreement also aims to strengthen the ability of countries to deal with the impacts of climate change.

opment goals is even more crucial when situated in a context in which developing countries over the medium-term face greater levels of economic challenges and uncertainties arising from the global economic situation. The impact of the 2008-2009 global financial crisis, and the impact of the policy responses undertaken by developed countries to address the crisis, have resulted in external economic and fiscal shocks to most developing countries.

The world economy has not been able to fully recover from the financial crisis that began almost a decade ago. Global income growth barely exceeds the lows recorded during the depth of the crisis in 2009, and remains well below the levels attained before the crisis. Despite rapid financial expansion in the past ten years, investment in productive capacity has been weak and productivity growth has slowed down, depressing potential output and growth almost everywhere.⁵ At the same time, as the global economy continues to be in a weak and uncertain condition, the adverse impacts of climate change are accelerating. It is acknowledged that developing countries will be amongst the first and most negatively impacted.

The year 2015 saw global CO₂ emissions level off compared to 2014, as the growth rate of CO₂ emissions fell “from 2.0 per cent in 2013 to 1.1 per cent in 2014.”¹³ The rate of increase of global CO₂ emissions in the period 2012 to 2014 at around 1.3 per cent annually is lower than that during the period 2000 to 2011 (average of 2.9 per cent) but was still higher than the average growth rate annual of around 1 per cent in the 1990s.¹⁴

Both the baseline and current policy trajectory scenarios looked at by UNEP in its 2016 Emissions Gap Report project the continued growth of global emissions in 2025 and 2030. Scenarios that assume the implementation of the intended nationally determined contributions (INDCs)¹⁵ that were put forward by UNFCCC Parties in

4 United Nations Department of Economic and Social Affairs, World Economic and Social Survey 2016, p. 17, at http://www.un.org/en/development/desa/policy/wess/wess_archive/wess2016/WESS_2016_Report.pdf.

5 As the United Nations Department of Economic and Social Affairs noted recently, “The global economy remains trapped in a prolonged period of slow economic growth and dwindling international trade growth ... The prolonged sluggishness in the global economy has been characterized by a widespread slowdown of productivity growth in many parts of the world, weak investment, low wage growth, low inflation and rising debt levels. Low commodity prices have exacerbated these trends in many commodity-exporting countries since mid-2014, while conflict and geopolitical tensions continue to weigh on economic prospects in several regions. While some of the exceptional factors that restrained global growth in 2016 — such as the destocking cycle in the United States and adjustment to the sharp terms-of-trade shock faced by commodity-exporters — can be expected to ease, the longer-term pressures restraining the global economy continue to prevent more robust growth”. See United Nations DESA, World Economic Situation and Prospects 2017, p. 1, at https://www.un.org/development/desa/dpad/wp-content/uploads/sites/45/publication/2017wesp_full_en.pdf.

6 See “Key Steps” at <http://unfccc.int/2860.php>.

7 UNFCCC, 3rd preambular paragraph. Depending on the calculation methodology used, today’s developed countries have released anywhere from more than half to almost four-fifths of cumulative anthropogenic greenhouse gas emissions from 1850 to the current period. See e.g. World Resources Institute, Navigating the Numbers (Chapter 6 – Cumulative Emissions), at http://pdf.wri.org/navigating_numbers_chapter6.pdf.

8 See UNFCCC, 17th preambular paragraph; Art. 3(1); Art. 4(2)(a).

9 See UNFCCC, Art. 4(3) to (5) and 4(7) to (9).

10 See UNFCCC, 20th and 21st preambular paragraphs; Art 3(4) and (5).

11 See UNFCCC, Art. 4(7).

12 See UNFCCC, 21st preambular paragraph; Art. 4(7).

13 UNEP, The Emissions Gap Report 2016, p. 4, at <http://www.unep.org/emissionsgap/resources>.

14 Id.

2015 also indicate a continued slight growth of global emissions compared to 2014 levels.¹⁶ Assuming that “the level of climate mitigation effort implied by the actions to achieve INDCs by 2030 is continued after 2030, until the end of the century ... the full implementation of the unconditional INDCs is consistent with staying below an increase in temperature of 3.2 degrees C (median, range: 2.9–3.4 degrees C) by 2100 relative to pre-industrial levels with greater than 66 per cent probability.”¹⁷

Thus, scenarios projecting emissions growth (using baseline, current policies, INDC scenarios) into 2025 and 2030 all indicate that there would be a substantial gap between the maximum global emissions levels that need to be achieved to keep to the 1.5 degree C and 2 degree C pathways¹⁸ under the Paris Agreement¹⁹, unless much greater levels of emissions reductions are undertaken beyond the INDCs after 2030.

It is well recognized that climate change will disproportionately impact those countries in the global South, particularly vulnerable populations in the LDCs, LLDCs, and SIDS.²⁰ Climate change scenarios generally predict increasing geophysical changes such as high surface and ocean temperatures, global sea level rise, and increased ocean acidification over the course of the twenty-first century, together with increased or more intense extreme weather events, with the most severe effects being felt in tropical areas where most developing countries are located.²¹ These changes “are likely to cause an increase in poverty incidence and inequalities by slowing down economic growth and exacerbating food insecurity, health problems and heat stress; and to result in surface-water scarcity and increased exposure to storms and precipitation extremes, coastal flooding, landslides, air pollution and droughts. They may also induce displacement of people and involuntary migration, among other hardships.”²² As a United Nations report notes, “countries at the highest risk of climate change are concentrated in Africa and South and South-East Asia, where the capacity to prevent (or even cope with) most negative impacts is poor.”²³ Additionally, poorer countries suffer greater economic losses – for example damage to property, crops, or livestock – relative to their respective national income levels due to the distribution of risks and level of development.²⁴

Global and national measures to mitigate climate change through the reduction

¹⁵ The COP, in its decision 1/CP.20 “Lima Call for Climate Action,” reiterated its invitation to each Party to communicate to the Secretariat of the UNFCCC its intended nationally determined contribution towards achieving the objective of the Convention as set out in its Article 2, prior to the twenty-first session of the Conference of the Parties. According to Article 4 paragraph 2 of the Paris Agreement, each Party shall prepare, communicate and maintain successive NDCs that it intends to achieve. Parties shall pursue domestic mitigation measures, with the aim of achieving the objectives of such contributions. Furthermore, in accordance with Article 4 paragraph 12 of the Agreement, NDCs communicated by Parties shall be recorded in a public registry maintained by the Secretariat. Once countries formally join the Paris Agreement, their INDCs are considered NDCs for the purpose of the Paris Agreement.

¹⁶ UNEP, *The Emissions Gap Report 2016*, Table 3.3, p. 14.

¹⁷ *Id.*, p. 16.

¹⁸ The 1.5 and 2C pathways would be those that would be consistent with Art. 2.1 of the Paris Agreement.

¹⁹ See UNEP, *The Emissions Gap Report 2016*, Table 3.3, p. 14.

²⁰ See Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC,) in particular the Contribution of Working Group II on Impacts, Adaptation and Vulnerability, at http://www.ipcc.ch/publications_and_data/ar4/wg2/en/contents.html.

²¹ See e.g. United Nations Department of Economic and Social Affairs, *World Economic and Social Survey 2016*, p. 6, at http://www.un.org/en/development/desa/policy/wess/wess_archive/wess2016/WESS_2016_Report.pdf.

²² *Id.*

²³ *Id.*, p. 7 and Figure I.2.

²⁴ *Id.*

and avoidance of greenhouse gas emissions, as well as measures to adapt to the adverse effects of climate change, are therefore necessary. These have to be undertaken together, particularly by developing countries, as integral components of the entire package of broader development policy measures that need to be implemented in order to eradicate poverty, reduce income inequality, and improve standards of living. The adverse impacts of climate change will undermine the ability of all countries to achieve sustainable development. Climate change, left unchecked, will roll back the development gains made over the last decades and will make further gains impossible. This challenge of strategic policy integration is at the core of advancing sustainable development at the national level and achieving globally the Sustainable Development Goals (SDGs) of the 2030 Agenda.

B. International and South-South Cooperation in the Context of Sustainable Development

The emergence of SSC can be traced to the 1955 Bandung Conference where 25 newly independent African and Asian nations met to foster their political and economic cooperation. This evolved into the Non-Aligned Movement (NAM) in 1961, enabling developing countries to maintain a neutral stance during the Cold War. However, it was the Buenos Aires Plan of Action for promoting and implementing technical cooperation among developing countries, adopted in 1978, which effectively set the tone for the emergence of SSC as an instrument for fostering development and as a complement to traditional North–South development cooperation, or Official Development Assistance (ODA).²⁵

The need for strategic and united collective action on the part of developing countries in the international arena has long been recognized. From the Buenos Aires Plan of Action on South-South Cooperation almost forty years ago to the reaffirmation of the principles of South-South cooperation by the Group of 77 and China in September 2009, South-South cooperation is an essential element in the South's development process and in multilateral North-South dialogue and global governance.

South-South cooperation will likely increasingly become an essential element of how developing countries cooperate to support each other's development.²⁶ Its principles and concepts serve as important benchmarks for shaping not only South-South but also, to some extent, North-South relations at the global, regional, and national levels. These will also shape the ways in which the countries of the South achieve their respective development goals and objectives

The South has articulated the basic framework and principles for South-South cooperation. For example, the Havana Programme of Action²⁷, the Marrakech

²⁵ See Unez, Ibere, "Impact of South-South Cooperation in achieving the Millennium Development Goals (MDGs) in Low-Income Countries," p.3. Available at: https://ec.europa.eu/europeaid/sites/devco/files/erd5-background-paper-ssc-impact-2015_en.pdf.

²⁶ For example, UNESCO pointed out that the regional economic communities of the South "have become a conduit for South-South cooperation in science, technology and innovation." See UNESCO, "Regional economic communities a conduit for South-South cooperation in science", at http://www.unesco.org/new/en/media-services/single-view/news/regional_economic_communities_a_conduit_for_southsouth_co/. See also UNESCO, Science Report: Towards 2030 (2015), at <http://unesdoc.unesco.org/images/0023/002354/235406e.pdf>.

²⁷ See G77 South Summit 2000, Havana Programme of Action, at http://www.g77.org/summit/ProgrammeofAction_G77Summit.htm.

Box 2 South-South Cooperation Principles Adopted by the G77 and China

- a. South-South cooperation is a common endeavour of peoples and countries of the South and must be pursued as an expression of South-South solidarity and a strategy for economic independence and self-reliance of the South based on their common objectives and solidarity;
- b. South-South cooperation and its agenda must be driven by the countries of the South;
- c. South-South cooperation must not be seen as a replacement for North-South cooperation. Strengthening South-South cooperation must not be a measure of coping with the receding interest of the developed world in assisting developing countries;
- d. Cooperation between countries of the South must not be analysed and evaluated using the same standards as those used for North-South relations;
- e. Financial contributions from other developing countries should not be seen as Official Development Assistance from these countries to other countries of the South. These are merely expressions of solidarity and cooperation borne out of shared experiences and sympathies;
- f. South-South cooperation is a development agenda based on premises, conditions and objectives that are specific to the historic and political context of developing countries and to their needs and expectations. South-South cooperation deserves its own separate and independent promotion;
- g. South-South cooperation is based on a strong, genuine, broad-based partnership and solidarity;
- h. South-South cooperation is based on complete equality, mutual respect and mutual benefit;
- i. South-South cooperation respects national sovereignty in the context of shared responsibility;
- j. South-South cooperation strives for strengthened multilateralism in the promotion of an action-oriented approach to development challenges;
- k. South-South cooperation promotes the exchange of best practices and support among developing countries in the common pursuit of their broad development objectives (encompassing all aspects of international relations and not just in the traditional economic and technical areas);
- l. South-South cooperation is based on the collective self-reliance of developing countries;
- m. South-South cooperation seeks to enable developing countries to play a more active role in international policy and decision-making processes, in support of their efforts to achieve sustainable development;
- n. The modalities and mechanisms for promoting South-South cooperation are based on bilateral, sub-regional, regional and interregional cooperation and integration as well as multilateral cooperation.

Framework of Implementation of South-South Cooperation²⁸ and the Doha Plan of Action²⁹ taken together represent a comprehensive framework for intensified co-operation among developing countries. The principles for South-South cooperation

were adopted by the foreign ministers of the Group of 77 and China in September 2008 and supported by the Heads of State and Government of the XVth Summit of the Non-Aligned Movement in July 2009.³⁰ (see Box 2)

As can be seen from these principles of South-South cooperation as adopted by the Group of 77 and China, at the core of South-South cooperation is the belief that achieving development is the South's own responsibility, and that such development can only be achieved under conditions of fundamental equity, social progress, respect for sovereignty, and equal economic and political relationships with developed countries. It lays the foundation for effective and productive engagement by the countries of the South with each other and with developed countries, and for ensuring that developing countries' development needs and objectives are placed at the heart of multilateral policy discourse and governance.

South-South cooperation is therefore seen by developing countries as being conceptually different from traditional North-South Official Development Assistance (ODA). Developing countries have continually stressed that South-South cooperation is a complement to, and not a substitute for, North-South development cooperation. It differs from ODA in that it is characterized as a "partnership among equals, based on solidarity" and is guided by the principles of respect for national sovereignty and ownership, free of any conditionality.³¹ It aims to utilize capacities and experience available in developing countries.

There have been initiatives in the United Nations system in support of the strengthening of South-South cooperation, leading to operational definitions about South-South cooperation that are used within the United Nations system. Nevertheless, it is worth pointing out that there is no standardized definition of South-South cooperation.

According to the United Nations Office for South-South Cooperation (UNOSSC) South-South cooperation can be understood as a "broad framework for collaboration among countries of the South in the political, economic, social, cultural, environmental and technical domains. Involving two or more developing countries, it can take place on a bilateral, regional, intraregional or interregional basis. Developing countries share knowledge, skills, expertise and resources to meet their development goals through concerted efforts. Recent developments in South-South cooperation have taken the form of increased volume of South-South trade, South-South flows of foreign direct investment, movements towards regional integration, technology transfers, sharing of solutions and experts, and other forms of exchanges."³²

Other United Nations entities define South-South cooperation broadly as the

²⁸ G77, Marrakech Framework of Implementation of South-South Cooperation, at <http://www.g77.org/marrakech/Marrakech-Framework.htm>.

²⁹ G77, Doha Plan of Action, at http://www.cooperacionsursur.org/images/docs/Doha_Plan_of_Action_2005_English.pdf.

³⁰ See the Ministerial Declaration of the 33rd Annual Meeting of the Ministers of Foreign Affairs of the Member States of the Group of 77 and China, 25 September 2009 (see <http://www.g77.org/doc/Declaration2009.htm>, para. 70), reaffirming the adoption at its 32nd meeting (26 September 2008) of the South-South cooperation principles recommended by the Twelfth Session of the Intergovernmental Follow-up and Coordination Committee on Economic Cooperation among Developing Countries (IFCC-XII), 10-13 June 2008. These South-South cooperation principles were supported by the Heads of State and Government of the Non-Aligned Movement at its XVth Summit in Egypt in July 2009 (NAM Doc. No. NAM/2009/FD/Doc.1, para. 358).

³¹ UNDP, Evaluation of UNDP Contribution to South-South and Triangular Cooperation (2008-2011), Available at http://www.undp.org/content/dam/undp/documents/partners/civil_society/miscellaneous/2013_UNDP_Evaluation-of-UNDP-contribution-to-SSC-and-TrC.pdf.

³² UNOSSC, About South-South and Triangular Cooperation, Available at: <https://www.unsouthsouth.org/about/about-sssc/>.

exchange of knowledge, best practices, technical support, human resources, trade and policy advice among developing countries. For UNEP, for example, it is: “a process whereby two or more developing countries pursue their individual or collective development through cooperative exchanges of knowledge, skills, resources and technical know-how. ... initiated, organized and managed by developing countries themselves with governments playing a lead role while involving public and private institutions, non-governmental organizations and individuals” and is “multidimensional in scope and can therefore include all sectors and all kinds of technical cooperation activities among developing countries, whether bilateral, multilateral, subregional, regional or interregional in character.”³³

The 2016 revised version of the Framework of Operational Guidelines on United Nations Support to South-South and Triangular Cooperation makes reference to South-South cooperation as “a common endeavour of peoples and countries of the South, born out of shared experiences and sympathies, based on their common objectives and solidarity, and guided by, *inter alia*, the principles of respect for national sovereignty and ownership, free from any conditionalities. South-South cooperation should not be seen as official development assistance. It is a partnership among equals based on solidarity...South-South cooperation embraces a multi-stakeholder approach, including non-governmental organizations, the private sector, civil society, academia and other actors that contribute to meeting development challenges and objectives in line with national development strategies and plans.”³⁴ It also identified the following policy and operational principles of South-South and triangular cooperation:

a. *Normative principles*

- ▶ Respect for national sovereignty and ownership
- ▶ Partnership among equals
- ▶ Non-conditionality
- ▶ Non-interference in domestic affairs
- ▶ Mutual benefit

b. *Operational principles*

- ▶ Mutual accountability and transparency
- ▶ Development effectiveness
- ▶ Coordination of evidence and results based initiatives
- ▶ Multi-stakeholder approach³⁵

South-South cooperation is a very important aspect of international coopera-

³³ SSC/17/3 South-South cooperation for development, 12 April 2012, “Framework of operational guidelines on United Nations support to South-South and triangular cooperation”. See also Note by the Secretary-General High-level Committee on South-South Cooperation Seventeenth session, New York, 22-25 May 2012, Agenda item 3, <https://www.cbd.int/financial/southsouth/un-framework2012.pdf>.

³⁴ SSC/19/3, “Framework of operational guidelines on United Nations support to South-South and triangular cooperation”, p.5. Available at: <http://undocs.org/ssc/19/3>. The Framework was revised in 2016 to reflect the views of the High-level Committee on South-South Cooperation expressed at its 17th and 18th sessions and to align the guidelines with the objective of applying South-South and triangular cooperation to the implementation of the 2030 Agenda for Sustainable Development.

³⁵ Id., p. 7.

tion for the achievement of development among developing countries. South-South cooperation is, for developing countries that are active in this area as development partners, a manifestation of South-South political and economic solidarity in addressing common development challenges, and a way for developing countries to help each other move towards a situation where developing countries will exit from requiring aid to improve their own development prospects.

South-South cooperation in the overall context of multilateralism is vital to confronting the challenges to the South. It is a valuable contribution to development efforts, and as such needs to be strengthened. It is essential as a strategy to sustain the development efforts of developing countries, particularly in the context of the development challenges that climate change will bring and the current global economic uncertainties and fragility that they face.

Uncertain global, regional, and domestic economic conditions, combined with the adverse effects of climate change, present significant risks and opportunities to enhanced South-South cooperation on climate change.

The risks are that given weaker sustained economic growth, a net outflow of financial resources, a greater level of global income inequality, and greater development challenges arising from the adverse effects of climate change, developing countries could limit or reduce the governmental budgetary resources that may be made available for South-South cooperation and for climate change cooperation, generally. Such risk may be greater in cases where South-South cooperation activities are undertaken as part of a country's foreign or economic diplomacy activities.

On the other hand, opportunities for enhanced South-South cooperation may arise in the event that developing countries, in the face of weakening levels of multilateral cooperation between developed and developing countries, shift to focus their international cooperation efforts on working with each other.

In any event, the confluence of climate change impacts and uncertain global economic conditions point to the need for enhanced international and South-South cooperation, including the provision of financial resources, technology, and capacity building support; and for such cooperation to be substantially scaled up and channelled to developing countries, especially to those that are particularly vulnerable to the adverse effects of climate change.

There have been positive steps towards enhanced multilateral cooperation in recent years. The challenge, however, is for the global community and for the South to be able to generate the sustained and high level of political will necessary to address the systemic structural issues that adversely affect global economic conditions and enable greater cooperation to address weak economic conditions and the impacts of climate change.

The Sendai Framework for Disaster Risk Reduction 2015-2030³⁶ was adopted by the Third World Conference on Disaster Risk Reduction in Sendai City, Japan, in March 2015, and was endorsed by the General Assembly of the United Nations in June 2015. The Sendai Framework highlights the fact that international cooperation "remains pivotal in supporting the efforts of States, their national and local authorities, as well as communities and businesses, to reduce disaster risk. Existing mechanisms may require strengthening in order to provide effective support and achieve

³⁶ United Nations General Assembly, Resolution 69/283, annex II, Sendai Framework for Disaster Risk Reduction 2015-2030.

better implementation. Developing countries, in particular the least developed countries, small island developing States, landlocked developing countries and African countries, as well as middle-income countries facing specific challenges, need special attention and support to augment domestic resources and capabilities through bilateral and multilateral channels in order to ensure adequate, sustainable, and timely means of implementation in capacity-building, financial and technical assistance and technology transfer, in accordance with international commitments.”³⁷

The Third International Conference on Financing for Development adopted the Addis Ababa Action Agenda on Financing for Development (AAAA), in July 2015. The most important outcomes from the conference are two new processes: a technology facilitation mechanism (TFM), and a follow up mechanism in the Economic and Social Council to monitor progress on financing for development (FfD) issues. These two, plus another process decision to set up a global infrastructure forum and a call to reduce illicit financial flows, provide starting points for continued multilateral discussions for enhancing the mobilization and provision of resources to developing countries, consistent with nationally owned sustainable development strategies.

The 2030 Agenda for Sustainable Development, adopted in September 2015, recognizes that in an interconnected world, sustainable development goals and challenges need to be addressed through international cooperation. The 17 Sustainable Development Goals and 169 targets identified in the 2030 Agenda highlight and showcase the interlinkages between the economic, social and environmental pillars of sustainable development and the ways these interlinkages can be used to create positive synergy between the actions under each pillar.

SDG 17 in particular calls on the Member States of the United Nations to “strengthen the means of implementation and revitalize the global partnership for sustainable development.” The goal has specific targets for international cooperation linked to it, which include targets on the mobilization and provision of finance to developing countries; technology cooperation, facilitation, development and transfer; capacity building (including a reference to North-South, South-South, and triangular cooperation); increasing international trade from developing countries; and addressing systemic issues (including enhancing policy and institutional coherence, global partnerships, and data monitoring and accountability).³⁸ However, there is a risk that the effective and consistent progress towards the achievement of the SDGs could be hampered by the weak global economic recovery, particularly the economic uncertainties facing developing countries.³⁹

As previously mentioned, the primary multilateral framework for international cooperation on climate change is the UNFCCC. The development of the multilateral policy regime under the UNFCCC has, since its entry into force in 1994, gone through various phases designed to trigger greater levels of action and ambition among the Parties to combat climate change in a cooperative manner (See Box 1). In December 2015, the Conference of the Parties to the UNFCCC at its twenty-first session adopted the Paris Agreement. As a related legal instrument to the UNFCCC, the Paris Agreement, “in enhancing the implementation of the Convention, including its

³⁷ Sendai Framework for Disaster Risk Reduction 2015 – 2030. Available at: <http://www.unisdr.org/we/coordinate/sendai-framework>.

³⁸ See <https://sustainabledevelopment.un.org/sdg17>.

objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty.”⁴⁰

C. Need for Climate Action and Enhanced South-South Cooperation

Climate change is a fundamental threat to development. Its impacts cut across boundaries and across dimensions – including the political, economic, and social – with strong linkages to issues such as livelihood, energy transformation, health food/nutrition, and water security. Climate change is an area of mutual interest for cooperation where policy interdependence can help to navigate global geopolitics. Actions to address climate change which focus on reducing emissions can constrain economic activities, particularly if there is not diffusion of climate friendly technology and support for decoupling economic activity and emissions, as well as promoting the adaptation and resilience of critical economic sectors. Extreme weather events, as well as other risks and systems impacted by climate change, touch most sensitively on the heart of the development challenges of developing countries. Addressing climate therefore requires strong collaboration and coordination at national, regional and global levels.

