

Long-term strategies for climate action, food security and water in developing countries

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Table of Contents

Acknowledgements	iii
Abstract	iii
1.Introduction	1
1.1. Background	1
1.2. Purpose and scope of the study	1
1.3. Concepts and terminology	2
1.4. Method	3
2.Overview of international strategies and assessments	4
2.1. International strategic frameworks	4
2.2. Climate change.....	4
2.3. Food security and nutrition	6
2.4. Water	7
3.Tropical forests: the African, Amazon and South-East Asian basins.....	9
3.1. Africa	10
3.2. Amazon basin.....	15
3.3. South-East Asia	18
4.African regional strategies.....	20
4.1. Continental strategic frameworks	20
4.2. Climate change.....	21
4.3. Food security and nutrition	27
4.4. Water	31
5.Delta regions: the case of Bangladesh	42
5.1. National strategic frameworks	42
5.2. Climate change.....	45
5.3. Food security and nutrition	50
5.4. Water	56
Annex 1: Dutch development cooperation objectives and SDGs	64
Annex 2: Other thematic strategic and policy documents of Bangladesh.....	68
Climate change.....	68
Food security and nutrition.....	74

List of Boxes

Box 1. ECOWAS regional strategy for climate change	25
Box 2. Great Green Wall for the Sahara and Sahel Initiative	26
Box 3. ECOWAS regional strategic framework for food security	30

List of Figures

Figure 1: Key agreements, declarations and decisions on water security in Africa since 2000s	32
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List of Tables

Table 1 Strategic priorities and actions of the African Ministers' Council on Water Strategy	34
Table 2 Selected relevant strategic objectives and interventions of the Africa Blue Economy Strategy	39
Table 3 Summary table of BDP 2100 national and hotspot strategies	59
Table 4 Strategic themes and sub-strategies of Bangladesh's strategy for water supply and sanitation	62

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Abstract

This study provides an inventory and a rapid appraisal of long-term strategies and trend assessments concerning the domains of food security, water and climate action in developing countries and regions, for the purpose of helping policy-makers improve the relevance, consistency and effectiveness of development and international cooperation. As it was commissioned by the Policy and Operations Evaluation Department of the Ministry of Foreign Affairs of the Netherlands (IOB), it is destined in particular to Dutch policy-makers and focuses on thematic areas, countries and regions that are important for the development cooperation policy of the Netherlands. Food, agriculture, water, and energy are essential sectors for the development of modern societies and the well-being of people. Yet, the natural resources on which their provision depends are under rising pressures due to economic and demographic growth, especially in developing countries.

The study focuses on three relevant cases combining these sectors with particular geographies. First, it reviews strategies concerning tropical rainforests, which, as carbon sinks, can greatly contribute to climate change mitigation – reduced deforestation and forest degradation, afforestation and reforestation often are the most feasible measures with the largest potential for climate change mitigation for developing countries. Strategies and assessments are reviewed for the three major tropical forest basins, in Africa, the Amazon Basin, and South-East Asia. Second, it identifies and appraises key regional strategies regarding climate action, food security and water in Africa. These strategies cover many low-income countries with populations that are highly vulnerable to the negative impacts of climate change. Third, as an example of countries in vulnerable delta areas, the study examines the case of Bangladesh.

Many long-term strategies have been developed by governments and regional organisations in the geographic contexts and sectors retained for this study, although in practice they often depart from the ideal concept of a

scientific evidence-based, long-term strategy. Across sectors, it appears that climate change is a rising concern in developing countries, although these strategies usually put a greater emphasis on ensuring climate-resilient development than cutting greenhouse gas emissions, given the short- to medium-term priorities of their governments. The sustainable management of natural resources and ecosystems is a prevalent priority across strategies. Several strategies reviewed, notably at the regional level in Africa and Bangladesh, show an intent to take more integrated approaches amongst the sectors of climate change, energy, food and water in the pursuit of sustainable development.

1. Introduction

1.1. Background

Food, agriculture, water, and energy are essential sectors for the development of modern societies and the well-being of people. Steadily growing populations and economies, urbanisation, and changing consumption patterns have led to a dramatic rise in demand for food, water, and energy, which has put tremendous pressure on the natural resources on which their provision depends. At the global level, the 2030 Agenda for Sustainable Development formulated sustainable development goals (SDGs) for food security (SDG2), water (SDG6) and energy (SDG7). Yet, in many developing countries, tensions amongst different uses of land and water resources, if not appropriately managed, will make governments and civil society organisations' task of ensuring adequate access to food, water and energy for low-income, vulnerable populations and small economic operators more difficult.

Public policy objectives in the food, water and energy sectors are strongly interlinked. They are also closely interconnected with policies concerned with cities and human settlements (SDG11), sustainable consumption and production patterns (SDG12), the protection of ecosystems (SDG15), and, importantly, climate change (SDG13). These sectors not only compete with each other for the use of land and water resources, but they also depend on each other, with, for example, agricultural and food production depending on the supply of energy. By using natural resources, they also interact with ecosystems.

Furthermore, rapidly changing climatic conditions – to which the energy, food and agriculture sectors have contributed – add complexity and uncertainty to these interconnections. Climate change often exacerbates anthropogenic stresses in water, land and ecological systems. It is expected to affect natural and man-made water systems most severely – the majority of climate-related natural disasters are related to water. These stresses, in turn, have social consequences, especially for the most vulnerable population segments. In developing countries in the sub-tropics, the combination of slow-onset climate change and more frequent weather hazards with strong tensions amongst those three sectors and socio-economic inequalities poses risks in terms of food and water security as well as social cohesion, stability and peace.

Given that climate action and energy, food and water systems are conditioned by multiple, structural, and interconnected factors, **long-term strategies may be useful means for states and societies to effectively pursue sustainable development goals in those sectors, efficiently and equitably.** Such strategies may in particular help foster more coherent policies between interlinked sectors. They may also be instrumental in ensuring policy consistency, carrying out assessments of future trends and policy planning over the long-term, and avoiding short-sighted investments and stranded assets. **For international development actors, being aware of the long-term strategies followed by developing countries may help align their own policies, particularly in the area of development cooperation, with the strategic goals of local actors.**

1.2. Purpose and scope of the study

This study aims to inventory the most relevant, evidence-based, long-term strategies and assessments concerning the sectors of food security, water and climate in developing countries and regions. This study was commissioned by the Policy and Operations Evaluation Department of the Ministry of Foreign Affairs of the Netherlands (IOB) to inform an evaluation of the Dutch policy in the areas of climate change, food security and water, including the

coherence of Dutch policies with regards to these objectives.^{1,2} A secondary objective is to inform policy-makers and diplomats about available strategies and assessments to help enhance the relevance and effectiveness of future Dutch development cooperation efforts in these sectors, especially of the new four-year “multi-annual country strategies” of Dutch embassies in developing countries that were adopted in 2022.

This study takes as reference the SDGs concerning climate change, food security and water (2, 6³, 7 and 13) of the 2030 Agenda for Sustainable Development, which is the main international policy framework for eradicating poverty and achieving sustainable development in all countries by 2030. Given the importance of forests for climate action, we also consider strategies aiming to protect forest and sustainably manage forestry resources (SDGs 12 and 15).

The guiding questions for the study are as follows:

- *Is there information about a baseline, business-as-usual scenario for food security, sustainable water management, and climate action in the focus countries and regions?*
- *Are there long-term strategies (for periods of 10 years or more and based on science) towards the desired situation (between 2030 and 2050)?*
- *Can strategies for different themes be aligned? And to what extent are the strategies on different themes compatible?*

As for the scope of the study, it essentially focuses on three relevant cases combining specific themes and geographies:

- **Tropical rainforest basins**, which, as carbon sinks, can make a major contribution to climate change mitigation (this case focuses on climate action and it comprises not only developing countries but also emerging economies);
- **African strategies at the regional level**, which cover many low-income countries with populations that are highly vulnerable to the negative impacts of climate change;
- **Delta areas, taking Bangladesh as an example**, are exposed to many effects of climate change (sea-level rise, floods, heatwaves, droughts, health impacts, and so forth).

1.3. Concepts and terminology

For the purpose of this study, as a basic concept, a **strategy** consists of an intent to realise a set of **goals** concerning or relating to the future state of food security, water management and climate action – a “**vision**”. The identification of goals is an important part of the formulation of a strategy. Goals make explicit what an entity is trying to achieve and to become. That entails to state what it intends to do with respect to the “environment” in which it operates, or its “external system” (for example, a food system).

The formulation of a strategy should clarify the direction of efforts to make and help to reach a **consensus** within an organisation or amongst a grouping of organisations or individuals (especially on the vision). This process should rely on evidence about the state of things (a **diagnosis**) and their likely evolution under particular circumstances (that is, a **prognosis**, for example a projection of trends with scenarios). The participation of different “**stakeholders**” may help reach this consensus. It is also important for the entity in question to conceive the benefits it generates by

¹ These objectives were defined in the policy document on foreign trade and development cooperation: *Beleidsnota. (2018). Investeren in Perspectief Investeren in perspectief: Goed voor de wereld, goed voor Nederland*. Den Haag: Ministerie van Buitenlandse Zaken (the associated budget document provides more details on these objectives).

² The Dutch Ministry of Foreign Affairs has an action plan on policy coherence for development that was adopted by the government in 2016 and revised in 2018. This plan focuses on trade agreements, investment regimes, tax evasion, the fight against climate change, and the sustainability of production and trade.

³ The study covers only terrestrial systems and, to a limited extent, coastal systems, excluding oceanic systems (that is, SDG 14).

implementing its strategy, particularly the satisfaction of important needs of (internal as well as external) stakeholders, and the balancing of different needs or interests amongst them (or, trade-offs).⁴

A strategy for any of the three thematic areas comprises meaningful **policies** captured in an agreed-upon statement. Relevant and well-defined policies are instrumental in satisfying and balancing the needs of stakeholders, and ultimately in reaching strategic goals.⁵ They are first of all statements about how goals should be attained.⁶ An important aspect of a strategy encompassing multiple policy areas is its ability to ensure that they work in unison towards the realisation of strategic goals, that is, that it is conducive to **policy coherence**. It may do so by minimising trade-offs while maximising co-benefits between sustainable development policy objectives contributes to policy effectiveness and strategic realisation. Well-functioning state institutions are critical for properly managing policies.

When two or more strategies pursue overlapping or interconnected goals, in one or more sectors, they may be followed concurrently without one interfering, or conflicting, with the other, in which case the strategies are **compatible**; or the pursuit of one strategy may hinder the other. Interferences may be due to a lack of consensus on the diagnosis or the prognosis, diverging policy objectives, competing uses of the same resources, or differing choices about the balancing of stakeholder interests. **Alignment** refers to the extent to which different strategies can be made more compatible.

1.4. Method

We methodically review strategic documents and evidence-based assessments of trends relevant to the three thematic-geographic cases. Besides the strategic documents themselves, we used a variety of sources of information, including scientific documents (academic journal articles in particular), policy-oriented publications, and journalistic articles (published in print or online news outlets) to identify and appraise the most relevant of them. We also conducted interviews with a few resource persons, especially for Bangladesh.

The basic criteria for selecting and appraising strategies and assessments are:

- Current national, regional or international strategies for at least ten years and preferably greater time horizons (2050 for example), and initiated at most five years ago;
- Availability of information on future trends in the case study country and regions;
- Scientific-evidence-based;
- Agreed-upon, or, consensual (for example, by having gone through a consultative process involving diverse stakeholders);
- Appropriateness of the geographical scale or political governance level.

Other criteria may come handy when selecting and appraising strategies whether they soundly and appropriately address sustainable development issues in the areas of climate action, food security and water. These criteria include the internal consistency of a strategy; its consistency with its context; indications of the degree of buy-in and coordination amongst different actors concerned with or involved in a strategy, and of its political relevance and feasibility; the relevance and definiteness of policies; the appropriateness of implementation modalities; and the adequacy of resources committed.

⁴ That requires paying attention to losses incurred by losers of policy reforms as part of a strategy implementation.

⁵ The scale of the challenge entailed by a given state of a “system” and the goals pursued is an important consideration in the formulation of a strategy.

⁶ They are useful to make the strategy explicit and to provide guidance for the members of an entity in designing and implementing strategically-significant activities, in conducting internal and external processes, and so forth. An explicit strategy is also useful in providing for coordination and delegation.

For the most important strategies, we present the information according to this structure:

- Major goals and policy objectives;
- Source of supporting scientific evidence;
- Indications of the degree of buy-in and coordination amongst different actors concerned with or involved in a strategy, and of its political relevance and feasibility;
- Key means and modalities of implementation and, if any, main limitations;
- As relevant and feasible, compatibility with other strategies.

The rest of the report is organised as follows. Section 2 provides an overview of notable strategic frameworks at the international level, including for the climate, food, and water sectors. Section 3 reviews strategies and assessments concerning tropical forests. Section 4 presents relevant regional strategies in Africa. Finally, Section 5 reviews the relevant strategies of Bangladesh.

2. Overview of international strategies and assessments

2.1. International strategic frameworks

At the level of the United Nations (UN), major multi-sectoral frameworks provide entry points for identifying long-term, science-based and agreed-upon strategies for food security, water, and climate action in developing countries. They include the following:

- The [2030 Agenda for Sustainable Development](#), including its 17 Sustainable Development Goals (SDGs), which, since 2015, has been the main framework for eradicating poverty and achieving sustainable development worldwide by 2030;⁷
- The [Addis Ababa Action Agenda](#), adopted in 2015, which is an integral part of the 2030 Agenda and provides a framework for financing sustainable development by aligning all financing flows and policies with economic, social and environmental priorities;
- The [Sendai Framework for Disaster Risk Reduction 2015–2030](#), adopted in 2015, which sets forth an agenda to reduce disaster risk and losses in lives, livelihoods and the health of persons, businesses and communities through 2030.

Finally, the report of the UN Secretary-General [Our Common Agenda](#), presented in 2021, provides a strategic agenda for a period of 25 years that recognises the interconnections amongst major global challenges and intends to accelerate the implementation of existing international agreements, including the 2030 Agenda. It puts a certain emphasis on strengthening governance at the country and multilateral levels.

In the rest of this section, we highlight key strategic frameworks in the areas of climate change, food security and water.

2.2. Climate change

The 2015 United Nations Framework Convention on Climate Change (UNFCCC) [Paris Agreement](#) on climate change, a legally binding treaty on climate change **primarily aiming to limit global warming to well below 2, preferably to 1.5 degrees Celsius, compared to pre-industrial levels**, which was adopted by 196 Parties in 2015 and entered into force in 2016, is the main international framework for climate action. To achieve this long-term temperature goal, UN

⁷ Dutch development cooperation objectives in the areas of food security, water and climate (see Article 2.1 of the Foreign Trade and Development Cooperation budget) are closely related to the SDGs (see Annex 1).

member countries aim to reach the global peak of greenhouse gas emissions as early as possible so as to achieve a **climate neutral world by mid-century**. Additionally, the Paris Agreement establishes a **global goal on adaptation**, vulnerability reduction and resilience building, with **the aim of increasing the ability of all countries to deal with the impacts of climate change**. It also aims at **steering financial flows consistently with climate neutrality and climate-resilient pathways**, particularly by appropriately mobilising and providing financial resources that support action by developing countries and the most vulnerable countries.

Under the Paris Agreement, countries are supposed to pursue internationally-agreed, voluntary objectives into national policies by formulating and implementing nationally determined contributions (NDCs) and national adaptation plans (NAPs)⁸, indicating the actions they will take to reduce their greenhouse gas emissions (GHG) on net and adapt and build resilience to climate change. Under the agreement, developed countries are obliged to support climate actions in developing countries, achieving a balance between adaptation and mitigation through financial, technological and capacity-build assistance.

To foster the pursuit of its temperature goal, the Paris Agreement recommends to countries to formulate voluntary long-term low greenhouse gas emission development strategies (LT-LEDS), which provide the long-term horizon to the NDCs. Long-term strategies (LTS) under the Paris Agreement, and the process of creating them, can be useful for planning, engaging stakeholders and defining the policies required to achieve the Paris climate goals while meeting other development priorities. Least Developed Countries (LDCs) have engaged in this process, starting with the launch of the LDC Group Vision toward a climate-resilient future encouraging LDCs to pursue climate-resilient development pathways by 2030 and attain net-zero emissions by 2050. Following the COP 26 in Glasgow, the Executive Secretary of the UNFCCC strongly recommended that governments communicate new or updated LT-LEDS by the time of COP 27.⁹ More than 50 countries have submitted LT-LEDS to the UNFCCC Secretariat at the time of writing. Three LDCs, Cambodia, Nepal and Benin, have already submitted their long-term strategies. The EU, as a regional organisation, submitted its long-term strategy to the United Nations Framework Convention on Climate Change (UNFCCC) in March 2020.

The main sources of evidence for climate change are the [Assessment Reports of the Intergovernmental Panel on Climate Change](#) (IPCC). The IPCC provides comprehensive, scientific information about the causes of climate change, potential impacts and options for adaptation and mitigation. The IPCC has also produced special reports such as the [IPCC Report on land](#) (2019).

More generally, the most comprehensive report on the global environment is the [United Nations Environment Programme's Global Environment Outlook](#). The sixth report (GEO-6) was published in 2020.¹⁰ The GEO compiles information about existing baselines and scenarios for key environmental variables.

In 2022, the UN Economic and Social Council issued a report, titled [Long-term future trends and scenarios: impacts on the realization of the Sustainable Development Goals](#), that largely focuses on the global energy transition towards net-zero GHG emissions as a means of attaining the goal of the Paris Agreement. This report, which builds on the Our Common Agenda report, provides baseline and best-case scenarios for the energy sector and GHG. It highlights the interconnectedness of the energy system with other sectors, including the sectors of transportation, housing, industry, and agriculture. **Besides the deployment of renewable energy sources, it emphasises energy demand management as a way of reaching net-zero emissions while ensuring decent living standards for all.**

⁸ All countries should submit and periodically update an adaptation communication describing their priorities, needs, and actions.

⁹ The first-ever report on LT-LEDS will be presented by the UNFCCC Secretariat by October 2022.

¹⁰ <https://www.unep.org/resources/global-environment-outlook-6>.

Other international organisations and groupings, including the OECD, the G7, the G20, the World Bank and the International Energy Agency provide important information and data for supporting climate policy-making.

2.3. Food security and nutrition

Although there is no legally-binding international agreement in the area of food security that is comparable to the Paris Agreement on climate change, several strategic frameworks provide guidance to reach global food security and nutrition goals. In recent years, these strategic frameworks have encouraged countries to take more integrated approaches to pursuing food security and local stakeholders to regain ownership of their agricultural, food and nutrition policies.

- The [Global Strategic Framework for Food Security and Nutrition](#)¹¹ (GSF for short) is a non-legally-binding policy framework that incorporates the decisions and recommendations adopted by the Committee on World Food Security (CFS),¹² which has been updated annually since 2009. It fosters policy coherence at the international, regional and national levels, while emphasising the primacy of countries in formulating food security and nutrition policies. In 2017, the Committee carried out an in-depth review of the GSF to integrate new developments around food security and nutrition, notably the 2030 Agenda and the Paris Agreement. In this context, the GSF provides guidelines and recommendations helping actors at different levels formulate and implement coherent policy responses to the underlying causes of hunger and malnutrition.¹³ **The recommendations include, amongst others, actions to: promote responsible investments in agriculture and food systems; invest in smallholder farming; address excess food price volatility; address gender issues; improve the tenure of land, fisheries and forests; enhance social protection; and reduce food losses and waste.** In several cases, these recommendations have been informed by evidence-based reports from the [CFS High-Level Panel of Experts on Food Security and Nutrition \(HLPE\)](#), which is the UN body for assessing the science related to world food security and nutrition.
- The [Scaling Up Nutrition Movement Strategy](#) for 2021–2025 (SUN 3.0) rallies the governments of SUN Countries, UN organisations, civil society organisations, businesses, donors and scientific organisations around the goal of improving nutrition at the country level and globally. **The SUN Movement promotes multi-sectoral and multi-stakeholder approaches to alleviating malnutrition.** The Strategy identifies four key strategic objectives: (1) Strengthen and sustain strong policy and advocacy environments at the subnational, national, regional and global levels to position nutrition outcomes high on the sustainable development agenda; (2) develop and align shared country priorities for action; (3) build and strengthen country capacity to develop, prioritise, finance, implement and track country actions through strengthened technical assistance and knowledge management; (4) ensure governance of SUN that promotes country leadership, aligns the resources of all Movement stakeholders behind country priorities, strengthens mutual accountability.
- The [2021 UN Food Systems Summit](#) focused on five key areas for making progress towards the SDGs, in particular to promote sustainable food systems, with the support of the Independent Scientific Group, the Action Tracks, the Levers of Change, and the Summit Dialogues. These five areas are: (1) Nourish All People; (2) Boost Nature-based Solutions; (3) Advance Equitable Livelihoods, Decent Work and Empowered Communities;

¹¹ Version of 2017.

¹² The CFS is the most inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all.

¹³ In addition, the [2015 Framework for Action for Food Security and Nutrition in Protracted Crises](#), which has been endorsed by the CFS, provides an international consensus on the approach to alleviating food insecurity and malnutrition in situations of protracted crises. The 2016 General Assembly resolution for the [UN Decade of Action on Nutrition](#), for the period 2016–2025, in which member states committed, amongst other things, to coherent policies to eliminate malnutrition in all its forms and everywhere, building on the commitments of the Second International Conference on Nutrition.

(4) Build Resilience to Vulnerabilities, Shocks and Stresses; and (5) Support Means of Implementation. The National Pathways for Food Systems Transformation that were elaborated through the national dialogues in preparation of the Summit are a central element of the approach that countries are encouraged to follow to make their food systems more sustainable.

The [EAT-Lancet report](#), published in 2019, is a notable document that makes an assessment of the global food system and proposes a long-term strategy to promote healthy and environmentally-sustainable diets, transform food systems, and thus, contribute to sustainable development. The EAT-Lancet Commission reviewed a large body of work on the health and environmental impacts of various diets, with most studies concluding that a diet rich in plant-based foods and with fewer animal source foods confers both improved health and environmental benefits. It also reviewed the evidence on food production systems.

The Commission developed scientific evidence-based targets for healthy diets and sustainable food production globally and integrated them into a common framework, the safe operating space for food systems (which includes planetary boundaries for global food production), so that both healthy and environmentally sustainable diets could be identified. **This safe operating space is defined by targets for intakes of specific food groups (e.g., 100 to 300 g/day of fruits) to optimise human health and targets for sustainable food production to ensure a stable Earth system.** The EAT-Lancet report presents scenarios showing the environmental impacts of implementing various actions determining diets and food production as well as a business-as-usual scenario. The report also compares the environmental impacts to the planetary boundaries.

However, at this time, there is no global consensus on what constitutes healthy diets and sustainable food production systems, nor whether healthy and environmentally sustainable diets may be achieved for a global population of 10 billion people by 2050. In 2022, a new EAT Commission launched an initiative to produce a follow-up EAT-Lancet report, aiming in particular to build scientific consensus amongst a diversity of food system actors.

2.4. Water

In the domain of water, at the multilateral level, the most relevant strategic initiatives are the International Decade for Action: Water for Sustainable Development 2018–2028 (“Water Action Decade” for short) and the UN Water 2030 Strategy.¹⁴

- The UN General Assembly resolution for the [Water Action Decade](#) was adopted in December 2016. **This resolution focuses on the sustainable use and integrated management of water resources for the achievement of the SDGs.** It is intended to promote and serve as guidance for the implementation of water-related programmes and projects. It also encourages partnerships at all levels so as to achieve internationally agreed water-related goals and targets. A conference for the Midterm Comprehensive Review of the Implementation of the Objectives of the International Decade for Action will take place in 2023.¹⁵

¹⁴ Another UN framework worth mentioning is the 2014 Global Water Partnership-UNICEF [WASH Climate Resilient Development Strategic Framework](#), which focuses on investments to increase the resilience of the water and sanitation (WASH) sector to climate variability as well as long-term changes in the climate. In 2019, the Global Water Partnership (GWP) issued [technical guidelines to address water in the UNFCCC NAPs](#).

¹⁵ See <https://www.unwater.org/un-2023-water-conference/>.

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- The [UN Water 2030 Strategy](#) focuses on accelerating progress towards the targets of SDG 6. **Building on [UN-Water's strategy for 2014–2020](#) and the [UN-Water External Review of 2018](#), it aims to address water and sanitation challenges over a ten-year period with greater focus, urgency, effectiveness and coherence.**¹⁶

Two main legally-binding international agreements govern the management of transboundary water bodies and resources:

- The [Ramsar Convention on Wetlands](#) is the oldest intergovernmental environmental agreement (it was adopted in 1971 and entered into force in 1975). It provides a framework for the conservation and wise use of wetlands and their resources.¹⁷ Under the Convention, the Contracting Parties committed to designate suitable wetlands for the list of Wetlands of International Importance (the “Ramsar List”) and ensure their effective management; and to cooperate internationally on transboundary wetlands, shared wetland systems and shared species. The fourth [Strategic Plan of the Convention](#) (2016–2024) reviews long-term and recent trends concerning wetland areas globally, reporting that the **wetland loss rate has been highest during the 20th and 21st century, with a loss of 64% to 71% of wetlands since 1900**. It also highlights that **conversion and loss is faster in coastal rather than inland areas and is particularly rapid in Asia**. Unsustainable agriculture, forestry and extractive industries, especially oil, gas and mining, are amongst the key drivers of wetlands loss. **The Plan identifies a number of priority areas. These include: measuring the wetland resources and wetland ecosystem benefits and addressing the key drivers of wetland loss and degradation; enhancing the generation and delivery of science-based advice; enhancing cooperation platforms at all levels** (site, city, river, lake and groundwater basins, national, regional and global), to promote mainstreaming of wetland values in water, soil and biodiversity management and in public and private investments; **and strengthening the full and effective participation and the collective actions of stakeholders, including indigenous peoples and local communities**.
- The United Nations Economic Commission for Europe (UNECE) [Convention on the Protection and Use of Transboundary Watercourses and International Lakes](#) (the 1992 Water Convention) is a legally-binding agreement, which was adopted in Helsinki in 1992 and entered into force in 1996. It requires the Parties to prevent, control and reduce transboundary problems, use transboundary waters in a reasonable and equitable way, and ensure their sustainable management. **The Convention was originally negotiated as a regional framework for Europe. Following an amendment procedure, since March 2016, any UN Member State can be part of it**. Chad and Senegal became the first African Parties in 2018. Then, Ghana acceded to it in 2020 and was followed by Guinea-Bissau and Togo in 2021. **The accession of these countries to the Convention has led to improved prospects for transboundary cooperation, conflict prevention, and regional stability in sub-Saharan Africa**.

A recent global assessment conducted by the Netherlands Environmental Assessment Agency (PBL), published in 2018 and titled [The Geography of Future Water Challenges](#), provides scenarios for water-related challenges.¹⁸ The assessment then developed scenarios on the basis of five shared socio-economic pathways used for the projection of climate change and its impacts.¹⁹ Under a business-as-usual scenario, towards 2050, rapid population growth, in

¹⁶ In addition, the [SDG 6 Global Acceleration Framework](#), launched in 2020, is a central element of the UN Water 2030 Strategy aiming at greater efficiency and coordination in supporting water availability, sustainable management and sanitation for all.

¹⁷ Wetlands are amongst the most diverse and productive ecosystems; they include all lakes and rivers, underground aquifers, swamps and marshes, wet grasslands, peatlands, oases, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as fish ponds, rice paddies, reservoirs and salt pans.

¹⁸ The background reports providing the scientific justification of the information produced in the report are available here: <https://www.pbl.nl/en/publications/the-geography-of-future-water-challenges-background-reports>.

