Ministry of Foreign Affairs

IOB Evaluation

Climate-smart and Future-proof?

Climate change adaptation in water and food security programmes funded by the Netherlands

November 2023

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Photography

Cover: ©UNDPClimate/Ab Rashid
Severe water shortages occur during yearly droughts in the region of Bangladesh.

Ch 1: ©UNDPClimate/Ab Rashid
Woman sits in front of her house in a flooded area of Bangladesh, where thousands of people lose their homes and land every year due to storms and floods.

Ch 2: ©FAO/IFAD/WFP/Eliza Deacon
A small scale farmer prepares trench excavation and fertilization on a grape production project in Tanzania.

Ch 3: ©UNDPMalawi
A man washes his hands. Although Malawi is covered by surface water for 20%, many lack access to clean water.

Ch 4: ©Jeffrey Barbee/TRF
Farmer in Mozambique talks to an advisor from a project for irrigation and climate resilience.

Ch 5: ©Carel de Groot
Boy washes himself in Korail, an area of Dhaka often subjected to excessive rainfall, flooding and heat.

Ch 6: ©FAO/Cassio Dimande
Market in Cabo Delgado, Mozambique, where agricultural inputs and training were provided to the Nacuta Host Community.

Annexes: ©Carel de Groot
Water pots near a pump in the Noakhali district in South Bangladesh.

Executive summary

Climate change is threatening the lives and livelihoods of people around the world. Poor countries and marginalised communities, especially women and children, are particularly vulnerable to the negative effects of climate change. To ensure that the benefits of investments in development cooperation are sustainable for these countries and communities, it is important to take changing climatic conditions into account. While this applies to almost all aspects of human development, it is particularly true for water and food security programmes. Changing temperatures, precipitation patterns, rising sea levels and storms are already affecting crop cycles, yields and (drinking) water availability. There is an urgent need to adapt water and food security programmes to these changing circumstances.

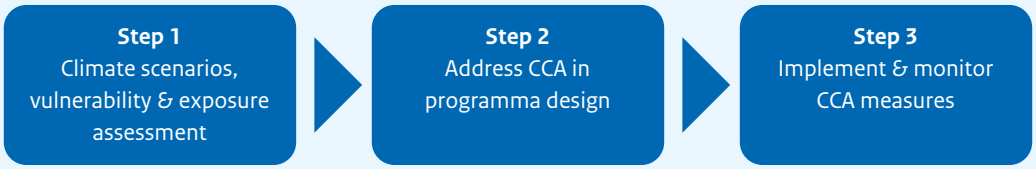
The main aim of this evaluation is therefore to examine how climate change adaptation (CCA) is being integrated into the water and food security programmes funded by the Netherlands, and whether this is already producing results in terms of reduced exposure and vulnerability. The key research question is:

> How is climate change adaptation being integrated into Dutch water and food security programmes, and how has this reduced risks for people vulnerable to (the effects of) climate change?

Under this key research question, four elements are examined: (1) the application of a climate lens (see below); (2) the alignment with domestic adaptation policies and national ownership; (3) the link to the needs of marginalised groups; and (4) the effectiveness of adaptation measures. The evaluation used a case study design that combined fieldwork in Bangladesh and Mozambique with a systematic review of 19 water and food security programmes in both countries. All these programmes have a Rio marker on climate change adaptation of the Organisation for Economic Co-operation and Development (OECD), and are reported by the Netherlands as climate-relevant disbursements to the United Nations Framework Convention on Climate Change.[1] The main findings and recommendations are summarised below.

Limited application of a climate lens

To make development programmes climate-proof, the Ministry of Foreign Affairs (MFA) promotes the use of the OECD 'climate lens'. This lens consists of three steps: (1) analysing the impact of climate change on affected countries and communities; (2) designing adaptation strategies; and (3) implementing and monitoring adaptation measures.



For most programmes, the evaluation finds that *step 1* remains rather general, mentioning rising sea levels, droughts, floods and/or cyclones, without taking into account a longer time span, without tailoring this information to local realities, and with little information on vulnerability and exposure. For *step 2*, this often results in reactive and rather abstract strategies, without offering a clear explanation of who the target groups are or explaining how interventions are supposed to reduce their vulnerability and/or exposure to climate change. Looking at *step 3*, the evaluation found that in many cases implementation is limited and difficult to track, which is directly related to the observation that strategies often remain abstract.

Only half of the programmes take substantial action on CCA

Depending on how well each step of the climate lens is applied, programmes can be classified on the CCA scale as developed by this evaluation (see table below).