Climate change policy has been a long-standing area for South-South cooperation, particularly at the multilateral political level in the UNFCCC negotiations. Developing countries have been a major force in shaping the multilateral climate change policy regime. South-South cooperation, in terms of negotiating together and in presenting and pursuing common developing country perspectives and positions in the context of the UNFCCC's negotiations and work, was key to ensuring that these perspectives and positions are reflected in the text of the UNFCCC and its related legal instruments. The negotiations for the UNFCCC in the early 1990s, the 1995-1997 negotiations for the Kyoto Protocol as well as 2005-2012 negotiations for its second commitment period, and the negotiations from 2007 to 2015 for enhanced implementation arrangements for the UNFCCC that eventually resulted in the Paris Agreement in December 2015, all saw the G77 and China and various other groupings of developing countries playing a prominent role, especially in articulating their positions and concerns with respect to various issues. These concerns include maintaining the principle of common but differentiated responsibility and respective capacity as the foundational principle for climate change action under the UNFCCC; the provision of climate finance and technology transfer by developed countries to developing countries; and the need for developed countries to have more ambition in reducing their greenhouse gas emissions. South-South cooperation in the climate change negotiations was crucial in ensuring that the outcomes of these negotiations, including the Paris Agreement itself, reflected and sought to address the key concerns of developing countries.

The Paris Agreement clearly states that it “will be implemented to reflect equity

³⁹ See, e.g., United Nations DESA, *World Economic Situation and Prospects 2017*, p. 1: “the relatively slow pace of economic growth will hamper progress towards achieving the Sustainable Development Goals (SDGs), as defined in the 2030 Agenda for Sustainable Development, which was adopted by the Member States of the United Nations in 2015. If downside risks to the outlook were to materialize, this could push global growth rates down even further, with additional setbacks towards achieving the SDGs, particularly the goals of eradicating extreme poverty and creating decent work for all.”

⁴⁰ Paris Agreement, art. 2.1 chapeau, at <https://unfccc.int/resource/docs/2015/cop21/eng/109r01.pdf>.

and the principle of common but differentiated responsibilities and respective capabilities, in the light of different national circumstances.”⁴¹ The Paris Agreement represents an international consensus to enhance individual and collective actions to address climate change threats, including in the areas of progressing in greenhouse emissions avoidance and reductions, adaptation, the provision of the means of implementation to developing countries (including finance, technology, and capacity building), information exchange, periodic reviews of the actions taken, and facilitating compliance.

The Paris Agreement, building on the framework of the Convention, lays the foundation on which future action can be motivated and incentivized, a baseline from which more ambitious action must flow. There are mechanisms in place in the Paris Agreement, such as the global stocktake, that can be used to encourage countries to raise their ambition level. The Agreement seeks to encourage greater levels of international cooperation on climate change through a bottom-up approach that allows each country to choose its nationally determined contribution towards combating climate change, while ensuring that these actions “will represent a progression over time, while recognizing the need to support developing country Parties.”⁴²

Such South-South cooperation in terms of coordination in UNFCCC negotiating processes will continue to be a key component of South-South cooperation on climate change. In the context of the implementation of the Paris Agreement, South-South cooperation is implicitly seen as a means by which developing countries could voluntarily assist each other in undertaking their climate change actions, in the context of sustainable development and poverty reduction.⁴³

The 2030 Agenda for Sustainable Development, adopted in 2015, stresses the importance of South-South cooperation in the implementation and achievement of the Sustainable Development Goals. Goal 17, in particular, puts emphasis on the importance of the role of South-South and triangular cooperation. In the specific context of climate change, the Paris Agreement under the UNFCCC also affirms the importance of cooperation at all levels on the matters addressed in the Agreement.⁴⁴

SDG 13 specifically calls for “urgent action to combat climate change and its impacts”. It also recognizes that the primary international, intergovernmental forum for negotiating the global response to climate change action is the UNFCCC.⁴⁵

In addition to multilateral coordination and cooperation in the UNFCCC negotiations, many developing countries have been active in South-South cooperation activities over the past decades as part of their respective foreign and economic policy and diplomacy. In recent years, some developing countries have incorporated cooperation with other developing countries in addressing climate change impacts and challenges into their South-South portfolios. Examples of enhanced cooperation on climate change will be presented in the following sections, which will address thematic areas, modalities and types of South-South cooperation on climate change.

⁴¹ Id., art. 2.2.

⁴² Id., art. 3.

⁴³ See e.g. Art. 7(7); Art. 9(2); Art. 11(4); Art. 12.

⁴⁴ Preamble paragraph, Paris Agreement. See also UNDP, “Scaling-Up South-South Cooperation for Sustainable Development” p.8. Available at http://www.undp.org/content/dam/undp/library/development-impact/SS%20Research%20Publications/11960%20-%20Design%20for%20Scaling-up%20South-South%20Cooperation%20for%20Sustainable%20Development%20-%2009-3_Web.pdf.

⁴⁵ See <https://sustainabledevelopment.un.org/sdg13>.

III. THEMATIC AREAS IN SOUTH-SOUTH CLIMATE CHANGE COOPERATION

There are a considerable number of thematic areas in which South-South cooperation on climate change is taking place.

The thematic areas identified in this report are based on the chapter outline of the Intergovernmental Panel on Climate Change (IPCC) Working Groups II and III contribution to the IPCC Sixth Assessment Report (AR6), as adopted by the Panel at the 46th Session of the IPCC, held in Montreal, on 6-10 September 2017.⁴⁶

They have been divided into two subsections. The first subsection addresses areas in which measures have been taken to mitigate climate change by addressing anthropogenic emissions by sources and removals by sinks of all GHGs not controlled by the Montreal Protocol.

The second subsection addresses “risks, adaptation and sustainability for systems impacted by climate change”. Similarly to the IPCC AR6 outline, the “climate risk” related activities assessed in this report, both to natural and human systems, encompass hazard, exposure, and vulnerabilities, including their spatial distribution, cascading impacts, disaster risk reduction, and risk uncertainties. The significance of adaptation, in addressing climate change risks, includes diverse adaptation responses, technologies including nature and ecosystem-based adaptation, resilience, etc. Additionally, this subsection addresses the interactions between climate change responses and actions taken to achieve sustainable development, which provide opportunities for enhancing climate resilient development pathways.

The sub-sections below present examples of South-South cooperation on climate change in various thematic areas. These examples are intended to be illustrative, rather than exhaustive.

Despite the two sub-sections, it is acknowledged that some activities are cross-sectoral, addressing both mitigation measures and measures related to risks, adaptation and sustainability for systems impacted by climate change. Activities related to risks, adaptation and sustainability for systems impacted by climate change may have mitigation co-benefits and trade-offs, and vice-versa.

A. Mitigation

Energy Systems

This thematic area comprises all components related to the production, conversion, delivery, and use of energy. Thus, an analysis of energy systems should encompass energy resources (fossil and non-fossil), energy services and energy sector, in both supply and demand systems, including integrations with other systems (for example food supply system, buildings, transportation, industrial systems).

While energy supply sector emissions are expected to continue to be the major source of greenhouse gas emissions, this sector also offers many mitigation options. According to IPCC AR5, in most integrated assessment models scenarios,

⁴⁶ The outlines, subject to final copy edits, are available now on the IPCC website at: http://ipcc.ch/scripts/_session_template.php?page=_46ipcc.htm.

decarbonization happens more rapidly in electricity generation than in the industry, buildings, and transport sectors.⁴⁷ Many Southern partners have assisted other developing countries in activities related to energy systems, particularly in renewable energies, energy efficiency, and bioenergy.

China has gained much experience in climate change solutions and the mitigation of environmental impacts, which have been spread to other developing countries. It has shared its technological capacity, know-how, and policy experience with other developing countries through platforms such as the International Center on Small Hydro Power (ICSHP). Since its establishment more than 20 years ago, ICSHP has worked through South-South and triangular cooperation in technical and economic development by promoting global small hydropower development⁴⁸ which aims to provide clean, affordable and sufficient energy; create employment opportunities; improve the ecological environment; and mitigate poverty in rural areas in developing countries.

A concrete example emerging from the ICSHP is the “Lighting Up Rural Africa” (LURA) project, which was jointly launched by Ministry of Commerce of China, United Nations Industrial Development Organization (UNIDO), and ICSHP in 2007 to promote small hydropower for productive uses across Africa. The aim of the LURA project is to promote inclusive and sustainable industrial development through the installation of mini/micro/pico hydro units in remote, rural areas. ICSHP has carried out 14 small hydropower projects in Kenya, Nigeria, and the United Republic of Tanzania. Through extensive triangular cooperation, ICSHP has established public-private partnerships among relevant stakeholders, helping to link energy services to promote productive use and income generating activities in rural areas across Africa.⁴⁹

Brazil has gained experience with its mitigation actions in many areas and has sought to share these with other developing countries. The country has established the “Pro-Renova,” a structured programme of support for other developing countries in the area of renewable energy. This has included entering into a series of memoranda of understanding on biofuels, and organizing a forum which brought together other developing countries and strengthened South-South cooperation among Brazil, China, South Africa, and Latin American countries.⁵⁰ The production of biofuels as part of a partner country’s renewable energy mix is hence one of the key aspects of Brazil’s South-South cooperation activities in relation to climate change. As stated in its national communication to the UNFCCC: “The current approach and strategy of the South-South cooperation adopted by Brazil is, according to the study, an interesting opportunity for African countries. It can help increase the institutional capacity of promotion of a Bioethanol industry and encourage a more closely technical cooperation to increase the opportunities for broader solutions, providing a vision from the ‘south’ to the ‘south’.”⁵¹

At the 22nd Conference of the Parties to the UNFCCC (COP 22), held in Marrakech, the “Biofuture Platform” was launched. Proposed by Brazil, the Platform is a

⁴⁷ IPCC, AR5, Working Group III, Summary for Policymakers, p. 20. Available at: https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf.

⁴⁸ For more information on energy from small hydropower (SHP), see subsection V.C.

⁴⁹ Available at: <http://www.inshp.org/list.asp?RID=4&BID=42>.

⁵⁰ Volume I, Third National Communication of Brazil. p.114. More information available at: <http://unfccc.int/resource/docs/natc/branc3v1.pdf>.

⁵¹ Volume I, Third National Communication of Brazil. p.116. More information available at: <http://unfccc.int/resource/docs/natc/branc3v1.pdf>.

20-country effort that is designed to accelerate the transition towards “an advanced low-carbon bioeconomy that is sustainable, innovative and scalable.” The Platform addresses the need to accelerate development and scale up deployment of modern sustainable low carbon alternatives to fossil based solutions in transport, chemicals, plastics and other sectors. The ultimate purpose of the Biofuture Platform is to help in the global fight against climate change, nurturing solutions in low carbon transport and the bioeconomy that can aid countries to reach their Nationally Determined Contribution targets (NDCs), as well as to contribute towards the Sustainable Development Goals, especially SDG 7 (affordable and clean energy), and 13 (climate action), while also contributing to SDG 8 (decent work and economic growth), 9 (industry, innovation and infrastructure), 2 (zero hunger) and 15 (life on land).⁵²

One example of energy-related SSC at the regional level is the “Sustainable Energy for All” (SE4ALL) a global initiative led by the former Secretary-General of the United Nations, Ban Ki-moon to achieve universal energy access, improve energy efficiency, and increase the use of renewable energy. The SE4ALL Hub for Africa was founded by the African Union Commission (AUC), the New Economic Partnership for African Development (NEPAD) planning and coordinating agency, the African Development Bank (AFDB) and UNDP to facilitate the implementation of the initiative in Africa. The Secretariat is hosted at the AFDB. The hub promotes African ownership, inclusiveness and a comprehensive approach to the initiative’s implementation, mandated by the resolution of the Conference of Energy Ministers of Africa in November 2012.⁵³ This initiative seeks to increase Africa’s access to energy to drive economic growth and prosperity on the continent.

Additionally, at the 21st Conference of the Parties to the UNFCCC (COP 21), in December 2015, the AU launched the “African Renewable Energy Initiative” (AREI). This initiative seeks to harness and develop African renewable energy resources to help achieve the Sustainable Development Goals, enhance well-being, and encourage sound economic development by ensuring universal access to sufficient amounts of clean, appropriate and affordable energy. It is also designed to help African countries leapfrog towards renewable energy systems that support their low-carbon development strategies while enhancing economic and energy security.⁵⁴ Phase I of the AREI work plan (2017-2020) consists of enabling activities, and project and programme support towards 10 GW of new and additional renewable energy generation capacity. Phase II (2020-2030) consists of full-scale roll-outs of nationally determined transformative policies, programmes and incentives adding at least 300 GW of renewable energy by 2030.⁵⁵

An example of energy-related SSC at the local level is cooperation between cities in India, Indonesia, and South Africa through the ICLEI global network. With an aim of promoting knowledge exchange between cities in the developing world, project cities of Ekurhuleni, South Africa and Yogyakarta, Indonesia joined ICLEI’s

⁵² Available at: <http://biofutureplatform.org/>.

⁵³ More information available at: http://www.nepad.org/content/sustainable-energy-all-se4all-programs?qt-programme_page=1.

⁵⁴ African Development Bank, “The African Development Bank Group approves Africa Renewable Energy Initiative (AREI)”. Available at <https://www.afdb.org/en/news-and-events/the-african-development-bank-group-approves-africa-renewable-energy-initiative-arei-16583/>.

⁵⁵ Africa Renewable Energy Initiative Progress Report. January 2017. Available at http://www.arei.org/wp-content/uploads/2017/01/AREI-Progress-report-Jan-2017_ENG.pdf.

“Local Renewables” (LR) network to increase the uptake of renewable energy and energy efficiency at the local level. They have been guided by the city of Coimbatore in India, which emerged as an advanced LR city through its participation in the project from 2008 to 2010. The project also aims to facilitate the adoption of similar initiatives in other South African and Indonesian cities.⁵⁶

Agriculture, Forestry, and Other Land Use (AFOLU)

Agriculture, forestry and other land use (AFOLU) plays a significant role for food security and sustainable development. The main mitigation options within AFOLU involve one or more of three strategies: prevention of emissions to the atmosphere by conserving existing carbon pools in soils or vegetation or by reducing emissions of GHGs; sequestration by increasing the size of existing carbon pools, and thereby extracting CO₂ from the atmosphere; and substitution by substituting biological products for fossil fuels or energy-intensive products, thereby reducing CO₂ emissions. Demand-side measures (for example by reducing loss and wastage of food, changes in human diet, or changes in wood consumption) may also play a role.⁵⁷

AFOLU is a traditional South-South cooperation thematic area, given that the agricultural sector plays a strategic role in the process of economic development for most developing countries, and is of vital importance for less developed countries. In addition, forests can help meet growing demands for food, fibre, biofuel, shelter, and other bioproducts. Moreover, it should be taken into consideration that most countries endowed with remaining forest resources are in the South, and that countries of the South are the main producers of agricultural products.

According to IPCC AR5, in “baseline scenarios, while non-CO₂ greenhouse gas agricultural emissions are projected to increase, net CO₂ emissions from the AFOLU sector decline over time, with some models projecting a net sink towards the end of the century.” Moreover, there have been recognized strong interdependencies in mitigation scenarios between the pace of introducing mitigation measures in energy supply and energy end-use and developments in the AFOLU sector.⁵⁸ This scenario offers opportunities for South-South cooperation activities in climate change.

One example in this thematic area is the “Amazon without Fire” program undertaken by Brazil and Italy, benefiting the Plurinational State of Bolivia and Ecuador, for which the Development Bank of Latin America (CAF) is also a sponsor. This initiative proposes a strategy to prevent, control, and combat forest fires by implementing participatory methodologies for the development of sustainable production practices without the use of fire, and by adopting agriculture alternatives under negotiation with rural and indigenous communities. In the Plurinational State of Bolivia, the main results include 96 per cent of fires avoided in the area of the intervention of the initiative, and a Supreme Decree 2914/2016 establishing a “Monitor-

⁵⁶ ICLEI Website. Available at <http://archive.iclei.org/index.php?id=12592>.

⁵⁷ IPCC, Glossary, Working Group III, AR5, 2014. Available at https://www.ipcc.ch/pdf/assessment-report/ar5/syr/AR5_SYR_FINAL_Glossary.pdf.

⁵⁸ IPCC, AR5, Working Group III, Summary for Policymakers, p. 17. Available at https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_summary-for-policymakers.pdf.

⁵⁹ IPCC Summary for Policymakers. Available at https://www.ipcc.ch/pdf/assessment-report/ar5/wg3/drafts/fgd/ipcc_wg3_ar5_summary-for-policymakers_approved.pdf.

ing and Control Program on Deforestation and Degradation of the Forest.”

An example of interregional cooperation is the initiative “Knowledge Sharing and Capacity Development for Global Green Partnership through South-South Cooperation”, which includes the Ministry of Environment and Energy (MINAE) of Costa Rica, the National Forestry Financing Fund (Costa Rica), and the Global Green Growth Institute, with sponsorship from the Korea International Cooperation Agency (KOICA). A workshop held in November 2015 developed a platform that aims to: share successful policy experiences and progress made on sustainable land-use management; address challenges facing developing countries in implementing sustainable land-use policies; and discuss state-of-the-art or innovative policy measures for increasing investment in land-use management (for example, payment for performance). Recently, the Government of Costa Rica established the Sustainable Biodiversity Fund (FBS). This trust fund will be used for sustainable and long-term preservation of biodiversity in private lands.⁶⁰

Another example is the establishment of a tripartite South-South cooperation partnership between Costa Rica, Benin and Bhutan in the areas of sustainable tourism, sustainable agriculture, biodiversity conservation, and energy efficiency. The programme, which was initiated and is funded by the Netherlands but managed by the Costa Rican non-governmental organization “Fundecooperación para el Desarrollo Sostenible”, concentrates on five thematic areas: sustainable tourism; sustainable production and consumption chains; biodiversity conservation; access to sustainable energy and energy efficiency; and gender equity. The initiative has yielded 41 separate programmes and projects to date and is responsible for the creation of thousands of jobs and hundreds of new businesses and products. These include sustainable tourism operations in Costa Rica and Bhutan, non-timber forest products (mushrooms and edible insects) in all three countries, as well as organic and fair trade pineapple in Benin and Costa Rica. One of the notable results of this initiative is that most ventures launched as a result of the programme have become financially self-sustainable after only three years.⁶¹

At different stages developing countries find themselves in the process to operationalize REDD-plus (“Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries”) that opens a window of opportunity for cooperation initiatives and exchange among the countries implementing the instrument. The Brazilian experience in developing and implementing effective public policies to protect its forests and curb deforestation, and in developing vegetation cover monitoring systems, has prompted international recognition and calls from many countries willing to establish knowledge sharing channels and partnerships for technical and institutional capacity building. In this context, the Brazilian Government regards South-South cooperation as an important tool with which to share experiences and to collaborate with other developing countries in the implementation of climate change and forests related policies, with a focus on REDD-plus.⁶²

⁶⁰ Global Green Growth Institute Website. Available at http://gggi.org/ai1ec_event/south-south-cooperation-workshop-on-sustainable-land-use-management/.

⁶¹ UNEP Website. Available at <http://staging1.unep.org/uneplive/southsouth/index/17#.WcqgwzLKGmps>.

⁶² See <http://redd.mma.gov.br/en/south-south-cooperation-on-climate-change-and-forests>.

Learning from Brazil's experiences in reducing emissions from deforestation and forest degradation, 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 the drafting of a national REDD-plus strategy and REDD-plus readiness preparation proposal. 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.⁶³

In cooperation with FAO, China supported Sierra Leone in the transfer of techniques, the installation of irrigation systems, and the introduction of modern agricultural equipment. As a result of this transfer rice, field crops, vegetable, and agroforestry productivity has improved significantly in Sierra Leone and continues to do so.⁶⁴ In Ethiopia, Chinese irrigation experts, also with support from FAO, provided suggestions on irrigation development, guided the construction of small irrigation schemes, and shared Chinese soil and water conservation practices.

A further example in Africa is the "West African Science Service Center on Climate Change and Adapted Land Use" (WASCAL) project, which is a large-scale research-focused programme supported by the United Nations University - Institute for Environment and Human Security (UNU-EHS). This project was initiated to develop effective mitigation and adaptation measures to climate change. The geographical focus of WASCAL is West Africa with in-depth research in case study watersheds in Benin, Burkina Faso and Ghana. Universities in the ten WASCAL countries support research and capacity building in Benin, Burkina Faso, Côte d'Ivoire, the Gambia, Ghana, Mali, the Niger, Nigeria, Togo and Senegal.

Urban Systems and Other Settlements

Growing populations and the need for adequate infrastructure have significant impact in urban systems and other settlements in terms of greenhouse gas emissions. Approximately 50 percent of greenhouse gas emissions come from infrastructure.⁶⁵

Urban strategies and options for reducing greenhouse gas emissions have evolved considerably in recent years, from more traditional strategies (for example waste and wastewater management, material recycling) to new urban technologies, which include disruptive technologies such as the internet of things, the use of information and communication technologies, and the use of data (for example intelligent transportation systems).

South-South cooperation on urban systems and other settlements has evolved from cooperation among "twin towns" or "sister cities" – agreements between towns, cities, and other human settlements in geographically and politically distinct areas to promote cultural and commercial ties as well as knowledge sharing – to other arrangements, many of them including the mitigation of greenhouse gas emissions through innovative strategies and actions, including city networks and coalitions.

In October 2016, Heads of State and Government, Ministers, and High Repre-

⁶³ International Institute for Environment and Development Website. Available at <https://www.iied.org/south-south-redd-brazil-mozambique-initiative>.

⁶⁴ FAO's response to questionnaire.

⁶⁵ Meltzer, Joshua P (2016). "Financing Sustainable Infrastructure." Available at https://www.brookings.edu/wp-content/uploads/2016/08/global_20160818_financing_sustainable_infrastructure.pdf.

sentatives gathered at the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito, Ecuador. Habitat III also included the participation of subnational and local governments, parliamentarians, civil society organizations, indigenous peoples and local communities, the private sector, professionals and practitioners, the scientific and academic community, and other relevant stakeholders. In the New Urban Agenda, which was the outcome document from the conference, they committed themselves to “adopting a smart-city approach that makes use of opportunities from digitalization, clean energy and technologies, as well as innovative transport technologies, thus providing options for inhabitants to make more environmentally friendly choices and boost sustainable economic growth and enabling cities to improve their service delivery.”⁶⁶

An example of South-South cooperation in urban systems is a knowledge transfer project between the cities of Phitsanulok in Thailand and Battambang in Cambodia, supported by the Government of Japan and the Institute 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.⁶⁷

Another example at regional level is the “Emerging and Sustainable Cities Initiative” (ESCI), which is a program of technical assistance of the Inter-American Development Bank (IDB) to the governments of intermediate cities in Latin America and the Caribbean (LAC) that have large populations and dynamic economic growth. A rapid assessment program under this initiative can identify, prioritize, and organize a city’s sustainability challenges in environmental, fiscal, social and governance sectors, and then prioritize infrastructure programs in the short, medium and long term to improve the quality of life in cities in LAC and improve sustainability. The ESCI “Urban Dashboard” allows comparability of cities against common indicators. All data is open, allowing participating cities and countries to view and learn from each other.⁶⁸

Buildings

According to the IPCC AR5, “energy supply sector emissions are expected to continue to be the major source of greenhouse gas emissions, ultimately accounting for the significant increases in indirect emissions from electricity use in the buildings and industry sectors.”⁶⁹ The energy demand in buildings grows as result of improvements in wealth, lifestyle change, access to modern energy services and adequate housing, and urbanization.

⁶⁶ Undocs.org/A/RES/71/256 , New Urban Agenda, Quito Implementation Plan for the New Urban Agenda, paragraph 66.

⁶⁷ UNEOSG and UNFCCC (2017). Catalysing the Implementation of Nationally Determined Contributions in the Context of the 2030 Agenda through Sustainable Development. Available at <http://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Download-Report.pdf>.

⁶⁸ Urban Dashboard Website. Available at <http://www.urbandashboard.org/aboutus?lang=EN>.

⁶⁹ IPCC, AR5, Working Group III, Summary for Policymakers, pp. 17 and 22.

Nevertheless, recent advances in technologies (for example more energy efficient heating/cooling systems), know-how (for example retrofitting) and policies (for example low energy building codes) provide opportunities to stabilize or reduce energy use in this sector. Thus, there are significant opportunities for mitigation options and strategies towards zero or low-carbon buildings, which may include insights from life cycle assessment and material flow analysis, and be extended to sector specific policies and policy packages, financing, and enabling conditions.

China has been a leader in this emerging thematic area. The China International Centre for Economic and Technical Exchanges (CICETE) has promoted research and development in this area, including, e.g., the application of energy efficient walling systems tailored for Viet Nam and Cambodia.⁷⁰

In addition, in recent years, Qatar has been pursuing sustainable and renewable initiatives in the Middle East, including supporting research into climate change and renewable energy, improvements in renewable energy (especially solar) generation, and improvements in energy efficiency (e.g. in building design).