¹⁹ Shared socio-economic pathways narratives describe the characteristics of possible futures, in terms of various outcomes, including demography, economic and technological development, urbanisation, and international cooperation.

conjunction with climate change, will increase water-related risks in many regions across the world, with the largest accumulation of challenges being projected for Sub-Saharan Africa and South Asia. The report shows that, without improved water management or adaptation to climate change, the global sustainability goals cannot be achieved. In particular, the report maps a number of global “hotspots” focusing on the following areas: water and food production; water pollution and human health; flooding; water-related energy production; ecological quality of aquatic ecosystems; and water, migration and conflict. Then, based on this analysis of risks and challenges, the report focuses on four global landscapes in need of integrated solutions, namely the dryland regions, cities, transboundary river basins, coastal zones and deltas. **While emphasising that possible development pathways differ per region, country and city, and require scale- and place-based strategies that are anchored in the cultural and social environment, the report highlights the urgent need for an integrated approach to limiting climate- and water-related risks.** As such, the management of these challenges requires strong institutions and a development strategy that acknowledges the interlinkages between them. **To formulate and implement effective strategies, the report underlines the need to build multi-actor coalitions embedded in the various socio-ecological landscapes and based on shared values regarding the targets to be achieved.** This requires partners to align and integrate goals; share information and organise learning processes through reflective monitoring and evaluation; transform their ways of working involving all relevant actors in truly participatory processes; and integrate social and ecological values and risks in development strategies and investment decisions.

Lastly, at the time of writing, a [Global Commission on the Economics of Water](#) – initiated by the Dutch government with support from the Organisation for Economic Co-operation and Development (OECD) – is working on an independent Global Water Review. Building on the impact achieved by the first two global reviews: [The Economics of Climate Change \(or, the Stern Review of 2006\)](#), and [The Economics of Biodiversity \(or, Dasgupta Review of 2021\)](#), this global review aims at (1) assessing the economic, social and environmental benefits of healthy and resilient freshwater systems globally, as well as the costs and risks of their degradation and (2) identifying actions that enhance the health of freshwater systems, improve access to water services and boost economic well-being, with particular attention to inequality and groups that are most exposed to water risk (floods, droughts, pollution, depletion) and excluded from water services. Based on a robust scientific basis, the review will also provide input to policy dialogues focused on remedial action, and then integrate results into an action-oriented final report, in view of the UN Water Conference in March 2023, which will be co-chaired by the Netherlands.

3. Tropical forests: the African, Amazon and South-East Asian basins

Reduced deforestation and forest degradation, and afforestation and reforestation, together, are the measures with the largest potential for climate change mitigation (0.4 to 5.8 of GtCO₂-equivalent and 0.5–10.1 GtCO₂-equivalent per year, respectively), according to the IPCC. **The UN General Assembly adopted the first-ever [Strategic Plan for Forests 2017–2030](#) in 2017.**²⁰ The Strategic Plan features a set of six Global Forest Goals and 26 associated targets to be reached by 2030, which are voluntary and universal. It includes a target to increase forest area by 3% worldwide by 2030, entailing an increase of 120 million hectares. It is compatible with the 2030 Agenda. Previously, the multi-year programme of work (2007–2015) of the United Nations Forum on Forests (UNFF) set a new focus on regional collaboration and partnerships. Since its eighth session in 2009, the Forum has solicited views and inputs from relevant regional and sub-regional forest-related mechanisms, institutions, organisations and processes as an integral part of its deliberations. **The 2017 Strategic Plan, in combination with the engagement of regional actors in the Forum,**

²⁰ General Assembly Resolution 71/285: United Nations Strategic Plan for Forests 2017–2030 A/RES/71/285. <https://static.un.org/esa/forests/documents/un-strategic-plan-for-forests-2030/index.html>.

constitute a meaningful effort at the multilateral level to protect and sustainably manage forests, while deforestation continues unabated in the main tropical forest basins of the globe.

The UNFF is a subsidiary body aimed at promoting the management, conservation and sustainable development of all types of forests and strengthening long-term political commitment to this end. It is part of the International Arrangement on Forests²¹ (IAF), which has five main components: the UN Forum on Forests (UNFF) and its member states, the UNFF Secretariat, the Collaborative Partnership on Forests (CPF), the UNFF Global Forest Financing Facilitation Network (GFFFN), and the UNFF Trust Fund. One of the key objectives of the IAF is to enhance cooperation, coordination, coherence and synergies on forest-related issues.

The [Global Forest Goals Report 2021](#) is the first evaluation of the implementation of the United Nations Strategic Plan for Forests. The report shows that progress has been made in key areas such as increasing global forest area through afforestation and restoration, although the degradation of the natural environment has continued. Global efforts to sustainably manage forests are also informed by the [FAO Global Forest Resources Assessments](#). The latest of these assessments, from 2020, examines the status of, and trends in, more than 60 forest-related variables in 236 countries and territories in the period 1990–2020. The Assessments contain baseline information but they do not provide scenarios.

In what follows, we review key strategic documents for the three major tropical forest basins, namely, in Africa, the Congo Basin, the Amazon Basin, and South-East Asia, with a focus on Indonesia. Starting from the continental or regional level, key strategic frameworks are identified and discussed.

3.1. Africa

In this section, we review the main long-term strategies regarding sustainable forest management in Africa. We first discuss the continental strategic documents. Secondly, we review strategies in the Central African sub-region and the Congo Basin. These regions were selected because they contain the main tropical forests of the continent.

The **Sustainable Forest Management Framework for Africa** has the ambition and potential to be a key strategic document that guides African Union (AU) member states and Regional Economic Communities (RECs) in developing and implementing sound policies on sustainable forest management (SFM). The framework sets out a clear vision, and stresses interconnections with other sectors, such as food, water and climate change. However, its political relevance might be limited as the means of implementation essentially depend on resources mobilisation by national governments. At this level, the SFM has difficulty gaining political attention and prominence in budgetary policies.

Most of the continent's tropical forests are located in the Central Africa sub-region, mainly in the Congo basin. The Commission of Central African Forests (COMIFAC), an intergovernmental organisation, plays an important role in providing a strategic framework for forests in this region, namely the **Plan de Convergence of COMIFAC**.

These African strategies for forest mainly focus on protecting forests and restoring degraded ones, while supporting the livelihoods of communities in and around forestlands and enhancing the economic value of forestry resources through sustainable production and trade.

3.1.1. African Union Commission

At the African continental level, the [United Nations Strategic Plan for Forests 2017–2030](#), which sets out six Global Forest Goals to be reached by 2030, has led to the development and validation in 2019 and the adoption in 2020 of

²¹ <https://www.un.org/esa/forests/documents/international-arrangement-on-forests/index.html>.

the [Sustainable Forest Management Framework for Africa](#) (SFM Framework). At the African Union Commission (AUC), the division for Environment, Climate Change, Water and Land Management is responsible for this policy area. Based on the SFM Framework, it provides assistance to AU member states and Regional Economic Communities (RECs) to sustainably manage forestry resources and use them for socio-economic development. The AUC division on Environment, Climate Change, Water and Land Management reports on Africa's progress towards the implementation of the United Nations Strategic Plan for Forests 2017–2030.²²

A. Major goals and policy objectives

The goal of the SFM framework for Africa is to contribute to the vision for forests as part of the Africa Vision 2063. **The vision is that, by 2063, 'Africa will have zero deforestation and forest degradation and its forests will be protected, sustainably managed and restored through collaborative, cross-sectoral and transformative efforts to ensure the prosperity, food security and resilience of its people.'**

The specific objectives of the SFM Framework for Africa are as follows.

- 1) *'Provide strategic guidance to member states and RECs on Sustainable Forest Management'*;
- 2) *'Facilitate Africa-wide monitoring and reporting on Sustainable Forest Management'*;
- 3) *'Facilitate harmonisation of policies and legal frameworks across Africa'*;
- 4) *'Serve as a basis for coordinating knowledge management, exchange of best practices and information'*;
- 5) *'Facilitate establishment of partnerships and investments in Sustainable Forest Management'*.

The Strategic Framework sets out priority areas to focus on during the 2020–2030 period, as follows.

- 1) *'Enhance the value of forests, sustainable production, processing, markets and trade for forest products and ecosystem services'*;
- 2) *'Develop capacity and knowledge management for SFM'*;
- 3) *'Develop supportive policies and institutional frameworks for SFM'*;
- 4) *'Restore degraded forests and landscapes for building resilience and sustainable livelihoods'*;
- 5) *'Build partnerships and mobilise resources for achieving SFM'*.

The SFM Framework highlights the importance of policy coherence across sectors. The Framework recommends to establish a common platform between the forest sector and the agriculture, energy, water and land sectors *'to discuss issues and synchronize plans'*. It also has some important pointers on the prerequisites for sustainable forest management in Africa, drawing from successful initiatives on the continent and beyond. It refers to prerequisites such as the adaptivity of policies and institutions, the role of local communities and institutional capacity.

B. Sources of supporting scientific evidence

The Framework does not make use of any evidence-based long-term scenarios as such. It was developed by the AUC with technical and financial support of the Food and Agriculture Organization of the United Nations (FAO) and in collaboration with the African Forest Forum (AFF)²³. Its development involved expert consultation workshops,

²² UN Forum on Forests regional questionnaire. African Union Commission. Available at: <https://www.un.org/esa/forests/wp-content/uploads/2020/04/AU.pdf>.

²³ The African Forest Forum (AFF) is a regional NGO that has as objective to 'provide a platform and create an enabling environment for independent and objective analysis; for advocacy and advice on all relevant policy and technical issues relating to the achievement of the management, sustainable use, and conservation of Africa's forests and forest resources as part of efforts to reduce poverty, protect the environment, and promote economic and social development.' The Executive Secretary of the AFF is prof. Godwin Kowero who worked for ten years with the Center for International Forestry Research (CIFOR), as a Senior Scientist and Regional Coordinator for its Eastern and Southern Africa office. AFF also reported on their contribution to the UN Strategic Plan for Forests 2017–2030.

validation workshops with forestry officials from AU member states, representatives of Regional Economic Communities and other stakeholders and partners (including research, academia, NGOs, and other international and regional partners). It was reviewed and approved by the Specialized Technical Committee on Agriculture, Rural Development, Water and Environment of the AU.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

At a political level, the SFM framework is part of the Malabo Declaration on Accelerated Agricultural Growth and Transformation for Shared Prosperity and Improved Livelihoods, which was signed in 2014 by all African Heads of State, which has had a relatively high level of political traction and impact on policy efforts at the sub-regional and national levels. A biennial review report serves to ensure mutual accountability and track the progress of the African Union member states in implementing the Malabo declaration.

The buy-in by key actors such as the AUC, AU member states' ministers responsible for forestry and energy, FAO and AFF give significant credibility to this strategic framework. The framework clearly indicates the opportunities for improved coordination with other policy areas included in the Malabo declaration and other strategies of the AU. However, the SFM framework seems to be at an early stage of implementation, with little information publicly available about its current status. The SFM framework is mentioned in the AU Green Recovery Action Plan, but only to signal potential synergies. The fact that the indicators serving to track progress for the SFM (area of forest under SFM, reduced Rate of deforestation, and overall increase in forest cover) are not part of the CAADP Biennial Review Report is an indication of weaknesses in the implementation approach.

D. Key means and modalities of implementation and main limitations

In the AUC's reporting for the questionnaire of the UN Forum on Forests regional²⁴, the AUC announces the next phase of the African Regional Forestry Strategy is supposed to be an implementation plan accompanied by a financing plan to support the resources mobilisation efforts of AU member states. Yet, the means and modalities of implementation at a continental level seem weak. The SFM Framework mentions how *'the African Union Commission, the Regional Economic Communities, the African Development Bank and the Central African Forestry Commission provide funding and coordination for SFM in Africa'*, but there is no indication of budget allocations, for example, to put in place the monitoring framework for SFM. To implement the Framework, the mobilisation of resources from a mix of funding sources at the national, subregional, regional and international levels will be necessary. At the country level, agencies that oversee national resources, forestry and environmental conservation are generally underfunded and understaffed. They also have weak linkages with AU institutions.²⁵ International agreements and their associated financing instruments such as the Green Climate Fund and the Global Environment Facility (GEF-7 programme) can be used for forest-related climate change adaptation and mitigation interventions.

The SFM Framework includes a section on the monitoring, evaluation and reporting to keep track of the implementation process of the Framework. It lays out key elements of such a framework, emphasising the importance of such a mechanism *'to keep all stakeholders abreast of achievements, challenges and opportunities [...] and avoid the overburden of reporting'*. The section envisages the creation and operationalization of an Expert Working Group that can provide technical oversight for the implementation of the Framework. However, such a monitoring framework does not seem to be established as of the writing of this paper.

²⁴ Available at: <https://www.un.org/esa/forests/wp-content/uploads/2020/04/AU.pdf>.

²⁵ UN Forum on Forests regional questionnaire. African Forest Forum. Available at: <https://www.un.org/esa/forests/wp-content/uploads/2019/12/AFF.pdf>

E. Compatibility with other strategies

The interconnections with other sectoral strategies such as those for agricultural development and food, climate change, energy and water are properly taken into account in the SFM Framework. However, the lack of intersectoral coordination with other sectors is also clearly spelled out as one of the key areas of concern. The areas of intervention proposed in the Framework are formulated at such a general level that it is difficult to assess the risk of incompatibility with other strategies.

There is mention of forests in the section on *'Managing and Protecting Land-Based Ecosystems and Carbon Sinks'* in the Climate Change and Resilient Development Strategy and Action Plan 2022–2032, but no reference to the SFM framework or Regional Strategy. It does mention AFR100.²⁶ AFR100 - the African Forest Landscape Restoration Initiative - is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030. The initiative was launched by the New Partnership for Africa's Development (NEPAD Agency), World Resources Institute (WRI), Germany's Federal Ministry for Economic Cooperation and Development (BMZ) and the World Bank.

SFM is mentioned in the AU Green Recovery Action Plan as one of the intervention areas aiming to support the implementation of a number of initiatives aimed at combating habitat degradation. It also indicates how the Plan will build on existing work under various initiatives such as the SFM Framework for Africa, the Africa Adaptation Initiative (AAI), the Africa Renewable Energy Initiative (AREI) and the Africa Blue Economy Strategy.

3.1.2. Central Africa

For Central Africa, a relevant organisation is the Commission of Central African Forests (COMIFAC). COMIFAC is an intergovernmental organisation that was created by the Heads of State of Central Africa countries in 2000. The organisation is in charge of directing, harmonising and monitoring forest and environmental policies in Central Africa. Member countries are Burundi, Cameroun, Congo, Gabon, Guinée équatoriale, the Central African Republic (CAR), the Democratic Republic of the Congo (DRC), Rwanda, Sao Tomé-et-Principe and Chad.

COMIFAC has a **'[Plan de convergence](#)'** that constitutes the main reference framework to guide and coordinate all interventions at the country level concerning sustainable forest management. It is presented as a strategic plan, and includes a strategic framework with strategic objectives that aim to guide the different stakeholders and partners of the Plan to contribute to its long-term vision. The second Plan covers the period 2015–2025. This ten-year plan is divided into operational three-year action plans. Performance indicators have been put in place to keep track of the progress towards the strategic and operational objectives.

The plan consists of six priority areas:

- 1) the harmonisation of forest and environmental policies;
- 2) the management and sustainable use of forest resources;
- 3) the conservation and sustainable use of biological diversity;
- 4) combating the effects of climate change and desertification;
- 5) socio-economic development and multi-stakeholder participation;
- 6) and sustainable finance.

The three cross-cutting areas are:

- 1) training and capacity building;
- 2) research and development

²⁶ Nepad (n.d.) [African Forest Landscape Restoration Initiative](#) (AFR100).

-
- 3) and communication, awareness raising, information and education.

However, the Convergence Plan does not include any projected scenarios based on modelling. The plan was developed by a team of consultants, with support from national coordinators and technical and financial assistance from several development partners: the African Development Bank, GIZ, IUCN, World Bank and WWF. The Center for International Forestry Research (CIFOR) and World Agroforestry (ICRAF) are involved in the implementation of the plan.

The Plan de Convergence is embedded in the framework of the Yaoundé Declaration on Forests adopted in March 1999 by the Heads of State of COMIFAC. As stated in this document, the international support for the implementation of the Convergence Plan is still far from the commitments for climate finance set out in the Paris Agreement. This poses serious limitations. Another important challenge to the effective implementation of the Plan is the security in the subregion. At a country level, the important role of forests is not well integrated in national country reports. Countries use different indicators and targets, which makes it difficult to compare progress (or lack thereof) between countries²⁷.

The [Central Africa Forest Observatory \(OFAC\)](#) is part of the COMIFAC structures. It was established with these main objectives: (i) Establish a system to monitor the natural and socio-economic environment of forest ecosystems in Central Africa based on a series of indicators; (ii) coordinate the publication every two years of a Report on the State of the Forests and received significant support from the European Union.

The Observatory does not produce long-term strategies, but it plays an important role in data collection and makes this information available and understandable to decision-makers. As such, it plays an important role in the advocacy towards mobilisation of resources, for example in the funding declaration of 1.5 billion USD for the 2021–2025 period at the COP26 of the UNFCCC held in Glasgow (Scotland) in November 2021.²⁸

The 2021 State of the Forest report was published in July 2022²⁹. This State of the Forest report is produced every two years by the Central African Forests Commission (COMIFAC) and the stakeholders of the Congo Basin Forest Partnership. It is a joint effort of nearly 180 experts from within and out of the Central African sub-region and coordinated by a consortium of scientific and technical organisations (CIFOR-ICRAF, CIRAD, FRMi, UCL). It gives a scientifically based assessment covering a range of themes organised in four parts:

- 1) Central African Forests: Resource Status and Management;
- 2) Congo Basin Forests in International Debates;
- 3) Emerging Themes for Central African Forests;
- 4) Stakes and challenges for the Congo Basin forests.

In 2020, the Observatory published the State of the Protected Areas report, its flagship publication on protected areas in the region.

Apart from these key scientific assessments, the Observatory together with partners created various environmental [data monitoring and collection systems](#) to support environmental management in Central Africa. The monitoring system includes a yearly campaign to collect reference data on a number of monitoring indicators in the ten COMIFAC countries. The online repository and public online databases could provide a wealth of information crucial to inform both policy makers and communities. However, the data currently online on the regional indicators was collected in 2008. The [data on national indicators](#) is more recent.

²⁷ See Congo Basin Forests – State of the Forests 2021. Available at: <https://www.observatoire-comifac.net/publications/edf>

²⁸ See <https://ukcop26.org/glasgow-leaders-declaration-on-forests-and-land-use/>

²⁹ Available at: <https://www.observatoire-comifac.net/publications/edf>

3.1.3. Congo Basin Forest Partnership

At the level of the Congo Basin more specifically, the [Congo Basin Forest Partnership](#) (CBFP) is an important organisation in the forest domain. Established in 2002, this multi-stakeholder partnership brings together governments, donors, and international organisations and aims to coordinate and intensify efforts towards sustainable conservation and use of forest resources in the Congo basin. However, the CBFP has not developed a long-term strategy nor is it based on scenarios. It is, however, one of the partners of the 2021 State of the Forests report, which can be considered the main scientifically based assessment available to sub-regional decision-makers.

A relevant, although slightly outdated source of forward-looking information is the Climate Change Scenarios for the [Congo Basin project](#). This project was a joint project of the Gesellschaft für internationale Zusammenarbeit (GIZ) GmbH, the Climate Service Centre in Hamburg and the Wageningen University and Research Centre (WUR) in the Netherlands. It was funded by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and ran from 2010 to 2013. The main aim of the project was to provide local decision-makers with relevant climate change scenarios for the countries of the greater Congo River basin enabling them to i) adapt their strategies concerning natural resources (including forests, water and agricultural land) to climate change and ii) to strengthen the science base underpinning their interest in the post-Kyoto climate negotiations.

This project investigated the links between climate change and hydrology, forestry resources and agriculture in the Congo basin using models with long forecasting horizons, including 2035–2064 and even 2071–2100.³⁰ It aimed to inform strategies for the sustainable management of forestlands in the region. It produced four reports: i) a regional hydrology assessment; ii) a regional assessment on climate change; iii) a regional assessment on the impacts of climate change; and iv) an assessment of regional climate change adaptation options.

The project provided recommendations for adaptation measures and building resilience to climate change so as to protect the ecosystem and economic activities in the Congo basin. **These recommendations notably included developing other renewable energy sources apart from hydropower, such as solar energy and biofuels, diversifying crop production, making greater efforts to reforest and develop agroforestry, and supporting knowledge generation and awareness raising campaigns about the impact of climate change and possible adaptation measures.**

3.2. Amazon basin

In this section, we review the main strategic documents regarding the protection and management of forests in the Amazon basin. Although no regional long-term strategies could be identified according to the criteria set for this study, the Amazonian Strategic Cooperation Agenda (ASCA) of the Amazon Cooperation Treaty Organization (ACTO) and, related to the latter, the current Strategic Action Program (SAP), were found to be relevant strategic documents. This review also includes a relevant science-based assessment of the state of the Amazon basin, its ecosystems and land uses, the Amazon Assessment Report. Although the links between the Amazon Assessment Report and decisions at the level of ACTO are weak, this report, and the multi-stakeholder process leading to its production, plausibly has an influence on the strategic directions taken by the member countries of ACTO.

3.2.1. Amazon Cooperation Treaty Organization

The [Amazon Cooperation Treaty Organization](#) (ACTO) is an intergovernmental organisation made up of the eight Amazonian countries: Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela. These countries signed the [Amazon Cooperation Treaty](#) (ACT), which is intended to promote joint actions by Amazonian countries to contribute to the sustainable development of the region, the protection, conservation and sustainable use of the

³⁰ The project produced country fact sheets for different topics and sectors and a collection of maps and figures of projected changes for different variables and time horizons.

forest, biodiversity and water resources of the Amazon basin. One of the functions of ACTO is to generate information and contribute to the understanding of trends affecting the Amazon region.

The [Amazonian Strategic Cooperation Agenda](#) (ASCA) provides strategic guidance for ACTO. The foreign affairs ministers of the Amazonian countries approved a first agenda in 2010. The second ASCA, for 2020–2030, was reportedly validated at the technical level in November 2018, but still has not been approved by all ACTO member countries at the political level.³¹ However, the text of the second ACSA is not publicly available. **The strategic goals of the 2010 ACSA were based on two main axes: the conservation and sustainable use of renewable natural resources and sustainable socio-economic development, improving the quality of life for the Amazon region’s inhabitants.** Although the first Agenda does not present all the attributes of a veritable long-term strategy – it does not refer to any scientific evidence-based assessments, it did set out six objectives and aimed to function as a guiding tool for the ACTO member countries. It also identified priorities and specified actions in a wide range of areas, including water resources, climate change, research and innovation, and knowledge management. Yet, the document of the ACSA itself mentions the inadequacy of funding for the Permanent Secretariat of ACTO and its dependence on financial contributions from international bilateral donors and international organisations.

Given the slow progress of the ACTO and the absence of an updated ASCA, a project called [Integrated and Sustainable Management of Transboundary Water Resources of the Amazon River Basin](#), carried out under the framework of ACTO, has advanced a joint [Strategic Action Program](#) (SAP) that was adopted by the eight member countries – Bolivia, Brazil, Colombia, Ecuador, Guyana, Peru, Suriname, and Venezuela in 2018. **It puts forward a shared vision for integrated water resources management and sustainable development in the Amazon Basin.** It does so based on national Transboundary Diagnostic Analyses (TDA)³² and several consultative workshops conducted in the eight member countries, scientific research activities carried out under the GEF Amazon Project, and analyses of institutional and legal frameworks at the national and regional levels.

The SAP detailed 19 strategic actions, agreed by the Member Countries of the ACTO, such as the implementation of a regional water quality monitoring system and the creation of forecast and warning systems for extreme hydroclimatic events. The project was funded jointly by the GEF and the ACTO countries, implemented by the United Nations Environment Programme and ACTO.

Through the SAP, the ACTO countries have formulated three strategic areas of action and defined 19 actions. The three areas of intervention indicating the strategic directions of this initiative are as follows.

1. Strengthening of integrated water resources management to prepare the countries for institutional cooperation and interaction at the regional Amazon level – including notably the establishment of laboratories and the training of technical personnel to monitor water resources.
2. Institutional adaptation to climate change and variability – including for example early warning and risk management systems and a network of hydrometeorological stations to improve the ability of local governments and people to cope with droughts and floods.
3. Knowledge management – including notably an information system solving data compatibility issues between various national systems.

³¹ <http://otca.org/en/amazonian-strategic-cooperation-agenda-2019-2030-is-validated-at-a-technical-level/>;
http://otca.org/en/ctp_otca_projetos/project-to-support-the-preparation-and-implementation-of-the-amazonian-strategic-cooperation-agenda/

³² ‘The Transboundary Diagnostic Analysis (TDA) is a technical- scientific document that identifies, quantifies and establishes priorities for water-related problems of a transboundary nature. The TDA is based on two fundamental pillars: (i) Information and experiences available on the various aspects of IWRM in the Amazon Basin, and (ii) Participation of the main national stakeholders of IWRM (public and private organizations, institutions, etc.), identifying their perception of the main transboundary problems, their impacts and underlying causes.’ See SAP, p.84. Available at: <http://otca.org/en/wp-content/uploads/2021/01/Strategic-Action-Program-SAP.pdf>

The Strategic Action Program seems well-grounded in evidence, and as part of the ACTO, is institutionally well-embedded. The [Amazon Regional Observatory](#) is also part of the institutional set-up of ACTO. It has an important role in allowing for knowledge exchange between institutions and intergovernmental authorities of the member countries, in the scientific, technological and socio-cultural domains. ACTO has relationships with other initiatives and programmes, for example, the programme under the UN Convention on Biological Diversity (CBD) Framework in Latin America and the Amazon Assessment Report, which is presented below.

3.2.2. Amazon Assessment Report

In 2020, spurred by the growing urgency of environmental threats to the Amazon during the presidency of Bolsonaro, a group of 150 renowned scientists from eight Amazonian countries, French Guiana and international partners launched a scientific initiative called the Science Panel for the Amazon. The Science Panel's objective is to carry out a scientific assessment of the state of the Amazon Basin, its diverse ecosystems, land uses, and climatic changes and their implications for the region. Under the auspices of the Sustainable Development Solutions Network (SDSN) and advised by policy-makers, business executives, cultural icons and elected indigenous community leaders, the Science Panel, led by Carlos Nobre, Andrea Encalada and Jeffrey Sachs, aims to produce information about current trends and the conditions for ensuring the long-term sustainability of the Amazonian ecosystem and peoples. The report also lays out the vision, principles and values that underpin the potential pathways towards a more equitable economy, built on biodiversity and traditional knowledge.

The [Amazon Assessment Report 2021](#) does not produce new scenarios, but it documents current trends regarding climate changes, deforestation and biodiversity loss, and it uses existing evidence-based scenarios to elaborate a prognosis, including for the future impacts of climate change.³³ **This forward-looking assessment highlights the risk of the Amazonian ecosystem reaching a tipping point 'beyond which most of the remaining rainforest would irreversibly change to a different and highly degraded ecosystem'**.³⁴ This would have a harmful impact both locally and globally. It would result in the release of large amounts of carbon because of tree death, an ensuing crash in biodiversity and rainforest die-off, and extreme changes in the regional water cycle, with heavy impacts on Brazilian water reservoirs, urban water supplies and related socio-economic activities.³⁵

The third section of the report, titled 'The Solution Space: Finding Sustainable Pathways for the Amazon', sets out key principles and values that underpin a more sustainable vision of '[the Amazon we want](#)'. It proposes to '**abandon the unsustainable short-term extractive-based economy**' and aim at an '**environmentally and socially sustainable, inclusive, and just Amazon, where people and nature thrive**'.³⁶ To justify the political support to its policy proposals, the Science Panel recalls in the report the Leticia Pact, an agreement between the governments of Peru, Colombia, Brazil, Guyana, Suriname, Ecuador, and Bolivia signed in 2019, with the aim of halting illegal deforestation and promoting sustainable development in the Amazon basin. The Science Panel published a [Statement](#) in the framework of the September 2021 UN Biodiversity Summit calling for urgent action.

³³ See <https://www.theamazonwewant.org/wp-content/uploads/2021/11/SPA-policy-brief-single-page.pdf>.

³⁴ The report describes tipping points as follows; "Tipping points will lead to abrupt and possibly irreversible shifts between alternative ecosystem states, potentially incurring high societal costs and significant impacts on regional economies."

³⁵ See the executive summary: <https://www.theamazonwewant.org/wp-content/uploads/2022/06/220717-SPA-Executive-Summary-2021-EN.pdf>

³⁶ The solutions proposed are based on three pillars: (1) Conservation, restoration, and remediation of terrestrial and aquatic systems; (2) Sustainable bioeconomy: Development of an innovative, healthy, standing forests, flowing rivers bioeconomy; addressing policies and institutional frameworks for human-environmental well-being and biodiversity protection; combining the knowledge of Indigenous peoples and local communities (IPLCs) and scientific knowledge; and investing in research, marketing, and production of Amazonian socio-biodiversity products; (3) Peoples empowerment and governance: Strengthening Amazonian citizenship and governance, including environmental diplomacy that promotes better management of natural resources and strengthens human and territorial rights.