Transport

According to IPCC AR5, the transport sector accounted for 27 per cent of final energy use and 6.7 GtCO₂ direct emissions in 2010, with baseline CO₂ emissions projected to approximately double by 2050. Nevertheless, technical and behavioural mitigation measures for all transport modes, plus new infrastructure and urban redevelopment investments, could reduce final energy demand in 2050 by around 40 per cent below the baseline.⁷¹

One of the main challenges to curb greenhouse gas emission projections in the transportation sector is the fact that there has been a rapid growth in motorization in developing countries. This is mainly driven by individual transportation, and is compounded by the fact that many developing countries usually face low-quality public transport systems. Even when public transport systems are enhanced, once people have personal vehicles they tend to use them even if alternative transportation modes are available.

There are many policies and strategies that could contribute to slow the growth of transportation sector greenhouse gas emissions. These include increasing the relative cost of using conventional private cars and enhancing the quality and choices of alternative transportation modes.

Although regional differences influence the choice of transport mitigation options, there has been also South-South cooperation in transport systems, which has resulted in reduction of greenhouse gas emissions.

Integrated public transport systems can help to reduce both greenhouse gas emissions and particulate air pollution. For many years the Pan American Health Organization (PAHO) has been advocating for integrated public transport systems in LAC region. Many Latin American cities are developing or integrating bus rapid transit (BRT) systems that carry high volumes of users across well-planned grids

⁷⁰ CICETE (2014), "Building Efficiency and R&D and Application of Energy Efficient Walling Systems Tailored for Vietnam and Cambodia." Available at <http://unosscl.undp.org/sscexpo/content/ssc/library/solutions/partners/expo/Building-Efficiency-and-R-and-D-and-Application-of-Energy-Efficient-Walling-Systems-Tailored-for-Vietnam-and-Cambodia-CICETE.htm>.

⁷¹ Id., p. 21.

and networks to the metropolitan hub. For example, in Mexico City, the Metrobús BRT system moves approximately 250,000 passengers on average, every weekday. The Metrobús-Q system in Quito, Ecuador, transports some 440,000 passengers daily, while the highest volume—some 1,220,000 passengers—use the Bogotá TransMilenio system daily. These examples, including from Curitiba in Brazil, have been used as models by other large cities in the region such as Mexico City, Sao Paulo, and Santiago and even in Bilbao in Spain.⁷²

Another example of South-South cooperation to reduce greenhouse gas emissions from transport by improving public transportation was a workshop facilitated by the UNEP Climate Technology Centre and Network (UNEP-CTCN) to share lessons from Thailand to Bhutan. The exercise provided Bhutan with an overview of experiences in Bangkok and Chang Mai, including intelligent transport systems.⁷³ An inter-regional cooperation example in the transport sector is the Asia-Pacific Economic Cooperation (APEC) Biofuels Task Force. The Task Force unites fifteen member States of the inter-regional economic dialogue (Australia, Canada, Chile, China, Colombia, Indonesia, Japan, Malaysia, Mexico, New Zealand, Peru, the Philippines, Russia, Thailand and the United States) and aims to assist APEC member economies to share experiences in order to improve their understanding of the potential for biofuels as a substitute to fossil fuels in the transport sector.⁷⁴

Industry

This thematic area includes industrial development patterns and supply chains. The industrial sector is a field in which there is constant flow of innovation in terms of mitigation technologies and efficient system options, covering process emissions, industrial waste, and carbon capture and utilisation, at the same time maximising material and resource efficiency.

Industrial development has played an important role in the economic growth of countries, although with heterogeneous benefits and trade-offs. Despite the increasing industrialization of many developing countries, in many cases this has not resulted in leapfrogging to more environmentally friendly and/or low carbon technologies. Thus, South-South cooperation on climate change related to the industrial sector is another important opportunity for a low-carbon development path.

One example of a South-South cooperation focused on industry is a project in which China is working with UNIDO, Indonesia and Thailand to implement a project in the energy-saving and environmentally friendly industry. The project aims to accelerate technical exchange and transfer of waste heat recovery (WHR) technology between China and Indonesia, and advanced cooling technology between China and Thailand; to promote the expertise of China in these technology fields; to facilitate green development of international industry; and to promote energy saving experiences from China. As a result of this project, the green development of international industry has accelerated, and recommended guidelines to promote advanced WHR/

⁷² Pan American Health Organization (2010), “Advocating for Safe and Healthy Public Transportation”, Washington, D.C.: PAHO.

⁷³ Report on the Global TNA Experience Sharing and Launching Workshop.

⁷⁴ Discussion Paper on First High-Level Follow-up Dialogue on Financing for Development in Asia and the Pacific. Available at https://www.unescap.org/sites/default/files/15.South-South%20and%20Triangular%20Development_Salehuddin%20Ahmed_0.pdf.

advanced cooling technology were adopted by relevant counterparts.⁷⁵

UNIDO has also collaborated with Southern countries in promoting joint activities, the exchange of know-how and business approaches, the sharing of experiences, and networking opportunities focusing on biogas applications and waste valorization (i.e., the conversion of waste materials to energy through recycling, reuse, or composting) in agroindustries. In 2015, a regional workshop on biogas took place in Uruguay, with participation from experts and interested parties from the other UNIDO GEF projects on biogas in the region, as well as other relevant stakeholders. A similar workshop was held in 2017 in Chile, and additional workshops are planned for the future. In 2016, a study tour was organized that allowed for Chilean farmers to visit relevant entities including farms in Costa Rica and Mexico.

Under the cooperation agreement of two GEF-5 projects, Chile (Biogas Lechero) and Uruguay (Biovalor), UNIDO provided technical services that enabled farmers to significantly raise their awareness and knowledge about biogas plants and their potential not only for energy generation but also as an environmental management tool and as a provider of biofertilizer. Knowledge and experience were exchanged and a regional biogas association created to ensure a more homogenized approach to biogas-related topics relevant for the region. Participants in the two projects came from the GEF-5 project Uruguay (Biovalor), GEF-5 project Chile (Biogas Lechero), public and private entities in Costa Rica and Mexico, CIBiogas, Brazil, biogas-interested stakeholders in Argentina, Chilean milk farmers, and the pilot project “Colonia Delta”.⁷⁶

B. Risks, Adaptation and Sustainability for Systems Impacted by Climate Change

Terrestrial and Freshwater Ecosystems and Their Services

The majority of the global population live in terrestrial and freshwater ecosystems. Therefore, any hazards to these ecosystems, including extreme events and interactions of multiple climatic, non-climatic, and anthropogenic stressors can have significant impact to human beings. Moreover, these stressors can have effects on broader temporal and spatial scales, with long-term impacts not limited to human beings in terrestrial and freshwater ecosystems, but also to other species, ecosystem structures, and biodiversity in general.

One example of triangular cooperation in this thematic area is the “Capacity Building for Sustainable Management of Mountain Watersheds in Central Asia and the Caucasus”, with the participation of FAO, Azerbaijan, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Turkey, and Uzbekistan. The main purpose of the initiative was to increase public awareness and interest of policy and decision makers; and to enhance knowledge and experience of forestry and other related agencies about integrated and collaborative approaches to the implementation, rehabilitation and sustainable management of mountain watersheds.⁷⁷

⁷⁵ UNIDO response to survey questionnaire.

⁷⁶ Id.

⁷⁷ More information available at <http://www.fao.org/partnerships/south-south-cooperation/gateway/project-list/en/>.

One further example is the “Social Forestry in Africa” initiative. The Kenya Forestry Research Institute (KEFRI), in collaboration with the Japan International Cooperation Agency (JICA), has promoted regional cooperation activities on environmental resilience and improvement of quality of life in seventeen countries in eastern, central, and southern Africa. The entry point is social forestry, or forestry for the people, as a participatory concept and tool that not only integrates biological and socioeconomic diversity prevailing in the area, but is also responsive to subsistence and development needs of rural and non-rural communities.⁷⁸

Ocean and Coastal Ecosystems and Their Services

Ocean and coastal ecosystems are no less important than terrestrial and freshwater ecosystems. Oceans cover three quarters of the planet, connect populations and markets, are crucial for food security, and form an important part of humankind’s natural and cultural heritage.

The outcome document of the United Nations Conference to Support the Implementation of Sustainable Development Goal 14: Conserve and sustainably use the oceans, seas and marine resources for sustainable development, held at United Nations Headquarters from 5 to 9 June 2017, noted the adverse impacts of climate change on the ocean, including “the rise in ocean temperatures, ocean and coastal acidification, deoxygenation, sea level rise, the decrease in polar ice coverage, coastal erosion and extreme weather events. We acknowledge the need to address the adverse impacts that impair the crucial ability of the ocean to act as climate regulator, source of marine biodiversity and as key provider of food and nutrition, tourism and ecosystem services and as an engine for sustainable economic development and growth. We recognize, in this regard, the particular importance of the Paris Agreement adopted under the United Nations Framework Convention on Climate Change.”⁷⁹

Ocean and coastal ecosystems are especially important for particularly vulnerable populations in some LDCs, low-lying coastal countries, and SIDS. Therefore, cooperation on ocean and coastal ecosystems is an important South-South cooperation thematic area.

One example is the IDB technical cooperation project entitled “Replicability of the Regional Mechanism for the Adoption of Climate Shielding in Public Infrastructure,” which aims to strengthen local coastal and border governments and national risk management systems in Central America. This project, based on a regional mechanism for adopting climate protection in public infrastructure that was initially supported by the IDB in Honduras, El Salvador, and Panama in 2014, implements that mechanism in additional municipalities in Guatemala, El Salvador, Costa Rica, and Panama in order to increase experiences, cases, good practices, and lessons learned from the mechanism.⁸⁰

Some other initiatives worth noting are community innovations in sustainable fishing through South-South cooperation. In 2011, the UNDP-GEF Small Grants

⁷⁸ Learning Network on Capacity Development Website. Available at <http://www.lencd.org/case-story/2010/kenya-japan-%E2%80%93-social-forestry-africa>.

⁷⁹ A/RES/71/312, “Our ocean, our future: call for action”, paragraph 4. Available at <https://oceanconference.un.org/callforaction>.

⁸⁰ IADB Website. Available at <http://www.iadb.org/en/projects/project-description-title,1303.html?id=RG-T2872>.

Program helped the Placencia Producers Cooperative Society in Belize learn about seaweed farming and cultivation under its “Community Management of Protected Areas Conservation Programme”. As a result, 50 fishermen improved their fishing skills and livelihoods; created a seaweed revolving fund; and now export seaweed to a buyer in Los Angeles. Furthermore, as a result of the SGP pilot project, the Fisheries Department of Belize is promoting and providing technical assistance towards scaling up the seaweed initiative in other marine-protected areas.

In January 2015, the UNDP-GEF SGP collaborated with the Colombian Government in a South-South effort to improve seaweed cultivation, harvesting and processing techniques in Colombia. The peer-to-peer exchange, funded by the Government of Colombia, allowed six fishers from the Old Providence and Santa Catalina Fishing and Farming Cooperative in Providencia Island, Colombia, to visit a the SGP project in the Gladden Spit and Silk Cayes Marine Reserve in Belize. This exchange allowed the Colombian fisher folk to receive training and certification from the Placencia Producers Cooperative Society on sustainable seaweed farming, processing and marketing. This South-South cooperation effort continued in July 2015 when a delegation of the Placencia Producers Cooperative Society visited Colombia to train the Colombian cooperative on other innovative sustainable fishing approaches such as using lobster shades as anchors for seaweed farms, and introduced new cultivation techniques.⁸¹

Another example is the project “SANDWATCH – Adapting to Climate Change and Educating for Sustainable Development”. Sandwatch seeks to modify the attitudes and lifestyles of children, youth and adults on a community-wide basis by developing awareness of the fragile nature of the marine and coastal environment, and the need to use it wisely. It is an educational process through which school students and community members work together to monitor their beach environments, critically evaluate problems and conflicts, and address those issues in a sustainable manner. Sandwatch has been supported by UNESCO since its inception. The programme formally began in 2011 with a regional training workshop involving 18 Caribbean countries. Since then it has expanded to involve many countries and territories, mainly small-island developing States, from the Caribbean, Africa, Asia, Europe and the islands in the Pacific and Indian Oceans.⁸²

Water

Water is at the core of sustainable development, given that it is the source of life, health, and livelihoods across the world. Water supplies must be reliable and predictable to support financially sustainable investments in economic activities. A more holistic focus on ecosystems for water and development that maintains a beneficial mix between built and natural infrastructure is crucial for environmental sustainability. Water is also fundamental for guaranteeing peaceful and inclusive societies; access to household water supplies is critical for a family's health and social dignity.⁸³

⁸¹ UNDP Website. Available at <http://www.undp.org/content/undp/en/home/ourwork/development-impact/south-south-cooperation/featured-stories/featured-stories2.html>.

⁸² SANDWATCH. Adapting to Climate Change and Educating for Sustainable Development. Available at http://www.unisdr.org/files/15499_189418e1.pdf.

⁸³ UNESCO (2015), “The United Nations World Water Development Report 2015. Water for a Sustainable World.” Available at <https://sustainabledevelopment.un.org/content/documents/1711Water%20for%20a%20Sustainable%20World.pdf>.

Thus, there is an increasing concern regarding observed and projected climate-related hydrological changes on basin and watershed scales. These may have short, medium and long-term risks to water security, including quantity and quality in the context of critical sectors (including the food-energy-water-health nexus) and different users and systems. Moreover, there are concerns regarding water related hazards such as floods, droughts and landslides.

SSCCC in this area encompasses a range of adaptation responses including co-operation on water security risks in different climatic zones, with co-benefits for sustainable development and increased resilience in water systems.

For example, a total of 10 projects were implemented between 2008 and 2014 to foster water security across Africa. 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. The projects aimed at enhancing capacity in the areas of: 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 wastewater 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.

In Cambodia, farmers are learning how to implement different farming practices to address the impacts of climate change through various UNDP supported projects. The project “Promoting Climate Resilient Water Management and Agricultural Practices”, which has received funding from the Government of Canada, has provided training on gender and climate change; integrated farming systems; revolving fund management; water management; food processing; and weather early warning. To date a total of 13,581 people, of which 51 per cent are women, have benefited from the project in four districts in Preah Vihear and Kratie provinces. To learn from such experiences, 25 representatives from the project “Improving Resilience of the Agriculture Sector to Climate Change Impacts” (IRAS) in the Lao People’s Democratic Republic made a four-day study tour to Cambodia in February 2015, facilitated by UNDP. The delegation visited several project sites and gained experience on climate change adaptation practices in the agriculture sector. During the South-South knowledge exchange visit, the delegation also met with Cambodian farmers who have been benefiting from project interventions such as the solar water pump systems and seed purification techniques, which allow farmers to select resilient rice seeds by themselves.

Food, Fibre, and Other Ecosystem Products

This thematic area encompasses climate-driven changes in agriculture, fisheries and forestry, which can result in significant risks for food and nutrition security, food systems on land and in the ocean, and the food-energy-water-health nexus, as well as risks for materials, such as wood, fibre and natural products, such as medicinal organisms, rubber and dyes.

South-South cooperation in this thematic area is, therefore, fundamental in sup-

porting communities, families, and individuals to improve their food security and livelihoods. Cooperation may include options for the production and use of food, fibre, and other ecosystem products across scales and regions including limits and barriers, knowledge systems, and other aspects of sustainable development.

One relevant example in this area is the African Union and New Partnership for Africa's Development (NEPAD) "Comprehensive Africa Agriculture Development Programme" (CAADP), which is Africa's policy framework for agricultural transformation, food security and economic growth, and is an integral part of NEPAD. CAADP aims to raise agricultural productivity by at least 6 per cent per year and increase public investment in agriculture to 10 per cent of national budgets per year.⁸⁴ CAADP is designed to bring together diverse key players — at the continental, regional, and national levels — to improve coordination; share knowledge, successes, and failures; encourage one another; and promote joint and separate efforts to achieve the CAADP goals.⁸⁵

China's vast experience in developing bamboo resources for poverty alleviation and livelihoods development provides a wealth of opportunities for South-South cooperation. The China State Forestry Administration and the International Bamboo and Rattan Organisation (INBAR), with support from the Ministry of Foreign Affairs of the Netherlands, initiated a new partnership to stimulate bamboo business development in three African countries – Ethiopia, Kenya and Uganda – to promote business development, investment promotion, landscape restoration (planting of bamboo in degraded lands) and boost rural incomes. As part of the partnership, African partner countries will undertake assessments of their current bamboo resources; participate in study tours; and benefit from capacity development to learn from industries in China and The Netherlands.⁸⁶ Myanmar also plans to promote bamboo production in cooperation with China.

Under a tripartite South-South cooperation agreement with FAO, experts from Viet Nam helped Chad implement a series of activities aimed at improving the country's food security. The activities included irrigation for rice growing and horticulture, increased cereals production, artisanal fishing, bee-keeping, and food processing. Fifteen Vietnamese experts and technicians helped Chad implement the activities over the course of two years. The \$2 million in costs were covered by Chad through a trust fund established with FAO, which also provided technical assistance.

In cooperation with FAO, Japan supports the project "Analysis and Mapping of Impacts under Climate Change for Adaptation and Food Security through South-South Cooperation" (AMICAF-SSC). The principal outcome of this project is enhanced capacity of beneficiary countries to address climate change adaptation planning, based on impact and household level vulnerability assessments. The project aims at building the capacity of national institutions to assess the impacts of climate change, prepare local communities for action, and adopt policies to support adaptation. The project has already been carried out in Peru and the Philippines, and has since extended to Indonesia and Paraguay.⁸⁷

⁸⁴ Africa Growth Initiative at Brookings. CAADP at 10: Progress Towards Agricultural Prosperity. Available at <https://www.brookings.edu/wp-content/uploads/2016/06/12-CAADP.pdf>.

⁸⁵ 41 African Union Member States have signed CAADP compacts, 33 of which have developed formal national agriculture and food security investment plans. More information available at <http://www.un.org/en/africa/osaa/peace/caadp.shtml>.

⁸⁶ See https://pt.slideshare.net/inbar_sm/ssccc.

In another project facilitated by FAO, 19 Chinese experts and technicians were sent to Mongolia for three years to share knowledge and experience on improving national food security, building resilience, and adapting to climate change. The project introduced intensive farming technologies for crop and livestock production that are producing quick results under extreme climatic conditions. This has improved food availability, as well as people's access to it.⁸⁸

In a final example, FAO also facilitated the strengthening of agricultural statistics and food security information in Coalition for African Rice Development (CARD) countries. This project, "Strengthening Agricultural Statistics and Food Security Information in CARD Countries through South-South Cooperation", has been implemented in Benin, Côte d'Ivoire, Ethiopia, Ghana, Kenya, Madagascar, Nigeria, Senegal and Uganda. It focuses on improving the capacity of CARD member States to collect and provide reliable and timely statistics on rice in terms of planted areas and yield, with a broader view to reducing poverty and increasing food security through more effective evidence based agriculture. The aim of CARD, of which Japan is a founding member, is to support efforts to double African rice production between 2008 and 2018, including helping to disseminate "New Rice for Africa", a high-yielding hybrid rice in Africa.⁸⁹

Cities, Settlements and Key Infrastructure

The adverse impacts of climate change have the potential to be extremely disruptive to cities, settlements and key infrastructure.

The outcome document of Habitat III, "The New Urban Agenda", states that "we envisage cities and human settlements that...adopt and implement disaster risk reduction and management, reduce vulnerability, build resilience and responsiveness to natural and human-made hazards and foster mitigation of and adaptation to climate change".⁹⁰ Moreover, in the outcome document, there is a commitment to "promoting the creation and maintenance of well-connected and well distributed networks of open, multipurpose, safe, inclusive, accessible, green and quality public spaces, to improving the resilience of cities to disasters and climate change, including floods, drought risks and heat waves, to improving food security and nutrition, physical and mental health, and household and ambient air quality, to reducing noise and promoting attractive and liveable cities, human settlements and urban landscapes and to prioritizing the conservation of endemic species."⁹¹

South-South cooperation in activities related to cities, human settlements and infrastructure have been increasing in recent years.

Integrated public transport systems in LAC are aimed to reduce both greenhouse gas emissions and particulate air pollution. Examples from Curitiba in Brazil and Bogota in Colombia have been used as models by other large cities in the region including Mexico City, Sao Paulo, and Santiago, and even in Bilbao in Spain. Brazil started implementing a Bus Rapid Transit (BRT) system in 1972. Other cities that

⁸⁷ FAO's response to survey questionnaire.

⁸⁸ Id.

⁸⁹ Id.

⁹⁰ A/RES/71/256, New Urban Agenda, Quito Implementation Plan for the New Urban Agenda, paragraph 13 (g)

⁹¹ Id, paragraph 67.

have implemented the system include Mexico DF, with Metrobus (two BRT corridors, 50 km median busway, 77 stations, four terminals, centralized control using Intelligent Transportation Systems); Santiago de Chile with Transantiago (18.8 km of segregated corridors, 4.6 km of new road connections, 62.7 km of improvements in road geometry and pavements (in seven corridors), 70 large bus shelters along main corridors, and three intermodal stations. 45 km expansion of Metro network); Guayaquil with Metrovia Guayaquil (35 km exclusive bus lanes on the median or left side on one way streets, 60 stations, 3 terminals, centralized control); and Guatemala City (where the BRT system is part of an upgrading plan called Plan Guatemala 2020).⁹²

Saudi Arabia and UNDP have implemented the “Pakistan Community Resilience Project”, which has been supporting community infrastructure rehabilitation in Pakistan following floods. Through the project, 639 community infrastructure schemes have been rehabilitated and restored, including roads, pavements, bridges, and water channels. As a result of this project, more than 800,000 men, women, and children have better access to social services, better crop production, and better access to markets. In addition, community based monitoring committees have been trained and formed for oversight of community development in their areas.⁹³

In addition, in recent years Saudi Arabia provided assistance to Indonesia through direct financial support and loans for infrastructure in response to its natural disasters.

The “Emerging and Sustainable Cities Program” (ESC) is a non-reimbursable technical assistance program from the Inter-American Development Bank (IDB) that provides direct support to national and subnational governments of intermediate cities in LAC that have large populations and dynamic economic growth. The programme assists with the development and execution of city action plans. The ESC employs a multidisciplinary approach to identify, organize and prioritize urban interventions to tackle the main roadblocks that prevent the sustainable growth of emerging cities in the region. This transversal approach is based on three pillars: (i) environmental and climate change sustainability; (ii) urban sustainability; and (iii) fiscal sustainability and governance. The rapid assessment program can identify, prioritise, and organize infrastructure programs in the short, medium and long term, as well as define projects and planning, environmental, fiscal, social and governance projects to improve the quality of life in cities in LAC and improve sustainability. The ESC Urban Dashboard allows comparability of cities against common indicators. All data is open, allowing participating cities and countries to view and learn from each other.⁹⁴

Moreover, the IDB, the German Federal Ministry for Economic Cooperation and Development, and the Engagement Global Service for Development Initiative jointly held the “German-LAC Dialogue on Sustainable Urban Growth” in 2016 for German and Latin American mayors to discuss sustainable urban growth and provided an opportunity to share experiences.⁹⁵ Similarly, also in 2016, IDB, the Span-

⁹² Sustainable Urban Mobility in Latin America and the Caribbean. Thematic study prepared for Global Report on Human Settlements. 2013. Available at https://unhabitat.org/wp-content/uploads/2013/06/GRHS.2013.Regional.Latin_America.and_Caribbean.pdf.

⁹³ UNDP Website. Available at <http://www.undp.org/content/undp/en/home/ourwork/development-impact/south-south-cooperation/featured-stories/featured-stories21.html>.

⁹⁴ A Urban Dashboard website. Available at <http://www.urbandashboard.org/iadb/index.html>.

⁹⁵ 2016 Partnership Report. IDB. Available at <https://publications.iadb.org/bitstream/handle/11319/8235/2016-Partnership-Report.PDF?sequence=1>.

ish Institute for Foreign Trade, and 3 LAC countries came together for a dialogue on urban challenges and opportunities associated with smart cities.⁹⁶

Health, Wellbeing and the Changing Structure of Communities

There is an increasing concern regarding the impacts of climate change on health and wellbeing, mainly due to significant changes in the patterns of temperature and precipitation. This concern includes the food-energy-water-health nexus, with social, environmental and economic implications. Health and wellbeing impacts may also have significant implications in migration and displacement.

The provision of opportunities for education and training for transfer of technology in crucial sectors in healthcare and pharmaceuticals is a traditional thematic area for South-South cooperation. There have been many successful stories in combating diarrheal diseases (for example, “India-Bangladesh Cooperation in Diarrheal Diseases”), improving sexual health (for example, “Pakistan-Nepal South-South Exchange to Strengthen Community Based Organizations Working on Sexual Health”), and lowering costs of HIV antiretrovirals.⁹⁷

In relation to climate change, the cooperation has primarily focused on reducing human exposure to vector-borne diseases – i.e., diseases that are transmitted to humans through the bites of insects (referred to as vectors) that carry the disease-causing pathogens (for example Zika virus, dengue fever, malaria, and Lyme disease).

One example is the engagement of Indian pharmaceutical firms in Africa (mainly Egypt, Ethiopia, Kenya, Mauritius, Mozambique, Nigeria, South Africa, and the United Republic of Tanzania), which has been accelerating in recent years. This engagement includes the export of pharmaceuticals, setting up business partnerships with African hospitals, and medical tourism of Africans to India. India’s outward foreign direct investment in pharmaceuticals in Africa reached \$67.40 million in 2014. Indian pharmaceutical companies have also launched low price anti-malarials.

Similarly, the Chinese government has assisted with anti-malarial programmes in Africa through the provision of medical teams, training programmes, free facilities and drugs, and anti-malarial centres.

In the Caribbean, as a result of the 2008 Caribbean Health Disaster Coordinators meeting, and under the framework of PAHO’s Disaster Strategic Plan, a “Health Sector Self-Assessment Tool for Disaster Risk Reduction” was developed to evaluate key aspects of disaster risk management, notably mitigation and preparedness. The tool, generally limited to information available to or generated by the health sector, aims to aid in determining priorities for a national health sector risk reduction or disaster management program (or set of initiatives) and as a monitoring tool for measuring changes (or lack thereof) over time.⁹⁸

⁹⁶ 2016 Partnership Report. IDB. Available at <https://publications.iadb.org/bitstream/handle/11319/8235/2016-Partnership-Report.PDF?sequence=1>.

⁹⁷ ABIA (2009), “Intellectual Property Rights and Access to ARV Medicines (Brazil, Colombia, China, India and Thailand)”. Available at http://www.abiaids.org.br/_img/media/Intellectual_Property_internet.pdf.

⁹⁸ PAHO (2010), “Health Sector Self-Assessment Tool for Disaster Risk Reduction.” Available at http://www.paho.org/disasters/index.php?option=com_content&view=article&id=1375:health-sector-self-assessment-tool-for-disaster-risk-reduction&Itemid=924&lang=en.

Poverty, Livelihoods and Sustainable Development

Adverse impacts of climate change “are likely to cause an increase in poverty incidence and inequalities by slowing down economic growth and exacerbating food insecurity, health problems and heat stress; and to result in surface-water scarcity and increased exposure to storms and precipitation extremes, coastal flooding, landslides, air pollution and droughts. They may also induce displacement of people and involuntary migration, among other hardships.”⁹⁹

The Paris Agreement emphasizes the intrinsic relationship that climate change actions, responses, and impacts have with equitable access to sustainable development and the eradication of poverty. The Paris Agreement itself aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty.¹⁰⁰

Thus, any adaptation strategy should be in line with sustainable development and the increase of resilience. Poverty eradication is one of the most sustained ways of increasing resilience.

In terms of South-South cooperation, the share of lessons learnt and institution building related to the alleviation of poverty is a common thematic area in undertaking South-South cooperation initiatives (for example the “Bolsa Família” programme in Brazil). However, the poverty-sustainable development-climate change nexus has become more evident, especially after the adoption of the 2030 Agenda for Sustainable Development. Many opportunities for development have been identified, including adaptation with mitigation co-benefits and trade-offs, economic diversification, human security, etc. There have been examples of South-South cooperation in this thematic area mainly focused on adaptation options, adaptive capacity and actions, and their outcomes for resilience and transformation, focusing on low-income households and communities.

For example, the IBSA countries (India, Brazil and South Africa) set up a South-South cooperation fund in 2004 called the IBSA Facility for Poverty and Hunger Alleviation (the IBSA Fund). This is a pioneering and flagship programme of IBSA that became operational in 2006. Each IBSA country contributes \$1 million per annum to the Fund. The main objective of the IBSA Fund is to benefit other developing countries, particularly LDCs and Post-Conflict Reconstruction and Development (PCRD) countries around the world in partnership with the United Nations. This is done by identifying replicable and scalable projects that can be disseminated to interested developing countries as an example of best practices in the fight against poverty and hunger. Projects that contribute towards attaining the sustainable development goals of The 2030 Agenda for Sustainable Development are selected in partnership with interested countries in order to make a difference in the lives of communities in all parts of the world. The IBSA Fund also recognizes the important role it can play in countries emerging from conflict that face a number of developmental challenges, as peace and development are mutually reinforcing. The IBSA Fund underscores the importance of the capacity-building impact of its projects, favours local procurement, and promotes the use of Southern expertise.

⁹⁹ See, e.g., UNDESA, World Economic and Social Survey 2016, p. 6, at http://www.un.org/en/development/desa/policy/wess/wess_archive/wess2016/WESS_2016_Report.pdf.

¹⁰⁰ Paris Agreement, Article 2. Available at <https://unfccc.int/resource/docs/2015/cop21/eng/l09r01.pdf>.

IV. MODALITIES OF SOUTH-SOUTH COOPERATION ON CLIMATE CHANGE

Economic and technical cooperation are the two foundations on which the more comprehensive approach of South-South cooperation was built. Over time, they have been joined extensively and more expansively by focused attention to the social and later the environmental dimensions of South-South cooperation. Developing countries are working together through different modalities of South-South cooperation to address what they perceive as common challenges to their development, including climate change.

South-South cooperation on climate change is a systematic evolution of sets of coordinated activities and mechanisms within a pre-existing framework that fosters linkages among developing countries both individually and jointly in addressing the challenges posed by climate change.

These efforts manifest in at least five modalities of cooperation efforts: bilateral, trilateral, triangular (i.e., efforts led Southern actors that are supported by multilateral organizations and/or Northern partners), regional (including economic and trade integration), and multilateral or globally-focused cooperation.¹⁰¹ In recent years, through the proliferation of these activities, new institutions and new initiatives are being created that build upon, replicate, or enhance older traditions.

Regardless of the modality of cooperation, South-South cooperation has always focused on developing countries and the pursuit of their individual and/or shared national capacity development objectives, for their individual and/or mutual benefit within and across regions. As previously mentioned, South-South cooperation is not a substitute for, but rather a complement to, North-South cooperation.

A. Bilateral Cooperation

Bilateral cooperation between developing countries on climate change is multidimensional (encompassing politics, economics, finance, technology, trade, and investment) and multi-focused, covering a myriad of climate related issues. Neighbours and not so near neighbours seek to support each other in both mitigation and adaptation actions.

Bilateral South-South cooperation is dynamic and follows domestic actions at home: countries' domestic expenditures and activities on climate change adaptation and mitigation determine, to a great extent, the identification of priorities and the sectors of focus of the model for bilateral cooperation on climate change. States seek to do well and share what they do in encouraging other State partners to build resilience and promote sustainable development.

Unlike triangular or multilateral cooperation, bilateral cooperation among developing countries is valued for its horizontality. Bilateral cooperation among equal partners without conditions is grounded in reciprocity and familiarity of experiences, and includes the exchange of knowledge, skills and technical expertise, as well as adaptation to local conditions and to similar and different national circumstances between developing countries. It is also variable and flexible. Horizontal bilateral

¹⁰¹ See SSC /19/3, available at http://www.un.org/ga/search/view_doc.asp?symbol=SSC/19/3.

cooperation between developing countries can involve multiple arrangements, from *ad hoc* or one-off projects, to programmes, mechanisms, and exchanges (functional cooperation).

These projects, programmes and actions may be complementary to, and, in some cases, may derive from overarching bilateral or regional cooperation frameworks, such as, for example, NEPAD in Africa or regional integration arrangements such as the Southern African Development Community (SADC), the Africa-China Forum, or the Turkey-Africa Forum. These arrangements often derive from formal dialogue platforms that facilitate bilateral cooperation relationships. In other cases, it is solidarity and friendship that gives rise to informal non-dialogue cooperation initiatives that may be *ad hoc* -project driven or functional. This has been so, for example, with much of the bilateral relationship between Cuba and Caribbean States. Such relationships are quite dynamic and are being increasingly transformed nowadays into more formal overarching frameworks.¹⁰²

There is an increased recognition that health, energy, infrastructure, and other areas are connected to climate change. For example, current responses to common health challenges, such as pervasive growth of non-communicable diseases, are considered to be connected to the challenges of climate change and related impacts that are common in developing countries. This is also true for current thinking on resilience building and renewable technologies. Therefore, the plethora of horizontal bilateral cooperation efforts and agreements in this area is likely to increase.

Significant numbers of developing countries, regardless of their size and economic situation, are vested as providers and recipients and even cross exchange in bilateral cooperation on climate change. These states are sharing and expanding their policy and implementation on critical areas in their own national context with their regional and cross-regional neighbours.

In Latin America, countries such as Argentina, Mexico and Uruguay are also increasingly vested in bilateral cooperation on climate change. The environmental dimension, which in the report of the Ibero-American region includes 'environmental protection and preservation and disaster prevention as well as reforestation, waste management and recycling, and measures to combat and manage climate change', is an area of active involvement for these countries in recent years. According to the data presented in the report, in 2014, 61 of the projects executed under horizontal bilateral SSC cooperation focused on the environment.¹⁰³ In their bilateral cooperation efforts with non-Ibero-American countries as the recipient, the environmental dimension accounts for 11.5%, with one in ten focusing on environmental initiatives and disaster management (with a focus on Dominica, St. Lucia and St Vincent and the Grenadines, as recipients.)

Similar trends exist in Asia where countries such as Malaysia, Thailand and Viet Nam are increasingly active in South-South bilateral cooperation on climate change, as well as in Africa, with increasing participation of Kenya, Ghana and Morocco.

¹⁰² See, for example, the bilateral cooperation between Cuba and Jamaica administered by the Jamaica/Cuba Joint Commission on Development Cooperation. For the 2012-2014 period, the priorities were: health; education; sports; agriculture; transport; culture; security and maritime sector; energy; and tourism. Jamaica and Cuba have cooperated with other small economies regarding the Agenda for Sustainable Development. Additionally, see the CARICOM-Cuba Trade and Economic Cooperation Agreement (TECA).

¹⁰³ Ibero-America Secretariat General (SEGIB) (2016), "Report on South-South Cooperation in IBERO-America."

B. Trilateral Cooperation

South-South cooperation has proved very effective when developing countries jointly pursue their socioeconomic development, address cross-border issues and/or collectively voice shared concerns to enhance their bargaining power in multi-lateral negotiations.

Trilateral cooperation efforts involve three Southern countries focused on the implementation of given set of objectives. In some cases, countries manage shared resources that none could adequately secure on their own.

For instance, Angola, Namibia and South Africa jointly established the trans-boundary Benguela Current Commission, which is a cooperative arrangement to improve the management of the Benguela Current Large Marine Ecosystem (BCLME). The BCLME, stretching northwards in the Atlantic Ocean from the coast of South Africa along the entire coastline of Namibia into Angola, is one of the richest ecosystems on earth, with fish stocks and other goods and services. Safeguarding this valuable ecosystem confers many economic and other benefits to the three countries without damage to the environment. Given its vulnerability, the Commission promotes a coordinated regional approach to long-term sustainability for this ecosystem. By working in tandem and crosssectorally, Angola, Namibia and South Africa are taking critical steps to ensure the long-term future of their shared ocean-based economies and societies. In recognition of the threat that global climate changes poses for the BCLME, a project is being implemented which aims to build the resilience of marine fisheries by encouraging the implementation of adaptive strategies, as well as to secure food and livelihoods.¹⁰⁴

Whilst trilateral cooperation may benefit regional neighbourhoods, the countries involved do not necessarily need to share borders. Countries in different regions can and often do decide to deepen their ties in various areas.

One example is the Solar Technology Transfer South-South cooperation from China to Fiji and Vanuatu, which aims to promote the deployment of solar energy technologies in Fiji and Vanuatu, as a means of addressing energy access and energy security, by accelerating technology transfer and enhancing local technical capacities.

Another recurring example of trilateral cooperation is the India, Brazil and South Africa (IBSA) initiative, a coordinating mechanism amongst the three countries. The establishment of IBSA was formalised by the Brasilia Declaration of 6 June 2003, which mentions India, Brazil and South Africa's democratic credentials, their condition as developing nations, and their capacity to act on a global scale as the main reasons for the three countries to come together. Over the years, IBSA has become an umbrella for various initiatives, both in the diplomatic field on the international stage and through sector cooperation in priority areas in numerous Working Groups, including on energy (where the main focus areas are biofuels, wind power resources and solar energy), agriculture, environment and climate change. The trilateral cooperation in this case has expanded to broader arrangements, given that IBSA also opens itself to concrete projects of cooperation and partnership with less developed countries.¹⁰⁵

¹⁰⁴ More information on the BCC and its activities is available at <http://www.benguelacc.org/index.php/en>.

¹⁰⁵ More information on IBSA is available at <http://www.ibsa-trilateral.org/>.

C. Triangular Cooperation

Triangular cooperation refers to development initiatives led and owned by Southern actors, supported by multilateral organizations and/or Northern partners. It “involves Southern-driven partnerships between two or more developing countries supported by a developed country(ies)/or multilateral organization(s) to implement development cooperation programmes and projects. Evidence shows that in many instances, Southern partners in development cooperation require the financial and technical support and expertise of multilateral and/or developed-country partners in the course of assisting other developing countries (see TCDC/9/3). Northern partners also benefit by being able to take advantage of increased institutional capacity in the South and to increase the impact of their aid disbursements by leveraging the sources of multiple Southern partners.”¹⁰⁶

In fact, more recently, SSCCC has increasingly received the support of traditional development cooperation partners, such as Germany, Norway, and Sweden, partnering with other bilateral and trilateral cooperation efforts as long as the cooperation process is led and owned by Southern actors. These triangular cooperation efforts operate as complements to South-South cooperation. In this context, SSCCC is valued for the ability to get in on the ground and share experiences with other developing countries.

In addition to developed countries, the organizations of the United Nations development system have also played promotional and catalytic roles in SSCCC, with the understanding that they do not take the lead in executing South-South operational activities, which remain solely the domain of the developing countries themselves.

Member States of the United Nations have consistently called for support for triangular cooperation. The Addis Ababa Action Agenda on Financing for Development highlights the importance of strengthening triangular cooperation as a means of bringing relevant experience and expertise to bear in development cooperation.¹⁰⁷

In addition, the Nairobi Outcome Document¹⁰⁸ recognises the need for international support for South-South cooperation, as it is an important element of international cooperation for developing countries in their individual and collective pursuit of sustained economic growth and sustainable development. The document also called upon the United Nations funds and programmes and invited the specialized agencies to continue to enhance the capacities of developing countries to develop and formulate development cooperation programmes, strengthen the capacities of regional and sub-regional organizations, and conduct research to identify areas where support for South-South cooperation will have the greatest impact.

The United Nations’ support for triangular cooperation in the context of SSC was further strengthened through the “Framework of operational guidelines on the United Nations support for South-South and triangular cooperation”, an outcome

¹⁰⁶ SSC/19/3, “Framework of operational guidelines on United Nations support to South-South and triangular cooperation”, paragraph 11.

¹⁰⁷ Addis Ababa Action Agenda, paragraph 57.

¹⁰⁸ A/RES/64/222, Resolution adopted by the General Assembly: “Nairobi outcome document of the High-level United Nations Conference on South-South Cooperation”, Sixty-fourth session, Agenda item 58 (b). Available at <http://ssc.undp.org/content/dam/ssc/documents/Key%20Policy%20Documents/Nairobi%20Outcome%20Document.pdf>.

document of the nineteenth session of the High-level Committee on South-South cooperation (SSC/19/3). The framework provides priority actions and performance indicators for United Nations organizations and agencies in their roles within their respective areas. The guidance note is a tool and reference manual on ways to mainstream South-South and triangular cooperation in the development planning and programming of United Nations funds, programmes, specialized agencies and regional commissions at the global, regional and country levels.¹⁰⁹

In general, United Nations organizations play a key role in supporting and facilitating South-South cooperation initiatives at all these levels. The United Nations has institutionalized South-South and triangular cooperation in its operational activities towards the implementation of the 2030 Agenda for Sustainable Development. United Nations organizations are taking a series of measures to further mainstream South-South cooperation and triangular cooperation into their policy frameworks and corporate strategies. Some agencies have allocated dedicated funds and/or recruited specialists to boost their South-South cooperation initiatives not only at headquarters but, increasingly, at the country and regional levels.¹¹⁰

Following are some of the United Nations efforts to support South-South cooperation. This information is a synthesis of information provided through responses to surveys. More information can be found in the electronic annex of this report.

UNDP issued its first corporate strategy on South-South and Triangular cooperation in 2016, presenting three service packages to enable UNDP to scale up its support, namely (i) a global development solution exchange for South-South cooperation and triangular cooperation (SSMart for Sustainable Development Goals); (ii) research-informed support to global dialogues as well as system coordination and collaboration; and (iii) creation of an enabling environment for South-South cooperation and triangular cooperation at the country and regional levels.¹¹¹

UNDP's SSCCC activities, programmes and projects are built across its extensive climate change portfolio.¹¹² Information regarding its partner providers and beneficiaries that includes over 140 countries can all be found in its climate change infographic report.¹¹³

FAO supports the implementation of SSC initiatives on a climate change. Given the strong linkages between FAO's mandate on food and agriculture and climate change adaptation and mitigation, many SSC initiatives supported by FAO have at least one component that is climate change related. FAO launched its corporate strategy on South-South cooperation in 2013, expanding the vision and scope for South-South cooperation within and beyond FAO through a wider range of modalities and strengthened and broadened partnerships, in support of the organization's strategic objectives, regional initiatives and country programming framework. FAO's quick guide to South-South cooperation was established in 2015.¹¹⁴ For newer and more

¹⁰⁹ SSC/19/3, "Framework of operational guidelines on United Nations support to South-South and triangular cooperation", paragraph 1.

¹¹⁰ A/72/297, Secretary-General Report, "State of South-South cooperation", paragraph 12.

¹¹¹ Id, paragraph 15.

¹¹² Available at http://www.undp.org/content/dam/undp/library/development-impact/SS%20Research%20Publications/11960%20-%20Design%20for%20Scaling-up%20South-South%20Cooperation%20for%20Sustainable%20Development%20-%202009-3_Web.pdf.

¹¹³ UNDP and Climate Change, "Zero Carbon, Sustainable Development", 2015.

¹¹⁴ <http://www.fao.org/documents/card/en/c/c92d7f0f-2655-4a54-9cee-61462ea3d17d/>.

flexible South-South cooperation modalities, such as short-term exchange of expertise and access to technical education training courses, new guidelines and standard agreements are being developed or modified.

Almost all FAO South-South cooperation initiatives have strong components of technology development and transfer, as well as capacity development, given that the exchange of knowledge, expertise and development solutions is at the core of South-South cooperation, irrespective of the specific modality applied. Exchanges facilitated by FAO have included trainings and study tours as modalities of cooperation, as well as policy dialogues. Short-term and long-term expertise and in-kind and technical solutions are other frequently used modalities.

The International Fund for Agricultural Development (IFAD) has also prioritized South-South and triangular cooperation in its strategic framework 2016-2025, which reflects the organization's shared understanding with Member States of the importance of South-South and triangular cooperation for improving rural livelihoods through technical cooperation and investment promotion.¹¹⁵

In 2017, the United Nations Population Fund (UNFPA) adopted a corporate strategy (2018-2021) to scale South-South and triangular cooperation for the implementation of the Programme of Action of the International Conference on Population and Development beyond 2014 at the national level.

The United Nations Industrial Development Organization (UNIDO) adopted a new operational strategy for South-South and triangular cooperation in a way that will facilitate the implementation of Sustainable Development Goal 9 (Industry, Innovation and Infrastructure).

The United Nations Children's Fund (UNICEF) adopted a new strategic plan in 2017, covering the period 2018-2021, to promote cooperation, share lessons learned, and foster innovation and partnerships through South-South and triangular cooperation. In 2016, 74 percent of all new country programme documents approved by the UNICEF Executive Board reflected South-South cooperation.

Also, the World Food Programme (WFP) features South-South and triangular cooperation as one of its two implementation strategies. WFP's strategic framework (2017-2021) underscores the role of technical assistance and partnership strategy.

The World Intellectual Property Organization (WIPO) integrated the role of South-South and triangular cooperation in its budget to support innovation and creativity in order to address specific level of development.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) integrated South-South and triangular cooperation as a modality for the implementation of its medium-term strategy (2014-2021).

The World Health Organization (WHO) integrated South-South and triangular cooperation into its programme budget 2018-2019 recently adopted by the 70th World Health Assembly.

South-South cooperation was also accorded high priority in the strategic plans and policy frameworks of the United Nations Environment Programme (UNEP). In its medium-term strategy for 2014-2017, UNEP has recognized opportunities to enhance partnerships and the coherence and efficiency of its work through South-South cooperation.

¹¹⁵ More information available at https://www.ifad.org/topic/overview/tags/south_south.

The United Nations Volunteers (UNV) programme, guided by its strategic framework, its youth volunteering strategy and its partnerships strategy for 2014-2017, has continued to mobilize many specialized professionals from programme countries to deliver a wide range of development activities in other programme countries.

The South-South activities of United Nations University (UNU) that were budgeted in 2005 involved two training programmes on forestry management and on assessing sustainable development. Most UNU activities involve South-South cooperation in that they engage individuals and institutions in developing countries and focus on issues identified by their Governments as being of major concern.

Other examples from United Nations and other organizations are presented in other subsections of this report.

Furthermore, triangular cooperation as Southern-driven partnerships between two or more developing countries supported by multilateral organizations is not limited to United Nations organizations. These non-United Nations multilateral organizations operate both at regional and global levels. The following sections provide examples of SSC at these levels, which are in most cases also examples of trilateral cooperation.

D. Regional Cooperation

It is well recognized that “most South-South interactions occur within regional neighbourhoods owing to commonality of history, language, culture, ethnicity and geographical proximity. Regional neighbourhoods are also well suited to South-South collaboration to address such cross-border issues as infrastructure development, customs procedures, migration laws and climate change.”¹¹⁶

Regional cooperation has evolved into quite sophisticated mechanisms, including regional economic cooperation and trade blocs, such as the Community of Latin American and Caribbean States (CELAC), the Union of South American Nations (UNASUR), the Southern Common Market (MERCOSUR), the Caribbean Community (CARICOM), the Bolivarian Alternative for the Americas (ALBA), Alianza Pacifico/the Pacific Alliance, the Latin America and Caribbean Economic System (SELA), in the Latin American and Caribbean region; the Gulf Cooperation Council (GCC) in the Arab region; the Association of Southeast Asian Nations (ASEAN), the South Asian Association for Regional Cooperation (SAARC), the Asia Pacific Economic Cooperation (APEC), and the Pacific Islands Forum (PIF) in Asia and the Pacific region; and the Southern African Development Community (SADC), the West African Economic and Monetary Union (WAEMU) and, ultimately, the African Union (AU) in the African region.

In terms of implementation of climate change-related activities at the regional level, one of the primary institutional mechanisms for the African Union that has been recently developed is the Africa Renewable Energy Initiative (AREI), which was officially launched on 1st December 2015 at the COP21 in Paris by African Heads of State. This initiative is an inclusive, transformative, Africa-owned and

¹¹⁶ SSC/19/3, “Framework of operational guidelines on United Nations support to South-South and triangular cooperation”, p. 18.

Africa-led effort to accelerate and scale up the harnessing of the continent's huge renewable energy potential. Under the mandate of the African Union and endorsed by the Committee of African Heads of State and Government on Climate Change (CAHOSCC), the initiative is set to achieve at least 10 GW of new and additional renewable energy generation capacity by 2020, and at least 300 GW by 2030.