3.3. South-East Asia

In this section, we first review two scientific assessments of the state and dynamics of South-East Asian forests. These assessments used modelling and scenario-building exercises to map the potential impacts of forest cover changes on ecosystem services. They found that weak forest conservation will have negative impacts on essential ecosystem services such as carbon storage, water yields, and habitat quality. We also review a strategic document that was produced by a regional network of states and regional organisations, the Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet), which is focused on sustainable forest management in Asia.

3.3.1. The future of South-East Asia's forests

A [2019 scientific article by researchers from the National Environment Institute of Japan](#) uses five scenarios³⁷ to show how the dynamics of socioeconomic systems, and the different interacting uncertainties are likely to affect the future of the region's forests. They used a state-of-the-art land change modelling approach and remotely sensed data (2015–2050) to examine the potential implications of spatially allocated forest cover changes. They were able to quantify the changes in aboveground forest carbon stocks (AFCS) at country and province levels, across forest cover classes, and within the intact forests (IFs) and protected areas (PAs) in South-East Asia.

By 2050 under the worst-case scenario the region's forests would shrink by 5.2 million ha and under the best-case scenario could grow with 19.6 million ha of forests.³⁸ Their research allows for the identification of hotspot provinces for future forest cover and AFCS losses. Moreover, they find that over 88% of South-East Asia's forests are unprotected, being outside the PAs, and only about 14% of the region's IFs are within the PAs. The study finds **it is imperative for decision makers to preserve the remaining intact forests (IFs) in the region**. IFs are better at providing ecosystem services compared to degraded forests, and help in the restoration of surrounding areas. Efforts should focus on the protection and conservation of the remaining forests and the expansion of forest cover through reforestation. Strong political will and commitment of government leaders toward regular monitoring and evaluation are necessary.

The study is evidence-based, building on and contributing to scientifically accepted approaches. The study was supported by funding from the Japanese Ministry of Environment and the Japan Society for the Promotion of Science. A researcher from the European Joint Research Centre is amongst the authors, but otherwise there seems to be little embedding in current regional intergovernmental policy processes or connection to implementation modalities.

3.3.2. CIFOR oil palm expansion scenarios in Indonesia

This [2018 study by the Center for International Forestry Research](#) (CIFOR) projects three potential future scenarios for oil palm cultivation in Indonesia's West and Central Kalimantan provinces from 2017 to 2035, and, for each, maps the likely impacts on key ecosystem services (ES) therein. Based on the current land-use policy, spatial planning and maps of oil palm expansion in Indonesia, this study identified three plausible future scenarios; namely business as usual, conservation and sustainable intensification for future development of oil palm plantations in the study area. **It finds that the sustainable intensification scenario with oil palm expansions only on suitable areas and enhancement of yield would lead to a positive impact on carbon stock and water yield, while habitat quality in the study areas slightly deteriorates.**

³⁷ The approach of the researchers is based on the five shared socioeconomic pathways (SSPs), a new generation scenario framework developed in coherence with the representative concentration pathways or RCPs now used in the IPCC's assessments. The five SSPs outline different storylines and assumptions of global development pathways and focus on qualitative descriptions of likely future changes in demographics, human development, economy and lifestyle, policies and institutions, technology, and land use and forest resources.

³⁸ See Estoque, R., Ooba, M., Avitabile, V., Hijioka, Y., DasGupta, R., Togawa, T. and Murayama, Y. (2019). The future of Southeast Asia's forests. *Nature Communications*. 10, 1829.

The study is part of a USAID funded Research Project: Governing Oil Palm Landscapes for Sustainability (GOLS) that was implemented over the period 2015–2018. The project’s main objective is to develop governance arrangements that align the policies and actions of public agencies, private-sector companies and civil society organisations to contribute to improved forest conservation and resource management, and reduced greenhouse gas emission. The stakeholder engagement strategy, and the multi-stakeholder advisory committee intended to increase buy-in and political relevance. It’s unclear from the information that is readily accessible to what extent the project achieved these objectives. Wageningen-alumnus Rogier Klaver was involved as Head of Project Management Unit at CIFOR-ICRAF.³⁹

3.3.3. Asia-Pacific Network for Sustainable Forest Management and Rehabilitation

The [Asia-Pacific Network for Sustainable Forest Management and Rehabilitation](#) (APFNet) is an international organization dedicated to advancing sustainable forest management and rehabilitation in the Asia-Pacific region. The objective of the network is to *‘expand forest cover and improve forest ecosystem quality in Asia and the Pacific to promote the multiple functions of forests, help mitigate and adapt to climate change and meet the changing socio-economic and environmental needs of the region’*⁴⁰. APFNet currently has 27 members, including 22 countries and five international organisations in the Asia-Pacific region. The organisation provides technical assistance and funds projects between USD 100 000 and USD 500 000 for research, policy formulation or capacity building related to forest restoration and management in Asia and Pacific.⁴¹ The Network was officially launched in 2008 and its Secretariat is in China.⁴² According to its [Strategic Plan 2021–2025](#), it has the following strategic priorities:

1. Contributing to forest restoration;
2. Reducing forest degradation;
3. Enhancing forest ecosystem functions.

In 2018, together with FAO and others, the network produced [the Regional Strategy and Action Plan for Forest and Landscape Restoration in Asia-Pacific](#). Key partners that contributed to this Strategy are the Asia-Pacific Association of Forestry Research Institutions (APAFRI), the International Union for Conservation of Nature (IUCN), and the World Resources Institute (WRI). The Strategy and Action Plan is voluntary and non-binding. Its objectives are to support efforts to restore forests and landscapes, as a key climate change mitigation contribution, while also supporting adaptation; strengthen stakeholder engagement; improve knowledge on the economics and social and ecological drivers of forest and landscape restoration; and promote learning and coordination on forest and land restoration in the region.

More specifically, the strategic priorities laid out in the Strategy and Action Plan are as follows:

1. *‘Support the development and implementation of national forest and landscape restoration plans and targets’;*
2. *‘Promote regional dialogue, learning, collaboration and coordinated action on forest and landscape restoration’;*
3. *‘Build recognition for and support the use of various technical, social and institutional approaches as appropriate for different landscapes and restoration objectives’;*
4. *‘Facilitate and support the mobilisation of financing for forest and landscape restoration’;*
5. *‘Encourage private sector participation and investment in forest and landscape restoration’;*
6. *‘Support community-level action on forest and landscape restoration’.*

³⁹ See https://pdf.usaid.gov/pdf_docs/PBAAD671.pdf

⁴⁰ UNFF. (2019). UN Forum on Forests regional questionnaire. Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet).

⁴¹ See <https://forest-finance.un.org/content/asia-pacific-network-sustainable-forest-management-and-rehabilitation-apfnet>

⁴² See <https://www.apfnet.cn/Home/>

The Regional Strategy and Action Plan is not backed by a comprehensive scientific assessment and it does not include projections of future trends. Although this strategic document has been endorsed by the Asia-Pacific Forestry Commission (APFC), it does not seem to have strong political traction. The APFC is one of six FAO Regional Forestry Commissions and has an advisory role. It covers a wide span of countries⁴³ that differ greatly in terms of the challenges regarding sustainable forest management and means of implementation.

4. African regional strategies

4.1. Continental strategic frameworks

The [Agenda 2063: The Africa We Want](#) is the African Union's strategic framework that aims to deliver on the goals of inclusive and sustainable development, unity, self-determination, freedom, progress and collective prosperity. It promotes continental and regional integration, democratic governance, peace and security, and the influence of Africa in global affairs. Agenda 2063 is a long-term, 50-year strategic framework for the continent to achieve this vision. It is implemented through 10-year plans that identify priority areas, set targets, outline strategies and policy measures, provide a rallying point for key African actors at different levels, assign responsibilities to them, and provides for a monitoring and evaluation mechanism. The [First Ten Year Implementation Plan](#) (FTYIP) of Agenda 2063 covers the period 2013–2023. The Agenda 2063 and the 10-year plans are also intended to serve as reference frameworks for the international support for Africa's development.

Multiple frameworks have been developed to address the development of key sectors such as agriculture, mining, industry, trade, energy and transport. These sectors are seen as key in enabling member states of the Union to achieve their development goals. To ensure coherence and convergence, these frameworks have been integrated in the priority areas of the First Ten Year Implementation Plan. These continental frameworks include the [Comprehensive African Agricultural Development Programme](#) (CAADP), the [Programme for Infrastructure Development in Africa](#) (PIDA), the [African Mining Vision](#) (AMV), the [Science Technology Innovation Strategy for Africa](#) (STISA), [Boosting Intra African Trade](#) (BIAT) and the [African Continental Free Trade Area](#) (AfCFTA), the [Accelerated Industrial Development for Africa](#) (AIDA), and the [Science, Technology and Innovation Strategy for Africa](#). **Although interests differ amongst AU member states, economic transformation and continental integration are central in the Agenda 2063 and the FTYIP, as it appears in the Decisions, Declarations and Resolution of the Assembly of the Union Twenty-Third Ordinary Session in Malabo in 2014.**⁴⁴ **As an enabler of this transformation and integration agenda, the PIDA constitutes a major, cross-cutting strategic direction.**

The following subsections review key continental strategic documents in the domains of climate change, food security and water. While the continental strategic frameworks are somewhat distant from the political and social realities shaping national policy choices and development challenges at the sub-regional level, in practice they have had a significant influence on policy-making in AU member states. The Comprehensive Africa Agriculture Development Programme (section 4.3.1), notably, exemplifies the influence of AU-level commitments on national agricultural and food security policies. Yet, because policy outcomes depend to a large extent on the local and sub-regional contexts, we also provide examples of sub-regional strategies.

⁴³ Australia, Bangladesh, Bhutan, Cambodia, China, Democratic People's Republic of Korea, Fiji, France, India, Indonesia, Japan, Kiribati, Republic of Korea, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Nepal, New Zealand, Pakistan, Papua New Guinea, Philippines, Russian Federation, Samoa, Solomon Islands, Sri Lanka, Thailand, Timor Leste, Tonga, Tuvalu, United States, Vanuatu, Viet Nam, and the United Kingdom (observer status). See: <https://www.fao.org/asiapacific/apfc/en/>

⁴⁴ See <https://au.int/en/decisions/decisions-declarations-and-resolution-assembly-union-twenty-third-ordinary-session>.

4.2. Climate change

In this subsection, we review the main long-term strategy regarding climate action in Africa, namely Africa's Climate Change and Resilient Development Strategy and Action Plan. While we focus on continental-level strategic documents, we also provide a brief review of strategies for West and the Sahel as an illustration of relevant sub-regional strategic frameworks (see Box 1).

Africa's climate strategy is recent, although it builds on previous initiatives notably focusing on resilience building and more recent ones serving to foster the energy transition across the continent. The climate strategy is largely focused on adaptation and climate-resilient development. It is comprehensive and shows linkages – and plausibly compatibilities – with other continental strategies, notably those for agricultural development and food security, the sustainable management of forests, water, and energy.

4.2.1. Africa's Climate Change and Resilient Development Strategy and Action Plan

[Africa's Climate Change and Resilient Development Strategy and Action Plan \(2022–2032\)](#) is a continental-level strategy that envisions a prosperous, peaceful, sustainable and climate-resilient Africa. It is intended to provide a framework for addressing climate change issues, supporting the capacity to adapt, improving the lives of communities, and ensuring low-emission, sustainable economic growth for the period 2022–2032.

A. Major goals and policy objectives

The vision underlying the strategy is '*A sustainable, prosperous, equitable and climate-resilient Africa*'. Its overarching goal is '*To provide a continental framework for collective action and enhanced cooperation in addressing climate change issues that improves livelihoods and well-being, promotes adaptation capacity, and achieves low-emission, sustainable economic growth*'.

The overall objective of this strategy is '*Building the resilience of African communities, ecosystems and economies, and supporting regional adaptation*'. The specific objectives are:

- 1) '*Strengthening the adaptive capacity of affected communities and managing the risks related to climate change*';
- 2) '*Pursuing equitable and transformative low-emission, climate-resilient development pathways*'.
- 3) '*Enhancing Africa's capacity to mobilise resources and improve access to and development of technology for ambitious climate action*';
- 4) '*Enhancing inclusion, alignment, cooperation, and ownership of climate strategies, policies and plans across all spheres of government and stakeholder groupings*'.

Generally, the strategy is aligned with African countries' commitments under the Paris Agreement and the existing climate efforts of AU member states, in particular the Nationally Determined Contributions (NDCs). **Overall, its dominant direction reflects the priority given to adaptation to climate change and resilience building, economic growth, employment creation, and poverty reduction – or, climate-resilient development, which also involves infrastructure development and industrialisation – by African policy-makers.** Amongst most African countries, the issue of energy is first and foremost seen as developmental one – before being a climate issue. The development of energy systems is crucial for accommodating the rapid increase in energy demand, largely due to population growth, enabling industrialisation, and realising the potential of continental economic integration. Facing an inadequate supply of electricity and frequent power outages, African policy-makers are wary and often opposed to a rapid shift away from fossil fuels and towards clean, renewable energy sources, as that may hamper economic development. Many African countries sit on large oil and gas reserves that they could exploit, earn revenue from, and use to fuel economic activities. At the same time, many see an opportunity to leap-frog dirty, fossil fuel-based technologies, using

the vast potential that the African continent has for renewable energy generation.⁴⁵ Thus, **achieving the climate mitigation potential of the African continent is an important aspect of Africa's Climate Change and Resilient Development Strategy and Action Plan.**

The strategy prioritises a number of intervention areas, in particular the followings:

- **Agricultural and food systems** – the strategy aims to ensure that at least 30% of livelihoods dependent on agriculture are resilient to climate change, in addition to the other objectives of the AU of ending hunger, halving poverty, and tripling intra-African trade in agricultural and food products; the sustainable intensification of agricultural systems and the improvement of soil carbon storage are priority objectives.
- **Terrestrial ecosystems and carbon sinks** – the strategy emphasises ecosystem protection and restoration as a major means of removal of atmospheric carbon in African contexts under various future scenarios, while also supporting food and water systems; the protection and sustainable management of primary forests, mangroves and peatlands is a priority objective.
- **Low-carbon and resilient energy and infrastructural systems** – the strategy prioritises investments in renewable energy, especially wind, solar, biomass and geothermal collectively, which together currently represents only 1% of electricity generation in sub-Saharan Africa, while hydropower generates 22% of its electricity and fossil fuels still constitute the largest source of electrical power by far.
- **Resilient water systems** – the strategy prioritises the expansion of investment in water systems, integrated water resource management, the enhancement of transboundary water management and cooperation, and the strengthening of climate risk assessment and management in water systems.

The strategy also emphasises the areas of **low-carbon and resilient cities**, the integration of **gender-related factors**, and **governance** (*'institutional collaboration with a wide range of state and non-state actors, policy coherence and enhanced climate knowledge systems, as well as anticipatory planning'*). It aims to mainstream the objectives of the strategy across policy sectors and in macroeconomic, fiscal and budgetary policies.

B. Sources of supporting scientific evidence

The strategy draws on multiple sources of information and data, including:

- The IPCC reports covering Africa;
- The [2019 UN State of the Climate in Africa](#);
- Evidence from other sectoral strategies of the AU.

The strategy will be revised every five years so as to take into account the latest scientific, technological, economic and policy developments within and outside Africa.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The strategy is intended to provide a platform upon which partnerships can be built with civil society organisations, notably women and young people, as well as the business sector. The contributions of those stakeholders are seen as crucial for the formulation and implementation of adaptation measures, the identification of needs and priorities, and the monitoring of the implementation and the results of interventions under the strategy. The Strategic Intervention Axis 4, Leveraging Regional Flagship Initiatives, implies that major programmes and initiatives of the AU in other

⁴⁵ For example, the Nigerian government has in recent years made commitments to achieve net-zero greenhouse gas emissions. Several African governments have announced their intentions to phase out coal-based energy generation, including in South Africa.

sectors should contribute to the objectives of Africa's Climate Change and Resilient Development Strategy and Action Plan.

D. Key means and modalities of implementation and main limitations

The implementation of the strategy requires large amounts of resources. Besides the need for international climate finance, the strategy emphasises the mobilisation of domestic resources, the development of endogenous capabilities for climate action, and the establishment of mechanisms for climate-related disaster risk management and financing.

From a financial perspective, the African Development Bank (AfDB) estimated that more than USD 3 trillion are needed to implement the NDCs of African countries by 2030, for both adaptation and mitigation. However, the strategic document itself provides little information on the ways to mobilise financial resources and channel them towards interventions. The Africa Adaptation Acceleration Program (AAAP) was presented by African leaders at the Africa Adaptation Summit in Rotterdam in September 2022 as a vehicle to mobilise adaptation finance and support climate-resilient development and notably the sectors of food security and agriculture and infrastructure.

In the context of the AAAP, the African Development Bank (AfDB) has positioned itself as a major financial institution contributing to climate change adaptation. The AfDB has also been a major contributor to the development of African renewable energy sources. In 2016, it launched the New Deal on Energy for Africa with the aim to achieve universal access to energy by 2025. In 2017, the Bank achieved the target of 100% of renewable energy sources (amounting to 1 400 MW) in its financing of the energy sector.⁴⁶

The strategy plans on exploiting synergies with other major AU programmes and Regional Flagship Initiatives by integrating in them climate-related risks, objectives and actions, while ensuring that Africa's Climate Change and Resilient Development Strategy contributes to their implementation. That requires strengthening coordination between sectors and acting in complementarity with regional economic communities (RECs) and AU member states.

E. Compatibility with other strategies

The strategy is in principle aligned with AU protocols, strategies and policies. Actually, it builds on previous initiatives and policy frameworks, including the Africa Adaptation Initiative, the Africa Renewable Energy Initiative, the Africa Blue Economy Strategy, the Pan-African Action Agenda on Ecosystem Restoration for Increased Resilience, the Great Green Wall for the Sahara and Sahel Initiative, and the Climate for Development in Africa Programme.

The strategy comprises the [African Union Green Recovery Action Plan](#) for 2021–2027, which aims to address the challenges associated with the COVID-19 pandemic and climate change in several key areas, including (1) climate finance; (2) renewable energy; (3) biodiversity and nature based solutions; (4) climate resilient agriculture; (5) green and resilient cities. This strategic plan focuses on building 'a prosperous, secure, inclusive, and innovative future for Africa'. In collaboration with international partners, pan-African Institutions, RECs, and AU member states, the Green Recovery Action Plan notably aims to mainstreaming green recovery principles in planning, development and investment strategies.

⁴⁶ See <https://www.afdb.org/ar/news-and-events/african-development-bank-achieves-100-investment-in-green-energy-projects-in-2017-17721>

4.2.2. Africa Adaptation Initiative

In response to a mandate from African Heads of State, the African Ministerial Conference on the Environment (AMCEN) together with the African Group of Negotiators (AGN) mounted the [Africa Adaptation Initiative](#) (AAI) to enhance support for adaptation to climate change in Africa and address the issue of loss and damage. The AAI was launched during the 21st Conference of the Parties (COP) of the UNFCCC in December 2015, under the leadership of H.E. Abdel Fattah El Sisi, Egyptian president, in his capacity as Coordinator of the Committee of African Heads of State and Government on Climate Change (CAHOSCC).⁴⁷ The AAI is not exactly a long-term strategy but it is worth mentioning as it was instrumental in advancing the climate change adaptation agenda across the continent and contributing to the process leading to the AU climate strategy reviewed precedingly. **The AAI is primarily intended to facilitate partnerships amongst diverse institutions and organisations initiating, implementing, and expanding activities aiming to mitigate the impacts of climate change in Africa, to track progress and to identify gaps.**

The 26th session of the African Union in 2016 established a Technical Working Group (TWG) to oversee the operationalisation of the AAI. The TWG is chaired by AMCEN and involves representatives of the AGN, the AUC, AUDA-NEPAD, the AfDB, the United Nations Economic Commission for Africa (UNECA), the United Nations Development Programme (UNDP), the United Nations Environment Programme (UNEP), and other specialised organisations such as the Africa Risk Capacity (ARC). The TWG strategically steers the AAI.

The AAI has advocated for and facilitated access to technical and financial resources for African countries to develop and implement strategies, policies, action plans and programmes for climate change adaptation and loss and damage. It has benefitted from the political guidance and support from the CAHOSCC and the AMCEN. It has supported countries in gaining access to financial resources, engaging with the private sector, and managing climate financial flows. The Technical Support Unit of the AAI has for example assisted Africa actors with the upgrade and expansion of climate information services and the development of NAPs, in collaboration with UNDP.

The AAI is expected to soon adopt an action plan for 2023–2030. The EU will provide one million euros to the initiative for climate risk assessments, climate risk management mechanisms, and a report on the state of adaptation in Africa. It will also provide resources to prepare adaptation projects.⁴⁸

⁴⁷ See https://www.africaadaptationinitiative.org/assets/aai_framework_en_2016.pdf.

⁴⁸ Pers. comm. with Seyni Nafu, head of the AAI.

Box 1. ECOWAS regional strategy for climate change

West Africa, especially the Sahelian region, is particularly vulnerable to climate change. In this region, climate change is affecting food security, livelihoods, mobility, and security conditions. Temperatures, particularly in the northern parts of the Central Sahel, could rise 1,5 times faster than the global average by 2030. Climatic shocks and extreme events such as droughts and heavy rains could become more frequent and severe; and rainfall variability in time and space could increase.

In response to these risks, the Economic Community of West African States (ECOWAS) has developed the [Regional Climate Strategy in West Africa](#) (RCS). A council of ministers of ECOWAS member states in charge of climate issues validated this common strategy in April 2022. The strategy is for the period 2022–2030.

The strategy primarily aims at reinforcing adaptation measures in West African countries and building the region's resilience to climate change, while also contributing to climate mitigation efforts in accordance with the NDCs of ECOWAS countries and pursuing a low-carbon economic development trajectory. It is also intended to support regional cooperation and the coordination of member states' climate-related policies.

The credibility of this strategy is partly based on the robustness of ECOWAS institutions (the oldest regional economic community on the continent) and the experience of ECOWAS countries in cooperating in diverse sectors. In the energy sector, for example, ECOWAS countries have already agreed on the target of 48% of renewables in the energy mix by the year 2030. They have already made efforts to establish shared services for weather forecasting or natural disaster prevention.

The priority sectors of the Regional Climate Strategy, which largely correspond to West African countries' NDCs, are:

- Agriculture, livestock, fisheries and aquaculture;
- Energy; natural resources and biodiversity;
- Transport and mobility;
- Coastal zones;
- Climate services, disaster risk management, early warning systems and human mobility;
- Health.

The strategy is designed in such a way that it builds on existing strategies and policies of ECOWAS in those domains.

All the countries of West Africa have made commitments through their NDCs, which were updated or revised in 2020/2021, despite the low-level of their contributions to global GHG emissions both historically and currently, so as to contribute to global climate change mitigation efforts. Notably, ECOWAS intends to support national efforts to preserve their forests, support reforestation efforts, and build up the carbon stocks they constitute – that is the first source of GHG emission reduction in this strategy. It also aims to improve productivity in the livestock sector so as to reduce methane emissions. The energy sector, in particular electricity production, is the second largest source of reduction in emissions. Improvements in waste management is the third source of emission reduction.

The Interdepartmental Environment Committee (IDEC), which brings together all the Commission's departments, with the Department in charge of the environment acting as technical secretariat, is in charge of steering climate action at the level of ECOWAS, ensure that sectoral policies mutually reinforce each other to attain adaptation and mitigation goals. In parallel to the Regional Climate Strategy, ECOWAS has formulated a [Climate Finance Access and Mobilization Strategy](#) to mobilise climate finance, ensure that it is accessible to ECOWAS member States, and facilitate its efficient utilisation. This strategy is based on a previous technical assessment of climate finance needs and flows in ECOWAS member States carried out after COP 23 and revised for COP 26. Its main goal is to bridge the current climate finance gap of approximately USD 294 billion for 2015–2030 for the whole of ECOWAS. The ECOWAS Commission will monitor and evaluate the financing flows from multilateral and bilateral sources to its member states on an annual basis, in line with the transparency framework of the Paris Agreement. The ECOWAS Bank for Investment and Development (EBID) intends to play an increasingly important role in climate action financing – it already prioritises low-carbon energy projects – by aligning its own strategy with the RCS.

Box 2. Great Green Wall for the Sahara and Sahel Initiative

The [Great Green Wall for the Sahara and Sahel Initiative](#) (GGWSSI), which was launched in 2007 by the AU, is another major strategic initiative contributing to climate action in the Sahelian and Saharan regions. The GGWSSI is a continental flagship initiative to combat desertification and land degradation. The initial motivation behind this initiative was to replant trees along a strip of land of the Sahelian belt across the continent, from Senegal to Djibouti, to stop the progression of the desert. Eventually, the scope of this initiative has expanded and integrated socio-economic development, including food security, and climate action objectives.

Overall, the Great Green Wall for the Sahara and Sahel Initiative aims to improve ecosystem management, sustainably manage land resources, protect the rural heritage and improve the living conditions of local populations. The GGWSSI has the following strategic objectives to guide its stakeholders and partners:

1. *‘Improve living conditions of local populations in arid lands of Africa and make them less vulnerable to climate and drought changes and variability’;*
2. *‘Improve the state and health of African arid land ecosystems and their resilience to climate change and variability and to drought’;*
3. *‘Mobilize resources in support of the Great Green Wall Initiative by establishing effective partnerships between national and international actors’.*

Despite commitments made by the Sahelian governments, and their international partners, progress has been limited, although. According to estimates, only 15% of the implementations have been realised, mainly in Senegal. Reasons include a persistent lack of funding, implementation difficulties, and conflicts in several participating countries. Yet, the initiative garnered more support recently, notably during the One Planet Summit in Paris in 2021 where several international donors and non-state actors committed significant resources to the greening of the Sahel.

Although the GGW relies heavily on a desertification narrative, the current climate science contains some uncertainty concerning the evolution of the rainfall regime in the Sahel. Some assessments indicate that rising rainfall may lead to a natural greening of the Sahel, although there might be disparities across the zone and rains might become more erratic. The GGWSSI will have to continually integrate scientific advances on the future climate regime in the Sahel. Experts have also recommended drawing lessons from previous initiatives to restore tree covers and soils in the region and elsewhere.

National public administrations in Burkina Faso, Mali and Niger have taken ownership and aligned the initiative with national strategies and policies, adapting the objectives to country specific context. But there is a need to increase the participation of other actors, notably civil society. Further, the GGWSSI intends to involve local actors, public authorities and civil society organisations, in its implementation. However, the enforcement of environmental protection laws and regulations has occasioned abuses in some instance. For example, the Forest Services in Mali have been repeatedly accused of extortion and abuses against vulnerable rural communities. Their poor reputation challenges the effectiveness of vegetation rehabilitation initiatives, while intensifying vulnerabilities and potentially contributing to increased conflict (Nagarajan, 2020; Raineri, 2020).

The initiative aims to work in unison with other AU and sub-regional initiatives, including the Comprehensive Africa Agriculture Development Programme. The G5 Sahel, a coalition of five countries (Burkina Faso, Chad, Mauritania, Mali, and Niger) established to restore security and enable development in the Sahel region does not have a climate change strategy, but it aims to exploit synergies with the GGWSSI to address environmental and climate challenges rendering Sahelian populations more vulnerable.

4.3. Food security and nutrition

In this section, we review the main long-term strategies regarding food security and nutrition in Africa. We focus on continental-level strategic documents, while also providing a brief review of West African strategies (Box 2) as an illustration of relevant sub-regional strategic frameworks. In West Africa, whereas food insecurity and malnutrition are pressing issues, the region has acquired a wealth of experience in strategic planning at the ECOWAS level.

At the continental level, the Comprehensive Africa Agriculture Development Programme (CAADP) is the most important framework for achieving agricultural transformation and eliminating hunger and malnutrition in Africa. Developed in the early 2000s, it established common targets for all African countries, coupled with a monitoring framework to measure progress and ensure mutual accountability. It includes two sets of strategic priorities, to promote sustainable agricultural growth (by enhancing productivity, regional trade and the management of natural resources) and build institutional capacity to support the implementation of food and agricultural policies and programmes. It is completed by strategies for nutrition and land governance, which appear compatible with the CAADP although the extent to which all these strategic frameworks are integrated remains limited in practice.