The AREI has two overarching goals: to help achieve sustainable development, enhanced well-being, and sound economic development by ensuring universal access to sufficient amounts of clean, appropriate and affordable energy; and to help African countries leapfrog towards renewable energy systems that support their low-carbon development strategies while enhancing economic and energy security.

The AREI focuses on building integrated solutions to the twin challenges of universal energy access and climate change. The basic premise of the initiative is that all societies, including those in Africa, must transition to low-to-zero carbon energy systems in order to avoid catastrophic climate change. In accordance with the commitments and principles embodied in the UNFCCC, these efforts by Africa must be supported through international public climate finance, among other sources. The initiative emphasizes the need to go beyond expanded electricity access for households and families, and to also provide sufficient volumes of modern energy carriers to drive the development of the productive sectors in both local and national contexts – for job creation, thriving economic development, and increased resilience. The initiative intends to explore all the potentials of South-South cooperation to complement the support from the partners of the North to achieve its objectives.

The Caribbean Community's Renewable Energy Development Programme (CREDP), as a result of collaborative research and experience sharing among CARICOM member States, helped identify barriers to the development and use of renewable energy technologies in the Caribbean region, such as inadequate policy framework, financing, human and institutional capacities and low awareness and information.

The United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP) activities on climate change-related work are implemented by its various divisions. UNESCAP is of the view that South-South activities could be strengthened and mainstreamed across UNESCAP's subprograms, many of which have a climate element that is supporting national implementation of the Paris Agreement. Such activities are focused on UNESCAP subprograms on sustainable energy, environment, disaster risk reduction and ICT, sustainable transport, macroeconomic development and finance. UNESCAP Member States have adopted a Regional Roadmap for the Implementation of the 2030 Agenda for Sustainable Development in Asia Pacific, which clearly sets out their priorities for UNESCAP's work, including for climate change, energy and disaster risk reduction. The Regional Roadmap guides the work not only of the UNESCAP, but also of the other United Nations agencies coordinated through the United Nations Regional Coordination Mechanism.

One example of UNESCAP's support to SSCCC is the project "Network for Knowledge Transfer on Sustainable Agricultural Technologies and Improved Mar-

¹¹⁷ The Asia-Pacific Centre for Technology Transfer (APCTT) was established in 1977 in New Delhi, India. See <http://www.apctt.org>.

ket Linkages in South and Southeast Asia” (SATNET Asia) (2012-15), in partnership with the Centre for Alleviation of Poverty through Sustainable Agriculture (CAPSA). This project is focused on supporting innovation by strengthening South-South dialogue and intraregional learning on sustainable agriculture technologies and trade facilitation, thereby contributing to improved food security and reduced poverty of the poorest and most vulnerable people in South and Southeast Asia. As part of this project, the Asia-Pacific Centre for Technology Transfer (APCTT)¹¹⁷ organized national capacity building activities in six South Asian countries namely, Afghanistan, Bangladesh, Bhutan, India, Nepal and Pakistan. This led to the successful promotion of climate-resilient sustainable agricultural technologies that are useful in both climate change mitigation and adaptation related aspects.

The need for leveraging South-South and regional partnerships was highlighted in the proposed strategic framework for the period 2018-2019¹¹⁸ of the United Nations Economic Commission for Africa (UNECA), which is a guidance framework for effectively supporting the implementation and follow-up of the 2030 Agenda for Sustainable Development, the AAAA on financing for development and African Union’s Agenda 2063. South-South Cooperation on Climate Change in ECA’s strategic work is a responsibility within the African Climate Policy Centre (ACPC).¹¹⁹ Established in 2010, the ACPC is a hub for knowledge generation and delivery to support mainstreaming of climate change into development policy and planning in Africa. ACPC is a driving force in supporting initiatives in the continent to deal with the challenges posed by climate change. As a dedicated climate centre within UNECA, the ACPC provides support to Member States in addressing challenges of climate change in key development sectors, and putting in place appropriate plans and mechanisms to reflect such challenges in the national development priorities, policies, strategies and programmes.¹²⁰

The United Nations Economic Commission for Latin America and the Caribbean’s (UNECLAC) SSCCC activities are handled by the Economics of Climate Change Unit (ECCU), a unit within UNECLAC’s Sustainable Development and Human Settlements Division. The SSCCC activities covered are concentrated on mitigation and adaptation areas. In particular, they concentrate on the elaboration, instrumentation and evaluation of specific public policies including fiscal policies. UNECLAC believes that SSCCC activities in Latin America and the Caribbean should provide opportunities for sharing experiences related to the identification, planning, and implementation of climate-related public policies and to improve the technical expertise in the region. These experiences would pose different challenges that need to be addressed including intersectorial and interdisciplinary coordination; institutional capabilities and governance; communication strategies to address political economy issues; the political agenda; and technical expertise.

The United Nations Economic and Social Commission for Western Asia’s (UN-

¹¹⁸ The proposed strategic framework for the period 2018-2019 was presented to the Ninth Joint Annual Meetings of the African Union Specialized Technical Committee on Finance, Monetary Affairs, Economic Planning and Integration and the Economic Commission for Africa Conference of African Ministers of Finance, Planning and Economic Development Meeting of the Committee of Experts in Addis Ababa, 31 March - 2 April 2016.

¹¹⁹ African Climate Policy Centre (ACPC) website available at <https://www.uneca.org/acpc>.

¹²⁰ UNECA (2017), “The African Climate Policy Centre retools to strengthen the implementation of the Paris Agreement for Africa’s transformation.” Available at <https://www.uneca.org/stories/african-climate-policy-centre-retools-strengthen-implementation-paris-agreement-africa%E2%80%99s>.

ESCWA) SSCCC-related cooperation on climate change activities are handled by its Sustainable Development Policies Division. UNESCWA covers the areas of climate change mitigation, adaptation, and capacity building on climate change negotiations for Arab negotiators.

UNESCWA supported the exchange of experiences by Arab countries in the use of integrated water resources management (IWRM) tools to support climate change adaptation; exchange of views and experiences among countries on key issues and indicators characterizing climate change vulnerability; and increased understanding of use of climate science and assessment tools to inform climate change adaptation and negotiations, and mobilize action and awareness about climate change in the Arab region. Arab countries, with support from ESCWA, are working with each other through the “Regional Initiative for the Assessment of Climate Change Impact on Water Resources and Socio-Economic vulnerability in the Arab Region” (RICCAR) to increase understanding of use of climate science and assessment tools to inform climate change adaptation and negotiations, and mobilize action and awareness about climate change in the Arab region.

The ASEAN¹²¹ member States, both individually and collectively, have taken actions to address climate change through various environmental, economic and social activities. Several member States have announced voluntary nationally appropriate mitigation actions for 2020, including Indonesia (emission reduction of 26 per cent from business-as-usual (BAU) by 2020, which can be increased to 41 per cent with enhanced international assistance), Malaysia (reduction of 40 per cent in terms of energy intensity of GDP by 2020 compared to 2005 levels), Philippines (deviate by 20 per cent from BAU of their emission growth path), and Singapore (emission reduction of 16 per cent below BAU by 2020). They have also started strengthening their adaptive capacity through mainstreaming climate change adaptation in development planning.¹²²

The Association of Southeast Asian Nations Summits have issued declarations and statements related to climate change at their 2007, 2009 2010, 2011, 2014, 2015, and 2016 summit editions, in which common positions and views on addressing climate change were expressed and regional initiatives indicated.¹²³ Collectively, Association of Southeast Asian Nations countries have been responding to climate change by focusing on the implementation of relevant actions in the Association of Southeast Asian Nations Socio-Cultural Community (ASCC) Blueprint 2009-2015. They also established the Association of Southeast Asian Nations Working Group on Climate Change (AWGCC) in 2009 to oversee the implementation of the relevant action lines in the ASCC Blueprint.¹²⁴ Due to the crosssectoral nature of climate change issues, climate change is addressed not only by AWGCC, but also by other relevant working groups in the environmental sector and beyond (such

¹²¹ Established in 1967, the Association of Southeast Asian Nations has grown from the original five founding member States (Indonesia, Malaysia, Philippines, Singapore and Thailand) to the current ten member States (with the addition of Brunei Darussalam in 1984, Viet Nam in 1995, Lao PDR and Myanmar in 1997, and Cambodia in 1999).

Association of Southeast Asian Nations website, available at <http://asean.org/asean/about-asean/overview/>.

¹²² ASEAN Cooperation on Climate Change. More information available at: <http://environment.asean.org/climate-change-page/>.

¹²³ Id.

¹²⁴ See also <http://environment.asean.org/asean-working-group-on-climate-change/>.

as agriculture and forestry, energy and transport, and science and technology).¹²⁵

Cross-regional activities have also been developed. In 2010, Caribbean Community and Pacific Community organizations established a South-South cooperation programme between Caribbean and Pacific small island developing States on climate change adaptation and disaster risk management. This programme is designed to enable the exchange of ideas, experiences and best practices between SIDS in the Pacific and the Caribbean in order to find suitable solutions and replicate best practices. Regional partners in the Caribbean included the Caribbean Disaster and Emergency Management Agency (CDEMA); CARICOM Climate Change Centre (CCCC); and the University of the West Indies (UWI). The regional partners in the Pacific included the Pacific Islands Applied Geo-Science Commission (SOPAC); South Pacific Regional Environmental Programme (SPREP); the Pacific Community; and the University of the South Pacific (USP). Various UNDP regional centres were also involved, including the UNDP Pacific Centre, the regional UNDP programme Caribbean Risk Management Initiative (CRMI), and UNDP's sub-regional Centre in Trinidad and Tobago.

Moreover, many SSCCC have been supported and financed by regional development banks and other regional financial institutions, such as the African Development Bank (AFDB), Asian Development Bank (ADB), Inter-American Development Bank (IDB) and the Development Bank of Latin American (CAF).

E. Multilateral or Globally-Focused Cooperation

Multilateral or globally-focused South-South cooperation refers to initiatives in which developing countries combine resources, beyond specific geographical regions, towards a set of political outcomes or mechanisms. Examples include the political entity NAM (1961) and the G77 negotiating bloc (1964), both created by the Bandung Conference of 1955, and their various declarations and plans of actions. A significant multilateral cooperation effort among developing countries in the trade and economic dimension is the Global System of Trade Preferences among Developing Countries (GSTP), negotiated since 1976 and launched in 1988.

More recently, the BASIC group, comprised of Brazil, South Africa, India and China, was formed by the agreement on 28 November 2009. BASIC countries that committed to act jointly at the highest political level at the United Nations multilateral climate change regime, have also been cooperating on climate change related issues beyond negotiations. The BASIC countries have had their 24th Ministerial meeting on climate change and have also been supported by the BASIC Experts' group/Basic Expert Forum, which has produced reports such as the 'Framework for Equitable Access to Sustainable Development', and has worked on a common reporting format for rigorous, robust and transparent accounting of finance by Annex I Parties. More recent meetings of the group have had the "BASIC plus" element that involves inviting other developing countries. Argentina, Fiji (COP President for COP 23), Paraguay, Peru, Venezuela, and Ecuador (as Chair of the Group of 77 and China in 2017) are examples of other countries that have attended the meetings as observers.

¹²⁵ Id.

Other multilateral examples of South-South cooperation on climate change include the founding of the Asian Infrastructure Development Bank (AIIB), the BRICS's New (Multilateral) Development Bank (NDB) and developing countries' contribution to international climate finance.

The AIIB has funded renewable energy, climate resilience and climate smart projects in the Philippines (Flood Management in Metro Manila, with the World Bank), Egypt (renewable energy development and Solar PV Feed-in Tariff program) and Sri Lanka (climate resilient improvement project).

The NDB describes itself as an international organization jointly founded by the BRICS, which is focused on infrastructure and sustainable development, with 60 per cent of funding allocated for renewable energy in other emerging economies and developing countries. Increasingly, the AIIB and the NDB are undertaking joint financing and research efforts.

Some developing countries have also directly contributed to internationally available climate finance through contributions to the Global Environmental Facility (GEF) and the Green Climate Fund (GCF). Developing countries have been consistent contributors to the GEF since its inception. In the most recent replenishment cycle Argentina, Bangladesh, Brazil, China, Côte d'Ivoire, Egypt, India, Indonesia, Mexico, Nigeria, Pakistan, and South Africa all contributed to the \$4.43 billion raised for the GEF-6 period that runs from 2014 to 2018.¹²⁶

The Belt and Road Initiative championed by China, with over 100 countries expressing interest in partnerships, is another example of multilateral cooperation, which will provide new opportunities and impetus for international collaboration, including South-South cooperation. The initiative focuses on promoting policy coordination, connectivity of infrastructure and facilities, unimpeded trade, financial integration and closer people-to-people ties.¹²⁷

Given that climate change challenge is global in nature, there has been an increasing number of SSCCC that are multilateral or globally focused. A cross-regional example of SSCCC with global implications was the creation, with support from Australia, Spain and UNIDO, of the "Global Network of Regional Sustainable Energy Centres" in order to strengthen participating countries' technical capacities at a regional level while addressing the existing barriers for renewable energy and energy efficiency investments, markets and industries.

In other cases, cultural ties that go beyond a specific region can open opportunities for cooperation. For instance, as part of its cooperation within the Community of Portuguese-speaking Countries (CPLP), Brazil contributed to the institutional and political strengthening of CPLP member States in several areas, including the project "Availability of Cultivars and Training for the Implementation of Sustainable Vegetable Production Systems in African Portuguese-speaking Countries and East Timor". The project contributed to the promotion of food and nutritional security in São Tomé and Príncipe, Guinea Bissau and Cape Verde through increased production and consumption of vegetables as a result of joint technical assistance and capacity building activities undertaken by the Brazilian Agricultural Research Corporation (Embrapa) and the Ministries of Agriculture of Cape Verde, São Tomé and Príncipe and Guinea-Bissau.

¹²⁶ See <https://www.thegef.org/partners/countries-participants>.

¹²⁷ A/72/297, State of South-South Cooperation, Report of the Secretary-General, 2017, p. 2.

China and India have launched programmes related to SSCCC at a global scale. In June 2017, India launched the India-United Nations Development Partnership Fund as a dedicated facility within the United Nations Fund for South-South Cooperation (UNFSSC) to be managed by the United Nations Office for South-South Cooperation and implemented in collaboration with the United Nations system. It is intended to support “Southern-owned and led, demand-driven, and transformational sustainable development projects across the developing world, with a focus on least developed countries and small island developing States.”¹²⁸ The Fund’s first project is the establishment of a “Climate Early Warning System in Pacific Island Countries” (CEWSPIC) that would develop an early warning system for extreme weather conditions related to El Niño for the Cook Islands, Kiribati, the Marshall Islands, Micronesia, Nauru, the Solomon Islands and Tonga.¹²⁹ In 2015, China’s “Ten-Hundred-Thousand Initiative” was launched involving 10 low carbon pilot projects, 100 mitigation and adaptation projects, and 1000 training opportunities to other developing countries on South-South cooperation on climate change.¹³⁰

¹²⁸ For more information about the India-United Nations Development Fund, see e.g. <https://www.unsouthsouth.org/partner-with-us/india-un-fund/> and <https://www.unsouthsouth.org/2017/06/12/india-announces-the-launch-of-the-india-un-development-partnership-fund-at-the-united-nations-general-assembly-ocean-conference/>.

¹²⁹ See <http://www.thehindu.com/todays-paper/tp-in-school/india-un-fund-launched-to-aid-least-developed-nations/article18952713.ece>.

¹³⁰ Available at <http://earthjournalism.net/stories/china-would-facilitate-south-south-cooperation-on-climate-change-as-third-party-said-former-minister-xie-zhenhua>.

V. TYPES OF SOUTH-SOUTH CLIMATE CHANGE COOPERATION

There are no commonly defined types of South-South cooperation.

In the outcome document of the High-level United Nations Conference on South-South Cooperation, held in Nairobi in December 2009, the United Nations system was requested to help developing countries to establish or strengthen South-South centres of excellence, within their respective areas of competence, and enhance closer cooperation among such centres of excellence, especially at the regional and interregional levels, with a view to improving South-South knowledge-sharing, networking, mutual capacity-building, exchanges of information and best practices, policy analysis and coordinated action among developing countries on major issues of concern.

There are a significant number of types of cooperation under which SSCCC is taking place. The thematic areas identified in this report are based on existing literature on both South-South general cooperation and on climate change related issues, but the categories used in this report were established by the joint research team that prepared it.

Moreover, the application of the framework proposed in this section does not limit the range of interconnections that can be identified within the examples covered in this report. Types of activities, as well as thematic areas and modalities of action, are not isolated compartments, but rather interconnected; there are certainly overlaps among examples of SSCCC. For instance, an example of SSCCC in capacity building can also be an example of technology development and transfer, which can also be an example of strengthening an institutional framework.

A. Capacity Building

Capacity building is one of the main activities for SSCCC. All of the identified countries active in SSCCC undertake capacity building activities with another partner as a key type of cooperation. This is due to the belief that capacity building leading to the strengthening of institutional and human resources in the partner country, which in turn helps improve the institutional ability of the partner country to undertake climate change actions that are consistent with their national priorities and objectives. But it is also because capacity building activities are cheaper to implement, which is a significant reason in the scenario of scarce resources for South-South cooperation.

Capacity building encompasses a country's human, scientific, technological, organizational, institutional and resource capabilities. The fundamental goal of capacity building is to enhance the ability to evaluate and address the crucial questions related to policy choices and modes of implementation among development options, based on an understanding of environment potentials and limits, as well as of needs perceived by the people of the country concerned.¹³¹

Capacity building is one of the key elements in the Paris Agreement. Article 11.1

¹³¹ Capacity Building – Agenda 21's definition (Chapter 37, UNCED, 1992). Available at: <https://www.gdrc.org/uem/capacity-define.html>.

of the Paris Agreement highlights that capacity-building should enhance the capacity and ability of developing country Parties (in particular countries with less capacity, such as the least developed countries, and those that are particularly vulnerable to the adverse effects of climate change, such as small island developing States) to take effective climate change action, including, inter alia, to implement adaptation and mitigation actions, and should facilitate technology development, dissemination and deployment, access to climate finance, relevant aspects of education, training and public awareness, and the transparent, timely and accurate communication of information.

Some of the priority areas for capacity-building that have been identified by the UNFCCC Conference of the Parties include:¹³²

- ▶ Institutional capacity building, including the strengthening or establishment, as appropriate, of national climate change secretariats or national focal points;
- ▶ Enhancement and/or creation of an enabling environment;
- ▶ National communications;
- ▶ National climate change programmes;
- ▶ Greenhouse gas inventories, emission database management, and systems for collecting, managing and utilizing activity data and emission factors;
- ▶ Vulnerability and adaptation assessment;
- ▶ Capacity-building for implementation of adaptation measures;
- ▶ Assessment for implementation of mitigation options;
- ▶ Research and systematic observation, including meteorological, hydrological and climatological services;
- ▶ Development and transfer of technology;
- ▶ Improved decision-making, including assistance for participation in international negotiations;
- ▶ Clean development mechanisms;
- ▶ Needs arising out of the implementation of article 4, paragraphs 8 and 9, of the Convention;
- ▶ Education, training and public awareness; and
- ▶ Information and networking, including the establishment of databases.

As a result, SSCCC-related capacity building activities, involving in particular the exchange of expertise, experience, and knowledge, have become a common modality using bilateral, multilateral, or regional mechanisms, and in some cases are being supported through triangular cooperation with United Nations entities and other multilateral organizations.

China has been very active in this area. Between 2004 and 2010, at least 115 projects were implemented, with some still on-going, that were designed to assist other developing countries in tackling climate change, at a total investment of approximately RMB 1.17 billion. These included technical training seminars on small-sized

¹³² UNFCCC decision 2/CP.7, Capacity building in developing countries (non-Annex I Parties), Annex. More information available at: <http://unfccc.int/resource/docs/cop7/13a01.pdf#page=5>.

hydropower stations for African countries; water-soil conservation and rain-fed farming for African countries; solar energy applications, water-saving irrigation, forest conservation and exploitation in African countries; Clean Development Mechanism (CDM) training workshops for African countries; rainwater collection and utilization; and climate system and climate change analysis. In addition, over the past six years, China has had agreements with 27 other developing countries and successfully held 24 symposiums relating to South-South cooperation on climate change.¹³³ Since 2012, China has increased its South-South cooperation activities for tackling climate change by, *inter alia*, deepening cooperation with other developing countries on climate change issues in the context of its strengthened engagement and participation in multilateral negotiations on climate change within the United Nations framework and outside the UNFCCC, and its engagement in bilateral and multilateral climate change dialogues with various partners.¹³⁴

In 2013, the focus of China's climate change-related South-South cooperation activities were identified as including: the provision of in-kind support (materials and technology) and the establishment of cooperation mechanisms to help other countries respond to climate change; the provision of support to other countries to participate in international climate change negotiations through the coordination of their positions and the provision of research support; the development of innovative cooperation models with relevant international organizations to support and expand South-South cooperation; the building of a platform for the promotion of technical standards to help improve innovation capacity and carry out exchange and cooperation on mitigation and adaptation; and the conduct of expert exchanges, trainings and other capacity building activities to strengthen human resources and skills in other developing countries to build capacity to cope with climate change.¹³⁵

As part of its climate change policy, India has been also active in various international cooperation activities relating to climate change, especially those involving new and renewable energy, capacity building, science and technology, agriculture, training and education.¹³⁶ Capacity building is an important component of India's climate change-oriented South-South cooperation initiatives, given that Indian South-South cooperation rests on its "development compact" approach that is based on five action pillars: capacity-building and skills transfer; concessional finance (further divided into grants and lines of credit); preferential trade; investment; and technical cooperation. Moreover, Indian SSCCC provides for flexibility in terms of delivery modalities to partner countries and emphasizes mutual gains between the partners by linking the activities to the broader eco-

¹³³ China News: International Cooperation of Climate Strategy, Promote the Green Development of South - South Cooperation. Available at: <http://www.chinanews.com/gn/2016/07-10/7933867.shtml>.

¹³⁴ White paper: China's Policies and Actions for Addressing Climate, IX. Enhancing International Exchanges and Cooperation (2013). Available at http://www.china.org.cn/government/whitepaper/2013-11/10/content_30555370.htm For more information about China's South-South cooperation on climate change activities, see, e.g., Weigel, Moritz (2016). "China's Climate Change South-South Cooperation: Track Record and Future Direction" (UNDP-China). Available at <http://www.cn.undp.org/content/china/en/home/presscenter/articles/2016/04/22/undp-china-releases-pioneering-study-on-china-s-south-south-cooperation-on-climate-change-mitigation-and-adaptation.html>.

¹³⁵ China SSC Network (2013), "China actively advocates South-South cooperation in five areas to strengthen cooperation in the field of climate." Available at <http://ecdc.net.cn/news/detail.aspx?ClassID=8&ContentID=3281>.

¹³⁶ National Action Plan for Climate Change (NAPCC). More information available at: <http://www.recddl.in/prgfee/napcc.html>.

conomic strategies of the recipient country.¹³⁷

India has substantially increased its support for capacity development in Africa. New initiatives, such as “Made in India” and “Digital India”, offer opportunities to broaden its cooperation with partner countries. India’s “BASIX African Livelihoods Partnership” (ALP), originated by an Indian social enterprise group,¹³⁸ has sought to enhance livelihoods of the poor in Cameroon, Mozambique, and the United Republic of Tanzania, in a sustainable, scalable and innovative manner through trainings and other capacity building initiatives. ALP works with vulnerable populations like smallholder farmers, including pastoralists and fishermen, women as micro-entrepreneurs and homemakers, and the youth, who are aspiring and jobless.

The “Barefoot College Solar Engineers” is an Indian government project that provides skills building and capacity training to the rural poor, particularly women, in Africa by training them in India to fabricate, install, repair, and maintain their own solar systems. The Barefoot College model has since been adopted by Sierra Leone, and five regional training centres have been established in Burkina Faso, Liberia, South Sudan, Senegal and the United Republic of Tanzania.

Brazilian technicians have worked with teams from other developing countries (for example other Portuguese speaking countries, Botswana) and provided training for preparing National Communications to the UNFCCC and the establishment of Designated National Authorities in other developing countries under the Clean Development Mechanism (CDM).