4.3.1. Implementation Strategy and Roadmap to Achieve the 2025 Vision on CAADP

The [Comprehensive Africa Agriculture Development Programme](#) is the continent-wide initiative of the AU to support African countries in eliminating hunger and reducing poverty by raising economic growth through agriculture-led development. It was established by the 2003 [Maputo declaration](#). **African governments agreed to allocate at least 10% of national budgets to agriculture and rural development, and to achieve agricultural production growth rates of at least 6% per annum.** CAADP also aims to reduce poverty and malnutrition, increase productivity and farm incomes, and improve the sustainability of agricultural production and the use of natural resources. The CAADP encourages member states to enhance resilience to climate variability through the development of disaster preparedness policies, early warning response systems and social safety nets.

The commitments of the CAADP were renewed in 2014 in the [Malabo declaration on Accelerated Agricultural Growth And Transformation for Shared Prosperity And Improved Livelihoods](#) adopted by the AU Heads of State and Government. This declaration was operationalised in the Implementation Strategy and Roadmap to Achieve the 2025 Vision on CAADP, which is reviewed below.

A. Major goals and policy objectives

The purpose of the [Implementation Strategy and Roadmap](#) (ISR) is to facilitate the translation of the 2025 vision and goals of Accelerated African Agricultural Growth and Transformation (the Malabo declaration) into concrete results and impact. The 2025 vision for Africa's agriculture can be summarised as 'shared prosperity and improved livelihoods'.

The targets are to end hunger, halve poverty, triple intra-Africa trade and, which is somewhat new compared to the Maputo declaration, ensure that at least 30% of livelihoods dependent on agriculture are resilient to climate change. The challenge is to reconcile between these frameworks and provide a mechanism for tracking progress in multiple domains based on country reporting.

The first set of objectives of the ISR, 'Transformed agriculture and sustained inclusive growth', concern sectoral and thematic measures and practices, namely:

- '1a: Increase production and productivity';
- '1b: Enhance markets, trade and value chains';
- '1c: Increase resilience of livelihoods and systems';

-
- *'1d: Strengthen governance of natural resources'*.

The second set of objectives of the ISR, 'Strengthened systemic capacity to implement and deliver results', concerns the systemic changes in the operational environment – policies and institutional changes – needed to support the implementation, including performance tracking, to ensure that the strategic actions are implemented efficiently, effectively and transparently. These include:

- *'2a: Strengthen capacity for planning'*;
- *'2b: Strengthen policies and institutions'*;
- *'2c: Strengthen leadership, coordination and partnerships'*;
- *'2d: Enhance skills, knowledge and agricultural education'*;
- *'2e: Strengthen data and statistics'*;
- *'2f: Institutionalise mutual accountability'*;
- *'2g: Increase public and private financing'*.

B. Sources of supporting scientific evidence

The ISR is not backed by specific sources of evidence although multiple, African and international knowledge organisations have produced evidence supporting the formulation and implementation of the CAADP.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The ISR seeks to optimise linkages amongst national, regional and continental policies, according to the subsidiarity principle. It recognizes that agriculture development is first-and-foremost a national responsibility to be pursued at the country level. Supranational institutions provide support functions by fostering the harmonisation of laws, regulations, and standards across member states. **This strategy differs from the approach of CAADP implementation in the past decade: it recognizes the need to pay a more balanced attention between the transformation of agriculture and sustained inclusive growth on the one hand, and the strengthening of governance and the conduct of institutional changes to implement and deliver results on the other hand.** The continental institutions provide support functions, including advocacy through continental and international convenings, technical assistance with the development of regional and national strategies, and contributions to the strengthening of systemic capacities at national levels. The ISR is targeted at state and non-state actors working on or supporting CAADP implementation at all levels. These include the private sector, farmer organisations, civil society, development partners, the AUC, NEPAD, regional economic communities, and specialised institutions and technical agencies.

The performance and progress made by AU member states in the pursuit of the commitments in the Malabo declaration is assessed through biennial reviews. The latest biennial review report of 2019 indicated that Africa was not on track to achieve the CAADP goals and targets by 2025.

D. Key means and modalities of implementation and main limitations

The implementation of the CAADP at the continental level is the responsibility of AUDA-NEPAD, the development agency of the AU. At the national level, 47 African countries have signed CAADP Compacts and committed to spend 10% of public budgets for the agricultural sector. In practice, however, the extent to which governments have reached has varied across countries.

E. Compatibility with other strategies

The development of National Agricultural Investment Plans (NAIPs) is at the core of CAADP implementation. Yet, these plans do not sufficiently consider nor implement climate change adaptation measures. The former Planning and Coordinating Agency (NPCA, now AUDA) of the New Partnership for Africa's Development (NEPAD) and the Department of Rural Economy and Agriculture of the African Union Commission (AUC-DREA) have established a framework for climate change adaptation in the broader context of the CAADP. In this framework, the AUC and the NPCA have supported AU member states in developing climate-friendly NAIPs and promoting climate-smart agricultural methods.

The CAADP has worked to raise awareness about climate change amongst African institutions and disseminate knowledge and lessons learned across the continent. Together with the former NPCA, the AUC has supported AU member states in developing financing and strategic plans that contribute to achieving climate-related targets in the agricultural sector. **Subsequently, African countries included adaptation to climate change in their NAIPs and are now implementing climate-smart measures.** Furthermore, the continent-wide exchange platform Africa Climate-Smart Agriculture Alliance promotes a regular exchange of lessons learned and knowledge on climate change and agriculture. Thus, efforts have been made to align the CAADP and the ISR with the objectives set out in Africa's Climate Change and Resilient Development Strategy and Action Plan.

4.3.2. Other relevant continent-level frameworks and programmes for food security and nutrition in Africa

The [Africa Regional Nutrition Strategy 2015–2025](#) outlines six targets to be attained by 2025, namely a 40% reduction of stunting amongst children under 5 years; a 50% reduction of anaemia amongst women of child-bearing age; a 30% reduction of low birth weights; no increase of overweight in children under five years and women; a 50% increase in exclusive breast-feeding during the first six months of life; and a reduction of wasting amongst children under five to less than 5%. **The strategy is grounded in a conceptual framework that considers malnutrition as a multidimensional issue that requires joined-up action across sectors and coordination amongst actors.** Based on data from WHO, the World Bank and UNICEF, the document describes current trends and projects future ones, analysing the multiple causes and consequences of malnutrition on the continent. To achieve its targets, **the strategy provides a menu of both nutrition-specific and nutrition-sensitive actions and interventions.** It also elaborates four strategic priorities for the AU based on the global SUN movement and **calls upon all AU member states to elaborate multi-sectoral nutrition action plans, budgets and expenditure tracking systems for effective implementation and monitoring of nutrition interventions,** including community-based nutrition approaches.

The [Africa Common Position towards the UN Food Systems Summit](#), elaborated in the context of the 2021 UN Food Systems Summit, aims at mobilising policy-makers to accelerate the pace of implementation of the Malabo declaration and build consensus on a shared vision for African food systems transformation – it is not a long-term strategy in itself but it contributes to the main strategy reviewed previously. **Specifically, the position provides an overview of Africa's food systems; presents challenges and opportunities of Africa's food systems; examines the drivers and levers of Africa's food systems; and presents the AU's revised strategic directions in this domain:**

- *'Catalyse a rapid expansion in agricultural and food productivity and production';*
- *'Boost investment financing for Africa's food systems transformation agenda';*
- *'Ensuring access to safe and nutritious food for all';*
- *'Strengthening and harnessing Africa's growing local food markets'.*

This approach is to be pursued in the frameworks of the Agenda 2063, the AfCFTA, the CAADP and the Malabo declaration, and others. The elaboration of the African Common position was led by the AUC Department of Agriculture, Rural Development, Blue Economy and Sustainable Environment (DARBE) and the African Union

Development Agency (AUDA-NEPAD) in collaboration with the UN Economic Commission for Africa (UNECA), with support from several technical and multilateral agencies. It involved a wide consultation and an iterative process involving RECs, specialised agencies, UN organisations, universities, research institutes, think tanks, civil society organisations, and private sector organisations.

The [Land Governance Strategy](#), adopted by the AUC in 2021, **outlines key principles for protecting land rights of all land users in Africa, particularly those vulnerable such as women, youth, and minority and indigenous groups**. It also aims at ensuring that land is well-managed for the continent's sustainable socio-economic growth and development. The strategy departs from a contextual analysis of land governance issues in Africa (including tenure insecurity, rapid urbanisation, gender-based inequalities, large-scale land-based investments, environmental degradation, and so forth), and recalls continental and global efforts to improve land governance (such as the 2008 Framework and Guidelines for Land Policy in Africa and the Voluntary Guidelines on Responsible Governance of Tenure of Land, Fisheries, and Forests, VGGTs, amongst others). It then outlines a theory of change and formulates five key strategic objectives: *'(1) Strengthening the capacity of AU institutions to implement the AU agenda on land; (2) advocating for the advancement of land policies, laws and administration systems in the AU member states; (3) promoting responsible land-based investments in Africa that are environmentally sound, scalable and inclusive; (4) enhancing the security of land tenure and access to land and other productive resources for women, youth, persons with disabilities, pastoralists and other vulnerable groups; (5) and facilitating and supporting the operationalisation of the AU Monitoring and Evaluation of Land in Africa to measure and report on progress'*.

Box 3. ECOWAS regional strategic framework for food security

The [ECOWAS Agricultural Policy \(ECOWAP\) for 2016–2025](#) is ECOWAS' main regional strategic policy framework to achieve sustainable and inclusive food systems in West Africa. It promotes the establishment of a modern and sustainable agricultural sector that would enhance productivity and competitiveness, guarantee food security and provide decent incomes to farmers and other agricultural workers. The ECOWAP derives from CAADP, the flagship policy framework for agricultural development and food security and nutrition in Africa; it was initially built on the Politique agricole commune de l'UEMOA (PAU). The framework also takes into account all major policies and global initiatives (the SDGs, the Paris Agreement etc.) relevant to achieving food security and nutrition in the region. The strategic document was reviewed in 2015, 10 years after ECOWAP's adoption, to address key sustainability challenges linked to food security, nutrition, climate change, youth employment in agriculture and gender, amongst others. In particular, it takes into consideration the demographic challenges faced in the region.

The new vision elaborates on seven interrelated strategic objectives, including food security, import dependency reduction, regional market integration, employment promotion, sustainable intensification of production systems, and climate change adaptation. The framework is translated into five-year programmes through the Regional Agricultural Investment Plans (RAIPs).⁴⁹

It appears that ECOWAS has been careful to integrate its food security strategy into its new climate strategy: for example, one of the priorities of the ECOWAS Regional Climate Strategy is to strengthen the regional food reserves as a key component of its food crisis prevention and management system.

⁴⁹ The ECOWAS region is also equipped with a tool for food security analysis, the Harmonized Framework for the Analysis and Identification of Areas at Risk and Vulnerable Groups, more commonly referred to as the Cadre Harmonisé. This framework provides tools for the classification, analysis, and reporting of food insecurity, as well as joint approaches for undertaking monitoring, assessments, data collection, and database management.

4.4. Water

In this section, we review the main long-term strategies regarding water security in Africa. We focus on continental strategic documents, while also providing a brief review of Southern African Development Community (SADC) strategies (Box 3) as a relevant illustration of relevant sub-regional strategic frameworks. The SADC region was selected since its unevenly-distributed water resources coupled with climate change pressures, make water availability and quality critical concerns for many of its member states.

At the AU level, institutional structures have been put in place since the beginning of the 2000s to promote the sustainable management of water resources and address important challenges such as growing water scarcity and depletion; the increasing unpredictability of climatic conditions and rainfall; the multiplicity of transboundary water basins and their inappropriate governance; and the financing gap for water supply and sanitation infrastructure.

The documentary review conducted below identified the following four strategic priorities: the promotion of governance reforms at the national and transboundary basin levels, including fostering cooperative arrangements in all major shared rivers, lakes, and groundwater basins; **the development of climate-resilient infrastructure** for increased water storage, improved water quality, reduced water disaster risks, and sustainable water supply; **the strengthening of shared information systems** for water resource monitoring and assessment; and **capacity building for implementing inclusive approaches to water and sanitation**. However, the means of implementation, notably finance, lag behind for the effective implementation of such priorities.

Two sectoral strategies emerge as providing the most concrete guidance, namely the Framework for Irrigation Development (section 4.4.2) and the Blue Economy Strategy (section 4.4.3).

4.4.1. African Ministers' Council on Water Strategy

The [African Ministers' Council on Water \(AMCOW⁵⁰\) Strategy 2018–2030](#) is a continent-level strategy for the achievement of water security in Africa. The Strategy builds on the [Africa Water Vision 2025](#),⁵¹ which aims to achieve *'an Africa where there is an equitable and sustainable use and management of water resources for poverty alleviation, socio-economic development, regional cooperation and the environment'*. It is also aligned with the International Decade for Action on Water for Sustainable Development (2018–2028), whose objective is to accelerate efforts toward meeting SDG 6.

A. Major goals and policy objectives

As SDG 6 is the cornerstone goal of the Strategy, an analysis of interlinkages (synergies and trade-offs) between SDG 6 and other SDGs underpins it. The Strategy aims to go beyond the concept of Integrated Water Management (IWM) and take a “nexus” approach to ensure water security in Africa. It also draws a distinction amongst the issues of water

⁵⁰ The African Ministers' Council on Water ([AMCOW](#)) was established in 2003 to provide political leadership, policy direction, and advocacy in water management, as well as the provision of sanitation and hygiene services. The AMCOW brings together, under a formal Secretariat, the line Ministers of Water for all 55 African States. It holds a biennial [Africa Water Week](#) to build momentum to achieve the Vision 2025 targets.

⁵¹ The Vision was developed in 2000 by the Economic Commission for Africa (ECA), the African Union (AU) and the African Development Bank (AfDB). Its development stemmed from the World Water Council who commissioned a series of water vision statements for countries and regions around the world to address projected water security threats in the 21st century. The Vision formed the basis for the establishment in 2003 of the African Ministers' Council of Water (AMCOW). The Vision called for *'Regional and national strategies (...) to implement water policies based on integrated water resources management principles'* and *'Adopting the river basin as the unit for water-resources management'*. A recent evaluation of the influence of the Vision on continental African water governance suggests that, while many AU member states have formulated policies and legislation to improve water security, water resource management and WASH, *'they have as yet not committed to fully supporting on-ground outcomes'* and that *'actual implementation and investment in water supply infrastructure, particularly in the rural communities, has been limited or partially achieved at best'* ([Mutschinski and Coles, 2021](#)).

security, good water governance and safe sanitation to devote specific policy attention and commitment to action in each of them. As such, **the Strategy identifies four strategic priorities for Africa: 1) Ensure water security; 2) Ensure Safely Managed Sanitation and Hygiene; 3) Promote Good Water Governance and Transboundary Water Cooperation and 4) Strengthen AMCOW’s Governance and Operational Effectiveness.** Four cross-cutting priorities are also identified: ‘*Water and Sanitation Resilience to Climate Change*’; ‘*Sustainable Financing of the Water and Sanitation Agenda*’; ‘*Monitoring, Evaluation, and Knowledge Management*’; and ‘*Gender Equality and Youth Empowerment*’.

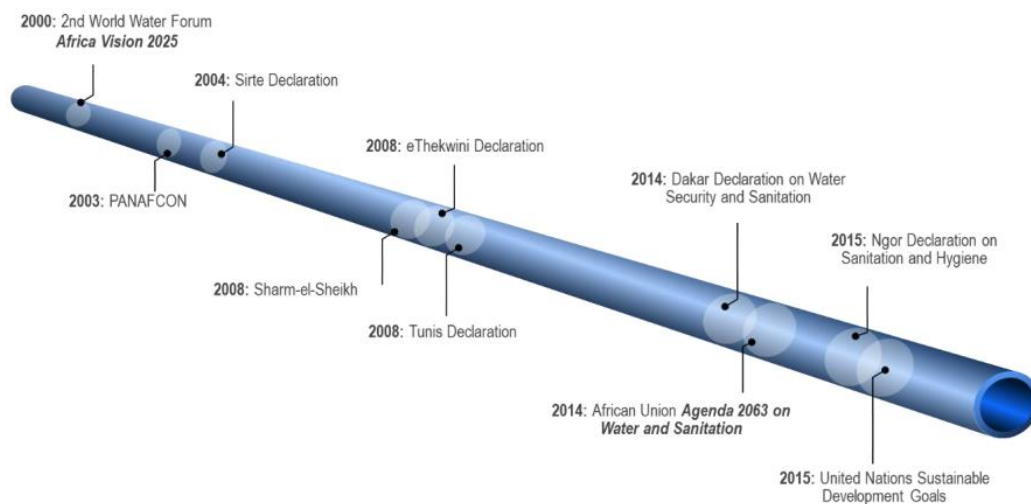
B. Sources of supporting scientific evidence

The strategy is not backed by a comprehensive scientific assessment and it does not include projections of future trends. It provides some (scattered) data and partial analyses on current water and sanitation issues in Africa based on a number of studies and reports (including the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene).

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The Strategy was prepared by members of AMCOW’s Technical Advisory Committee, Subcommittee on Strategic Planning, Staff of AMCOW Secretariat, as well as experts from the African Union Commission, African Development Bank’s African Water Facility, Regional Economic Commissions and Lake and River Basin Organisations, with financial support from development partners such as the Bill and Melinda Gates Foundation, the EU, the US and Germany. A number of other agreements, declarations and decisions form the basis of the Strategy, as exemplified in Figure 1.

Figure 1: Key agreements, declarations and decisions on water security in Africa since 2000s



Source: AMCOW’s Strategy 2018–2030.

D. Key means and modalities of implementation and main limitations

A variety of actions aim at addressing the four strategic priorities, as shown in Table 1.

A number of actions are also outlined for the cross-cutting priorities. These include, amongst others: the provision of guidance and propagation of best practices to help member states put in place adaptation measures to improve the resilience of water resources and WASH infrastructure; the development of evaluation reports based on the data collected by the Pan-African Water and Sanitation Monitoring and Reporting platform (or WASSMO) and other climate resilience indicators to provide evidence-based policy direction; advocacy efforts to close the financing gap in WASH infrastructure; capacity building of member states to engage the private sector in service provision; and gender and youth mainstreaming actions.⁵²

⁵² See also [AMCOW's Policy and Strategy for Mainstreaming Gender in Africa's Water Sector](#).

Table 1 Strategic priorities and actions of the African Ministers' Council on Water Strategy

<i>Strategic priorities</i>	<i>Actions</i>
Ensure water security	<ul style="list-style-type: none"> - Promote and support development of national and basin-wide decision support systems, including hydro-economic models; - Promote and support development of WRM and development plans at national and regional levels; - Promote and facilitate development of infrastructure for increased water storage, improved water quality, reduced water disasters, and sustainable water supply for multiple uses; - Collect and share examples of progress of good water safety and security management plans and work through AMCOW's knowledge management system to share good practices; - Prepare and provide guidelines to member states that will help them readily develop, adopt and implement better water security policies; - Promote nexus approaches in planning and implementing water development projects.
Ensure Safely Managed Sanitation and Hygiene	<ul style="list-style-type: none"> - Conduct governance reform discussions to ensure a ministry within each member country has clear responsibility for sanitation services; - Establish and biennially convene a high-level forum to generate more commitment and coordinated action for sanitation and hygiene that includes water ministers, sanitation ministers, health ministers, and finance ministers; - Develop model comprehensive sanitation guidelines and policies, plans and regulations that member states can adapt, take up, and implement within their own policy, legislative and regulatory structures; - Support capacity development programmes for implementing inclusive approaches to sanitation in urban and rural areas; - Promote and amplify equitable and inclusive approaches to sanitation that allow residents of all income levels to benefit equally from government investment in sanitation infrastructure and services.
Promote Good Water Governance and Transboundary Water Cooperation	<ul style="list-style-type: none"> - Support the creation of an enabling environment for regional cooperation on shared waters in all major shared rivers/lakes/groundwater basins; - Promote cooperative arrangements to implement the African Water Vision 2025 and the targets under the UN's SDG for water and sanitation (SDG 6) in all major river/lake/groundwater basins; - Promote and facilitate multifunctional "green" basin development centred on natural and built infrastructure; - Provide guidance to help local institutions establish and operate basin-wide physical monitoring, data collection, data analysis and reporting systems.
Strengthen AMCOW's Governance and Operational Effectiveness	<ul style="list-style-type: none"> - Strengthen the governance framework and enhance its functioning; - Strengthen the AMCOW Secretariat's strategic and operational planning and management functions; - Coordinate and facilitate capacity development of AMCOW Secretariat and organs; - Strengthen the communication and outreach functions; - Strengthen strategic partnerships.

There are two other relevant continent-level frameworks and programmes for water security in Africa, the Strategic Framework for Water Security and Climate Resilient Development and the African Water Resources Management Priority Action Programme.

The [Strategic Framework for Water Security and Climate Resilient Development](#), developed in 2012 by the AMCOW with support from the GWP, supports the aspirations of the Africa Water Vision 2025 and provides a strategic plan for the implementation of the AU commitments to accelerate water and sanitation goals in Africa agreed upon during the [11th ordinary session of the AU Assembly in Sharm el-Sheikh](#) (2008). Notably, the Declaration called for African countries to put in place adaptation measures and investment plans to improve the resilience of countries to the increasing threat of climate change and variability of water resources. As such, **the Framework provides guidance to countries on how to integrate water security and climate resilience into development planning and investment decision-making processes.** It does so by promoting an approach for the development of ‘no/low regrets’ investments and financing strategies (that can deliver benefits under any future climate scenario),⁵³ while also encouraging longer-term actions to mainstream water security in development planning and influence resource allocation. The Framework defines four steps and can be applied at sub-national, national and transboundary planning levels. It does not prescribe specific goals or implementing strategies, but instead aims to ‘*facilitate a questioning mode of approach in which different country and institutional contexts can be accommodated*’. The Framework also provides a number of analytical tools for each step. To make the economic case for increased investment and financing strategies for water resource management and climate resilience, the Framework builds on the climate model projections contained in the IPCC 4th Assessment Report as well as the IPCC special report Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation. It also compiles data and information from a number of other studies and reports such as UN Water global assessments and the World Bank and UNFCCC’s assessments of the costs and benefits of adaptation options.

The [African Water Resources Management Priority Action Programme for 2016 - 2025](#) aims at attaining four broad goals, addressed from the perspective of WRM: **1) Ensuring water security in Africa; 2) Enhancing resilience to climate change and water-related disaster risks; 3) Strengthening information systems for water resource monitoring and assessment; 4) Improving environmental integrity through wastewater and water quality management.** It was developed by AMCOW, in collaboration with the AUC with support from Germany, the EU, and the GWP. It builds on the evidence provided by the outcomes of the 2014 Africa Water and Sanitation Sector Report. It also takes into consideration the recommendations of the 2012 Status Report on the Application of Integrated Approaches to Water Resources Management in Africa, as well as the existing strategic and resource development plans of the RECs, R/LBOs and Groundwater Commissions. The programme details several key interventions to attain the four aforementioned goals such as:

1. ***‘Establish economic accounting for water as a discipline to enable systematic and standardised affiliation of hydrologic and water use information with systems for economic planning to, amongst others, improve the financing and investment outlook for water resources management in Africa’;***
2. ***‘Mobilise investment and support for member states in metering of agricultural water extraction as a first step to making improvements in water use productivity and efficiency to guarantee climate resilient supplies’;***
3. ***‘Support member states, RBOs and RECs to conduct water resources assessments – including assessing the availability of groundwater resources and the impact of climate change on freshwater availability – as well as supporting them to monitor and manage groundwater use’;***

⁵³ Examples of low-regrets measures include: early warning systems; risk communication between decision makers and local citizens; sustainable land management, including land use planning; and ecosystem management and restoration; improvements to health surveillance, water supply, sanitation, and irrigation and drainage systems; climate-proofing of infrastructure; development and enforcement of building codes; and better education and awareness.

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4. ***‘Promote and facilitate multifunctional “green” basin development centred on natural and built infrastructure to provide a continuum of water storage solutions, thereby increasing Africa’s water storage capacity and enhancing disaster risk management capabilities’;***
 5. *‘Support member states’ efforts to establish and operate representative and reliable networks of hydrometeorological, river gauging and water quality stations’;*
 6. ***‘Facilitate activities to conduct studies to establish relevant SDG 6 monitoring baselines, as well as developing capacity to achieve the targets of the goal’;***
 7. *‘Support member states to develop and **adopt legal, policy and institutional frameworks for the collection and treatment of wastewater to a minimum water quality standard before discharge into transboundary water courses and aquifers’.***

The outcomes of the implementation of the Programme are reported within the framework of the Africa Water and Sanitation Sector Report to the AU Assembly.

4.4.2. Framework for Irrigation Development and Agricultural Water Management in Africa

The [Framework for Irrigation Development and Agricultural Water Management \(2020\)](#) aims to support regional and national strategies and project implementation to achieve continental targets in the agricultural sector set by the CAADP and Agenda 2063 by promoting country-level initiatives in Agricultural Water Management (AWM).⁵⁴

A. Major goals and policy objectives

The framework presents an articulated continental guidance and vision on irrigation development and AWM in Africa. Continent-level targets are provided by the Agenda 2063, and include the following: 1) increase 2013 levels of water productivity from rain-fed agriculture and irrigation by 60%; 2) harvest at least 10% of rain water for productive use; and 3) recycle at least 10% of wastewater for agricultural and industrial use. Generally, this framework is also intended to contribute to climate change adaptation, although the linkages with the AU climate strategy reviewed earlier seem weak.

To achieve these targets, the framework lists opportunities and challenges related to irrigation and AWM in Africa, reviews the most relevant approaches and priority actions, and provides a framework to redirect investments in this field. As such, the framework *‘hopes to act as a catalyst for new AWM ideas and details regional and country institutional interventions and project plans’*. The priority challenges the Framework focuses on encompass technology access and finance for small-scale irrigators; institutional development in relation to land and water management; and private-sector involvement.

B. Sources of supporting scientific evidence

The framework’s scientific evidence is constituted by an extensive literature search and reviews of published literature, as well as continental, regional and national policy and strategy documents in relation to irrigation development and AWM. As for irrigation data, the Framework relies on the FAO AQUASTAT database, which provides the best consolidated official information on agriculturally water managed and irrigated areas in Africa.

The framework provides a rich analysis of challenges and lessons learned in the irrigation and AWM field, in Africa and beyond. This review informed the formulation of the strategic pathways. The scope of the framework covers the whole

⁵⁴ *‘Agricultural water management (AWM) is the inclusive term for farmer-interventions that increase water availability to the root-zone, over and above naturally infiltrated rainfall. AWM thus includes: shallow-aquifer farming (dambos, fadamas, wetlands etc.), mulching, conservation agriculture, bunding, flood-recession farming, water-harvesting and irrigation and drainage. AWM includes the management of both blue-water (withdrawals) and green-water (in plants)’.*

agricultural water spectrum, including area equipped for irrigation (fully or partially) as well as other forms of AWM. Notably, the review of challenges and opportunities covers both ‘hard’ technical elements of AWM as well as the ‘soft’ social and organisational elements, and their interaction with wider externalities of the irrigation-farming system.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The development of the framework involved a broad-based consultation with experts and stakeholders (including field actors, scheme implementers and end users) to address the technical, environmental and political feasibility of the approaches suggested. The initial draft was presented in an expert review workshop in Addis Ababa in 2018. Then, the draft was subjected to both internal and invited external reviews. The final draft was subjected to a continental validation review that took place in Ouagadougou in 2019. The Framework was endorsed as a continental document by the relevant organs of the African Union; the 3rd Specialized Technical Committee of African Ministers of Agriculture, Rural development, Water and Environment in 2020.