Indonesia has also been very active in supporting international cooperation activities on climate change. For example, between 2000 and 2008, at least 91 training, public awareness and capacity building activities related to climate change were conducted in Indonesia, most of them involving both national and other developing country participants.¹³⁹ Capacity building activities conducted before 2006 were dominated by workshops; after 2006 most activities were in the format of climate change seminars.¹⁴⁰ Indonesia’s South-South cooperation programmes that are relevant to climate change include capacity building under the “National Program for Community Empowerment” (PNPM); “Revitalization of Farmer’s Agricultural and Rural Training Center” (FARTC); disaster risk reduction and climate change programme; scholarship for partnership programme; and capacity building on macro-economic, public finance and micro finance programme.¹⁴¹

¹³⁷ Policy Brief: Indian Development Cooperation: A Theoretical and Institutional Framework. p.3. Available at: http://ris.org.in/pdf/fidc_policybrief7.pdf. For more information about India’s development cooperation framework, see also Sachin Chaturvedi, *The Logic of Sharing: Indian Approach to South-South Cooperation* (RIS and Cambridge University Press 2016); Sachin Chaturvedi, *The Emerging Institutional Architecture of India’s Development Cooperation*, in Elizabeth Siridopoulos et al. (eds.), *Institutional Architecture and Development: Responses from Emerging Powers* (SAIIA 2015), pp. 138-154; Sachin Chaturvedi and Anthea Mulakala (eds.), *India’s Approach to Development Cooperation* (Routledge 2016), pp. 1-78 – e.g. Saroj Kumar Mohanty, *Shaping Indian development cooperation: India’s mission approach in a theoretical framework* (pp. 1-13); Manmohan Agarwal, *the role of aid in India’s economic development cooperation: finance, capacity building and policy advice* (pp. 14-28); Kumar Tuhin, *India’s development cooperation through capacity building* (pp. 29-44).

¹³⁸ India-Africa Partnership: Towards Sustainable Development. Available at: http://ris.org.in/sites/default/files/pdf/India_Africa_Partnership_Towards_Sustainable_Development_Report.pdf.

¹³⁹ Indonesia’s Second National Communication to the UNFCCC. Chapter III, p.1. More information available at: <http://unfccc.int/resource/docs/natc/indonc2.pdf>, p.182.

¹⁴⁰ Id, p.184.

¹⁴¹ Government Resource, Government of Indonesia, Ministry of Foreign Affairs: “Indonesia’s South-South and Triangular Cooperation: Our stories, experience and.. on moving forward.” p.11. More information available at <https://asiafoundation.org/resources/pdfs/IDSitiNugrahaMauludiah.pdf>.

Saudi Arabia has been supporting the strengthening of the capacities of Arab countries to participate effectively in the climate change negotiations through annual trainings and workshops for their climate change negotiators, in partnership with the League of Arab States, ESCWA, and other agencies.

Singapore provides technical assistance to other developing countries under the “Singaporean Cooperation Programme” (SCP) established in 1992, sharing experience and expertise, in particular, on human resource development and economic development with other countries in lieu of providing direct financial support.¹⁴²

Examples of multilateral mechanisms for South-South cooperation in promoting capacity building with respect to climate change issues can also be found. For example, the IBSA Fund underscores the importance of the capacity-building impact of its projects; favours local procurement; and promotes the use of Southern expertise. It has funded capacity building and other projects in developing countries and territories such as Burundi, Cambodia, Cape Verde, Guinea Bissau, Haiti, the Lao People’s Democratic Republic, the State of Palestine, Sierra Leone, and Viet Nam. Topics include promoting food security, health, education, capacity building, rural electrification.¹⁴³ IBSA countries in 2010 started developing their framework for cooperation in the agricultural area, leading to the conduct of workshops on the use of biofuels in vehicles, on technical standards for biofuels, and the harmonization of biofuels-related reference units in IBSA countries.

The Pacific Community, a scientific and technical organization of 26 developing countries and territories in the Pacific region, organized a study tour of senior energy officials from Kiribati and Tuvalu to learn from Tonga’s grid-connected renewable energy system.

South-South cooperation activities on climate change are also in some cases supported or undertaken with the involvement of multilateral agencies and developed countries agencies. For example, China’s “Six Trilateral Cooperation Projects”¹⁴⁴ were supported by UNDP and the Department for International Development (DFID) of the United Kingdom, and were intended to increase knowledge, improve yields, increase trade, develop a website for information sharing, improve disaster risk management support, and increase capacity to undertake renewable energy transfer projects in Bangladesh, Cambodia, Ghana, Malawi, Nepal, and Zambia.

Another example is the “TERI-ITEC Community: South-South Knowledge Exchange”,¹⁴⁵ under which a complex partnership of multilateral agencies, bilateral aid agencies, developing country governments, academic or research institutions, and non-governmental organizations collaborated to develop a platform to share experiences and knowledge in sustainable development related to climate change, energy, resources and trade to aid people from various developing, least developed

¹⁴² Singapore Cooperation Programme: Overview. Available at: <https://www.scp.gov.sg/content/scp/index.html>.

¹⁴³ IBSA Fund. More information available at: <http://www.ibsa-trilateral.org/about-ibsa/ibsa-fund>.

¹⁴⁴ United Nations Development Programme in China: UNDP-China Partnership on South-South and Global Cooperation 2015 Highlights. Available at: https://issuu.com/undp-china/docs/undp-_ch-partnership_on_south-south.

¹⁴⁵ South-South Knowledge Exchange. Available at: <http://south-south.connect.teriin.org/index.php>. The partners included: DFID, UNIDO, GEF, SIDA, UN-HABITAT, Ministry of Mines and Energy of Uganda, GIZ, Corporate Sector, World Bank, African Climate Policy Centre, MICOA, Mozambique, Ministry of External affairs (MEA), Government of India, UNECA and Horn of Africa Regional Environmental Centre and Network, ECOWAS Centre for Renewable Energy and Energy Efficiency, African Climate Policy Centre, MNRE, Research Council of Norway, local NGOs, ACTS, CAMPCO, Universities, IDEP, ILRI.

and emerging countries.

One example in the field of climate change adaptation and disaster risk management is a project supported by Japan and UNDP undertaken in 2009/2010 under which climate change experts and practitioners from Pacific and Caribbean undertook visits to each other's countries to exchange ideas, experiences and best practices with respect to effective disaster prevention and management and for coping with and adapting to climate change.¹⁴⁶

In 2012 and 2013, UNDP and the United Republic of Tanzania supported a South-South twinning and learning project mainstreaming environment and climate change adaptation into development policies and plans; strengthening leadership and institutional frameworks for managing climate change risks and opportunities; and improving the level of information availability and awareness on climate change impacts, adaptation strategies, environmental laws, and regulations among the general public and rural communities. As part of this project, senior Tanzanian officials visited Kenya to learn about Kenyan experiences in these areas.

In 2016, a partnership between the Inter-American Development Bank, the Caribbean Community, the Caribbean Development Bank, and the US Department of Energy was established to help accelerate the transition in Caribbean countries to renewables and other clean energy through the provision of technical knowledge and expertise to increase energy security in the Caribbean.

Through a partnership between the United Nations Economic and Social Commission for West Asia (ESCWA) and Regional Center for Renewable Energy and Energy Efficiency (RCREEE)¹⁴⁷, Yemeni officials were trained on appropriate mechanisms to promote investment in renewable energy and energy efficiency projects enabling them to adopt strategies on financing renewable energy systems. Another ESCWA project undertaken in cooperation with the League of Arab States, the RCREEE, the International Renewable Energy Agency (IRENA), and the EU supported a project on energy efficiency in the construction sector in the Mediterranean (MED-ENEC: "Promoting Renewable Energy Investments in Climate Change Mitigation and Sustainable Development") that supported the exchange of experiences between Arab countries, and their relevant national institutions in the field of renewable energy. These included regional workshops on project development; the development of a guidebook to support developers for preparing renewable energy investment business plans; and research on four case studies on renewable energy policy reforms in Jordan, Lebanon, Morocco and the United Arab Emirates.

ESCWA and India also partnered in a project to build capacities in developing appropriate green technologies to improve rural community livelihoods in the ESCWA region. As part of this project, officials from energy agencies of Jordan, Morocco, Oman and the Sudan were supported to visit the World Institute of Sustainable Energy (WISE) in Pune, India, in order to enhance the knowledge of policymakers and decision makers on policy options and to build their capacity for using policy tools to enable an environment conducive for investment in appropriate green tech-

¹⁴⁶ See Japan and UNDP Special Unit for South-South Cooperation, Interim Project Report (October 2010): South-South SIDS project on DRM and ACC, at http://www.pacificdisaster.net/pdnadmin/data/original/UNDP_2010_SouthSouth_SIDS_interimreport.pdf.

¹⁴⁷ RCREEE is an intergovernmental organization of developing countries in the Arab region that supports Arab countries in terms of research and technical assistance on renewable energy and energy efficiency issues. For more information see <http://www.rcreee.org/content/who-we-are>.

nologies in rural areas in the region.

UNEP's South-South cooperation on climate change (SSCCC) Forum, launched in 2014 and re-launched in 2016 as a standing policy advisory mechanism, is supported by China and is intended to strengthen engagement with policy processes and enhance dialogue among SSCCC stakeholders, including on issues such as on climate finance and on the science-policy-action nexus. The Forum is organized by UNEP-IEMP in cooperation with various partners.

Capacity building projects in which the South-South cooperation aspect was supported by developed country agencies are also significant. For example, the United States Agency for International Development (USAID) funded "South Asia Regional Initiative for Energy Integration" (SARI/EI) programme focuses on promoting energy cooperation in South Asia and advancing regional energy integration and cross-border energy trade in eight South Asian countries. Sixteen energy officials from Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka, participated in the training conducted by PCT India.

The European Union provided funding for FAO to implement a project in Malawi and Viet Nam to support the adoption of more effective agricultural policies that are aligned with climate change policies that enhance food security, adaptation, and mitigation co-benefits, and also contribute to the development of climate change solutions for different contexts as well as appropriate tools and mechanisms for climate-smart agriculture prioritization, financing and adoption.

Japan funded a project implemented by FAO to analyse and map the impacts of climate change for adaptation and food security through South-South cooperation (AMICAF-SSC). This project sought to fill the information gap between academic climate change impact assessments and stakeholder decision-making processes in Peru and the Philippines.

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.

The European Union also supported a project from 2013 to 2016 on climate change mitigation and adaptation in the southern Mediterranean region (entitled "CLIMA SOUTH") in which it sought to enhance regional cooperation between the EU and its southern Mediterranean neighbours (Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, the State of Palestine, Syria and Tunisia) and among the partner countries themselves. The project operated through capacity development and information sharing. It was designed to support the transition of the south-

¹⁴⁸ In principle, the ENP-South region covers ten non-EU Mediterranean countries: Algeria, Egypt, Israel, Jordan, Lebanon, Libya, Morocco, Palestine, Syria and Tunisia. Currently, Syria is not actively involved in data exchange or statistical cooperation activities. See <http://ec.europa.eu/eurostat/web/european-neighbourhood-policy/enp-south>.

ern Mediterranean developing countries towards low carbon development and climate resilience through assisting these countries in formulating and implementing mitigation and adaptation policies and tools such as national adaptation strategies; low emission development strategies; National Appropriate Mitigation Actions (NAMAs); and Measurement, Reporting and Verification (MRV). It was also designed to improve the access of decision-makers, officials, experts and civil society in the European Neighbourhood Policy Countries' (ENP) South countries¹⁴⁸ to best practices and legislation in the European Union, other southern Mediterranean countries, and other regions of the world, in the field of climate change.

B. Technology Development and Transfer

Technology is a major element in addressing climate change in terms of the potential for existing and new technologies to play key roles in global and domestic climate change monitoring, mitigation, and adaptation strategies and actions. This means that research on and the development, deployment, diffusion, transfer, and innovation of climate-friendly technologies¹⁴⁹ should be given high priority, especially with respect to transfers to Southern countries.

There are instruments and mechanisms that could be used to stimulate the adoption of climate-friendly options at a reduced cost, allowing developing countries to develop in more environmentally friendly way than did the developed countries¹⁵⁰, leap-frogging equipment and processes that produce higher greenhouse gas emissions.

In this regard, the UNFCCC set out a common commitment to all Parties – taking into account their common but differentiated responsibilities and their specific national and regional priorities – to promote and cooperate in the development, application, diffusion and transfer of technologies, practices, and process that could mitigate greenhouse gas emissions.¹⁵¹ In the context of climate change mitigation, environmentally sound technologies are those that control, reduce or prevent anthropogenic emissions of GHGs in all relevant economic sectors.¹⁵²

Although not specifically mentioned in the text of the Convention, the need for technologies related to adaptation to the impacts of climate change is increasingly recognized as an equally important need. Since the UNFCCC establishes a common commitment to cooperate in preparing for adaptation to climate change, it is implicit that such cooperation would include the development, application, diffusion, and transfer of technologies in this regard.

The acceptance of the common commitment set out in Article 4.1 (c) of the Convention was subject to the provision of funding to developing countries, since the development, application, diffusion and transfer of technologies is closely related

¹⁴⁹ According to Decision 1/CP.16, paragraph 115, the expression “technology development and transfer” encompasses different stages of the technology cycle, including research and development, demonstration, deployment, diffusion and transfer of technology in support of action on mitigation and adaptation.

¹⁵⁰ Although the Preamble of the Convention, in its paragraph twenty-two, acknowledges that the energy consumption of developing countries will need to grow in order to achieve sustainable social and economic development, it also recognizes that there are possibilities for achieving greater energy efficiency and for controlling greenhouse gas emissions in general, through, inter alia, the application of new technologies in ways that make such an application economically and socially beneficial.

¹⁵¹ Article 4.1 (c) of the UNFCCC.

¹⁵² Id.

to the availability of financial resources. Hence, a differentiated commitment was established with the aim of ensuring that developed country Parties and other developed Parties included in Annex II could provide financial resources, including those for the transfer of technology, needed by the developing country Parties to cover the costs of implementing the common commitments under the UNFCCC.¹⁵³

Given that, in the context of climate change, the transfer of environmentally sound technology and know-how¹⁵⁴ is crucial in helping countries comply with their commitments, a specific differentiated commitment was set out in this regard.

UNFCCC Article 4.5 states that developed country Parties and other developed Parties included in Annex II, as well as other Parties and organizations in a position to do so, shall “take all practicable steps to promote, facilitate and finance, as appropriate, the transfer of, or access to, environmentally sound technologies and know-how”. Moreover, the transfer of technology is not restricted to developing countries – although there is a particular reference to these countries¹⁵⁵ – but applies to other Parties in general, which certainly includes other developed countries and those that are undergoing the process of transition to a market economy.¹⁵⁶

In this context, the implementation of Article 4(5) of the UNFCCC, and now Article 10 of the Paris Agreement, will be crucial in helping address climate change. This includes the implementation of the UNFCCC’s Technology Transfer Framework¹⁵⁷ and the Technology Mechanism.

Technology development and transfer is another key modality for the delivery of SSCCC. Nevertheless, it is worth reiterating that South-South cooperation is not a substitute for, but rather a complement to, North-South cooperation. Thus, SSCCC related technology development and transfer remains a complement to the important commitment made by developed countries under the UNFCCC on this issue.

Technology transfer refers to the passing on of technology or know-how from one party to another. Importantly it does not imply merely the transfer of hardware but also includes the transfer of knowledge, and the right to use, further develop, innovate and adapt these technologies to fit developing country needs and circumstances so as to also support the development of endogenous technologies and skills in such countries.

According to the IPCC, technological development is urgently needed to limit or reduce greenhouse gas emissions, adapt to the impacts of climate change, and to monitor and prevent climate change and its impacts.¹⁵⁸ Many available and still-de-

¹⁵³ Article 4.3 of the Convention. Article 11 of the Convention also states that the mechanism for the provision of financial resources on a grant or concessional basis also includes the transfer of technology, although it does not specify how it could be made operational.

¹⁵⁴ This could include mitigation technologies, technologies that enhance removal of GHGs, and adaptation technologies to reduce the adverse effects of climate change. It encompasses “soft technologies”, such as capacity building, information networks, training and research; and “hard technologies”, such as equipment and products to control, reduce or prevent the anthropogenic emission of GHGs in the energy, transportation, forestry, agricultural, industry and waste management sectors. See FCCC/SBSTA/1996/4, 2nd February 1996.

¹⁵⁵ The developed country Parties must also support the development and enhancement of endogenous capacities and technologies of developing country Parties. Cf. Article 4.5 of the Convention.

¹⁵⁶ Id.

¹⁵⁷ UNFCCC: Technology Transfer Framework. More information available at: <http://unfccc.int/ttclear/tec/tech-transfer-framework.html>.

¹⁵⁸ Technology Development and Transfer. p.223. Available at: https://www.ipcc.ch/ipccreports/far/wg_III/ipcc_far_wg_III_chapter_08.pdf.

¹⁵⁹ Technology Development and Transfer. p.225. Available at: https://www.ipcc.ch/ipccreports/far/wg_III/ipcc_far_wg_III_chapter_08.pdf.

veloping technologies in industrialized countries will have to be adapted to meet the conditions of the developing countries.¹⁵⁹

One example in terms of enhancing technology transfer with respect to climate change-related technologies is the initiative undertaken by the Department of International Cooperation of the Ministry of Science and Technology of China in publishing a manual that identified hundreds of applicable climate change-related technologies that could be made available through Chinese South-South cooperation on climate change.¹⁶⁰

Another example is a technical-academic cooperation project that was entered into by Brazil and China in the area of renewable energy, under which China will contribute to the transfer of technology to Brazil, while in return, Brazil will share knowledge and technologies in areas of Brazilian expertise, such as agriculture (including agricultural production and food security), vocational training, education, justice, sports, health, environment, information technology, work accident prevention, urban development, biofuels, air transport and tourism. Other areas such as culture, foreign trade and human rights are covered in more recent projects and activities.

Solar technology transfer through South-South cooperation from China to Fiji and Vanuatu is also being undertaken through a project to promote the deployment of solar energy technologies in these countries, in order to foster energy access and energy security and enhance local technical capacities. This project is a collaborative effort between China, Fiji, Vanuatu, the Pacific Community, and the International Solar Energy Center for Technology Promotion and Transfer (ISEC).

One example from Africa is an IFAD supported project to support the introduction of biogas technologies. Between 2011 and 2015, Kenya and Rwanda collaborated with the IFAD to pilot a new generation of portable biogas systems to promote alternative decentralized sources of energy for rural communities.

Technology transfer is often undertaken through a triangular cooperation modality. Examples include the China-Ghana-UNDP and the China-Zambia-UNDP projects on renewable energy technology transfer. These projects take a holistic approach to renewable energy technology transfer through creating and strengthening enabling environments for technology deployment and scale-up, thereby removing market barriers and invigorating China's capacity for South-South cooperation. Denmark is providing full funding for both projects.

An example of a multilateral institution whose existing programmes can help foster South-South cooperation in technology transfer is the World Intellectual Property Organization (WIPO). The "WIPO GREEN" database lists mitigation and adaptation technologies, as well as technology needs mostly coming from the developing countries. The focus is on technology development with support to local

¹⁶⁰ The "Applicable Technology Manual – South-South Cooperation on Science and Technology to Address Climate Change" provides information on applicable technologies to address climate change. The first edition was released in 2010 and the second edition in 2011. The third edition, released in 2013, consists of three volumes in the field of renewable energy, agriculture and forestry, water resources and environmental protection respectively. Each volume covers about 100 technologies. The PDF version of the Manual is available for download from the website (<http://www.actc.org.cn>) of the China Ministry of Science and Technology's International Network/Platform for International Science and Technology Cooperation: Address Climate Change and Achieve Sustainable Development. See China Ministry of Science and Technology, at http://www.most.gov.cn/eng/pressroom/201101/t20110112_84215.htm. To download a copy of the Manual, see <http://www.chinaembassy.or.th/eng/ywzn/18h/P020150122463497970963.pdf> (on renewable energy), <http://www.chinaembassy.or.th/eng/ywzn/18h/P020150122462773265949.pdf> (on agriculture and forestry), and <http://www.fmprc.gov.cn/ce/ceth/eng/ywzn/18h/P020150122464209134654.pdf> (on water resources and environmental protection).

innovation, technology transfer and capacity building. WIPO GREEN also organizes matchmaking events to transfer technologies from the North to the South and horizontally between countries of the South. Additionally, WIPO's "WIPO Match" online tool¹⁶¹ allows searchers of specific intellectual property-related development needs to find potential providers offering resources.

C. Infrastructure Development

The development of physical infrastructure can increase the resilience of human systems while reducing adverse impacts on natural systems. The development of infrastructure is an integral part of the 2030 Agenda for Sustainable Development; Goal 9 is to "build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation".

According to UNDP¹⁶², infrastructure projects account for an estimated 55 per cent of South-South cooperation, and more than one-third of them support social sectors. "Infrastructure can play a critical role in growth, competitiveness, job creation and poverty alleviation. Despite growth over the last decade, the lack of infrastructure comes at an enormous economic and social cost. Nowadays, one in five people live without electricity; one billion people live more than 2 kilometres far from an all-weather road; and almost 663 million people lack access to safe drinking water. There is strong unmet demand for infrastructure investment, estimated at above \$1 trillion per year for emerging and developing countries alone."¹⁶³

Investment in high-quality, sustainable infrastructure can provide basic services to households; lead to productive gains for industry; provide market access for agriculture; enable sustainable urban development; open corridors of trade for poor and landlocked countries to the global economy; and help progress towards a more climate-smart world.¹⁶⁴

The provision of basic infrastructure is hence a key modality for South-South cooperation, both in general and in relation to climate change. Many Southern partners have assisted other developing countries in basic infrastructure, particularly in the construction of transport infrastructure such as roads, ports and railways; social service infrastructure such as hospitals and schools; and industrial infrastructure such as factories and mines.¹⁶⁵

For example, in 2012, under the New China-Africa Strategic Partnership, China supported the construction in African countries of automatic meteorological stations and high-altitude observation radar stations, provided them with forest protection equipment, and carried out personnel training and exchanges in order to help African countries strengthen their capacity in ecological conservation and

¹⁶¹ See www.wipo.int/wipo-match/en/index.html.

¹⁶² UNDP, "Scaling-Up South-South Cooperation for Sustainable Development," p.8. Available at: http://www.undp.org/content/dam/undp/library/development-impact/SS%20Research%20Publications/11960%20-%20Design%20for%20Scaling-up%20South-South%20Cooperation%20for%20Sustainable%20Development%20-%2009-3_Web.pdf.

¹⁶³ Id. p.13.

¹⁶⁴ Global Infrastructure Facility. Overview. More information available at: <http://www.worldbank.org/en/programs/global-Infrastructure-facility>.

¹⁶⁵ Id. p.20.

¹⁶⁶ White paper: China's Policies and Actions for Addressing Climate, IV. Foreign Assistance under Regional Cooperation Mechanism (2013). Available at: http://www.china.org.cn/government/whitepaper/2014-07/10/content_32924010.htm.

respond to challenges imposed by climate change.¹⁶⁶

As previously mentioned, the “Belt and Road Initiative” championed by China focuses on promoting policy coordination, connectivity of infrastructure and facilities, unimpeded trade, financial integration and closer people-to-people ties.¹⁶⁷

India has also supported increasing renewable energy infrastructure in other developing countries. For example, India funded the building of a solar panel assembly plant in Mozambique, with the output helping to lower the cost of solar panels in the country while providing Mozambican nationals with training opportunities in solar panel assembly, installation and use. India also funded the “Nyabarongo Hydropower Project” in Rwanda, largely through concessional loans from the Export-Import Bank of India (with smaller counterpart funding from Rwanda).

Saudi Arabia has also been very active in providing South-South cooperation support to other developing countries based on the identified needs of the partner countries. This includes assistance to support people in fragile states and humanitarian crises and the provision of low interest loans and grants for low-income developing countries to build crucial infrastructure.¹⁶⁸

The IBSA Fund has supported the provision of solar energy equipment to rural villages in Guinea-Bissau, allowing the residents of these villages to enjoy electricity and the benefits that electricity can provide (for example the provision of lighting for schools, installation of solar electric-powered public infrastructure such as village street lighting; water pumping and sanitation; increased security in public places; and increased communications connectivity).