D. Key means and modalities of implementation and main limitations

The framework identified four strategic AWM areas or agricultural water development pathways for future agricultural water development in Africa. These include:

- **Pathway 1: Improved water control and watershed management in rain-fed farming**
- **Pathway 2: Farmer-led irrigation development**
- **Pathway 3: Irrigation scheme development and modernization**
- **Pathway 4: Unconventional water use for irrigation.**

Each pathway includes a brief description, a categorisation of the typical farm-enterprise, its rationale and key suggested interventions. For pathway 1, the list of suggested interventions include water harvesting and conservation technologies and institutional reforms to achieve better coordinated surface and groundwater resource use.⁵⁵ Pathway 2 envisages interventions to increase access to affordable irrigation technology (including silt control) for smallholder farmers, along with other actions to improve access to finance, enhance land and water tenure security. Other suggested interventions include the promotion of appropriate business models for farmers operating at different scales; the elimination or reduction of import tariffs on pumps and irrigation equipment; the development of small-pump value chains; the provision of cost effective solar technology coupled with smart financial technology (via mobile money and smartphones) to reduce pumping energy costs and increase smallholder profitability; the adoption of low-cost improved soil management technologies and the use of proper landscaping for run-off and flood control; the formulation of training programs on AWM, soil-water conservation, crop-intensification, and use and maintenance of technologies; and the mainstreaming of farmer-led irrigation sector into watershed planning and management processes. Pathway 3 calls for the modernisation of existing irrigation infrastructure and of its organisational and operational modalities: this requires promoting a change of attitudes amongst farmers to move from subsistence to commercial agriculture; advancing policy and legislative reforms to ensure Water User Associations can function effectively; support technical and organisational modernisation to allow appropriate measuring and billing arrangements; encouraging metering with a specific focus on groundwater extraction and

⁵⁵ Technologies and practices include micro-scale methods, with diversion works and flood-spate basin techniques, ponds, bunds, infiltration swales, mulching, drainage/erosion management, and conservation-agriculture at farm and field levels. Others include: adoption of AWM technologies including in-situ rainwater harvesting, watershed planning and implementation approaches with participative scoping and WRM and planning; better targeting of investment to high opportunity irrigation and AWM localities, as well as forest and soil conservation hotspots, with an emphasis on the linkages between upstream water and land-use and downstream irrigation abstraction requirements; introduction of water harvesting techniques in response to landform, climate and cropping preferences through piloting, and knowledge-and-awareness interventions; use of CSA principles and promotion of the related suite of approaches tailored for local conditions, cropping patterns and markets

creating awareness of the benefits of conjunctive surface and groundwater use, supplementary irrigation and efficient water use technologies; and enabling legal reforms with regard to land-consolidation to incentivise private sector investment. Pathway 4 envisages policy reforms to prioritise waste-water opportunities and enable farmers' access to wastewater resources.

The framework also includes key cross-cutting interventions to ensure (1) inclusiveness towards women and youth (for example, by undertaking irrigation planning and design on an inclusive and consultative basis, and holding targeted consultations with vulnerable groups); (2) effective private sector involvement (for instance, by ensuring contractual clarity, fairness and equitable division of benefits between the private sector and local farmer groups); (3) climate change adaptation and resilience (promoting the diversification of farming systems, introducing water-efficient, low-cost, small-scale irrigation, and mainstreaming CSA practices and watershed development approaches); (4) appropriate micro-credit and agricultural financing schemes (such as financing mechanisms that can provide such instruments as matching and revolving funds); (5) supportive policies, governance and institutional arrangements (for example, by legally empower water management organisations, and promoting least-cost energy options and appropriate market linkages for irrigated agriculture); (6) improved water and soil quality to control land degradation (such as promoting the application of corrective measures to acidic soils and promoting investments in appropriate drainage systems) ; and (7) strengthened research, monitoring, evaluation and knowledge transfer.

Nonetheless, the Framework highlights the need to adapt the options proposed to the different country contexts, recognising that significant differences exist in terms of agroecological conditions, status of AWM schemes and capacities for initiating, planning and implementing the proposed reforms.

4.4.3. Africa Blue Economy Strategy

The [Africa Blue Economy Strategy](#) (2019) guides the sustainable development and the utilisation of aquatic resources in Africa (including maritime and inland water bodies). It responds to the Agenda 2063 aspirations that identified the blue economy development as a priority goal.⁵⁶

A. Major goals and policy objectives

The Strategy's vision is '*an inclusive and sustainable blue economy⁵⁷ that significantly contributes to Africa's transformation and growth*'. **Its objective is to guide the development of an inclusive and sustainable blue economy that becomes a significant contributor to continental transformation and growth, through advancing knowledge on marine and aquatic biotechnology, environmental sustainability, the growth of an Africa-wide shipping industry, the development of sea, river and lake transport, the management of fishing activities on these aquatic spaces, and the exploitation and beneficiation of deep sea mineral and other resources.** This strategy thus presents linkages with climate action (through energy policies) and food security (through fisheries), which could lead to either compatibility or incompatibility.

⁵⁶ Other strategic frameworks that form the basis of this Strategy are the SDGs Agenda (specifically SDG 14); the 2014 Africa's Integrated Maritime Strategy (2050 AIMS); the 2014 Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRS); and the 2016 African Charter on Maritime Security and Safety and Development in Africa (Lomé Charter).

⁵⁷ '*The concept of the Blue Economy integrates into a new approach the economic exploitation of the resources of oceans, lakes, rivers and other bodies of water and the conservation of aquatic ecosystems. It represents a basis for rational and sustainable use and conservation of natural resources (both renewable and non-renewable) and their natural habitats.*' (AU, 2019).

Table 2 Selected relevant strategic objectives and interventions of the Africa Blue Economy Strategy

Selected thematic area	Strategic objectives	Notable interventions
Fisheries and aquaculture	Optimising conservation and sustainable fisheries and aquaculture resources use while minimising conflicts with other blue economy sub-themes	<ul style="list-style-type: none"> - Establishing institutional coordination mechanisms to harmonise fisheries and aquaculture activities with other blue economy themes - Promote conservation and sustainable management of aquatic resources
	Achieving full wealth-generating potential for fisheries and aquaculture sector to optimally contribute to the blue growth	<ul style="list-style-type: none"> - Develop small-scale fisheries whilst minimising the negative impacts of other blue investments - Achieve a responsible and equitable fish trade and marketing including inclusive inter-regional and cross border fish trade - Attract and promote private public-partnership (PPP) investments and financing for fisheries and aquaculture - Accelerate the development of fisheries and aqua fish processing and storage capacities
	Ensuring sustainable social, economic, environmental and equitable outcomes and human rights whilst safeguarding natural capital and blue investment	<ul style="list-style-type: none"> - Ensure security of investment of fisheries and aquaculture - Create safe working conditions and security - Strengthen resilience and reduce vulnerability to climate change - Empower women and youth in fisheries and aquaculture - Rehabilitate and or secure threatened fishing grounds/zones, prevention of land-based pollution and degradation of aquatic environments
Energy, Mineral, Oil and Gas, and Innovative Industries	Unlock sustainable blue energy potential	<ul style="list-style-type: none"> - Increase blue energy penetration in the energy mix - Assess the availability of sufficient infrastructure at national, regional, and continental level
	Create conducive regulatory environment for the development and application of sustainable blue energy	<ul style="list-style-type: none"> - Reform unsustainable financial structures and create conducive energy finance instruments - Develop sustainable blue energy master plan and policy derivatives - Develop environmental impact assessment guidelines
	Meeting the growing demand of mineral resources, oil and gas for economic prosperity	<ul style="list-style-type: none"> - Increase deep-seabed, seawater mining and oil and gas production - Create conducive regulatory frameworks for mineral and oil and gas exploration of deep seawater - Promote sustainable and environmentally friendly deep sea water exploration - Capacity building and technology transfer
	Harnessing the potential of innovative industries through research and development	<ul style="list-style-type: none"> - Develop policy framework to accelerate the transfer and application of blue economy technologies - Strengthen institutional, infrastructural and human capacity - Promote the application of innovative industries

B. Sources of supporting scientific evidence

The formulation of the Strategy is based on five detailed thematic technical reports (in annex to the Strategy) on the following topics: 1) Fisheries, aquaculture, conservation and sustainable aquatic ecosystems; 2) shipping/transportation, trade, ports, maritime security, safety and enforcement; 3) coastal and maritime tourism, climate change, resilience, environment, infrastructure; 4) sustainable energy and mineral resources and innovative industries; 5) and policies, institutional and governance, employment, job creation and poverty eradication, innovative financing. These studies are based on desk research studies and field visits by consultants to collate lessons and best practices on issues related to blue economy development to 13 AU member states.

Based on these assessments, the Strategy provides the current outlook of the African blue economy sector and the projected growth of its main driving sectors (tourism, the mineral sector, oil and gas, the fishery and aquaculture sector, port and shipping, blue carbon and ecosystem services, education and research) by 2030 and 2063. A set of key 'drivers of change' is also identified, namely population (and demand) growth, regional economic integration, the implementation of the Nationally Determined Contributions, environment and biodiversity protection, sustainable blue energy, ocean mining, innovative industries, and large companies and countries' transport strategies. Lastly, the Strategy also identifies strategic and technical challenges facing the development of the sector. Among the strategic challenges, governance, economic and social challenges (poverty, nutrition) and environmental and climate change challenges are mentioned.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The draft thematic reports (see above) were discussed and validated during a stakeholder consultative workshop that took place in Nairobi in 2019.

D. Key means and modalities of implementation and main limitations

The Strategy does not provide specific means of implementation. It is aimed at supporting and providing guidance to AU member states and regional institutions for coherent formulation of their national and regional blue economy strategies.⁵⁸

⁵⁸ A Blue Economy Programme is currently under development by AUDA-NEPAD (African Union Development Agency/New Partnership for African Development) and some RECs, such as IGAD and SADC, are developing their own Blue Economy strategies, with support from other organisations such as IOC (Indian Ocean Commission) and IORA (Indian Ocean Rim Association). Also, a SAMOA Pathway is currently being formulated by African SIDS to develop their ocean-based economies.

Box 3. The Southern African Development Community's sub-regional strategies for water security

The **Southern African Development Community (SADC) region** encompasses 15 transboundary river basins and 70% of its regional water resources across national boundaries. These river basins are managed by 12 river basin organisations or basin management authorities, all at different stages of development and capacity.⁵⁹ To oversee harmonisation of national water use policies and address transboundary issues, SADC has established a specific regulatory body, the SADC Water Division. This body, with the support of 22 international cooperative partners, oversees the policies related to sanitation infrastructure in the region.

The SADC Water Division addresses water resources management issues through several strategic frameworks dedicated to sustainable water management. In what follows, we review the most relevant long-term strategic frameworks. **This review highlights water infrastructure development** – for storage, irrigation, hydropower generation, and water supply and sanitation – **as a critical strategic priority, alongside improved cooperation at the river basin level for equitable and sustainable management of water resources.**

The [Regional Strategic Action Plan on Integrated Water Resources Development and Management](#) Phase IV (2016–2020),⁶⁰ is the implementation plan for the water component of the [Regional Indicative Strategic Development Plan \(2020–2030\)](#), a blueprint of SADC programmes, and of the [Regional Water Strategy](#) (2006),⁶¹ which guides water resources management in the SADC region. The key objective of the Action Plan is to *'unlock the potential for water (and related resources) to play its role as an engine and catalyst for socio-economic development through water infrastructure development and management to support water supply and sanitation, energy, food security, and security from water related disasters with the ultimate goal of contributing towards peace and stability, industrialisation, regional integration and poverty eradication.'* The Plan formulates a theory of change based on which to assess impacts and outcomes of programmes, and focuses on three key strategic areas, namely water governance, infrastructure development and water management.

The Plan identifies eight priority interventions, namely: (1) strengthen regional instruments for cooperation, for example by improving monitoring and reporting systems, harmonising national water policies, and developing technical guidelines to enhance cooperation on areas such as cross-border implementation of water infrastructure; **(2) strengthen oceanic states cooperation and shared watercourse institutions in mainland SADC**, e.g. through the establishment of institution secretariats and sharing experiences and best practices in regional fora; **(3) mainstream gender in the water sector**, including by mobilising stakeholder participation, increasing awareness on water issues, and facilitating youth innovation, entrepreneurship and employment creation; **(4) implement the SADC Human Capacity Development Plan for the water sector and support research in water-related themes** such as sustainable management of fragile ecosystems (such as wetlands, lakes and estuaries), water footprint and value chains, and climate change impacts on the hydrological cycle; **(5) facilitate development, financing, operation and maintenance of water infrastructure**, by implementing priorities set out in the water chapter of the SADC regional infrastructure development master plan (discussed below), promoting cross-border and transboundary water infrastructure projects to improve cooperation amongst member states through joint planning and development, and taking a human-rights approach to WASH; **(6) improve water resources management for sustainable development** by developing basin-wide strategies and plans, strengthening institutional capacity and advancing knowledge on issues such as transboundary water, groundwater use in Oceanic states, and marine and freshwater interactions; **(7) enhance resilience to climate variability and change** based on the best available science and incorporating local and indigenous knowledge and practices, and with a focus on strengthening coastal resilience against floods and droughts; **(8) accelerate industrial growth** in sectors such as mining, agriculture processing and manufacturing, **and pilot the water-energy-food nexus (WEF) approach in the SADC region** by promoting research to unpack regional issues and challenges surrounding land, energy and water use and by adopting joint planning and implementation of programmes.

The Regional Strategic Action Plan was developed through a consultative process where all member states held three-day national workshops to provide input; these inputs were then consolidated and validated during a regional stakeholder workshop in 2015. Moreover, two reference groups with SADC regional experts reviewed and improved the identified programmes by the member states.

The [Water Sector Plan](#), as part of the [Regional Infrastructure Development Master Plan](#) (2012), is a **strategic framework guiding water resources infrastructure development in the SADC region over the next 25 years**. It defines the minimum but ultimate regional infrastructure development requirements, with particular regard for those projects already authorised by member states. It identifies 34 infrastructure projects to be implemented over the next 25 years, aimed at raising the level of human and economic development of the region. The Plan identifies three phases. Phase I, running from 2013 to 2021, intends to achieve the following goals:

- *'Improving storage of renewable water resources from 14% per year to 25%';*
- *'Increasing the irrigated area from 3.4 million hectares to 10 million hectares – 13% of the potential land available';*
- *'Raising the level of hydropower generation from 12 GW to 75 GW – 50% of the sector's potential';*
- *'Increasing access to safe drinking water from 61% of the population to 75% of the population';*
- *'Increasing access to sanitation facilities from 39% of the population to 75% of the population'.*

Phase II, beginning in 2018, and Phase III, beginning in 2023, will further these developments, moving toward a water sector operating at 100% of its potential by 2027.

The [Climate Change Adaptation for the Water Sector](#) document (2011) considers the current situation in Southern Africa at the beginning of the 2010s, where climate change constitutes an intensifying threat to the stability of the region's water resources. To ease this stress and improve SADC's climate resilience, **this strategic document advocates the adoption of water governance, infrastructure development, and water management measures**. It also sets out an implementation plan and a system for monitoring and evaluating projects to ensure that adaptation measures remain effective.

5. Delta regions: the case of Bangladesh

5.1. National strategic frameworks

5.1.1. Perspective Plan

The [Perspective Plan for 2021–2041 \(PP2041\)](#) is Bangladesh's main formal, strategic plan for development. This 20-year strategic plan is based on Vision 2041, which provides a set of strategic goals for the development of the country. Vision 2041 aims at the elimination of extreme poverty and the attainment of the Upper Middle-Income Country (UMIC) status by 2031, and the High-Income Country (HIC) status around 2041 with the eradication of poverty. The Perspective Plan is implemented through five-year plans, the current one being the 8th Five Year Plan for 2021–2025.

The approach of the Perspective Plan is related to a previous period, between 1973 and 2002, when the Bangladeshi government used quinquennial development plans. This approach was interrupted for a brief period when the country's main development strategy was formulated in a Poverty Reduction Strategy Paper. In 2009 the Government reverted to quinquennial plans. The first Perspective Plan, for 2010–2021, was based on Vision 2021, an aspirational document projecting the country's progression towards prosperity. The Seventh Five Year Plan (7FYP), for the period

⁵⁹ A [SADC Revised Protocol on Shared Watercourses](#) was adopted in 2003 to foster closer cooperation for sustainable management of the 15 SADC shared watercourses. Also, a set of [SADC Guidelines for Strengthening River Basin Organisations](#) was formulated in 2010. See <https://dev-www.sadc.int/themes/natural-resources/water/> for a list of the SADC shared river basins.

⁶⁰ A phase V for the period 2021-2025 is currently under development.

⁶¹ The regional water strategy presents a number of strategies to promote and prioritise sustainable, integrated and coordinated development, utilisation, protection and control of national and transboundary water resources in the SADC region. These strategies are developed according to sub-policy areas including: regional integration and cooperation; water for basic human needs, industrial, food and energy requirements; environmental sustainability and water quality management; security from water-related disasters; water resources information and management; stakeholder participation and capacity building; and financing.

of 2016–2020, integrated the SDGs in its objectives and priorities. Compared to the PP2021, the PP2041 also puts greater emphasis on dealing with environmental and climate change as part of the economic growth strategy.

During the period of the first Perspective Plan, before the SARS-CoV-2 pandemic, Bangladesh made significant progress for some aspects of economic and social development and had lesser achievements for other socioeconomic indicators (Bhattacharya, 2020⁶²). Growth in GDP almost reached eight per cent in 2018 (Bangladesh reached the lower-middle-income-country rank in 2015), while inflation remained relatively low, below six per cent. However, the share of the agricultural and services sectors in GDP decreased (although services are steadily developing) while the share of industry increased, owing mainly to large- and medium-scale manufacturing. Small-scale manufacturing makes a small contribution to the industrial sector, which is characterised by a low level of diversification and difficult access to private capital and public support measures. Total private investment, which stagnated, and foreign direct investment, whose contribution to the latter declined, were lower than the targets set by the 7th Five Year Plan. Private consumption declined and total domestic demand was driven by public consumption and investment. Relatedly, tax revenues have remained too low compared to public expenditures, while the fiscal instruments could be used better. Disaggregated outcomes show disparities between urban and rural households, and between high- and low-income groups. The consumption growth of poorer households was lower than that of richer households. Youth unemployment remained higher than the national average unemployment rate.

The under-five-year mortality rate and the infant mortality rate decreased, down to 29 and 22 in 2018 (per 1,000 live births). Life expectancy at birth was on the rise, reaching 72.3 years in 2018. However, the level of nutritional attainment remained low, especially amongst the poorest households (below the 20th income percentile of the income distribution) while the under-five-year mortality rate for the poorest households was nearly double that for the richest (above the 20th income percentile of the income distribution).

The adult literacy rate (for the population above 15 years old) increased, up to 73.9 per cent. The number of students in TVET (technical and vocational education and training) rose significantly (by 14 per cent), although there remained a gap between males and females. However, between 2013 and 2019, primary school completion rates for the lower-middle class and the emerging middle class declined, while it increased for the richest. The secondary education completion rate for the richest group was almost four times higher compared to that of the poorest group in 2019.

Although the Perspective Plan is a comprehensive and detailed document, it falls short from providing a long-term, scientific-evidence-based and broadly-agreed-upon strategy formulating definite policies and enabling their joint implementation. It is an “indicative” strategic plan more than a prescriptive, detailed exercise in strategic planning, with the underlying idea that the role of the state is to provide a “framework” and an “infrastructure” for private-sector-led economic development, while the government is also supposed to promote social development. Yet, to a significant extent, recent policies have left behind the poorest segments of the society (inequalities, vulnerabilities, social exclusion and lack of social protection) and have insufficiently promoted productivity growth and economic diversification. The Plan refers to existing sectoral strategies and policies in some areas, but such references are not the rule or, in other sectors, strategic plans are yet to be conceived.

As the National Economic Council (NEC) led the formulation of the PP2041, it is largely shaped by a group of economists. Furthermore, the finance ministry plays a major role in enabling the pursuit of this strategic plan, as fiscal and budgetary policies determine most of the sectoral policies composing the Plan. During the formulation process, consultations were conducted with different categories of economic and social actors and at different administrative levels. However, across many policy areas, local public and non-state actors’ ownership of centrally planned policies, programmes and projects is low. The central government invests little resources in the capabilities of local actors for

⁶² <https://bdplatform4sdgs.net/redefining-the-development-strategy-by-addressing-the-faultlines-of-the-7th-five-year-plan/>.

them to engage effectively in policy planning and implementation processes and with diverse actors involved in them. These facts may partly explain why there are policy gaps leaving some climate, food and water issues inadequately addressed.

There is no comprehensive, scientific assessment backing the Perspective Plan, although its authors have used statistics, to describe and analyse trends and set baselines, and have integrated evidence from background papers and probably also various studies and assessments.

There is a problem of public policy, regulation and investment (implementation) effectiveness in Bangladesh similarly to many countries at comparable levels of development. For example, regulations in place have largely been ineffective in preventing and remedying industrial water pollution. Also, in some cases fake “green” certificates required for establishing factories have been granted in exchange for money. Additionally, there are still weaknesses in the execution of publicly supported investment. For example, the national fund for adaptation to climate change occasioned some misuse of financial resources as some project funds were given to non-governmental organisations set up just after the inception of the fund with the main purpose of receiving money and without promoting genuine adaptation projects.

Also, the Plan does not provide a strategy for the different policy sectors and ministries to work in unison, in a coherent way, to achieve its goals. On paper the Plan describes a gender-sensitive strategy, but it is not clear what solutions it proposes for addressing gender disparities in nutrition, health and education.

Finally, there are institutional gaps giving rise to deficits in transparency, current data and information on public policy implementation and finances, policy monitoring and evaluation, and accountability mechanisms.

5.1.2. Bangladesh Delta Plan 2100

The [Bangladesh Delta Plan 2100](#) is a major strategic plan for a long horizon (about 80 years), which is intended to complement the Perspective Plan. The Bangladeshi government adopted the BDP 2100 in 2018 with the objective of building resilience to climate change and reducing vulnerability to climate-related natural disasters, protecting people and the environment, and promoting economic growth in the Ganges-Brahmaputra-Meghna Delta region.⁶³ The BDP 2100, including its climate-related components, will be reviewed in detail in the Bangladesh water section.

This strategic plan relates to the fact that the Bangladeshi society and economy is highly vulnerable to climate change, particularly in the Delta region. While climate change contributes to sea level rise, salinization of soil and water, erratic monsoons, tropical cyclones and floods, the Delta region is also affected by industrialization, population growth and rapid urbanisation. The Ganges-Brahmaputra-Meghna Delta, straddling Bangladesh, West Bengal and India, is Asia's largest and the world's most populated delta. A large number of people in the Delta region still live below the poverty line and are increasingly vulnerable to the effects of climate change. Industrial activities around Dhaka, Chittagong and Khulna are crucial for economic growth and employment, but they also bring about water pollution - the Ganges and Brahmaputra water are heavily loaded with man-made chemicals.

Lastly, this review of Bangladesh's general development strategies should mention the National Sustainable Development Strategy 2010-21⁶⁴. This strategy, however, is no longer current and a cursory review of it showed that

⁶³ See:

<https://oldweb.lged.gov.bd/UploadedDocument/UnitPublication/1/756/BDP%202100%20Abridged%20Version%20English.pdf>.

⁶⁴ <http://nda.erd.gov.bd/en/c/publication/national-sustainable-development-strategy-nsds-2010-2021>.

it does not fulfil the criteria set for long-term, scientific-evidence-based strategies, and thus it will not be further reviewed.

5.2. Climate change

5.2.1. Sectoral context

According to the [IPCC's Sixth Report \(2021\)](#) on the state of the planet's climate, the world is moving towards a global crisis due to rising sea levels, increased temperatures and more extreme weather events. The Global Climate Risk Index rates Bangladesh as the seventh most affected country in the world from extreme weather events.⁶⁵ Bangladesh's share of global GHG emissions is less than 0,35%.⁶⁶ For Bangladesh, the IPCC's projections indicate that climate change is likely to result in increased flooding due to heavy precipitation and more coastal flooding as a result of sea-level rise, intensified tropical cyclones, increased unplanned urbanisation and growth of cities, and increased aridity due to soil and groundwater depletion due to the decrease in mean rainfall.⁶⁷

As a result of the complex interactions of poverty and climate change, Bangladeshis in coastal areas have already begun migrating inland, mostly to urban areas. With weak local governance, poor urban management and ethno-religious tensions driving underlying domestic instability, climate-driven migration and poverty will drive or amplify conflicts and human rights challenges.⁶⁸

Amidst this multidimensional threat of climate change to the livelihoods of Bangladeshis, the Government has issued a number of national policies and strategies to mitigate climate impacts, build resilience and adapt to climate change.⁶⁹ The country is often seen as having one of the best disaster risk reduction (DRR) mechanisms in the world, at the national and the community levels (e.g., effective local-community-based early warning systems and fast mobilisation of finance in times of crisis). The '*high density of NGOs at the grassroots level*' (for example, BRAC and the Grameen Bank) is considered to be one of the reasons for its successes in managing disaster risks.⁷⁰ Furthermore, Bangladesh, ostensibly following a low-carbon development path, has been praised for its the whole-of-society and whole-of-government approaches towards climate change, and for framing adaptation policies in broader development contexts. On top of that, approximately 7.5% of domestic GDP is dedicated to climate action, making Bangladesh a frontrunner in using domestic resources to tackle the climate crisis, compared to other climate-vulnerable LDCs.⁷¹

However, although the approach in Bangladesh has been to mainstream climate change adaptation, in reality, the majority of organisations under Bangladesh's government ministries do not address climate change explicitly in their mandates. The Bangladesh government has taken a sectoral top-down approach, with a small group of national-level actors dominating adaptation processes, with little regard to the underlying drivers of vulnerability. It has not yet developed an overarching institutional mechanism to integrate and implement climate policies, and ensure success

⁶⁵ See: https://germanwatch.org/sites/default/files/Global%20Climate%20Risk%20Index%202021_2.pdf.

⁶⁶ See: https://unosd.un.org/sites/unosd.un.org/files/1-5_country_experience_bangladesh_moefcc.pdf.

⁶⁷ See: <https://www.tbsnews.net/thoughts/ipccs-latest-predictions-what-we-need-do-288064>.

⁶⁸ See: <https://www.usip.org/publications/2021/09/how-climate-change-deepens-bangladeshs-fragility>.

⁶⁹ Note that this is a non-exhaustive list of plans, policies, frameworks and strategies. Older documents, not focused on in this report, include National Adaptation Programme of Action (2005) the Climate Change Trust Fund Act (CCTFA, 2010). Current policies and plans, not discussed in detail in this report, include: Forest and Carbon Inventories and Tree Plantation; Bangladesh National Action Plan for Reducing Short-Lived Climate Pollutants; Energy Efficiency and Conservation Master Plan up to 2030, and the National Plan for Disaster Management (See: https://unosd.un.org/sites/unosd.un.org/files/1-5_country_experience_bangladesh_moefcc.pdf).

⁷⁰ Interview Deputy Director (virtual), ICCCAD, 10 December 2021.

⁷¹ See: <https://ecdpm.org/multimedia/climate-adaptations-talks-episode-1-professor-saleemul-hug/>.

across scales. There has also been a lack of participation of vulnerable and marginalised population groups, who experience the most severe climate impacts, in the policymaking processes.⁷²

Regionally, the country also has the ambition to lead by example when it comes to responding to climate impacts. Currently, it is hosting the South Asian office of the Global Centre on Adaptation⁷³ and it is the Chair of the 48-nation Climate Vulnerable Forum that serves as a South-South cooperation platform for governments' participation in climate action.⁷⁴ In the region, the government could promote a strong vision on climate-induced displacement,⁷⁵ an issue that is becoming increasingly pressing: the number of climate-induced displaced Bangladeshi could reach 13.3 million by 2050, making climate change the country's number one driver of internal migration.⁷⁶

5.2.2. Bangladesh Climate Change Strategy and Action Plan

The [Bangladesh Climate Change Strategy and Action Plan](#)⁷⁷ (BCCSAP, 2009) has been Bangladesh's primary climate strategy. A new BCCSAP is going to be adopted in 2022. The BCCSAP prioritises adaptation and disaster risk reduction, while also addressing low-carbon development, technology transfer and the provision of adequate finance, over a period of 20-25 years. Adaptation is the main priority for Bangladesh in the short to medium-term. According to this document, the country is a world leader in research and interventions in the area of adaptation, although resources are currently inadequate (p. 2, MoEF, 2008).

A. Major goals and policy objectives

The Climate Change Action Plan is built on six pillars: 1) food security, social protection and health; 2) comprehensive disaster management; 3) infrastructure; 4) research and knowledge management; 5) mitigation and low-carbon development; and 6) capacity building and institutional strengthening.

The BCCSAP puts forward a long list of concrete actions under each pillar, accompanied by a specification of the responsible ministry. For example, under the first pillar 'food security, social protection and health', several actions are listed, including '*research on the impact of climate change on health (including the incidence of malaria and dengue, diarrhoeal diseases and heatstroke) and the cost to society of increased mortality, morbidity and consequent fall in productivity*'. For this and other actions, the Ministry of Health and Family Planning, in association with research centres.

⁷² According to a climate expert from ICCCAD, one of the reasons for this lack of participation is the fact that large numbers of people migrate to cities, but lose their social networks in this process. Hence, they become isolated and these groups of scattered people lack a voice and the means for participation, and it is also not easy for government instances to reach and involve them in decision-making (Interview Senior Coordinator (Virtual), ICCCAD, 13 December 2021).

See also Ishtiaque, A., Eakin, H., Vij, S., Chhetri, N., Rahman, F. and S. Huq (2021). [Multilevel Governance in Climate Change Adaptation in Bangladesh. Structure, Processes and Power Dynamics](#). *Regional Environmental Change*, 21(75), 1-15.

See also Stock, R., Vij, S. and A. Ishtiaque (2021). [Powering and Puzzling: Climate Change Adaptation Policies in Bangladesh and India](#). *Environment, Development and Sustainability*, 23: 2314-2336.

⁷³ For more details, see: <https://gca.org/about-us/regional-offices/gca-south-asia/>.

⁷⁴ See: <https://thecvf.org/events/forging-a-cvf-cop26-climate-emergency-pact-at-cop26/>.

⁷⁵ See: <https://www.nationalgeographic.com/environment/article/climate-change-drives-migration-crisis-in-bangladesh-from-dhaka-sundabans>.

⁷⁶ World Bank (2018), <https://openknowledge.worldbank.org/handle/10986/29461> , cited by McDonnell (2019) <https://www.nationalgeographic.com/environment/article/climate-change-drives-migration-crisis-in-bangladesh-from-dhaka-sundabans>.

⁷⁷ See: <https://www.ccacoalition.org/en/resources/bangladesh-climate-change-strategy-and-action-plan>.

According to interviewees working at ICCCAD directly involved in the update of the BCCSAP, several new areas will be included, most notably one of ‘urban adaptation and resilience-building’,⁷⁸ one on ‘financing’ and one on ‘monitoring and evaluation’.⁷⁹

B. Sources of supporting scientific evidence

The BCCSAP is based on some scientific evidence, notably the 2007 IPCC 2007 report Climate Change 2007: The Physical Science Basis, Summary for Policy-Makers, and the UNDP’s 2004 report A Global Report: Reducing Disaster Risk: A Challenge for Development. However, at this stage, there has not been a scientific assessment of GHG emissions, possible emission abatement interventions, impacts of climate change and adaptation options conducted specifically for the update of the BCCSAP.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The implementation of the Strategy and Action Plan is supposed to rely on a ‘whole-of-government’ approach. For the actions listed, different ministries, research institutions and NGOs are specifically indicated as implementing partners. Yet, there is not yet any institutional framework to pursue a coherent policy for climate change and other ecological challenges and adjudicate trade-offs between different policy interests.

The Government has promoted local climate action but its approach has still been very much top-down.

D. Key means and modalities of implementation and main limitations

Generally, the BCCSAP falls under the responsibility of the Ministry of Environment, Forests and Climate Change. This ministry acts as coordinator for its implementation⁸⁰. However, according to Stock *et al.*⁸¹, ambiguities in its mandate and a lack of resources have to some extent led other ministries (those for infrastructure and social protection in particular) and agencies to develop their own climate change adaptation agenda⁸².

The Strategy and Action Plan stated that the Ministry of Environment, Forests and Climate Change would set up a Climate Change Secretariat to facilitate the implementation of the Action Plan. Currently, the Climate Change Trust acts as a secretariat and oversees the implementation projects, the disbursement of funds, and the monitoring and the evaluation of projects.

The Bangladeshi government has set up climate change trust funds, partly financed by domestic public resources (budgeted through the annual development plan), to fund sectoral and local climate action projects; it has also promoted local-community-based adaptation initiatives.

⁷⁸ Given the overpopulation in cities in Bangladesh (in Dhaka, there are more than 40 000 people living per square kilometre), ‘building more climate-resilient cities and towns has become a government’s slogan’ (Interview with Senior Coordinator (Virtual), ICCCAD, 13 December 2021).

⁷⁹ Interviews with Deputy Director, (virtual), ICCCAD, 10 December 2021 and Senior Coordinator (virtual), ICCCAD, 13 December 2021.

⁸⁰ Rai, N., Huq, S. and M.J. Huq. (2014). Climate Resilient Planning in Bangladesh: A Review of Progress in Early Experiences of Moving from Planning to Implementation. Development in Practice, 24(4), pp. 527-543.

⁸¹ Stock, R., Vij, S. and A. Ishtiaque (2021). Powering and Puzzling: Climate Change Adaptation Policies in Bangladesh and India. Environment, Development and Sustainability, 23: 2314-2336.

⁸² Stock, R., Vij, S. and A. Ishtiaque (2021). Powering and Puzzling: Climate Change Adaptation Policies in Bangladesh and India. Environment, Development and Sustainability, 23: 2314-2336. P. 23-25

5.2.3. Nationally Determined Contribution

Bangladesh first submitted its Intended [Nationally Determined Contribution](#) (INDC) to the UNFCCC in 2015, focusing on three sectors (power, industry and transport). Subsequently, Bangladesh prepared the NDC Implementation Roadmap and Action Plan in 2018. In 2021, Bangladesh updated its nationwide NDC, with the target year 2030, incorporating additional sectors following IPCC guidelines. The new NDC covers energy, industrial processes and product use (IPPU), agriculture, forestry and other land use (AFOLU) and waste. For the NDC update, 2012 has been considered as the base year to measure national GHG emissions, following the Third National Communication of Bangladesh. Basically, the NDC comprises a set of commitments for climate mitigation in Bangladesh. It is not a long-term strategy, but it encompasses actions and projects that are part of the BCCSAP (2009) and overlap with the NAPA (2005).

A. Major goals and policy objectives

The 2021 NDC primarily aims to further mitigation actions in Bangladesh as the government seeks to attain the middle-income country status and the country's GHG emissions are growing. According to a climate expert from ICCCAD, the country has a voluntary emission reduction target – although its emissions are rather low, Bangladesh has voluntarily committed to reduce them.

The NDC does not list specific adaptation actions. These will be detailed in the forthcoming NAP (2022). Bangladeshi policy-makers consider that promoting (net-)zero-carbon growth and climate-resilient development is the best way to create jobs (4.1 million additional jobs by 2030 compared to business as usual) become prosperous. With regards to adaptation, the 2021 NDC states that, by 2030, action will be undertaken in the following areas: sustainable ecosystems and livelihoods, natural disaster management, agriculture and food security, and water resources management.

B. Sources of supporting scientific evidence

The new NDC uses a baseline and several alternative scenarios for future emissions, using data from the IPCC. Total GHG emissions are estimated to increase from 169.05 Mt CO₂e in 2012 to 409.4 Mt CO₂e in 2030 under the business as usual (BAU) scenario, an increase of 2.4 times the base year. The source-specific emissions under the BAU scenario by 2030 are 312.54 Mt CO₂e (76.34% of total) for energy, 10.97 Mt CO₂e (2.68% of total) for IPPU, 55.01 Mt CO₂e (13.44% of total) for AFOLU and 30.89 Mt CO₂e (7.55% of total) for waste. The highest amounts (24.91% of total) of GHG emissions are from energy utilisation in the industrial sector, followed by the power generation sector (23.24% of the total) and energy utilisation in the transport sector (8.86% of total).

In the unconditional scenario, GHG emissions would be reduced by 27.56 Mt CO₂e (6.73%) below the BAU in 2030 in the respective sectors. 26.3 Mt CO₂e (95.4%) of this emission reduction will be from the energy sector while 0.64 (2.3%) and 0.6 (2.2%) Mt CO₂e reduction will be from AFOLU (agriculture) and the waste sector respectively. There would be no reduction in the IPPU sector. In the conditional scenario, GHG emissions would be reduced by 61.9 Mt CO₂e (15.12%) below the BAU in 2030. This reduction would be in addition to the emission cut in the unconditional scenario. The implementation of the conditional mitigation measures would require external financial and technological support.⁸³

⁸³ The mitigation scenario analysis and assessment of achievable but ambitious unconditional and conditional GHG mitigation measures by 2030 for the NDC update has been prepared following IPCC guidelines and stakeholder consultation. In the unconditional part of NDC, only those mitigation measures were considered which would be implemented based on current local-level capacity, and financed through internal resources (page 6).

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The updated NDC is prepared following a structured process involving representatives from the relevant ministries and agencies. The required data on present conditions and future plans and projects relevant to GHG emission reductions has been collected through the template suggested by the IPCC. The preliminary results of the scenario analysis were validated with the relevant ministries and agencies in a validation workshop. The possible mitigation measures have been finalised based on discussions during the validation process.

D. Key means and modalities of implementation and main limitations

A positive element is the intended whole-of-government approach to implement actions identified in the NDC in several sectors. Finance is a key limitation. Currently, the Government spends 1 billion US dollars a year, around 6 to 7 percent of its annual budget, on climate change adaptation. However, the World Bank estimates that the country would need USD 5.7 billion of adaptation finance by 2050, which is more than five times higher than its current expenditures for climate change. The NDC provides some information about the implementation mechanism and on transparency.

5.2.4. National Adaptation Plan

The development of a comprehensive [National Adaptation Plan](#) (NAP) is currently underway and is expected to be ready in December 2022. The Bangladesh office of UNDP is assisting the Ministry of Environment, Forests and Climate Change with the NAP process, with financial support from the Green Climate Fund (2017–2022). Although the NAP is not ready yet, the UNDP website provides some indications about its framework and objectives.⁸⁴ The formulation of the NAP is supposed to identify co-benefits with the mitigation of climate change. However, given the fact that the new NAP has not yet been fully developed and adopted, Bangladesh's main operational plan for adaptation remains the National Adaptation Plan of Action (NAPA), which was adopted in 2005⁸⁵, in the broader framework set by the BCCSAP.

The NAPA consists mainly of a list of adaptation actions that have provided guidance for adaptation planning and implementation over the last fifteen years. It does not constitute a comprehensive, long-term strategy for adaptation to climate change in the medium and long term nor is it supported by an adequate institutional mechanism. As its name indicates, it is an action plan for a relatively long period of time. Yet, it has contributed to Bangladesh's main climate strategy, the BCCSAP.

A. Major goals and policy objectives

The NAP will gather and analyse information, develop scenarios taking into account various risks, and formulate a science-based adaptation strategy in line with Bangladesh's strategies and priorities, including the Delta Plan 2100, the Perspective plan and its ambition to transition from the LDC to the MIC status.

Priority thematic areas of the NAP will include water resources, agriculture and food security, coastal zones, and urban habitation.⁸⁶

⁸⁴ See: <https://www.bd.undp.org/content/bangladesh/en/home/projects/national-adaptation-plan--nap-.html>.

⁸⁵ See: <https://unfccc.int/resource/docs/napa/ban01.pdf>. The NAPA formulation was funded by the UNFCCC's LDC Fund.

⁸⁶ See: <https://www.bd.undp.org/content/bangladesh/en/home/presscenter/pressreleases/2019/10/26/national-adaptation-plan-for-medium-and-long-term-climate-change.html>.

The NAP entails the following activities: (i) establishing an inter-institutional NAP coordination mechanism; (ii) enhancing climate data and use in planning; (iii) carrying out sectoral, regional and ecosystem-level vulnerability assessments; (iv) developing sectoral action plans and budgets; (v) appraising and costing options for adaptation measures and investments, using an updated Climate Fiscal Framework; and (vi) establishing a monitoring framework for the NAP process. Furthermore, the NAP will be associated with a budget line for climate change action.^{87, 88}

B. Sources of supporting scientific evidence

The NAP process builds on the knowledge generated by previous adaptation policy processes, starting with the National Adaptation Programme of Action (NAPA) in 2005. The most recent document with technical information that it relies on is the Third National Communication of Bangladesh, which was submitted to the UNFCCC in September 2018.⁸⁹

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The NAP process requires a high level of cooperation amongst different parts of the government and state agencies, civil society, academia, with the inclusion of vulnerable communities. However, so far, climate change adaptation policy-making has been very much influenced by the traditionally centralising approach to governance in Bangladesh⁹⁰. It remains to be seen whether and how the NAP formulation and implementation will engage the most vulnerable and marginalised population groups.

D. Key means and modalities of implementation and main limitations

As the NAP has not been completed nor approved yet, its means of implementation are still uncertain.

5.3. Food security and nutrition

5.3.1. Sectoral context

While food security generally has improved in Bangladesh over the past 10 or 15 years (the period of the first Perspective Plan), about a third of young children are still affected by stunting (based on data from 2017–2018). Although the level of stunting has halved since the mid-1990s, it is still amongst the highest levels in the world. Food insecurity and malnutrition in Bangladesh is strongly correlated with high levels of poverty, especially in rural areas and in slums in urban areas. In slums, almost half of children under five are moderately or severely stunted, double the rate in other urban areas (UNICEF, 2016).⁹¹ This situation could worsen if the trend of accelerated urbanisation continues. The urban population is projected to reach more than 45 percent in 2030.

Regional differences in food security and nutrition are significant. Along the coastal line for example the rising sea level due to climate change and coastal erosion leads to saltwater intrusion, which negatively affects agricultural productivity and food security, and causes outward migration - a trend witnessed over the last 20 to 30 years.⁹² Diets continue to be primarily rice-based, with the per capita daily intake of pulses, vegetables, fruits, and animal products

⁸⁷ Interview with Deputy Director (virtual), ICCCAD, 10 December 2021.

⁸⁸ Interview with Senior Coordinator (virtual), ICCCAD, 13 December 2021.

⁸⁹ See: https://unfccc.int/sites/default/files/resource/TNC%20Report%20%28Low%20Resolution%29%2003_01_2019.pdf.

⁹⁰ Ishtiaque, A., Eakin, H., Vij, S., Chhetri, N., Rahman, F. and S. Huq (2021). *Multilevel Governance in Climate Change Adaptation in Bangladesh. Structure, Processes and Power Dynamics*. *Regional Environmental Change*, 21(75), 1-15.

⁹¹ <https://fpmu.gov.bd/agridrupal/content/nutrition-sensitive-social-protection>

⁹² Interview Dr. Ahmed IFPRI Country Representative

(except fish) still far below recommended amounts. A considerable share of the population suffers from malnutrition due to micronutrient deficiencies, while rates of overweightness and obesity are increasing (see UNFSS National Pathway document).

Agriculture contributed 13.35% of GDP and employed 40.6% of the labour force in 2019–20, making it a major driver of economic growth (UNFSS National Pathway document). The main agricultural crops are rice (almost three-quarters of cultivated land is devoted to paddy production), wheat, jute, oilseeds, lentils and sugarcane. Agricultural intensification is high, with multiple cropping cycles per year and use of high-yielding varieties (CIAT and WorldBank 2017). There are problems with excessive use of fertilisers and agro-chemicals. Fisheries are crucial to the Bangladeshi economy and diets, accounting for 4.4% of national gross domestic product and 22.8% of agricultural sector production, and supplying about 60% of national animal protein consumption.⁹³ The challenges related to food security and agriculture in Bangladesh are largely linked to water management, with more than half of the agricultural land irrigated, mainly from groundwater extraction. The Bangladeshi food system is extremely vulnerable to climate change, notably droughts, floods and temperature extremes. Climate change is a major threat to Bangladesh's food security, sustainable development and poverty eradication (PP2041).

5.3.2. Overview of strategic and policy frameworks in the area of food security

The main general strategic documents giving guidance for agricultural and food policies are the Perspective Plan 2021–2041 and the related Eighth Five-Year Plan. The five-year plans, together with the commitment of Bangladesh to the SDGs, are the main long-term strategies the Bangladeshi government adheres to.⁹⁴ The Perspective Plan and the five-year plans include policy areas related to food security, but, on their own, they do not provide a long-term strategy for food security.

The [Bangladesh Delta Plan](#) (BDP) 2100, with its focus on economic growth, environmental conservation, and enhanced climate resilience is in principle a crucial strategic plan for contributing to food security through different policy areas – the BDP will be reviewed in detail in the section on water. However, an expert from IFPRI did not mention the BDP as an important strategic document for food security. The Ministry of Agriculture was directly involved in the formulation of the BDP, but there is little evidence so far that the BDP has integrated agricultural development and food security policies – this may be partly due to the different timelines of the BDP and the national food policy, which will be reviewed below.

Besides those strategic plans, no other long-term strategic documents for food security were identified that fit the definition of this study. Therefore, in what follows, we review the main policy documents relevant for food security and nutrition that are somehow connected to strategic plans.

Both the institutional set up around food policy discussed above and the policy frameworks discussed below point to the multi-sectoral, multi-level and multi-stakeholder approach the Bangladesh government tries to take towards food. The government measures its performance on these policies⁹⁵.

The most recent relevant document is the National food security and nutrition policy (NFNSP) drafted in 2020 and we discuss it in more detail below. Its predecessor, the 1997 National Food and Nutrition Policy was accompanied by a programming document, the National Food Policy Plan of Action 2008–2015. A detailed Investment Plan is supposed to support increased, coordinated and effective public and private investment that contributes to food availability and

⁹³ <https://fpmu.gov.bd>

⁹⁴ Interview (virtual) with Dr. Akhter Ahmed, Country Representative of the International Food Research Institute, IFPRI, 25 January 2022.

⁹⁵ Interview with Country Representative (virtual), IFPRI, 25 January 2022)

access. This policy framework was a key output of an effort to reform the food security policy of Bangladesh following the World Food Summit of 1996. The Second Country Investment Plan for nutrition-sensitive food systems. As such, we shortly discuss the Second National Plan of Action and the Second Country Investment Plan. The National Agricultural Policy dates from 2018 and only has a pro-forma reference to the Bangladesh Delta Plan. Based on the lack of relevance to this study it is not further discussed.

To conclude this section on food security related long-term strategies, we highlight the process around the UN Food Systems Summit National Dialogue and the Dhaka Food Systems programme because they can feed into strategic thinking around long-term strategies in the food sector and Dutch involvement therein.

An interviewee at IFPRI sees positive trends in Bangladesh in terms of uptake of evidence into policies. Compared to India and Egypt where he has worked for many years, he sees Bangladesh as very open and giving importance to evidence-based research. The interviewee mentioned the example of independent impact evaluations where he finds that if evidence is generated, policy makers do take up that evidence in policies. Another interviewee, who is strategic advisor for climate change at the FAO Regional Headquarters for South-East Asia finds that Bangladesh has a fertile institutional environment for the effective use of long-term strategies and rich data.

More recently, especially relevant for the sources of supporting evidence of the monitoring of different strategies: Bangladesh National Nutrition Council (BNNC) last year launched an Online Monitoring System for National and Sub-national level, which can be instrumental in tracking food security and nutrition progress towards 2041, the horizon year of the Perspective Plan.

Governance of food security in Bangladesh is characterised by a high degree of multisectoral representation reflecting the multidimensional nature of food security. Not only agriculture and rural development are represented in the various institutions governing food security in Bangladesh, but also women and children affairs, health, finance, commerce and disaster management.

Four main bodies are charged with developing and implementing food security policies, in particular the National Food Policy and its associated Plan of Action:

- Food Planning and Monitoring Committee (FPMC), a cabinet-level committee that provides overall leadership and oversight in the formulation of food security and nutrition policies.
- Food Policy Working Group, an inter-ministerial coordination mechanism that facilitates cross-sectoral participation in the implementation of the National Food Policy and its associated Plan of Action.
- Thematic Teams, specialised inter-ministerial bodies led by the Food Planning and Monitoring Unit that focus on each dimension of food security and facilitate cross-sectoral collaboration.

The IFPRI Country Representative also highlighted the importance of Investments in research and agricultural education. OECD-countries could have an important role to play. The US invested a lot in agricultural education, but they have moved away. Now the tendency of donors is to get quick results. The quality of agricultural universities and research capacity is decreasing. Bangladesh used to have some of the best rice scientists. But most of them left.

5.3.3. National food security and nutrition Policy

The Bangladeshi [National food security and nutrition policy](#) (NFNSP) covers the period 2020–2030, aligned purposefully with the target year of the Sustainable Development Goals and other nutrition related commitments of the Government of Bangladesh (GoB), such as GoBs' commitment to the objectives of the Second International Conference on Nutrition (ICN2) Framework for Action, Scaling Up Nutrition (SUN) Movement and the UN Decade of Action on Nutrition. The policy is expected to guide the formulation and implementation of the 8th and the 9th Five Year Plans.

The NFNSP is implemented by the Food Planning and Monitoring Unit (FPMU), housed at the Ministry of Food. The NFNSP builds on and updates the past policies such as the National Agricultural Plan 2018 and the Second Country Investment Plan for Nutrition-Sensitive Food Systems (2016–20) (CIP2)⁹⁶. The NFNSP takes a food systems approach, and aims to provide a holistic policy that uses a nutrition lens to contribute to synergistic multi-sectoral interventions, centred around improving the nutritional outcomes of the food system.

In the NFNSP, several initiatives of strategic nature are laid out per objective. Covering different dimensions of nutrition, and including governance and social protection, the policy seems to integrate convincingly a holistic and integrated approach. The NFNSP seems to have been developed in close collaboration with FAO's Meeting the Undernutrition Challenge (MUCH) project and refers explicitly to a number of Bangladesh-specific International Food Policy Research Institute (IFPRI) papers. It also mentions a series of technical consultations. This points to a solid support of scientific evidence. Through the oversight of the Food Policy Monitoring Committee (FPMC) all the food and agriculture-related Ministries have been involved in the development of the NFNSP and are also involved in its implementation. This seems to ensure the necessary multi-sectoral coordination and increases the political feasibility. A series of national and regional level consultations, with participation from government departments, local academia, civil society, and the private sector was part of the development of the policy. This signals the intention to take a participatory approach. The NFNSP itself refers to the limited human resource for FNS policy and program implementation and the risk of ad-hoc decision making. It calls for stronger capacity for effective multi-stakeholder participation and collaboration in the implementation of NFNSP calling the FPMU-led multi-agency coordination mechanism in an embryonic stage.

A. Major goals and policy objectives

The main goal of the NFNSP is to improve the food security and nutrition status to the level needed to achieve the food security and nutrition (FNS)-relevant SDG targets and fulfil related national and international commitments by 2030. The objectives of the NFNSP build on the five pillars identified in the CIP2. The objectives are:

1. *'To ensure availability of safe and nutritious food for healthy diets';*
2. *'To improve access to safe and nutritious food at an affordable price';*
3. *'To enhance the consumption and utilisation of healthy and diversified diets for achieving nutrition improvements';*
4. *'To increase access to nutrition-sensitive social protection and safety nets across life cycle with a focus on vulnerable groups and regions';*
5. *'To strengthen cross-sectoral food security and nutrition governance, coordination, capacity building and partnership for effective policy implementation'.*

The NFNSP identifies incentives and regulations as the main instruments to promote changes in decision making of food system stakeholders such as farmers, processors, retail and consumers. The public sector can have a more direct role through procurement, the management of public food stock and social security programmes. Indirectly the public sector, through partnerships with the private sector, can steer investments in agricultural infrastructure and agricultural research and development.

B. Sources of supporting scientific evidence

The NFNSP builds on several previous policies in various sectors related to food security and nutrition, and the overall framework is based on the 2018 Bangladesh Second Country Investment Plan - Nutrition Sensitive Food Systems

⁹⁶ See <http://faolex.fao.org/docs/pdf/bgd191142.pdf>

(CIP2). The CIP2 was prepared with technical support from FAO through the Meeting the Undernutrition Challenge (MUCH) project. The NFSNP itself refers to a series of papers by the International Food Policy Research Institute (IFPRI) specifically on Bangladesh. The NFSNP also refers to several Technical Consultation notes.

C. Buy-in and coordination; political relevance and feasibility

The Food Planning and Monitoring Committee (FPMC) is the national policy body mandated to provide overall leadership and oversight in planning, coordination and monitoring in all aspects of food security and nutrition. Ten important ministries, mostly related to the food and agricultural sector, are members of the FPMC.⁹⁷ Cutting across the mandate of over a dozen ministries the NFNSP aims to facilitate coordination, partnership and policy coherence, providing an institutional platform under one umbrella (GoB, 2020).

During the development of the NFNSP over 2019, FPMU and FAO's Meeting the Undernutrition Challenge (MUCH) project organised a series of national and regional level consultations, with participation from government departments, local academia, civil society, and the private sector. Community-level consultations with beneficiaries from various food security and nutrition projects complemented the consultations held at the regional level.⁹⁸ Buy-in of and coordination with local governments, civil society, and the private sector is actively promoted and thought to enhance the quality of monitoring and coordination at local level (grass roots, sub-district and district) (NFNSP, 2020).

D. Key means and modalities of implementation and main limitations

The policy provides a framework for resource mobilisation, prioritisation and integration of multisectoral actions. The NFNSP mentions '*the limited human resource with inadequate analytical capacity*' which risks leading to ad-hoc decision making.

5.3.4. Second National Plan of Action for Nutrition

Covers the period 2016–2025. The main reference to long-term strategies is to the 7th Five Year Plan and the Sustainable Development Goals. [NPAN2](#) lays out the commitments and policy context of the Plan of Action. It is aligned with the strategic actions and strategic areas identified in the National Nutrition Policy 2015 and stipulates short-, medium- and long-term implementation strategies per action area.

Relevant in terms of its guidance on implementation are the issues mentioned around governance such as transparency and accountability on roles and responsibilities; vertical and horizontal integration and convergence of multi-stakeholder actions and capacity building across the different government institutions involved.

5.3.5. National Pathway Document for the UN Food Systems Summit

The basic information about the [National Pathway Document](#) is as follows:

- Title: Towards Sustainable Food Systems in Bangladesh. National Pathway Document for the UN Food Systems Summit.
- Published: September 2021.
- Geographic coverage: national.
- Strategic period: 2030.

⁹⁷ The FPMC includes representation of ten ministries (Ministry of Food; Ministry of Agriculture; Ministry of Finance; Ministry of Local Government, Rural Development and Cooperatives; Ministry of Health and Family Welfare; Ministry of Commerce; Ministry of Fisheries and Livestock; Ministry of Disaster Management and Relief; Ministry of Planning; and Ministry of Women and Children Affairs) and may be expanded to include Ministry of Chittagong Hill-tract Affairs; Ministry of Social Welfare; Ministry of Industries; Ministry of Environment, Forest and Climate Change.

⁹⁸ See <https://www.fao.org/bangladesh/news/detail-events/fr/c/1250551/>

A. Major goals and policy objectives

The major goal of the National Pathway is not explicitly stated in the document itself. The overall objective of the related UN Food Systems Summit was to create energy and ideas to meet the Sustainable Development Goals goals. It helped to position food systems transformation as one of the key drivers for the realisation of the Agenda 2030. At national level, the goal of the dialogues that fed into the final Pathway Document was to bring together stakeholders from different sectors and interest groups *‘to find out game changing solutions to overcome the existing challenges of food systems in Bangladesh’* and *‘to bring diverse voices together on a common platform in order to address the issues and challenges facing us’*.

The National Pathway reflects the outcomes of six sub-national dialogues and a number of independent dialogues that were held on a wide range of issues impacting food systems such as agriculture, aquaculture, environment and climate change and resilience, to urban food systems, women in food systems, youth, and private sector engagement. Suggestions from a diverse group of stakeholders from different government institutions and ministries, development partners, academia, civil society organisations, private sector, and media were also taken onboard (ibid.) The National Pathway captures the directions stakeholders have agreed on to sustainable national food systems for the coming decade. They consolidate country level commitments and actions.

Considering the involvement of a fair number of high-level government officials and food system experts such as Professor Dr. Saleemul Huq it is likely that the outcomes of the different dialogues will shape policies.

B. Sources of supporting scientific evidence

The National Pathway Document is not a long-term strategy per se, it is a reflection of a dialogue process that builds on the knowledge and expertise from the different national and international stakeholders that were engaged.

The National Pathway Document does not use evidence-based scenarios or any other types of foresight modelling.

C. Buy-in and coordination; political relevance and feasibility

The National Pathway Document is part of a broader process set up in the framework of the first global UN Food Systems Summit, held in September 2021. In Bangladesh, the organisation of the Member State Dialogues was taken up by a National Dialogue Committee. The Food Planning and Monitoring Unit (FPMU) is tasked with coordinating the participation of different institutions from across sectors to join the Coalitions of Action that are part of the Summit outcomes.