UNIDO is also supporting South-South cooperation in building hydropower infrastructure. For example, in order to scale up access to clean and affordable energy from small hydropower for productive uses and industrial applications in remote rural areas of developing countries, UNIDO is providing technical assistance through the conduct of feasibility studies to support small hydropower development, to provide rural communities with off- and/or on-grid access to electricity and indirectly support income-generating activities for rural residents in the selected countries. The project will: focus on providing technical assistance to conduct feasibility studies in Ethiopia, Myanmar, Kyrgyzstan and Nigeria; produce small hydropower investment roadmaps in the participating countries; and organize a capacity building workshop on small hydropower development and potential assessments to train local technical participants in Peru. The International Center on Small Hydropower and the China International Center for Economic and Technical Exchange (CICETE) are the partner providers. The project involves the Federal Ministry of Water Resources of Nigeria, the Ministry of Water, Irrigation & Energy of Ethiopia, the Ministry of Energy and Industry of Kyrgyzstan, the Ministry of Electrical Power of Myanmar, and the Ministry of Energy and Mines of Peru.

D. Financial Support

The provision of financial support is another common modality for South-South

¹⁶⁷ A/72/297, State of South-South Cooperation, Report of the Secretary-General, 2017, p. 2.

¹⁶⁸ Partnership in Development and South-South Cooperation – Official Development Assistance of the Kingdom of Saudi Arabia, p.1. Available at: http://www.sa.undp.org/content/saudi_arabia/en/home/library/human_development/KSA_ODA_report/.

cooperation on climate change. It involves the potential flow of complementary funds from developing countries to specific climate related activities in other developing countries. This allows them to build resilience; enhance their adaptive capacity to climate change impacts; and to pursue low carbon development and other mitigation pathways, as well as to promote regional climate and environmental resources, particularly transboundary issues.

The Framework of operational guidelines on United Nations support to South-South and triangular cooperation¹⁶⁹ highlighted access to adequate funding of developing countries for successful as a necessary component of South-South and triangular cooperation. It calls for developing countries to be made aware of the various South-South cooperation funding options.

In a Policy Brief, UNDESA estimated that South-South flows account for about 11 per cent of overall climate finance flows.¹⁷⁰ It noted that “Since 1992 when UNFCCC was negotiated, a large number of climate funds have been created. Today, there are around 100 international public funds, including the Global Environment Facility (GEF), the Adaptation Fund, the Climate Investment Fund and most recently the Green Climate Fund. A substantial volume of climate finance has been channelled through institutions not linked to the UNFCCC. These funds tend to cover different areas and work at different scales (international, regional and national). In addition to multilateral funds, there are also bilateral funds and initiatives. The diversity of the funds offers both contributors and recipients the choice and the flexibility (sic). However, the proliferation of funds also poses significant challenges, in particular for countries that have limited access to international development finance and administrative capacity to process the funds.”¹⁷¹ Climate financing is important, particularly as part of the implementation of Article 9 of the Paris Agreement.

According to the IPCC’s Fifth Assessment Report, different concepts of climate finance are found in the literature and the corresponding values differ significantly. Its Chapter on “Cross-cutting investment and Finance issue” (Working Group III) recognises that scientific literature on investment and finance to address climate change is still very limited and knowledge gaps are substantial.¹⁷²

Under the multilateral climate change policy regime, the provision of climate finance to developing countries to support their implementation of climate change mitigation and adaptation actions is linked inextricably to the issue of historical responsibility for climate change by developed countries, and is reflected in various provisions on climate finance under the UNFCCC and its Paris Agreement¹⁷³.

Under both the UNFCCC and the Paris Agreement, developed countries are

¹⁶⁹ Framework of operational guidelines on United Nations support to South-South and triangular cooperation. SSC/17/3, Seventeenth session, Agenda item 3. Available at: <https://www.cbd.int/financial/southsouth/un-framework2012.pdf>.

¹⁷⁰ SSC/17/3, “Framework of operational guidelines on United Nations support to South-South and triangular cooperation.”, Seventeenth session, Agenda item 3. Available at: <https://www.cbd.int/financial/southsouth/un-framework2012.pdf>.

¹⁷¹ Id. p.3.

¹⁷² Cf. IPCC 5AR. See Gupta S., J. Harnisch, D.C. Barua, L. Chingambo, P. Frankel, R.J. Garrido Vázquez, L. Gómez-Echeverri, E. Haites, Y. Huang, R. Kopp, B. Lefèvre, H. Machado-Filho, and E. Massetti, 2014: Cross-cutting Investment and Finance Issues. In: *Climate Change 2014: Mitigation of Climate Change. Contribution of Working Group III to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Edenhofer, O., R. Pichs-Madruga, Y. Sokona, E. Farahani, S. Kadner, K. Seyboth, A. Adler, I. Baum, S. Brunner, P. Eickemeier, B. Kriemann, J. Savolainen, S. Schlömer, C. von Stechow, T. Zwickel and J.C. Minx (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, p. 1212.

¹⁷³ See e.g. Art. 4.3, 4.4, 4.5, and 4.7, UNFCCC; and Art. 9, Paris Agreement.

expected to provide financial resources to help enable developing countries to undertake and implement their climate action commitments. Under the UNFCCC, developed countries committed to provide flows of financing to support developing countries' mitigation and adaptation actions, including through technology development and transfer. However, the treaty did not specify the scope, scale and magnitude of this flow or the nature of the burden sharing between the developed countries (Annex II Parties).

As part of the 2009 Copenhagen Accord, developed countries promised to provide so-called "fast start" climate financing of \$30 billion for the years 2010 to 2012 and further flows totalling \$100 billion per year by 2020. This commitment by developed countries to provide at least \$100 billion a year by 2020 in terms of climate financing was subsequently reaffirmed in the succeeding United Nations climate change conferences. At COP21 in Paris in 2015, developed countries again have reaffirmed this commitment and agreed, under the Paris Agreement, to extend such commitment to provide at least \$100 billion per year by 2020 for five additional years (to 2025) and set the \$100 billion as the floor for scaling up beyond 2025.

Research on the amount of climate finance flowing globally and between developed and developing regions present quite different and contradictory pictures.¹⁷⁴ The IPCC's Fifth Assessment Report states that the total climate finance flowing to developing countries was estimated to be between \$39 and \$120 billion per year from 2009 to 2012, with the share of public climate finance estimated at \$35 to \$49 billion. At the same time, the climate finance reported by Annex II Parties to the Convention averaged nearly \$10 billion per year from 2005 to 2010. The developed countries submission to the UNFCCC entitled "Roadmap to the US\$100 billion" restated the analysis of the OECD (2016), that pledges made in 2015 alone will boost public finance from an average of US\$41 billion over 2013-14 to US\$67 billion in 2020 – an increase of US\$26 billion. The Roadmap further states that 'according to the analysis, modest assumptions about increased leverage ratios would lead to projected overall finance levels in 2020 above US\$100 billion.'¹⁷⁵

Developing countries have expressed their needs for adequate and timely interventions with regard to finance, technology transfer and capacity building, in order to successfully carry out their climate actions, both for meeting domestic adaptation needs and for contributing to the global effort to reduce carbon dioxide emissions. These needs have been expressed in National Adaptation Plans (NAPAs,) and nationally appropriate mitigation actions, (NAMAs), as well as in their national communications reports and the biennial update reports to the UNFCCC. Selected groups of developing countries have also participated in bottom-up needs assessments conducted by the UNFCCC Secretariat for both finance and technology

¹⁷⁴ The Climate Policy Initiative "2013 Global Landscape of Climate Finance Report" argues that global climate finance flows have plateaued at USD 359 billion, or around USD 1 billion per day, which is far below even the most conservative estimates of investment needs. The clear majority of the USD 39-62 billion in North-South flows originated from public sources. For example, the two most recent comprehensive studies of the issue, on which the IPCC assessment is based, the report of the Climate Finance Project Initiative 2011 (Buchner et al., 2011) and the OECD's Tracking Climate Finance (Clapp et al., 2012), which include a subset of the same authors across both research works, present estimates of \$97 billion and \$70-\$120 billion, respectively, per year, of annual flow of climate finance and for the period 2009-2010. For 2011/2012 Buchner argues that \$120-140 billion reported as flowing to developing countries. Buchner et al., 2013. see Appendix 4.1--Unravelling the climate finance jigsaw.

¹⁷⁵ See [http://www4.unfccc.int/Submissions/Lists/OSPSubmissionUpload/261_295_131233554162587561-Roadmap%20to%20the%20US\\$100bn%20\(UNFCCC\).pdf](http://www4.unfccc.int/Submissions/Lists/OSPSubmissionUpload/261_295_131233554162587561-Roadmap%20to%20the%20US$100bn%20(UNFCCC).pdf). The Roadmap was made public October 2016. Also see OECD (2016), Projecting climate finance to 2020, <http://www.oecd.org/environment/cc/oecd-climate-finance-projection.htm>.

transfer for their national climate change actions.

At the same time, aggregate estimations of the financing needs of both mitigation and adaptation have been carried out by a number of international institutions such as the World Bank, UNDESA, the UNFCCC secretariat and regional studies by the United Nations Regional Commissions, such as UNECLAC, UNECA, and UNESCAP. These and numerous studies by research think tanks point to the need for financing of upwards of \$145 billion to well over \$1,100 billion a year for mitigation, and \$75 to \$165 billion a year for adaptation. Recently the UNEP Gap 2016 report noted that given the persistent under funding of adaptation, there is now an adaptation gap that at least triples of the amounts previously reported as needed to support adaptation in developing countries by 2030.

Importantly, the targets contained in, and the implementation of, the NDC commitments made by developing countries under the Paris Agreement all point to the strong need for international and regional sources of finance, including from innovative mechanisms. As noted in a 2016 UNFCCC Secretariat report, 90 per cent of NDCs have information on the support they need, while 81 per cent of NDCs identify the provision of international support as a condition for the implementation of key targets of their NDCs.¹⁷⁶

When developing countries did identify a source of such funds in their intended NDC (INDCs), they tended to highlight the Green Climate Fund. However, it is clear that with INDCs needs estimated at about \$349 billion per year¹⁷⁷ and the GCF currently resourced at only \$10.2 billion for the four-year period 2015-2019, the Fund's resources will not be sufficient to meet the projected demand for climate financing from developing countries. This implies that developing countries will have to invest their own resources in the mobilisation of domestic and international financing for implementing climate action. This could come from both domestic financial efforts,¹⁷⁸ including efforts to leverage private sector flows, as well as through South-South cooperation. According to the aforementioned UNFCCC report, fifteen developing countries made reference to South-South cooperation in their NDCs,¹⁷⁹ while Brazil, China, Colombia and India discussed more specifically how their South-South cooperation would fit with providing support to NDC implementation.

¹⁷⁶ UNEOSG and UNFCCC (2017). Catalysing the implementation of Nationally Determined Contributions in the context of the 2030 Agenda through South-South cooperation. Available at <http://www.un.org/sustainabledevelopment/wp-content/uploads/2017/05/Download-Report.pdf>.

¹⁷⁷ Weischer, L. et al (2016), Investing in Ambition: Analysis of the financial aspect of (intended) nationally determined contributions. GermanWatch: this review of 180 INDCs argues that the aggregate cost of implementation is \$4.484 trillion or \$349 billion p.a. Note also that there are other estimates. For example, Zhang 2016 –Review of 160 INDCs as June 31, 2016: 121 INDCs or 76% of submissions have finance components and expectations of financial contributions. Top 3: Iran \$926 b, South Africa \$898b India \$51040; Bottom 3: Nauru \$0.1 b STP \$0.1b and Grenada: \$0.2. Additionally, estimate for 48 LDCs' INDCs by IIED 2015 show needs of approximately \$93 billion a year.

¹⁷⁸ For example, some developing countries such as Bangladesh, Ethiopia, Indonesia and Rwanda, have established National Development Funds to provide direct support for the implementation of climate change strategy and to build resilience and to attract and blend domestic and international climate funds. Many of these funds rely on allocations from national budgets, while others, such as Rwanda anticipate financing, partly from domestic environmental fees and fines and proceeds from forestry and water funds and other environmental revenues. None of these funds, however, seem to have support for South-South cooperation as part of their mandate. Through work undertaken by UNDP in the Asia region, its project on Climate Policy and Institutional Expenditure has demonstrated that countries such as Thailand, Nepal and Bangladesh spend between 2.7% and 7.2% of their budgets on climate related activities in 2011. Pakistan is estimated to have spent between 5.8 and 7.6% of total expenditure in the federal budget (2015) on climate related expenditure (UNDP 2015 and Pakistan's INDC 2015).

¹⁷⁹ Afghanistan, Algeria, Benin, Brazil, Chile, China, Colombia, Cuba, Djibouti, Eritrea, India, Mexico, Singapore, South Sudan and Gambia.

In recent years, there has been an emergence of new financial mechanisms related to climate change that can support South-South cooperation activities in climate change.

On a whole, despite obstacles such as the challenging global context — inflation in earlier years, debt and financial crises, dips in commodity prices and exchange rate fluctuations — bilateral South-South cooperation is increasing for a large group of developing countries in Africa, Asia and Latin America. For example, China's bilateral financial support for SSCCC in 2013 was reported to be \$3.1 billion, up from \$2.6 billion in 2012. It was targeted at assisting 120 other developing countries.

Financial support for South-South cooperation, especially on climate change related issues, is very important to the promotion of sustainable development initiatives, projects, programmes and policies among developing countries. For the purposes of this report, the term “financial support” refers to the climate finance flowing from developing to other developing countries. The rise of these arrangements has been driven by the growing role of certain developing countries and their increasing presence in providing development cooperation in addition to receiving it, and by the desire to experiment with other types of cooperation where the experience of developing countries can be brought to bear.

The financing source for South-South cooperation currently mostly derives from the national budgets of the developing countries providing such support. It is however not yet clear how much that financing is being channelled specifically to South-South cooperation on climate change. An encouraging development is the creation by the BRICS countries of the New Development Bank, and the creation of the Asian Infrastructure Investment Bank, as both of which have recognized climate change action to be an important aspect of their respective institutional missions. The NDB's focus is on green technology, renewable energy and transportation so it could potentially be a major provider of financial resources to developing countries in these areas. The AIIB's emphasis on renewable energy and infrastructure holds strong potential for scaling-up South-South cooperation on sustainable infrastructure and sustainable energy, for the Asian region in the short term and to all developing regions ultimately. Overall, both institutions' objectives centre on filling infrastructure and energy gaps and promoting the productive sectors for enhancing economic and social development in the global South, making them potentially ideal for enhancing the momentum of South-South cooperation on climate change.

Currently, the only funding mechanism under the UNFCCC that has an explicit focus on SSCCC is the Adaptation Fund, which has a South-South cooperation component in its grant funding.¹⁸⁰ The Green Climate Fund does not have such a component explicitly tailored to engender SSCCC either as part of its readiness and preparatory support programme, or its project preparation facility, private sector facility or its regular project funding cycle. To date, there have been several proposals

¹⁸⁰ The amount of the grant is US \$5000 per NIEs. According to the Adaptation Fund's website, NIEs eligible to provide support will be those entities that have tangible achievements with the Fund and have advanced significantly with their projects. Eligibility is based on the entity's experience with the Adaptation Fund, including in project preparation and implementation and in supporting other countries at different stages of their application processes. For an NIE to be eligible to provide peer support for accreditation using the South-South cooperation grant, it must meet all the below criteria. The NIE: 1. Must be an accredited national implementing entity of the Adaptation Fund; 2. Must have experience implementing an Adaptation Fund project or programme, hence demonstrating effective compliance with the Fund's fiduciary standards, operational policies and guidelines; and 3. Must have experience advising, participating in, or organizing support to other NIEs. <https://www.adaptation-fund.org/apply-funding/grants/call-south-south-cooperation-grant-proposals/>.

with cross-country, cross-regional elements submitted by accredited entities such as the European Investment Bank and the Asian Development Bank on behalf of a cohort of countries. However, these are not projected as South-South cooperation initiatives; rather, these proposals and projects/programmes are geared at leveraging private sector monies.

At the same time, there have also been efforts by a number of developing countries to set up South-South cooperation financing vehicles whose work would be closely relevant to the implementation of climate change actions.

For example, the Government of China announced two new funds in 2015 prior to the Paris climate change conference. These funds total \$5.1 billion and are designed to help developing countries tackle climate change and development problems. These two funds are the China South-South Climate Cooperation Fund, to provide RMB 20 billion (approximately \$3.1 billion) to help developing countries tackle climate change¹⁸¹, and another fund with initial spending of \$2 billion for South-South cooperation and to aid developing countries to implement the post-2015 Development Agenda. The South-South climate fund has the potential to facilitate many significant programmes on climate mitigation, adaptation and institution building. China is now in the process of setting up the institutional and regulatory basis for the funds, and designing their framework, aims and functions. In addition to the projects and activities undertaken through China's "Ten-Hundred-Thousand" Programme for South-South cooperation on climate change, China has also provided financial support to other developing countries; for example, in 2015, the Chinese government offered \$3.3 million in in-kind aid to Myanmar to provide solar light systems and efficient cook stoves in rural communities.

The Amazon Fund is an example of a national self-financed entity with a global platform that is also partly supported, through triangular cooperation, by developed countries and multilateral institutions. Created in 2008 on the initiative of Brazil, and supported by developed countries such as Norway and Germany, the Fund has a portfolio of 86 supported projects worth the equivalent of \$617 million, with 47 per cent disbursed. Among its project portfolio is a forest cover monitoring project implemented by the Amazon Cooperation Treaty Organization (ACTO) to help develop the capacity of ACTO member countries monitor deforestation and forest and land use changes. The Fund is a national level fund established by the Government of Brazil, which raised money earmarked for efforts to prevent, monitor and combat deforestation and promote the preservation of and sustainable use of forests in the Amazon Biome. It contributes to REDD+, and is managed by the Brazilian Development Bank (BNDES), which raises funds and allocates resources through the Amazon Fund Guidance Committee Executive Secretariat. The Fund is considered a success model for the development of the implementation of REDD+ under which international donors pay into the Fund on the basis of verifiable reductions achieved in deforestation.

India has also announced a \$10 billion concessional line of credit to Africa over the next five years, as well as grant assistance of \$600 million that would include an India-Africa Development Fund of \$100 million, an India-Africa Health Fund of

¹⁸¹ See e.g. http://www.chinadaily.com.cn/world/XiattendsParisclimateconference/2015-11/30/content_22557413.htm.

\$10 million, and 50,000 scholarships for African students over the same period.¹⁸²

Saudi Arabia has also been very active in providing SSC-related financing support to other developing countries based on the identified needs of the partner countries. The support includes assistance to support people in fragile states and humanitarian crises and the provision of low interest loans and grants for low-income developing countries to build crucial infrastructure.¹⁸³

The United Arab Emirates have also been demonstrating their leadership role in South-South cooperation through a number of development assistance programs focused on supporting other developing countries on renewable energy deployment. Close to \$1 billion has been disbursed to date, which has contributed to the socio-economic development of these countries in addition to providing environmental benefits.

Another example of a multilateral South-South institution that supports South-South cooperation, including in climate change-related areas, is the Islamic Development Bank (IsDB). An example of the IsDB's specialised funds that support South-South cooperation in its broad sense is the Islamic Solidarity Fund for Development (ISFD)¹⁸⁴ which was established in 2006 in the form of a "waqf" (i.e. an Islamic charitable endowment) with a target capital of \$10 billion. It commenced operations in January 2008. By 2012, contributions received from member countries stood at \$1.74 billion out of the total pledged amount of \$2.68 billion (comprising \$1.68 billion pledged by 44 member countries and \$1.0 billion by the IsDB). In 1433H (2012), ISFD received new capital commitments amounting to \$39 million from five countries: Bangladesh, Egypt, Gabon, Kazakhstan and Tunisia. The ISFD is intended to support projects that help combat poverty and eradicate illiteracy, diseases and epidemics in member countries, particularly in Africa.

Another example is the OPEC Fund for International Development (OFID). OFID's financing goes to support the building of essential infrastructure, strengthening of social services delivery, and promoting productivity, competitiveness and trade; focusing on projects for the meeting of basic needs, such as food, energy, clean water and sanitation, healthcare and education.¹⁸⁵ Such financing includes the provision of concessionary financing loans for development projects and programmes; a balance of payments support and trade financing; grants in support of technical assistance; food aid; research and similar activities; humanitarian emergency relief; and contribution to the resources of other development institutions whose work benefits developing countries.¹⁸⁶ In this context, OFID project financing could be considered as related to climate change, including projects that are designed and intended to promote energy access in developing countries, including project financing for "for operations focusing chiefly on the construction of photovoltaic, hydropower, thermal" in Bangladesh, Cote d'Ivoire, Egypt, Jamaica, Jordan, Mali and Uganda.¹⁸⁷

¹⁸² SG Report on SSC. 2017.

¹⁸³ Partnership in Development and South-South Cooperation – Official Development Assistance of the Kingdom of Saudi Arabia. p.1. Available at: http://www.sa.undp.org/content/saudi_arabia/en/home/library/human_development/KSA_ODA_report/.

¹⁸⁴ IDB Group in Brief. p.12. Information available at: <http://www.isdb.org/irj/go/km/docs/documents/IDBDevelopments/Internet/English/IDB/CM/Publications/IDBGroupBrief2013.pdf>.

¹⁸⁵ OFID, About Us. Information available at <http://www.ofid.org/ABOUT-US>.

¹⁸⁶ OFID, About Us. Information available at <http://www.ofid.org/ABOUT-US>.

¹⁸⁷ OFID, Focus Area: Energy. Information available at <http://www.ofid.org/FOCUS-AREAS/Energy>.

OFID's energy-related public sector financing in 2016 included \$19.3 million for Pakistan for a hydropower plant, and \$58 million for various electricity transmission and rural electrification projects in Burkina Faso, Cameroon, and Paraguay.¹⁸⁸ OFID has also supported, with UNESCO, the solar electrification of rural schools in some African countries including Benin, Madagascar, Nigeria, Mauritania and Togo.

An example of a national climate change-related financing initiative supported by a multilateral agency is that of Morocco and FAO working together to support Guinea in sustainable agricultural production and improving natural resources management. The initiative includes the development of irrigated agriculture, support to the horticulture value chain, and capacity building for the Ministry of Agriculture of Guinea. Morocco's support for South-South cooperation in Agriculture and fisheries in Guinea and other countries in the region is financed through a recently established trust fund, allowing for public as well as private sector contributions. Through the fund, Morocco contributes to achieving food security in African countries by supporting sustainable agricultural production and improving natural resources management.

The Climate Change Adaptation Facility (CCAF), established by Canada in partnership with UNDP, is an example of a triangular cooperation-based approach to support South-South cooperation. It aims to strengthen climate-resilient approaches to agriculture and water management, with an emphasis on gender-sensitive approaches. This facility incorporates national projects in Cambodia, Cabo Verde, Haiti, Mali, Niger, and the Sudan, which scale up or extend projects previously supported by the Global Environment Facility's Least Developed Countries Fund (GEF/LDCF). In addition, global components of the CCAF promote South-South cooperation and enhance understanding about initiatives that address adaptation, especially the gender dimensions. The global facility collects and analyses information, experiences, and lessons learned emanating from the six national projects (in Cambodia, Cabo Verde, Haiti, Mali, Niger, and the Sudan) to produce and disseminate knowledge that can be shared between the countries and usefully applied in other contexts. The CCAF also helps to broadly inform climate and sustainable development policies at the local, national and global levels, while promoting global exchange of information, experiences, and lessons learned.

In spite of these important examples of SSCCC, it is important to point out that financial contributions from other developing countries should not be seen as Official Development Assistance from these countries to other countries of the South. Rather, they should be seen as expressions of solidarity and cooperation borne out of shared experiences and sympathies, and not as an obligation under the UNFCCC and its related instruments, given that they are not designed to supplement the obligations of developed countries.

E. Institution Building

Institution building is a catch-all concept that encompasses a wide variety of goals that have always been at the core of overcoming underdevelopment.¹⁸⁹ In or-

¹⁸⁸ OFID, Focus Area: Energy. Information available at <http://www.ofid.org/FOCUS-AREAS/Energy>.