At the second National Dialogue, a lineup of high-level officials and experts⁹⁹ contributed, potentially signalling significant buy-in of the Bangladeshi government in the agenda of the UN Food Systems Summit. After the first national dialogue, six sub-national dialogues were held and about a dozen independent dialogues, culminating in a second and

⁹⁹ The Dialogue was chaired by the Secretary, Ministry of Food, Dr. Mosammat Nazmanara Khanum, and with Additional Secretary, Mr. Khaja Abdul Hannan, as convener. Mr. Sadhan Chandra Majumder, MP, Honourable Minister, Ministry of Food made acte de presence. Special guests were Professor Dr. Saleemul Huq, Director, International Centre for Climate Change and Development and Chair of UNFSS Action Track 5: Building resilience to vulnerabilities, shocks and stress; Mr. Zakir Hossain Akanda, Ex-Member (Ex-Secretary), Agriculture, Water Resources and Rural Institutions Division, Bangladesh Planning Commission; Mr. Md. Toufiqul Arif, Additional Secretary, Ministry of Fisheries and Livestock; and Mr. Md. Mesbahul Islam, Senior Secretary, Ministry of Agriculture. (<https://www.fao.org/bangladesh/news/detail-events/fr/c/1410419/>)

third national dialogue. FAO and GAIN organised the Independent Summit Dialogues covering different issues and have engaged with numerous stakeholders, including UN agencies and development partners in order to do so.

D. Key means and modalities of implementation and main limitations

The National Pathway summarises the financial commitments made towards realising the SDGs and creates an overview of the current means and modalities allocated. It also signals the gaps that are foreseen in achieving SDGs.

5.4. Water

5.4.1. Sectoral context

Bangladesh is one of the largest deltas and extensive floodplains in the world. The country currently faces the following broad water-related challenges:

1. **Complex problem of river, coastal and floodplain management:** balancing too much and too little water is a core challenge for Bangladesh. Because of its geographical location and topography, being situated amongst the floodplains of three major rivers - Ganges, Brahmaputra and Meghana - Bangladesh relies on monsoon floods that recharge groundwater, irrigates, and deposits fertile sediments; at the same time, the country is highly vulnerable to water hazards, and rising sea level is an important existential threat for coastal populations. Proper management of river systems, coastal zones and floodplains is thus key to disaster risk preparedness and climate resilience. At the same time, stable economic growth is tied to creating a safe delta that is suitable for the necessary land and water infrastructure development. Managing surface water is also critical to inland water transport;
2. **Unsustainable groundwater use and the threat of water stress:** groundwater levels are declining fast, particularly in the northwest due to irrigation and in major urban areas such as Dhaka due to industrial and domestic demand. Water stress is bound to increase also due to projected changes in average rainfall (droughts are common in the northwest);
3. **Deteriorating water quality:** water sources in Bangladesh are affected by geogenic (in particular, naturally occurring inorganic arsenic contamination and salinity intrusion), bacteriological, and industrial pollution (pesticide, fertilisers, disinfectants, garbage, fecal waste, and chemical pollution), which threatens agricultural and domestic water use and has large impacts on human health, crop production, environmental degradation and water stress;
4. **Poor WASH service delivery:** while Bangladesh has reached a number of targets (e.g., provision of universal access to technologically improved drinking water sources and ending open defecation), WASH implementation has focused on community-based and self-managed solutions such as the provision of tubewells and simple pit latrines, which made central management to ensure quality and availability impossible. Quality and reliability problems are linked to regulatory challenges and fragmentation in service delivery; rapid urban growth poses additional challenges, and climate change impacts risk hindering the sustainability, continuity and quality of WASH services. Inequality in access is stark with limited-service delivery in hard to reach and extreme poor areas;
5. **Inadequate transboundary management:** the majority of Bangladesh's water resources is transboundary (as the Ganges, Brahmaputra, and Meghna River systems originate from India, Nepal and China). As such, the country is vulnerable to water pressures upstream, with large scale hydropower development schemes in India and China threatening to reduce dry season water availability and increasing water-related discords.
6. **Inadequate water governance and institutional capacity:** several governance challenges exist, including: vertical and horizontal coordination challenges across the line ministries as well as the subnational local government institutions; overlapping mandates and multiple leads; incomplete incorporation of climate risks in water-policies; highly centralised decision-making and planning not inclusive of local stakeholders (e.g.

absence of local water management bodies); low accountability and transparency (corruption); insufficient resources and skills gap.¹⁰⁰

To address these challenges, since the 1960s the Bangladeshi government has formulated a number of national policies, strategies and regulations for water resource management, partly in response to water-related natural hazards and with the key objective of protecting agriculture and livelihoods. However, the majority of these sectoral plans have been short-term oriented and independently pursued by line ministries and other government agencies. They have also inadequately addressed the potential impacts arising from climate change, focusing on addressing short-term climate-induced vulnerabilities without taking into account possible future impacts on water resources.¹⁰¹ Other issues such as river transport, urban water supply and drainage including pollution of rivers have also received limited attention. As such, the adoption of the Bangladesh Delta Plan 2100 in 2018 evidences a paradigm shift in the policy response to water-related challenges in Bangladesh and represents the first long-term strategic plan for land and water resources management covering the next several decades.

In what follows, we describe and appraise the Delta Plan, summarising its main objectives and implementation challenges. We also review and appraise the recently-reviewed National Strategy for Water Supply and Sanitation.

5.4.2. The Bangladesh Delta Plan 2100

The [BDP 2100](#)¹⁰² is an holistic and ambitious long-term plan that seeks to integrate the medium to long term aspirations of Bangladesh of eliminating extreme poverty by 2030 and being a prosperous country beyond 2041 with the longer term challenge of sustainable management of water, ecology, environment and land resources in the context of climate change and natural disasters. As such, the plan is seen as a window of opportunity to carry out multi-sectoral policy and institutional reforms and support transformational changes in Bangladesh.

A. Major goals and policy objectives

The plan is envisioned as a development strategy that will serve to accomplish three major national goals: (1) eliminate extreme poverty by 2030; (2) achieve upper middle-income status by 2030; and (3) being a prosperous country beyond 2041.

The BDP vision is to *'Ensure long term water and food security, economic growth and environmental sustainability while effectively coping with natural disasters, climate change and other delta issues through robust, adaptive and integrated strategies, and equitable water governance.'* To reach this vision, the plan defines specific short (up to 2030) and medium term (up to 2041) goals, namely:

- *'Goal 1: Ensure safety from floods and climate change related disasters';*
- *'Goal 2: Enhance water security and efficiency of water usages';*
- *'Goal 3: Ensure sustainable and integrated river systems and estuaries management';*
- *'Goal 4: Conserve and preserve wetlands and ecosystems and promote their wise use';*
- *'Goal 5: Develop effective institutions and equitable governance for in-country and transboundary water resources management';*
- *'Goal 6: Achieve optimal and integrated use of land and water resources.'*

¹⁰⁰ George, J. and Shrestha, A. (2020). Monsoons, Rivers, and Tides : A Water Sector Diagnostic of Bangladesh. World Bank, Washington, DC. <https://openknowledge.worldbank.org/handle/10986/36754>.

¹⁰¹ Hadi, T. (2019). *An Analysis of Water Policies and Strategies of Bangladesh in the Context of Climate Change*. Asia-Pacific Journal of Rural Development, 29(1), pp. 111-123.

¹⁰² [http://www.plancomm.gov.bd/site/files/fd6c54f6-dfab-4c71-b44a-e983ffd2bdee/-](http://www.plancomm.gov.bd/site/files/fd6c54f6-dfab-4c71-b44a-e983ffd2bdee/)

This set-up of higher-level goals and specific goals combines long term development outcomes (in terms of economic growth and poverty reduction) with targets for reducing long term vulnerability from water and climate change related hazards and with targets for environmental conservation. As such, the sustainable use of water resources and prevention of water-related natural disasters provides the backbone of the plan.

These goals, and the associated strategies, policies, institutions and investments, are considered moving targets and adaptive in nature, meaning that they can be changed over time as new information becomes available or policy priorities change. Thus, scenarios and strategies should be updated on a 5-year cycle.

B. Sources of supporting scientific evidence

The plan considers two scenarios based on selected policy options¹⁰³ to illustrate the contribution of BDP 2100 to the long-term development of Bangladesh. The first one is the Business As Usual (BAU) option, which shows what will happen as a result of the adverse impacts of climate change if the BDP 2100 is not implemented: it estimates that the combined loss from climate change will range from 1.1% of GDP per year (with moderate change¹⁰⁴) and up to 2.0% of GDP per year (with extreme change). This would mean a GDP growth rate of 6.8% in FY2031 and 5.6% by FY2041, which is well below the required target for achieving the national goals, implying significant loss in welfare in terms of employment and poverty outcomes. Migration from vulnerable districts and pressure on urbanisation in this scenario will also increase as a result of lower agricultural production and unemployment.

The second option is the Delta Plan policy option, which combines the BAU with the adoption of the BDP 2100. In this scenario, the average GDP is estimated to rise to 8.2% by FY2031 and would stay above 8% annually through FY2041, helping Bangladesh achieve its growth and poverty targets. This would allow the country to achieve higher and sustainable growth trajectories in the face of the various weather-related natural hazards and risks. However, this policy option may need to be adjusted to take into account the impact of the COVID-19 pandemic.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The formulation of the plan was a complex endeavour that started in 2009 through the interaction between the PM of the Netherlands and Bangladesh. A preparatory team led by WUR started working on it in 2011; then, an agreement between the two countries was signed and the formulation of the plan started in 2014, and was led by a large consortium of companies and governmental institutions from the Netherlands and Bangladesh, led by consultancy firm Twynstra Gudde.¹⁰⁵ The consortium used knowledge and skills developed during the Dutch Delta Programme to create a long-term strategy linked to the existing Bengalese water policies. The plan was then submitted in 2016 and approved by the National Economic Council in September 2018.

It included the development of 8 baseline studies (on land use and infrastructure development; disaster and environmental management; water resources management; agriculture food security and nutrition; socio-economic aspects of the delta; and on governance and institutional development);¹⁰⁶ large scale consultations with a diversity

¹⁰³ These scenarios attempt to quantify economic impacts of climate change linking economic variables to environmental and climate change parameters. They also take into account future water conditions based on transboundary developments and economic development and related land use changes.

¹⁰⁴ In the moderate climate change scenario, sustained global and national efforts to reduce GHG emissions are in place. Conversely, in the extreme change scenario there are limited global and national efforts to reduce the GHG emissions and fossil fuel based economic development.

¹⁰⁵ The consortium was composed of Euroconsult Mott MacDonald, Unesco-IHE, Deltares, Alterra, Witteveen+Bos, Defacto, Stichting Cas and the Bangladeshi partners IWM en CEGIS.

¹⁰⁶ The baseline studies are available here: [http://www.plancomm.gov.bd/site/files/0adcee77-2db8-41bf-b36b-657b5ee1efb9/-](http://www.plancomm.gov.bd/site/files/0adcee77-2db8-41bf-b36b-657b5ee1efb9/)

of government and non-governmental stakeholders; and the development of a long-term vision for the delta's future.¹⁰⁷ The BDP 2100 has then been integrated in the 8th 5-year prospective plan.

Table 3 Summary table of BDP 2100 national and hotspot strategies

National strategies	
<p><u>Flood Risk Management (FRM)</u></p> <ol style="list-style-type: none"> 1. Protecting Economic Strongholds and Critical Infrastructure; 2. Equipping the Flood Management and Drainage (FMD) Schemes for the Future; 3. Safeguarding Livelihoods of Vulnerable Communities 	<p><u>Fresh water (FW)</u></p> <p>Ensure Water Availability by Balancing Supply and Demand for Sustainable and Inclusive Growth;</p> <p>Maintaining Water Quality for Health, Livelihoods and Ecosystems.</p>
Hotspot specific strategies	
<p><u>Coastal zone</u></p> <ol style="list-style-type: none"> 1. Combating storm surge and salinity intrusion through effective management of existing polders; 2. Increase drainage capacity and reduce flood risks; 3. Balancing water supply and demand for sustainable growth; 4. Reclaim New Land in the Coastal Zone; 5. Sundarbans Conservation; and 6. Restoration of dead/low flowing rivers and basin wide management of cross boundary rivers for increasing supply of fresh water. 	<p><u>Barind and Drought Prone Areas</u></p> <ol style="list-style-type: none"> 1. Balancing supply and demand for sustainable and inclusive growth; 2. Management of cross-boundary water issues including river basin developments; 3. Minimising losses due to floods and drainage congestion; 4. Ensuring water supply and sanitation; and 5. Encouraging excavation of ponds and digging well to retain rainwater.
<p><u>Haor and Flash Flood Areas</u></p> <ol style="list-style-type: none"> 1. Protect agriculture and vulnerable communities from floods; 2. Achieving fresh water security; 3. Management of River and water resources; 4. Sustainable management of haor ecosystem and biodiversity; 5. Integrated land and water resources management. 	<p><u>Chattogram Hill Tracts</u></p> <ol style="list-style-type: none"> 1. Protect economic zones and towns from floods and storm surges; 2. Ensure water security and sustainable sanitation; 3. Ensure integrated river management; Maintain ecological balance and values (assets); 4. Develop multi-purpose resources management system for sustainable growth.
<p><u>Major River Systems and Estuaries</u></p> <ol style="list-style-type: none"> 1. Provide adequate room for the river and infrastructure to reduce flood risk; 2. Improvement of the conveyance capacity as well as stabilise the rivers; 3. Provide fresh water of sufficient quantity and quality; 4. Maintain ecological balance and values (assets) of the rivers; 5. Allow safe and reliable waterway transport in the river system; 6. Developing strategy for sediment management 	<p><u>Urban areas</u></p> <ol style="list-style-type: none"> 1. Increase drainage capacity and reduce flood risk and waterlogging at in urban areas; 2. Enhance water security and water use efficiency in the urban areas; 3. Regulate and monitor river and other water body pollution from industries and human sources; 4. and human sources; 5. Conserve and preserve urban wetlands and ecosystems and promote their wise-use; 6. Develop effective urban institutions and governance;

¹⁰⁷ This entailed the alignment of national and international goals and visions including: Vision 2021; Vision 2041; National Sustainable Development Plan; National Social Protection Plan; National Water Management Plan; 7th Five Year Plan and many other previous plans; plus SDG goals 6, 13 and 14, as well as 1, 2, 5, 8, 9, 11, 15.

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| <p>including a strong capital</p> <ol style="list-style-type: none"> 7. dredging and maintenance programme; 8. Strengthening river and estuaries management in the newly accredited lands; 9. Necessary arrangements for capital and maintenance dredging in important rivers such as the Padma, Meghna, Jamuna, Brahmaputra, Dharala, Arial Khan, Kushiya, Gorai, Monu, etc; 10. Appropriate and effective measures for salinity management for the rivers in the southern zone during dry season; and 11. Formulating policy/guidelines for proper management of 'Balu Mohal', dredged materials/soils. | <ol style="list-style-type: none"> 7. Integrated and sustainable use of urban land and water resources; 8. Improved urban services: water supply, sanitation, wastewater and solid waste management. Place special emphasis on management of disposal of medical, electronic and other hazardous waste/materials; and 9. Control and monitoring of water pollution caused by industry and other sources. |
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D. Key means and modalities of implementation and main limitations

The BDP comprises a number of national-level strategies and underlying sub strategies to reach the stated objectives. These national-level strategies include flood risk management strategies, aimed at protecting economic strongholds and livelihoods, and freshwater strategies, aimed at ensuring water availability and maintaining water quality.

In addition, the plan includes six strategies that address specific challenges in selected hydrological zones, or *hotspots*, i.e. groupings of districts and areas that face similar risks of natural hazards and climate change. Such hotspots, as shown in Table 2 below, include: the Coastal zone (where coastal inundation and salinity are a major concern); the Barind and Drought Prone Areas (facing challenges of fresh water shortages); the Haor and Flash Flood Areas (one of the food insecure regions of the country, where flash-flooding and wetland management are a key concern); the Chattogram Hill Tracts (where integrated river basin management is possible given that most catchments are within the national borders); the Major River Systems and Estuaries (where river erosion problems need to be addressed); and Urban areas (facing major issues of water shortage, sanitation and drainage problems).

Finally, strategies for cross-cutting issues cover the following topics: Sustainable Land Use and Spatial Planning; Agriculture, Food Security, Nutrition and Livelihoods; Transboundary Water Management; Dynamizing Inland Water Transport System; Advancing the Blue Economy; Renewable Energy; and Earthquakes.

These strategies and sub-strategies, taken together, address the major challenges Bangladesh is facing and is expected to face in the future at the national and sub-national level. They are based on a comprehensive scenario analysis and allow for an adaptive approach in their implementation. However, they consist of indicative strategic directions that will need to be further developed into definite policies and programmes, most of which are cross-sectoral in nature and will require the involvement of multiple line ministries, local government institutions, local communities and the private sector. As such, given the history and prevailing institutional, political and financing weaknesses, implementation of the BDP represents a steep challenge, both in terms of the large resource requirements but also because important and difficult reforms are needed in the institutional set-up.¹⁰⁸ The COVID-19 pandemic has added another layer of complexity to the implementation of the plan.

¹⁰⁸ These Delta policies, investments and institutional reforms in the delta related sectors (water, environment, land, agriculture) are additional to the investments, macroeconomic policies and economy-wide governance changes associated with the government's Eight Five Year Plan.

In terms of investment needs, the plan estimates a total required spending amount on delta-related interventions (both through new projects and maintenance of old projects) of about 2.5% of GDP per year, which is much higher than the current annual spending (a mere 0.8% of GDP). This should be achieved through a combination of public and private funding from various sources¹⁰⁹. Notably, it is envisaged that around 0.5% of GDP could be funded by the private sector (mainly to finance projects of water resource management and related infrastructure) while the remaining 2% of GDP would be financed by the public sector. Finding such additional 1.2% of GDP of public financing, however, is a challenge that can't be addressed through tax financing alone. The Plan thus suggests the mobilisation of foreign funding, e.g., by tapping into the global Green Climate Fund (GCF) initiative, as well as the adoption of the beneficiary pays principle, following the example of the Dutch Delta funding mechanism (George and Shrestha, 2020). The latter, however, will not realise without strong investments in institutional and enforcement capacity, given the current struggle to raise collection rates (George and Shrestha, 2020).

Investment priorities are set as follows: investments in flood control, river erosion, river management including dredging, training and navigability are considered the highest priority investments and will likely absorb 35% of total Delta investments, requiring especially public funding. Secondly, the back-log of investments in urban water supply, sanitation, waste management and drainage in major cities is estimated to absorb at least 25% of all delta investments. Thirdly, investments in water and sanitation services in small towns and rural areas may absorb as much as 20% of total BDP 2100 investment up to FY2031. The current Investment Plan 2030 (elaborated with the support of the World Bank investment planning team and amenable to revisions) is a first selection of tentative projects for the BDP short term goals. It consists of a total of 80 projects, the large majority of which are physical projects (65), while only 15 are institutional and knowledge development projects. Its total capital investment cost is an estimated 38 billion US dollars (George and Shrestha, 2020).

The plan also outlines the institutional reforms necessary for effective inter-sectoral planning, coordination and monitoring and to strengthen water-related institutions. These include the establishment of a Bangladesh Delta Fund and a Delta knowledge bank. The plan also provides for the creation of a Delta Commission, under whose guidance a steering committee and implementing agency will be appointed for each hotspot program or sub-program. The steering committee and implementing agency for each program and sub-programme would provide the institutional framework to coordinate implementation. Lastly, the plan envisages the establishment of Local Water Management Bodies, seen as a key missing water institution that could represent beneficiary stakeholders in decision making.

However, the institutional framework described above, although well-designed and comprehensive, largely remains on paper. Currently, the Support for the Implementation of BDP (SIBDP) is in the process of examining existing governance gaps and will produce guidelines and a roadmap for institutional change, including revising the different acts, policies and plans as well as devising new institutions and committees. For instance, the National Water Policy and the National Land Use Policy are being revised to mainstream BDP principles and address overlaps and contradictory mandates highlighted by line ministries during the Investment Plan consultations. This will take a long time. Moreover, as mentioned earlier, the Investment Plan is dominated by physical investment projects, while many of the pipeline projects for institutional reforms and knowledge infrastructure were excluded because they did not fit the 'efficiency' criterion (their economic costs often exceeded quantified economic benefits).¹¹⁰ This is problematic because higher state capacity is a prerequisite for the overall implementation of the BDP, thus these types of projects should be reconsidered and assessed according to a set of selection criteria that differ from those applied to physical investment projects.

¹⁰⁹ Roome, J. (2021). Implementing Bangladesh Delta Plan 2100: Key to boost economic growth. World Bank blogs.

¹¹⁰ Strong vested interests in the hydro-infrastructure sector may have also played a role in shaping the investment package (interview with WUR water expert, 30 November 2021).

5.4.3. The National Strategy for Water Supply and Sanitation

This [national strategy](#) provides a comprehensive framework for the water supply, sanitation and hygiene (WASH) sector for the period up to 2030. The original version, dating back to 2014, has been updated in 2021 to align with the SDG framework; essentially, this is the country’s key strategy to achieve the SDG 6 targets, especially 6.2.

A. Major goals and policy objectives

The goal of the strategy is to achieve ‘safe and sustainable water supply, sanitation and hygiene services for all, with safety nets for the hardcore poor and the marginalised, leading to better health and well-being’, and its stated objective is to streamline all outstanding and emerging sector issues into one single strategy, thus providing ‘a uniform strategic guideline’ to sector stakeholders (including state and non-state actors).

The strategy regards water supply and sanitation as a human right and a public good with economic and social value; it adopts an inclusive and demand-driven approach that ensures transparency and accountability at all stages of service delivery, with safety nets for the hardcore poor and the marginalised;¹¹¹ and it mainstreams gender and citizen participation in the design, planning, implementation and monitoring of WASH services. It also takes a gradual approach to improving the quality and service levels, considering the impacts of climate change and emerging challenges; it creates an enabling environment for private sector participation, and promotes collaboration, information sharing and harmonised approaches amongst sector stakeholders.

The strategy is subdivided into three thematic blocks, each encompassing a number of sub-strategies, making up a total of 17 sub-strategies, as shown in Table 3. Each sub-strategy describes specific actions, policies (including changes to current policies and provisions) and investments to be undertaken for the achievement of the strategic goals.

Table 4 Strategic themes and sub-strategies of Bangladesh’s strategy for water supply and sanitation

Increase the coverage and improve the quality of WASH services	Address the perennial and emerging challenges in the sector	Strengthen sector governance, coordination, monitoring and reporting
1. Expand access to safe and affordable drinking water and sanitation facilities	10. Adopt integrated water resource management	14. Undertake integrated and accountable development approach
2. Give priority to arsenic mitigation	11. Address growing pace of urbanisation	15. Recover cost of services while keeping a safety net for the poor
3. Move to the safely managed rung of the sanitation ladder	12. Cope with disaster, adapt to climate change and safeguard environment	16. Strengthen and reposition institutions and develop human and financial capacities
4. Establish fecal sludge management system	13. Institutionalise research and development	17. Enhance coordination, monitoring and reporting mechanism
5. Manage solid waste judiciously		
6. Improve hygiene promotion		
7. Undertake specific approaches for hard-to-reach areas and vulnerable people		
8. Mainstream gender approaches		
9. Facilitate private sector participation		

¹¹¹ The strategy is complemented by the Pro-poor strategy for water and sanitation sector in Bangladesh, first published in 2005 and recently revised in 2020 to align with the Agenda 2030 pledge to leave nobody behind and creates a provision of 100% subsidy to WASH services for the poorest and marginalized.

B. Sources of supporting scientific evidence

The strategy is not backed by a comprehensive scientific assessment and it does not include projections of future trends. However, it provides a brief overview of the WASH sector in Bangladesh based on two main databases, namely the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene and the UNICEF Multiple Indicator Cluster Survey programme.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The national strategy was originally developed in 2014 by the Local Government Division (LGD) and the Ministry of Local Government Rural Developments and Cooperatives (MoLGRDC) to streamline existing strategies related to the WASH sector¹¹² into one single document that encompassed all outstanding and emerging sector issues. In 2021, the strategy was revised and updated by the Policy Support Branch (PSB) of the LGD with a working group consisting of members from the Department of Public Health Engineering (DPHE), Water Supply and Sewage Authorities (WASAs), Non-Governmental Organisations (NGOs) and Development Partners. The revised version was peer reviewed and shared in a national workshop; it was then discussed and recommended for approval by the National Forum for Water Supply and Sanitation (NFWSS);¹¹³ finally, the strategy was approved by the Ministry of Local Government, Rural Development and Cooperatives—which has the statutory responsibility for ensuring access to WASH services. As such, the level of buy-in and coordination seem wide at sector-level.

D. Key means and modalities of implementation and main limitations

The strategy includes an institutional arrangement and implementation plan. The institutional arrangement assigns the responsibility for coordination, monitoring and evaluation of the strategy to the National Forum for Water Supply and Sanitation, which is supported by a Policy and Monitoring Support Committee and a Technical Support Committee. In addition, eight thematic groups support the implementation of specific sub-strategies.

The implementation plan lists the key milestones and timeframe for the achievement of the strategies and defines the lead and partner organisations. Budget considerations, however, are not included in this document.¹¹⁴

The SDG Financing Strategy 2017 of the General Economic Division estimated that the country will require an additional 11.8 billion US dollars (constant 2015-16 prices) to achieve SDG-6, out of which 9.4 billion are needed to attain targets 6.1 and 6.2. Around half of the WASH sector budget allocation for SDG-6 comes from public funds, while the other half is made up of private sector (30%) and development assistance (20%) contributions. While the steady growth of the WASH sector budget allocation in recent years may improve prospects for the implementation of this sectoral strategy, persistent governance challenges, such as weak capacity of local government institutions and difficulty in mobilising funding in a timely manner, risk hindering action at the local level.¹¹⁵

¹¹² The existing national strategies were: (i) National Sanitation Strategy 2005, (ii) Pro-Poor Strategy for Water and Sanitation Sector 2005, (iii) National Cost Sharing Strategy for Water Supply and Sanitation in Bangladesh 2011, (iv) National Hygiene Promotion Strategy for Water Supply and Sanitation in Bangladesh 2012, and (v) National Strategy for Hard to Reach Areas and People of Bangladesh 2012. These five strategies were reviewed and updated, in synchronisation with the national strategy; they coexist and may be consulted for further directions related to the specific topic, but the national strategy prevails in case of contradiction.

¹¹³ The forum is chaired by Secretary, LGD and comprises sector stakeholders such as government and semi-government organisations, NGOs, development partners, academia and representatives of civil society.

¹¹⁴ According to the strategy, relevant agencies are expected to submit budget proposals for each financial year to the Budget Management Committee of LGD.