¹⁸⁹ Policy Brief: Strengthening Institutional Capacity in Poor Countries: Shoring Up Institutions, Reducing Global Poverty. More information available at: <https://www.brookings.edu/research/strengthening-institutional-capacity-in-poor-countries-shoring-up-institutions-reducing-global-poverty/>.

der to strengthen cooperation among developing countries and create an enabling environment for enhanced cooperation, the element of institution building must be enhanced, as it is an essential contribution to South-South cooperation. While institutional structures vary considerably across countries, experience suggests that institutionalized cooperation and participation helps improve the management of the global environmental commons.¹⁹⁰

UNEP's Bali Strategic Plan, for example, "stresses the need to intensify efforts directed towards institutional capacity building, including through the exchange of expertise, experiences, information and documentation between the institutions of the South in order to develop human resources and strengthen the institutions of the South, and places emphasis on the important role for economic and social development played by scientific knowledge and technology."¹⁹¹ Furthermore, the High-level Committee on South-South Cooperation on its 19th session, encouraged and recommended to developing countries the establishment and strengthening of institution-building in the South keeping in mind the various targets of the sustainable development goals.¹⁹²

In this context, a number of developing countries have engaged in developing South-South cooperation-oriented institution-building activities, geared towards helping each other enhance the ability of their governmental institutions to address climate change and undertake climate actions.

For example, in the United Nations climate change negotiations, African countries work together through the African Group of Negotiators (AGN) under the guidance of the African Union Assembly, the Committee of African Heads of State and Government on Climate Change (CAHOSCC), and the African Ministerial Conference on the Environment (AMCEN). These allow a greater level of linkage and interactivity on climate change issues between the African Union, its member States, national policy-makers, various African regional entities such as the African Development Bank, the United Nations ECA, and national policy implementation machineries. Other developing country groups such as the small island developing States, least developed countries, various groups of Latin American countries, and developing country groups with cross-regional membership have also been created on either an institutionalized or ad hoc basis to foster greater levels of developing country coordination at various levels in the UNFCCC negotiations.

Developing countries in the Southeast Asian region, through the Association of South East Asian Nations, have also sought to strengthen regional institutional mechanisms for cooperation on climate change. For example, members have collectively and individually been responding to climate change by focusing on the implementation of relevant actions in the ASCC Blueprint 2009-2015. They have also established the ASEAN Working Group on Climate Change (AWGCC) in 2009 to oversee the implementation of the relevant action lines in the ASCC Blueprint. Due

¹⁹⁰ Climate Change 2007: Working Group III: Mitigation of Climate Change. 3.1.6 Institutional frameworks. More information available at: https://www.ipcc.ch/publications_and_data/ar4/wg3/en/ch3s3-1-6.html ; see also World Resources Institute, *Why Institutions Matter For Climate Change Adaptation In Developing Countries* (2012), at: <http://www.wri.org/blog/2012/05/why-institutions-matter-climate-change-adaptation-developing-countries>.

¹⁹¹ UNEP Policy Guidelines: Integrating South-South Cooperation in the UNEP Programmes of Work. Available at: <http://staging.unep.org/south-south-cooperation/pdfs/SSC-Draft-Guidelines-10July2006.pdf>.

¹⁹² Report of the High-Level Committee on South-South Cooperation, A/71/39.

to the cross-sectoral nature of climate change issues, climate change is addressed not only by AWGCC, but also by other relevant working groups in the environment sector and beyond (such as agriculture and forestry, energy and transport, and science and technology).¹⁹³

In South Asia, in addition to the normative statements on regional cooperation on the environment and climate change, the South Asian Association for Regional Cooperation (SAARC) has created institutional arrangements for regional cooperation on climate change by setting up of regional centres to address various aspects of environment, climate change and natural disaster issues that affect the region. These include: the SAARC Environment Center (SEC) for the protection, conservation and prudent use of environment resources by adopting sustainable forest management practices through research, education and coordination among SAARC Member States; and the SAARC Disaster Management Centre (SDMC) to provide policy advice and facilitate capacity building in relation to effective disaster risk reduction and management.¹⁹⁴

Among Arab countries, the institutionalization of South-South cooperation on climate change is also being undertaken, especially through the League of Arab States in close partnership with UNESCWA. Many activities are taking place through these regional institutions in terms of the training of Arab negotiators, the provision of policy-related technical assistance, and the provision of scientific research and technical assistance relating to climate change science and policy.

Other South-South institution building initiatives are cross-regional in nature. For example, India, Indonesia and South Africa worked together from 2011 to 2013 to promote knowledge exchange between cities in India, Indonesia, and South Africa on the use of renewable energy and energy efficiency at the local level with the funding support of the Renewable Energy and Energy Efficient Partnership.

Institution building initiatives for climate change-related activities that may have South-South cooperation aspects also include programmes or projects funded by developed countries or by multilateral agencies as part of their triangular cooperation activities. For example, these would include the establishment in 2007 of the International Biofuels Forum (IBF) by Brazil, China, India, South Africa, the United States and the European Union with the goal of promoting the sustained use and production of biofuels worldwide through information sharing between biofuel producers and to link both producers and consumers.

In Latin America, the Observatory for Renewable Energy in Latin America and the Caribbean was created in 2006 as a coordination and integration tool that would allow countries in the region to ensure greater access to modern energy services and promote renewable energy technologies for productive uses and industrial applications in the region. This initiative was supported by Italy, Spain, the Inter-American Development Bank, and UNIDO.

A cross-regional example of South-South institution building in the climate change field is EUROCLIMA, a regional cooperation program between the Euro-

¹⁹³ ASEAN Cooperation on Climate Change. More information available at: <http://environment.asean.org/climate-change-page/>.

¹⁹⁴ SAARC, Areas of Cooperation: Environment, Biotechnology, and Natural Disasters. Information available at http://saarc-sec.org/areas_of_cooperation/area_detail/environment-natural-disasters-and-biotechnology/click-for-details_6.

pean Union and Latin America, focused on climate change. The United Nations Economic Commission for Latin America and the Caribbean (UNECLAC) collaborated in the implementation of the EUROCLIMA program's component related to designing and establishing public policies for adaptation and mitigation in Latin America. Within this framework, the "Peer to Peer Program" was created in order to respond to countries' requests regarding different needs on climate change matters, including on institutional aspects, legislation, planning, adaptation and mitigation-related public policies implementation, securing financing for adaptation and mitigation, and other areas the participating countries consider relevant.

VI. CONCLUSIONS AND THE WAY FORWARD

Over the past four decades, South-South cooperation has gained traction, involved much effort and produced many initiatives and schemes. It has generally been easier to cooperate in the political sphere, where important joint initiatives continue to be mounted and sustained. On economic issues, however, there continues to be a wide gap between, on the one hand, the South's calls, objectives, and programmes to enhance South-South solidarity, and, on the other, the action that has ensued – although this situation has also been rapidly changing in the last few years.

South-South cooperation on climate change, as a new area of focus for South-South cooperation that has risen in prominence particularly since the adoption in 2015 of the 2030 Agenda for Sustainable Development and the Paris Agreement, looks set to become a major growth area in this regard. These instruments have led to concrete commitments by individual countries to promote climate cooperation with the objective of achieving sustainable development.

SSCCC is an effective mechanism with which to tackle the emerging challenges brought about by climate change in developing countries. It provides a new connectivity to the developing world, a new store of knowledge, and a new policy imperative to address climate change.

There are several reasons for the new vitality of SSCCC, one of which is an increased willingness among the members of the international community to advance climate action through enhanced partnership due to the immense threat posed by climate change.

Since the 1970s with the Buenos Aires Plan of Action on Technical Cooperation Among Developing Countries, there has been long-standing multilateral recognition of the importance of South-South cooperation for development and the role it could play in supporting developing countries in their development efforts. The development and strengthening of Southern and multilateral institutions that could foster and enhance South-South cooperation in various areas, including climate change, continues to be called for by the organizations of the global South, including the Group of 77 and China, and the Non-Aligned Movement. Indeed, there has been a growing reassertion of interest in and support for interregional, regional, and sub-regional economic and political cooperation among developing countries, as can be seen in greater levels of activity within developing country regions and continuing institutionalization of South-South cooperation through the creation or strengthening of national, regional and multilateral South-South cooperation organizations and finance institutions over the past decade.¹⁹⁵

However, the prevailing global economic uncertainty and the continuing impact of the 2008 global financial crisis on both developed and developing countries' economies show that the dynamic of economic growth in developed countries is no longer a reliable or sufficient motor for generating sustained growth in the South. In this context, the development progress that many developing countries experienced in the past one and a half decades can give new substance to the process of cooperation among developing countries. Many of them have greatly diversified

¹⁹⁵ See, e.g., United Nations, Report of the Secretary-General: State of South-South cooperation, United Nations Doc. No. A/72/297, 7 August 2017, paras. 2-11.

their economies in the last three decades, and increasing levels of industrialization have been achieved among a growing number of developing countries, giving rise to new complementarities among them, both within regions and inter-regionally. These broaden the potential scope for more developing countries to undertake more forms of South-South cooperation, and to extend such cooperation to mutually addressing global challenges such as climate change. South-South cooperation will be increasingly necessary as an additional engine for powering the South's economic expansion.

Developing countries are beginning to prioritize the strengthening of global, regional and national institutional arrangements aimed at addressing climate change. Many developing countries have expanded their national policies because of increased international and regional efforts on advancing climate action.

Indeed, many situations call strongly for cooperation among the developing countries, for example the management of shared natural resources, and in harnessing science and technology to the specific needs and conditions in the South. In sum, the South is today better equipped than a decade ago to advance South-South cooperation; even as it is also in greater need of undertaking more effective and extensive South-South cooperation in a number of areas that pose development challenges to them.

South-South cooperation, particularly in areas that are relevant to combating climate change – including in the implementation of developing countries' nationally-determined contributions (NDCs) under the Paris Agreement – will likely play a key role in the achievement of global and national development goals, in particular, the 2030 Agenda for Sustainable Development.

South-South cooperation, in complementing traditional North-South development cooperation in areas like climate change, helps broaden the range and scope of the development partnerships in which developing countries can engage in order to pursue their national sustainable development priorities and objectives. The recent evolution of South-South cooperation, and the rising prominence of such cooperation in the area of climate change, provides important lessons about the role of SSC in enhancing ownership and strengthening the capacity of developing countries in their national development efforts as well as in working with each other in mutually supportive and beneficial ways. It is acknowledged, however, that South-South cooperation mechanisms and institutional arrangements need to be further enhanced and improved.

From both the literature assessment as well as historical experience, the primary challenge to South-South cooperation, whether on climate change or in other areas, is the persistent lack of adequate financial resources. The scale of the financing required for the effective implementation of climate actions of developing countries under the Paris Agreement will be many times higher than the amount of financial resources available from developed countries under their climate financing programmes, the climate financing programmes of multilateral development banks, and from South-South cooperation.

One of the other challenges of South-South cooperation, both in the past and currently, continues to be relatively weak organizational and institutionalized technical support, both at the international level and within most countries. The national and intergovernmental institutions of the global South set up to advance South-South cooperation, in many cases, lack adequate levels of professional support and

financial resources. However, this situation is now rapidly changing with the rise of new South institutions such as the AIIB, the NDB, and Banco Sur; the establishment of national agencies to undertake South-South cooperation; and a more pronounced priority placed by the United Nations system and its specialized agencies on supporting South-South cooperation, including on climate change.

Therefore, in addition to growing political momentum, the trend of SSCCC reflects a movement towards increased climate cooperation on the ground.

SSCCC has received support from developing countries, regional entities, and international organizations. This has been evidenced by a number of collaborations among countries and international agencies. Thus, the scope of SSCCC has expanded beyond political consensus and climate finance. However, additional efforts are needed to promote political momentum and enhanced partnerships on climate action.

Although an increasing number of developing countries are doing so, incorporating the objectives of South-South cooperation in national plans and policies and its the goals into the mandates of public agencies and institutions continues to be a major gap that needs to be addressed. From the country cases that have been covered in this report, it is clear that Southern partners view their cooperation with each other on climate change issues to be a valuable means of sharing their experiences and of learning from each other, based on mutual trust, partnership, and understanding, and consciously avoiding having a donor-recipient relationship. At the same time, it is clear that, in many cases, the success of South-South cooperation initiatives depends on high-level political support and commitment to such cooperation among the partners involved.

Additionally, clear and comparable information about the level of implementation of South-South cooperation initiatives continues to be difficult to obtain. Though it is difficult to obtain a comprehensive overview view because there is little uniformity in the information available from different agencies and Member States, the cases researched for the preparation of this report show that developing countries have emerged as international players in the climate sector. A number of countries like Brazil, China, India, South Africa, and others, which have historically been active in South-South cooperation, are becoming even more active on South-South cooperation on climate change. Some of them have become not only the recipients of climate finance but are also becoming notable climate investors and are financing and undertaking climate related projects.

This report has tried to look in detail at the kinds of activities that various developing countries are undertaking in relation to SSCCC, and the support being provided by the United Nations system to such activities. However, it is important to note that more definitive conclusions regarding the modalities, activities, impact, and the total aggregate financial resources made available for activities relating specifically for SSCCC by developing countries cannot be drawn from the limited sampling covered by this report. That said, the following generalized conclusions can be drawn:

- ▶ For many years, developing countries have supported each other through South-South cooperation through key modalities such as capacity building, technology exchange, transfer of knowledge and skills, financial support, and institution building.
- ▶ South-South cooperation activities, in general, are seen as an investment

by both partners in each other's development so as to enhance bilateral exchanges and improve economic relationships with each other, with the recipient partner's needs and priorities being reflected and addressed in the kinds of activities that are undertaken.

- ▶ Despite the many economic differences and circumstances of each individual developing country, all of the South-South cooperation partners share the common goal of achieving economic growth and poverty reduction. More recently, that goal is increasingly contextualized as the achievement of sustainable development while recognizing that different national circumstances and external constraints, including economic, policy, environmental, and social, will require that different pathways be pursued by developing countries to achieve such common goals.
- ▶ The basic concept of SSCCC is having a positive impact on global, regional, and national policies and actions relating to mitigation as well as risks, adaptation and sustainability for systems impacted by climate change, including energy systems, agriculture, forestry, and other land use, health, transport, infrastructure, water, health, and emerging thematic areas like big data.
- ▶ From the limited country survey undertaken in this report, South-South cooperation on climate change tends to be focused on the following types of activities:
 - ▶ Capacity building/technical support
 - ▶ Provision of financial support
 - ▶ Technology development and transfer
 - ▶ Infrastructure development
 - ▶ Support for institution building
- ▶ With increasing interest in and demand for climate partnerships originating from developing countries, international agencies and Member States are increasingly adopting South-South cooperation on climate change through a wide arrangement of modalities (bilateral, trilateral, regional, UN-facilitated, International Development Bank-facilitated, public-private facilitated) to increase the impact of climate development actions.
- ▶ The great priority for South-South cooperation in relation to climate change (as well as the implementation of the SDGs) are the following capacities:
 - ▶ Institutional capacity for both the delivery and absorption of South-South cooperation-sourced finance, technology and expertise, at the national, regional, and multilateral level among developing countries.
 - ▶ Policy integration capacity to enable developing countries to appropriately integrate SSC support into long-term sustainable development and climate change planning and implementation.
 - ▶ Resource capacity, both internally within developing countries and externally, to enable greater levels of SSC support to flow among developing countries.

The Way Forward

In light of the current state, and the lessons identified above, the following recommendations are important to consider for the purposes of further enhancing SSCCC:

- ▶ **Addressing climate change requires a systemic and integrated strategy linked to each individual country's own sustainable development pathway.** Through an integrated strategy that encompasses various policy areas, South-South cooperation on climate change will develop its own momentum and diversify in scope over time.
- ▶ **South-South cooperation provides a widely recognized institutional mechanism to foster climate actions in developing countries.** Despite these signs of progress, the visibility of South-South cooperation on climate change in international affairs is generally low and much effort is needed in this area of cooperation.
- ▶ **It is vital to expand the scope of climate related activities under the framework of South-South cooperation.** The strategy for enhancing SSC-CC should identify the broad fields in which such cooperation should be pursued, indicating the long-term goals to be achieved. There should be a set of activities to be undertaken in each thematic area – for example energy systems, transportation, infrastructure, health, or water – in the short and medium term. These should address critical issues and needs, hold the promise of success, and have the potential for further widening and deepening South-South cooperation. The strategy should also set out the main steps to be taken in implementing both the short- and medium-term programme and in reaching long-term goals.
- ▶ **The success of South-South cooperation on climate change is dependent on supportive national policies being commonly implemented by developing countries together.** Each developing country should reflect in its development plans and national policies an explicit commitment to South-South cooperation broadly, and to working with other developing countries with regard to their climate actions (particularly those under the Paris Agreement). In doing so, the policy framework for South-South cooperation, including that for climate change actions, should be guided by the principles and objectives for such cooperation as established in internationally agreed-upon documents such as the 1978 BAPA, the 2009 Nairobi Outcome Document of the United Nations Conference on South-South Cooperation, and the Group of 77's Yamoussoukro Consensus on South-South Cooperation Principles.
- ▶ **Having the appropriate national institutional infrastructure for pursuing and maximizing the gains from South-South cooperation broadly will be very important,** more specifically in relation to climate change cooperation as it relates to national development priorities. Ideally, developing countries should give to one government ministry or department the responsibility for

coordinating action within the country arising from its policy commitment to support South-South cooperation, including regional and sub-regional cooperation, as is already the case in some developing countries. It is desirable that a cabinet-level minister should have responsibility for South-South cooperation matters, on par with other ministerial-level posts responsible for other areas of national development policy.

- ▶ **Developing countries should explore developing their own national, regional, or international South-South approaches for improving mutual clarity, transparency, and understanding regarding their implementation of South-South cooperation on climate change with other developing countries.** Information that may be obtained from the use of such approaches can help enhance the implementation of South-South cooperation by improving South-South learning, understanding, and sharing of expertise and experience among developing countries. As the Group of 77 and China in 2008 pointed out in its Yamoussoukro Consensus on South-South Cooperation, it would be useful for developing countries to consider establishing a mechanism under the Group of 77 and China to monitor the implementation of South-South cooperation initiatives.¹⁹⁶
- ▶ **The conduct of policy research and analytical studies can be used to draw a more complete picture of South-South cooperation on climate change,** using data obtained from the South-South cooperation partners themselves and supported through in-country surveys or interviews, so as to be able to obtain more in-depth and comprehensive data and information sets that can be used to draw a more complete picture of South-South cooperation on climate change. The United Nations system has a role to play in supporting such research. These could include, inter alia, continued mapping of South-South cooperation on climate change activities, programmes, or projects undertaken by developing countries, including those that would be linked to NDC development, enhancement and implementation, as well as SDG implementation.
- ▶ **Following current trends in South-South cooperation on climate change, activities in such cooperation should be enhanced in the thematic areas, modalities of action and types of activities** that are shown in this report. These include thematic areas related to both mitigation (energy systems; agriculture, forestry, and other land use; urban systems and other settlements; buildings; transport; industry), and risks, adaptation and sustainability for systems impacted by climate change (terrestrial and freshwater ecosystems and their services; ocean and coastal ecosystems and their services; water; food, fibers, and other ecosystems products; cities, settlements and key infrastructure; health, wellbeing and the changing structure of communities; poverty, livelihoods and sustainable development), as well as cross-sectoral; modalities of action (bilat-

¹⁹⁶ See G77, Yamoussoukro Consensus on South-South Cooperation Principles, para. 4, at http://www.g77.org/ifcc12/Yamoussoukro_Consensus.pdf

eral, trilateral, triangular, regional, and multilateral or globally-focused), and types of activities on South-South cooperation on climate change (technical cooperation, including capacity building, financial support, technology development and transfer, and support for institution building).

- ▶ **SSCCC efforts that offer the greatest potential would be those that capitalize and focus on enhancing the ability of developing countries to develop their nationally determined contributions and implement their climate actions on the basis of their national sustainable development priorities** and which would enhance direct cooperation among themselves through their national, regional or multilateral institutions. These efforts will have to be diverse and applied across modalities, given the nature of SSC that they will have to respond to. As practically applied, for example, to the development of NDCs, effective South-South cooperation would support the creation of a broader community of national-level developing country expertise through cross-country exchanges among developing countries in relation to the preparation of, readiness for, and implementation of NDCs. This would include looking at ways that support could be provided to build or strengthen national and regional institutions that can support the strategic and sustainable development-oriented integration of NDCs (including its mitigation and adaptation components) into national long-term development plans and programmes. This will allow NDCs to be developed and implemented in a manner that becomes country-owned, nationally appropriate and nationally-determined, and consistent and coherent with the country's national development, poverty eradication, and industrialization policies and strategies.
- ▶ **South-South cooperation on climate change can serve as a framework for enhancing South-South cooperation in other areas of common and global concern to developing countries that are closely linked to climate change.** For example, the management of shared water resources; the prevention or reduction of floods, siltation, and erosion; the management of irrigation systems; the generation and use of various forms of energy, particularly from new and renewable sources; in regional seas or coastal areas, the management of Exclusive Economic Zones, offshore oil exploration, and pollution control; the management of tropical forests; the prevention of desertification; the conservation of wildlife, genetic resources, and generally of ecosystems; the financing of climate change actions; and the development, innovation, diffusion, use and transfer of climate change-related technologies. These are all areas that are closely linked to climate change actions and call for close South-South cooperation within groups of developing countries.
- ▶ **At the United Nations system-level, it is important that South-South cooperation be more fully and explicitly incorporated into the operational programmes of United Nations bodies and agencies, and that a stronger coordinating and consultative mechanism to support South-South cooperation be established at the Chief Executives Board for Coordination level.** Given the importance of the Paris Agreement under the UNFCCC, The 2030 Agenda for Sustainable Development, and the Addis Ababa Action Agen-

da on Financing for Development as key policy documents that will shape United Nations agency activities, programmes and projects going towards 2030, it is important that this integration of South-South cooperation occurs, consistent with various General Assembly resolutions and the decisions of the High-level Committee on South-South Cooperation, and that a stronger coordinating and consultative mechanism to support such a cooperation be established. This is particularly important with respect to United Nations agencies undertaking activities and programmes that support South-South cooperation on climate change, in order to ensure that such activities and programmes support and are consistent with the priorities of the South-South cooperation partners. Additionally, the mainstreaming of South-South cooperation, including in climate change, in the United Nations system should include enhanced mechanisms for reporting and capturing both qualitative and quantitative indicators of the support provided by the United Nations system to developing countries' South-South cooperation initiatives.

- ▶ **Efforts towards financial cooperation on climate change need to be strengthened.** It is widely recognized that financial contributions from other developing countries should not be seen as official development assistance from these countries to other countries of the South, but rather should be seen as expressions of solidarity and cooperation borne out of shared experiences and sympathies; neither should they be seen as obligations under the UNFCCC and its related instruments, given that they are not designed to supplement the obligations of developed countries. Nevertheless, financial support related to climate change in the context of South-South cooperation holds considerable promise as a complement to existing sources of finance for development that may provide more opportunities for Southern countries. International and regional efforts to advance climate action have played a large part in promoting climate action. This approach to achieve sustainable development through investing in climate projects underscores the need for its continued support by the United Nations, international and regional organizations, and multilateral banks.
- ▶ **International community stakeholders, including IGOs, the United Nations, and the public sector, can best facilitate and support pragmatic South-South cooperation activities in climate change and sustainable development by:**
 - ▶ Prioritizing and focusing on expanding the developing country community of practitioners and experts on SSC in relation to climate change and SDGs;
 - ▶ Working with developing countries and their institutions to develop institutional capacity – e.g. through ministries – for South-South cooperation activities in relation to NDCs and SDGs that would assist developing countries in integrating NDC- and SDG-related actions and policies into their national development planning and programmes;
 - ▶ Assisting in and facilitating cross-country flows of SSC-related resources, including finance and technology, by working with developing country governments and their regional and multilateral institutions so as to

ensure that such flows are mutually supportive of the policy priorities of the participating countries in relation to NDCs, SDGs and their national development priorities; and

- ▶ Working with developing country partners and other stakeholders to develop and disseminate knowledge products regarding South-South cooperation activities.

- ▶ **In order to sustain the current momentum on climate cooperation and to scale up impact, the international community should support developing countries to find ways to make South-South cooperation on climate change inclusive.** Aside from the current SSCCC actors, other Member States, regional actors, and the private sector are critical for the development of inclusive climate development strategies. Moreover, it is crucial to involve those who will be disproportionately impacted by the adverse impacts of climate change, particularly vulnerable populations in the LDCs, LLDCs, and SIDS, and other developing countries. The promise of the 2030 Agenda for Sustainable Development, that no one is left behind, should also apply to combating the threat of climate change.

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