¹¹⁵ https://www.sanitationandwaterforall.org/sites/default/files/2020-12/2020_Country-Overview_Bangladesh.pdf

Annex 1: Dutch development cooperation objectives and SDGs

Table A.1: Dutch development cooperation objectives and SDGs

Netherlands Foreign Trade and Development Cooperation (IGG)	United Nations 2030 Agenda for Sustainable Development
<p>Food security</p> <ul style="list-style-type: none"> ● Eliminate hunger and malnutrition in 2030 (SDG 2.1 and 2.2) ● Doubling productivity and income of smallholder food producers in 2030 (SDG 2.3) ● Ecologically sustainable food production systems in 2030 (SDG 2.4) and maintenance agro-biodiversity in 2020 (SDG 2.5) ● Knowledge and capacity building for food security 	<p>Goal 2: End hunger, achieve food security and improved nutrition and promote sustainable agriculture</p> <ol style="list-style-type: none"> 2.1. By 2030, end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious and sufficient food all year round 2.2. By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons 2.3. By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment 2.4. By 2030, ensure sustainable food production systems and implement resilient agricultural practices that increase productivity and production, that help maintain ecosystems, that strengthen capacity for adaptation to climate change, extreme weather, drought, flooding and other disasters and that progressively improve land and soil quality 2.5. By 2020, maintain the genetic diversity of seeds, cultivated plants and farmed and domesticated animals and their related wild species, including through soundly managed and diversified seed and plant banks at the national, regional and international levels, and promote access to and fair and equitable sharing of benefits arising from the utilization of genetic resources and associated traditional knowledge, as internationally agreed 2.a. Increase investment, including through enhanced international cooperation, in rural infrastructure, agricultural research and extension services, technology development and plant and livestock gene banks in order to enhance agricultural productive capacity in developing countries, in particular least developed countries 2.b. Correct and prevent trade restrictions and distortions in world agricultural markets, including through the parallel elimination of all forms of agricultural export subsidies and all export measures with equivalent effect, in accordance with the mandate of the Doha Development Round 2.c. Adopt measures to ensure the proper functioning of food commodity markets and their derivatives and facilitate timely access to market information, including on food reserves, in order to help limit extreme food price volatility
<p>Water</p> <ul style="list-style-type: none"> ● Improved access to drinking water (30 million people in 2030), sanitation (50 million people in 2030) and hygiene 	<p>Goal 6: Ensure availability and sustainable management of water and sanitation for all</p> <ol style="list-style-type: none"> 6.1. By 2030, achieve universal and equitable access to safe and affordable drinking water for all 6.2. By 2030, achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations

Netherlands Foreign Trade and Development Cooperation (IGG)

United Nations 2030 Agenda for Sustainable Development

(WASH) (SDG 6.1, 6.2)

- Improved water productivity in agriculture (+25% in 2030) (SDG 6.4)
- Improved management of (transboundary) river catchments and safe deltas¹¹⁶ (SDG 6.6)

- 6.3. By 2030, improve water quality by reducing pollution, eliminating dumping and minimizing release of hazardous chemicals and materials, halving the proportion of untreated wastewater and substantially increasing recycling and safe reuse globally
- 6.4. By 2030, substantially increase water-use efficiency across all sectors and ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity
- 6.5. By 2030, implement integrated water resources management at all levels, including through transboundary cooperation as appropriate
- 6.6. By 2020, protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes
- 6.a. By 2030, expand international cooperation and capacity-building support to developing countries in water- and sanitation-related activities and programmes, including water harvesting, desalination, water efficiency, wastewater treatment, recycling and reuse technologies
- 6.b. Support and strengthen the participation of local communities in improving water and sanitation management

Climate

- Access to renewable energy (50 million people in 2030) (SDG 7)
- Reduced deforestation and sustainable land use (SDG 12, 15)
- Adaptation in food security and water management
- Increased international climate action, through negotiations
- A Dutch fair share of the USD 100 billion per year collective commitment for climate action in developing countries

Goal 7: Ensure access to affordable, reliable, sustainable and modern energy for all

- 7.1. By 2030, ensure universal access to affordable, reliable and modern energy services
- 7.2. By 2030, increase substantially the share of renewable energy in the global energy mix
- 7.3. By 2030, double the global rate of improvement in energy efficiency
- 7.a. By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology
- 7.b. By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular least developed countries, small island developing States, and land-locked developing countries, in accordance with their respective programmes of support

Goal 12: Ensure sustainable consumption and production patterns

- 12.1. Implement the 10-year framework of programmes on sustainable consumption and production, all countries taking action, with developed countries taking the lead, taking into account the development and capabilities of developing countries
- 12.2. By 2030, achieve the sustainable management and efficient use of natural resources
- 12.3. By 2030, halve per capita global food waste at the retail and consumer levels and reduce food losses along production and supply chains, including post-harvest losses
- 12.4. By 2020, achieve the environmentally sound management of chemicals and all wastes throughout their life cycle, in accordance with agreed international frameworks, and significantly reduce their release to air, water and soil in order to minimise their adverse impacts on human health and the environment

¹¹⁶ The Dutch policy focuses on improved water management in international transboundary river basins in Africa, Asia and the Middle East, including the Brahmaputra, Incomati, Mekong, Niger, Nile, Senegal, West Bank Aquifer and Zambezi basins.

- 12.5. By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
- 12.6. Encourage companies, especially large and transnational companies, to adopt sustainable practices and to integrate sustainability information into their reporting cycle
- 12.7. Promote public procurement practices that are sustainable, in accordance with national policies and priorities
- 12.8. By 2030, ensure that people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature
- 12.a. Support developing countries to strengthen their scientific and technological capacity to move towards more sustainable patterns of consumption and production
- 12.b. Develop and implement tools to monitor sustainable development impacts for sustainable tourism that creates jobs and promotes local culture and products
- 12.c. Rationalise inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances, including by restructuring taxation and phasing out those harmful subsidies, where they exist, to reflect their environmental impacts, taking fully into account the specific needs and conditions of developing countries and minimising the possible adverse impacts on their development in a manner that protects the poor and the affected communities

Goal 13: Take urgent action to combat climate change and its impacts

- 13.1. Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
- 13.2. Integrate climate change measures into national policies, strategies and planning
- 13.3. Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning
- 13.a. Implement the commitment undertaken by developed-country parties to the United Nations Framework Convention on Climate Change to a goal of mobilising jointly \$100 billion annually by 2020 from all sources to address the needs of developing countries in the context of meaningful mitigation actions and transparency on implementation and fully operationalize the Green Climate Fund through its capitalization as soon as possible
- 13.b. Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, youth and local and marginalised communities

Goal 15: Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- 15.1. By 2020, ensure the conservation, restoration and sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and drylands, in line with obligations under international agreements
- 15.2. By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally
- 15.3. By 2030, combat desertification, restore degraded land and soil, including land affected by desertification, drought and floods, and strive to achieve a land degradation-neutral world

- 15.4. By 2030, ensure the conservation of mountain ecosystems, including their biodiversity, in order to enhance their capacity to provide benefits that are essential for sustainable development
 - 15.5. Take urgent and significant action to reduce the degradation of natural habitats, halt the loss of biodiversity and, by 2020, protect and prevent the extinction of threatened species
 - 15.6. Promote fair and equitable sharing of the benefits arising from the utilisation of genetic resources and promote appropriate access to such resources, as internationally agreed
 - 15.7. Take urgent action to end poaching and trafficking of protected species of flora and fauna and address both demand and supply of illegal wildlife products
 - 15.8. By 2020, introduce measures to prevent the introduction and significantly reduce the impact of invasive alien species on land and water ecosystems and control or eradicate the priority species
 - 15.9. By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and accounts
 - 15.a. Mobilise and significantly increase financial resources from all sources to conserve and sustainably use biodiversity and ecosystems
 - 15.b. Mobilise significant resources from all sources and at all levels to finance sustainable forest management and provide adequate incentives to developing countries to advance such management, including for conservation and reforestation
 - 15.c. Enhance global support for efforts to combat poaching and trafficking of protected species, including by increasing the capacity of local communities to pursue sustainable livelihood opportunities
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Annex 2: Other thematic strategic and policy documents of Bangladesh

Climate change

Mujib Climate Prosperity Plan

The Mujib Climate Prosperity Plan, recently presented at the 26th UN Climate Change Conference of the Parties (COP26), will be implemented by 2030. The Mujib Climate Prosperity Plan is the world's first so-called climate prosperity plan (CPP). The idea is that other vulnerable countries will follow suit and adopt similar plans.¹¹⁷ Under the MCPP, Bangladesh will enhance resilience, grow the economy, create jobs and expand opportunities, using action on climate change as the catalyst.¹¹⁸

The Mujib Climate Prosperity Plans contributes to the strengthening of macroeconomic management and the realisation of the comprehensive 8FYP.

A. Major goals and policy objectives

Under the MCPP, Bangladesh intends to obtain 30% of energy from renewables by 2030. The MCPP inculcates measures supporting robust delivery of the SDGs and exploring green opportunities, in an effort to meet long-term low greenhouse gas emission development strategies. The plan has a strategic investment framework to mobilise finance for renewable energy and climate resilience activities. Through all its activities, the MCPP aims to uplift Bangladesh to reach MIC states faster.

With regards to renewable energy, investments will be made to develop wind farms along the coast to revitalise the mangrove forests that help stabilise shifting shores, protecting against storms and flooding. Banks will be empowered to offer favourable terms to fossil fuel-free infrastructure projects. And, cooperation with developed countries will be pursued in areas such as green hydrogen.¹¹⁹

The Plan also has the objective of rapid rural transformation and the promotion of sustainable and disaster-resilient agriculture, safeguarding food and water security (e.g., there is a concrete focus on reducing food insecurity during climate shocks).

The MCPP is centred around five themes: (1) the MCPP aims to supplement, but also help accelerate the existing climate policy framework consisting of a long list of policies, including the Bangladesh Delta Plan 2100 and the Forest Investment Plan 2021–2041; (2) the advancement of technology with a specific focus on the exploration of offshore wind energy, and investments in this sector; (3) the construction of “Mujib energy hubs” to ensure the conversion of unclean energy (e.g. fossil fuel plants) to high-tech green hydrogen production plants; (4) the pursuing of global green investment funds for domestic green energy development programs; (5) capacity building of the youth for

¹¹⁷ See: <https://www.v-20.org/our-voice/news/press-releases/vulnerable-economies-call-rich-nations-to-avert-global-climate-covid-economic-threat>.

¹¹⁸ See: <https://cri.org.bd/2021/11/01/all-you-need-to-know-about-bangladeshs-climate-prosperity-plan/>.

¹¹⁹ See: https://www.ft.com/content/67b17114-5503-4db6-a49a-7b8b21355344?accessToken=zwAAAX16vGIQkc9nsXEUVQNNttOkmnuLITVTRA.MEUCIDhRvNLwiBwEII7IZB_H9R5nh7-gDGrV_PDCQO2ABTP4AiEAqqCoC5lx5ZnyMMdy4ta9JhE62pXhAzNzUBxgo7uiQs0&sharetype=gift?token=260f410e-5871-4424-8035-c6285950edeb.

them to become technical professionals. Concretely, the MCPP presents a long list of concrete target milestones and activities that should be undertaken to meet these.

B. Sources of supporting scientific evidence

By investing in resilience and zero-carbon development, the aim is to create about 4.1 m more jobs by 2030 than under the business-as-usual scenario. The plan would prevent up to 6.8 percent of the economic damage that would otherwise come from climate change as well as increasingly uneconomic fossil fuel infrastructure. The benefit to Bangladesh's GDP would be over 850bn USD.¹²⁰

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

Unlike many other sectoral plans, the Mujib Plan is being put forward and promoted by the Prime Minister Sheikh Hasina. The plan is named after her father, Bangabandhu Sheikh Mujibur Rahman, who led Bangladesh's independence struggle 50 years ago.¹²¹ That way, it is presented as a society/economy-wide green growth strategy, carried at the highest political level.

D. Key means and modalities of implementation and main limitations

Huge investment will be needed, but they will pay off. The Mujib Climate Prosperity Plan estimates that investment in resilient pathways, as laid out in the Plan, including energy, water, transportation, supply chains, value chains, etc. will cost at least USD 75 billion until 2030, with incremental gains of over USD 50 billion to be added to GDP versus business as usual, yielding value of over USD 850 billion over ten years. Delaying these investments in infrastructure and adaptive capacity would result in costs and losses of at least 4.9% of GDP by 2030, equivalent to at least USD 30 billion per year by 2030.

Eighth Bangladesh Country Investment Plan for Environment, Forestry and Climate Change

The Bangladesh Country Investment Plan for Environment, Forestry and Climate Change (EFCC CIP for 2016–2020) was a cross-sectoral and whole-of-government investment framework for mobilizing and delivering effective, coordinated, sustainable and country-driven investment programmes in environmental protection; sustainable forest management; climate-change adaptation and mitigation; and environmental governance.¹²²

The Perspective Plan of Bangladesh 2021–2041 (PP 2041)¹²³ is a development strategy presenting policies and programs for Bangladesh to reach high-income country (HIC) status by 2041 with a per capita income of over USD 12,500, entirely in tune with the digital world by 2041 and the complete eradication of extreme poverty. The critical areas in the PP2041 include: human development through quality education and harnessing the demographic dividend; sustainable agriculture for food security and rural development; industrialization, export diversification, and employment generation; sustainable power and energy; innovation economy through fostering ICT and scientific research; building transport and communication infrastructure for sustained rapid growth; managing urban transition; ensuring a sustainable environment while creating a climate-resilient nation in a dynamic delta; and, highlighting unlocking the potential for a blue economy.

¹²⁰ Ibid.

¹²¹ Ibid.

¹²² See: <http://nda.erd.gov.bd/en/c/publication/bangladesh-country-investment-plan-for-environment-forestry-and-climate-change-2016-2021>.

¹²³ <http://oldweb.lged.gov.bd/UploadedDocument/UnitPublication/1/1049/vision%202021-2041.pdf>.

The main goal of the PP2041 is for Bangladesh to reach HIC status by 2041. One of the objectives is to ensure that key natural resources like land, water, forestry, natural habitat and air are used in a manner that avoids their depletion and degradation.

The main focus of the PP2041 environmental management strategy would be to integrate environment and climate change considerations in the growth strategy. So, essentially, under PP2041, Bangladesh will adopt a green growth strategy. The specific strategies, policies and institutional reforms include: (a) Integrating Environmental Costs into the Macroeconomic Framework; (b) Implementing the Delta Plan to Build Resilience and Reduce Vulnerability to Climate Change; (c) Reduce Air and Water Pollution; (d) Removal of fuel subsidies; (e) Adoption of green tax on fossil fuel consumption; (f) Taxation of emission from industrial units; and (g) Prevention of surface water pollution; (h) Geo-spatial data analysis for evidence based decision making. Although the environment typically is a public good, the public sector alone cannot finance it. Innovative solutions must be found to ensure a good division of financing options between public and private sectors. PP2041 will focus on various financing options such as: private financing options, public financing policies, tapping the Green Climate Fund (GCF) and mobilising resources from other global funds.

According to the Perspective Plan, the economic sectors with the most influence on poverty alleviation are agriculture and rural non-farm activities. In this domain, six strategic approaches are called for: (a) Bringing unfavourable agri-ecosystem under productive sustainable agricultural practices; (b) Intensification of crop cultivation in productive agricultural land maintaining sustainability of soil health; (c) Sustainably Intensifying Agricultural Production Systems without bringing new land under cultivation; (d) Increasing Resilience of crop and livestock production systems in the face of climate change; (e) Diversification in agricultural output and livelihoods involving more plant species or varieties, or animal breeds, off-farm activities and employment; and (f) Coping with Uncertainty in Developing Responses due to uncertainty about the scale and eventual nature of adaptation needed to address climate change.

PP2041 will put a strong emphasis on the proper implementation of the Delta Plan. In the next two decades, commercialising agricultural production would be the highest priority.

Climate Fiscal Framework

The Bangladesh Climate Fiscal Framework (CFF) of 2020 is an updated version of the 2014 Framework. It was financed by the Government of Bangladesh and UNDP.¹²⁴ The CFF of 2014 was intended to integrate climate risks in the country's public resource allocation process. It provided the necessary guidelines and tools for embedding the climate dimension in public financial management systems together with the budget-setting process under the Medium-Term Budget Framework.

The CFF provides principles and tools for climate-sensitive fiscal policy-making, helping to identify the demand and supply sides of funds for climate change and ensure that climate-related fiscal policies are transparent and sustainable in the longer term.

Several studies suggest that climate change will have major impacts on the economy of Bangladesh. Despite increased resilience, impacts on GDP growth, investment, employment and government revenues will be particularly pronounced. As these impacts are inescapable, there is a need to integrate them into macroeconomic and budgetary decision-making.

¹²⁴ See: https://www.bd.undp.org/content/bangladesh/en/home/library/environment_energy/bangladesh-climate-fiscal-framework.html.

A. Major goals and policy objectives

Besides fiscal policies such as the tax policy, the value added tax, and subsidies, the updated CFF also focuses on some policies, namely the lending policy and the insurance policy as these are closely linked with the fiscal policies of the government.

The CFF aims to provide incentives and guidance for budgeted and prioritised climate actions as reflected in the existing Medium-Term Budget Framework, including for the estimation of potential costs of long-term financing needs to combat adverse climatic effects. This framework supports the tracking of climate-related budgetary allocations and expenditures and identifies areas of institutional weakness and skills gaps, and on that basis recommend further institutional development and capacity building in the Planning Commission and the Finance Division, aiming to develop long-term expenditure plans in accordance with the BCCSAP, NAPA, NAP, NAMA, Country Investment Plan for Environment, Forestry and Climate Change (CIP-EFCC) for 2016–2020, Implementation Roadmap for NDC, Bangladesh Delta Plan (BDP) 2100, and other climate change policy and planning documents.

The CFF will integrate the climate change factor into macroeconomic policy by looking at four areas: (1) the supply of climate finance; (2) climate-sensitive fiscal policies; (3) development planning and financing; and (4) financial sector policies.

B. Sources of supporting scientific evidence

For this update of the CFF, a desk review of international conventions, protocols and agreements together with national climate change-related policies, plans and strategies was conducted. For instance, the CFF is scientifically based on evidence from the UNFCCC. It relies on the Climate Risk Index (CRI, 2019), amongst other sources of evidence. Furthermore, an in-depth review of fiscal policies (prices, taxation, and subsidies) and their role in economic development of Bangladesh, and of annual development programmes was conducted.

The Bangladeshi government understands climate change as having a significant impact on its economy, hence the need to integrate it into macroeconomic and budgetary decision-making. Forecasting studies have been done by the Bangladesh Bureau of Statistics, the World Bank and the Asian Development Bank.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

The methodology for updating the CFF included a review of the existing strategic documents adopted by the Bangladeshi government wherein resource requirements and potential sources have been identified. This was followed by a review of the policies governing the fiscal and financial sectors to determine to what extent they are amenable to responding to climate change and to identify opportunities for making them climate-sensitive. Finally, the framework reviewed the arrangements governing public finance and identified the entry points for the climate change agenda within the various stages of the public financial management cycle. The updated CFF has been built around the assumptions that loss and damage due to climate change impacts will continue to increase, which will require raising additional funds for adaptation; and that climate investments will not only reduce the vulnerability of the affected communities but also ensure their broader wellbeing.

The updated climate fiscal framework broadens its remit to include the role of private sector, NGOs and CSOs in an attempt to make it more citizen-centric and thereby raise its profile. There is also the assumption that climate investments will not only reduce the vulnerability of affected communities, but also ensure their broader wellbeing.

D. Key means and modalities of implementation and main limitations

While updating the CFF, all key national planning documents were consulted to put the framework on the right premise. However, in the meanwhile, the government has embarked on the preparation of 9th FYP, Vision 2041, and has been formulating the new BCCSAP and the NAP. Since these plans and strategies are yet to be finalised, it was not possible to capture here the priorities set out in these documents in relation to climate finance.

National Solar Energy Roadmap

The National Solar Energy Action Plan, for 2021–2041,¹²⁵ submitted in 2020, was realised under the framework of the Development of Sustainable Renewable Energy Power Generation (SREPGen) project. The document assists with the framing of a long-term vision for the national solar energy sector, while setting achievable capacity targets. Furthermore, it supports outlining the broader strategies required to achieve those targets. After presenting three implementation scenarios, the Action Plan advocates in favour of these cases, backs one particular selection, and delineates a few general as well as specific and time-bound measures that will be necessary to achieve that target by the year 2041 (NDC Bangladesh, 2021).

Based on the Roadmap, Bangladesh will opt for solar energy technologies, especially solar photovoltaics in the coming decades. In order to achieve the targets, actions by the government should be undertaken on five major themes. These are: (a) policy framework, (b) power system infrastructure, (c) supply chain, (d) financing, and (e) demand and capacity building. In order to successfully drive the energy transition, equal attention and effort must be put into each of these aspects.

The roadmap presents three future solar energy implementation scenarios developed against the base case, which is basically the business-as-usual course. It also elaborates the methodology adopted in formulating the cases. For instance, according to the medium and high implementation scenarios, by the end of 2041 the cumulative solar photovoltaic capacity will be 25GW and 40GW respectively. Keeping in mind the aspiration to favour renewables, the high implementation case is advocated for in the roadmap. The scenarios are developed based on existing and developing technologies which are known today and do not consider the possibility of entirely new or unknown technologies emerging.

The roadmap should be considered as a preliminary guideline only. The viability of each of the scenarios discussed and the recommended actions, especially in terms of financial resources, should be further investigated in detail.

The case for large-scale solar photovoltaics has been established throughout the Action Plan as these are most suitable for reaping the benefit of economies of scale. However, the scarcity of suitable land is seen as one of the most critical barriers for large scale solar power plants in Bangladesh. Therefore, the land issue has been discussed in detail in the roadmap. A number of prospective locations across the country are identified and a feasible capacity limit is recommended for the respective locations.

¹²⁵ See:

http://www.sreda.gov.bd/sites/default/files/files/sreda.portal.gov.bd/notices/fba98896_568a_4efd_a48b_8d92bfc04049/2020-10-22-17-12-7b0e5a0c0dabd4c17492bcf3bd7488b4.pdf.

National Action Plan for Clean Cooking in Bangladesh

In Bangladesh, as of 2018, almost 80 percent of households (of a total 35 million households) lacked access to clean cooking alternatives. This includes both rural and urban areas. According to the World Health Organization, over 70,000 people in Bangladesh die annually from diseases related to indoor air pollution. Moreover, excessive reliance on fuelwood and burning of biomass continue to contribute to deforestation and other climate challenges in Bangladesh. Despite multiple environmental, health and economic effects, rural households are reluctant to switch to cleaner cooking technologies due to social, economic and cultural factors such as lack of awareness, affordability, and preferences to a certain taste and texture of the meals, amongst others. Yet, the current landscape of Bangladesh can offer a conducive market for clean cooking technologies, driven by increasing incomes, urbanisation, and favourable government support.¹²⁶

The National Action Plan for Clean Cooking in Bangladesh for 2020–2030 is currently under development by the Sustainable and Renewable Energy Development Authority (SREDA). It will be an updated version of the 2013 Bangladesh Country Action Plan for Clean Cookstoves (CAP).¹²⁷ The new Plan will identify key barriers to the large-scale adoption of clean cookstoves and fuels, the desired outcomes if these barriers are removed, as well as potential intervention options and mechanisms for quickly and effectively taking action.

A. Major goals and policy objectives

The plan aims to achieve 100 percent clean cooking access by 2030 and posits a total investment requirement of USD 2.9 billion over the next 10 years (current market penetration represents just 3% of the target potential, indicating the scale of the challenge and the critical need for a more coordinated, innovative and integrated approach). This includes USD 0.86 billion in public and private sector investments and USD 2.01 billions of consumer expenditure financing.¹²⁸

B. Sources of supporting scientific evidence

Under a business-as-usual scenario, 30 percent of Bangladeshi households will continue to rely on biomass for fuel in 2030. There is a need to steadily redesign the existing policy and financing framework to achieve the vision of zero biomass use by 2030.

C. Indications of the degree of buy-in and coordination amongst different actors underlying the strategy, and of political relevance and feasibility

Stakeholders have incorporated their thoughts and understanding and have tailored this CAP for Bangladesh's cookstoves and fuels market, social customs, infrastructure and for the task of combating challenges like deforestation, indoor air pollution, and so forth. The magnitude of required investments (see above) necessitates a well-integrated national energy access plan to ensure coordination across private and public capital providers and sectors and a diverse range of technologies.

¹²⁶ See: <https://www.seforall.org/system/files/2020-12/EF-2020-UL-Bangladesh-SEforALL.pdf>.

¹²⁷ See: <https://cleancooking.org/wp-content/uploads/2021/07/235-1.pdf>. The 2013 CAP focused predominantly on the removal of existing financing barriers by enabling access to capital by small and medium-sized enterprises (SMEs), promoting access to climate funds (such as GCF), leveraging government funds to finance women led businesses in the sector and lobbying for additional financing options from international donors at lower rates. However, the results have shown mixed success. See: <https://www.seforall.org/system/files/2020-12/EF-2020-UL-Bangladesh-SEforALL.pdf>.

¹²⁸ See: <https://www.seforall.org/system/files/2020-12/EF-2020-UL-Bangladesh-SEforALL.pdf>.

D. Key means and modalities of implementation and main limitations

The new Action Plan for Clean Cooking should promote innovative business and financing models, given the magnitude of financing needed, while ensuring an enabling environment with easy access to supply- and demand-side financing. This has all been an impediment under the 2013 CAP.¹²⁹

Forest Investment Plan

Deforestation is a major problem in Bangladesh: between 2011 and 2019, the country lost 9 percent of its tree cover (global average of 9.2 percent) equivalent to more than 65Mt of CO₂ emissions.¹³⁰ Bangladesh is one of the selected countries to benefit from the Forest Investment Programme (FIP) of the Climate Investment Funds (CIFs) for the period 2017–2022.¹³¹ The plan has been prepared under the project Strengthening the Environment, Forestry and Climate Change Capacities of the Ministry of Environment and Forests and its Agencies (MoEF Support Project) funded by the United States Agency for International Development (USAID) and with technical assistance from the Food and Agriculture Organization of the United Nations (FAO).¹³²

Food security and nutrition

Second Country Investment Plan

The Second Country Investment Plan (CIP2) for 2016–2020 is the main tool the Government of Bangladesh has to harness additional financial resources from external partners to achieve food-related SDGs. It is intended to integrate actions from across ministries and policy sectors, help align all financial resources with the objectives of the plan, and avoid gaps in the financing of those actions. As for the NFNSP, the Bangladeshi government received technical support from FAO's Meeting the Undernutrition Challenge (MUCH) project and financial support from USAID and the EU to develop this Plan. Indicators from the SDG and seventh Five Year Plan (7FYP) results frameworks were integrated in its monitoring and evaluation mechanism, with baseline, targets and verification sources. Targets of the 7FYP are for 2020, those from the NPAN2 for 2025, and those from the SDGs for 2030.

Dhaka Food Systems programme for a strategic Food Agenda 2041

Local governments of Dhaka Metropolitan Area have engaged in forward-looking food governance processes since at least 2015, as Dhaka was one of the 148 signatories of the Milan Food Policy Pact. Through the NADHALI project, they have worked together with FAO, RUAF and other partners to develop innovative, holistic approaches to achieve sustainable food systems in the urban area of Dhaka (which comprises four cities, Dhaka North, Dhaka South, Narayangaj, and Gazipur). The project, which ran from 2016 to 2018 aimed to create a common understanding and a strong foundation for developing food system strategies and mobilising resources for developing implementation plans.

There is not yet a long-term strategy for food security in Dhaka, but building on the NADHALI project, the city corporations that form the local governments of Dhaka Metropolitan Area and the Ministry that deals with local governments have commissioned a project to improve urban food policy planning. *'With interactive models,*

¹²⁹ For more details, see: <https://www.seforall.org/system/files/2020-12/EF-2020-UL-Bangladesh-SEforALL.pdf> (page 8 onwards).

¹³⁰ See: Global Forest Watch, 2020. <https://www.globalforestwatch.org/>.

¹³¹ See: https://bforest.portal.gov.bd/sites/default/files/files/bforest.portal.gov.bd/notices/e24e37f4_3101_4cde_921c_bf898a2b716d/FIP_Report_Draft_09.10.17.pdf.

¹³² See: <http://nda.erd.gov.bd/en/c/news/bangladesh-launches-worlds-first-country-investment-plan-to-tackle-challenges-to-environment-forestry-and-climate-change>.

stakeholders will be able to work on future policy scenarios and decide on interventions.' A strategic Food Agenda for a period running until 2041 is one of the envisaged outcomes of this project.

The Embassy of the Kingdom of the Netherlands has financed the five-year project Support for Modelling, Planning and Improving Dhaka's Food System, with USD12.5 million over the period 2019–2023. This project covers the topics of agricultural production, consumer behaviour, the rural economy, logistics, spatial planning and the environment, and impact assessments.

A. Major goals and policy objectives

The main aim of the project is to improve the food system and to increase access for all inhabitants of Dhaka to affordable and qualitatively good food.

B. Sources of supporting scientific evidence

The project provides expertise to build models enabling the creation of long-term scenarios that can inform policy decisions. As expert Peter Verweij said, *'scenario studies using accurate data help to know where and how to solve [food system issues] with new infrastructure'*; *'having such local spatial data and working on them with local stakeholders makes the food system approach very tangible'*.

C. Buy-in and coordination; political relevance and feasibility

The city corporations that form the local governments of Dhaka Metropolitan Area and the Ministry that deals with local government have commissioned the project, signalling a strong local ownership and indicating that the resulting scenarios are likely to inform policies. Under the project, the establishment of a Dhaka food policy council is envisaged, involving city governments, knowledge institutes, civil society organisations and the private sector. This council will advise local governments on the future strategic Food Agenda towards 2041.

D. Key means and modalities of implementation and main limitations

The financial support provided by the Dutch embassy makes the project possible.