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[1] The Rio marker gives a score of either principal or significant. Principal: The activity would not have been funded in the absence of the explicit climate objective; 100% is reported as climate finance. Significant: The climate objective is explicit but not the main driver of the activity; 40% of the support is reported as climate finance.

CCA label	Description	Score step 1	Score step 2	Score step 3	Risk of future negative impacts
Maladaptive	The programme increases exposure and/or vulnerability	-	-	-	Highest
Blind	The programme does not take exposure and/or vulnerability into account	0	0	0	High
Sensitive	The programme addresses exposure and/or vulnerability in its design, but less in its implementation	+	+	0	High
Responsive	The programme addresses exposure and/or vulnerability in specific actions	+	+	+	Medium to low
Transformative	The programme addresses the root causes of exposure and/or vulnerability	++	++	++	Lowest

Due to the limited application of the climate lens, about half of the programmes are given a score of either 'CCA blind' or 'CCA sensitive'. For these programmes, it cannot be verified that they substantially address CCA. This is problematic because they are reported by the Netherlands as climate finance. This situation is partly caused by OECD's marker allocation system, the criteria of which are relatively light. The application of the climate lens is not mandatory, but is only recommended as a best practice, and mainly for justifying a 'principal' score. Other explanations are the general complexity of providing and interpreting long-term and downscaled climate projections, and limited capacity (time, expertise and FTEs) at the MFA in The Hague and at embassies. It is positive, though, that there is a learning curve for some of these programmes. They started without any notion on CCA but developed an understanding along the way.

The other half of the programmes are given the label 'responsive', meaning that they can be shown to be addressing CCA. Several of these programmes have undertaken a more thorough analysis of climate change, exposure and vulnerability, which has enabled them to design and implement a more comprehensive/systemic approach with several types of strategies at different levels (e.g. climate-resilient infrastructure, capacity strengthening, governance change and behaviour change). Some are even potentially 'transformative', but they would need to integrate a longer-term perspective for this to actually happen.

The following are recommended to address the problem of the limited application of the climate lens:

- Provide guidance for MFA staff on the application of the climate lens during the tender phase and/or integrate it in the quality-at-entry process to ensure that programme proposals adequately integrate CCA prior to the appraisal stage. This approach can be applied to the whole development portfolio given the pervasiveness of climate change. Where a climate lens is not applied, policy programmes or project proposals should at least include an argument as to why CCA is less relevant.
- Go beyond the programme level, and apply a climate lens at the policy level to make strategic decisions for countries/regions and types of programmes to focus on, both at central and decentral level (in Multi Annual Country Strategies).
- Provide support in applying a climate lens to development programmes. The setup of a task force, similar to the task force for women's rights and gender equality, is an option for helping various departments of the Directorate-General for International Cooperation in the complex process of integrating CCA. This task force can also assist implementing partners, as they are key to CCA integration.
- Use existing climate scenarios, as producing detailed climate scenarios is highly complex and not every programme or embassy can carry out such an analysis. Based on this information, development programmes can conduct long-term vulnerability and exposure assessments.
- If necessary, and only if there is a robust overall CCA analysis, use an inception phase to further elaborate CCA in programmes. Contextualised vulnerability and exposure analyses can take more time, especially if they promote participation and ownership.
- Make the application of a climate lens mandatory for programmes with a Rio climate adaptation marker (both significant and principal). Remove the marker if programmes do not comply after an inception phase or mid-term review (MTR). In addition, the climate diplomacy team can lobby the OECD to make the climate lens mandatory in their requirements.

Most programmes score medium to high on promoting national ownership

The evaluation found that national ownership of development programmes is generally high in Mozambique and medium to high in Bangladesh. In many cases, national, regional and/or local government entities are involved, or are part of the programme, and as such are in a position to actively pursue national priorities. A demand-driven and inclusive approach with transferral of responsibilities to domestic actors is important to create ownership. At the same time, the research found that government agencies do not always have the appropriate capacity to take on these responsibilities and exercise ownership.

Alignment with (sub)national adaptation policies is stronger in Bangladesh than in Mozambique

Alignment of the selected programmes with adaptation policies is generally good in Bangladesh. In Bangladesh, a solid national policy framework with strong government support helps to establish links with adaptation policies. While some of the selected programmes in Mozambique make a clear link with adaptation policies, for many this link remains implicit. Links are made to various national policy documents without mentioning adaptation policies. Given the limited coordination between different ministries in Mozambique, it remains unclear whether such a link automatically implies a link to adaptation policy. Despite the emphasis on local adaptation planning in Mozambique, only one programme (the Beira Master Plan) is clearly linked to local and/or regional adaptation plans.

The following are recommended to improve national ownership and alignment:

- Continue to work with domestic governmental actors and listen to their needs.
- Support government agencies in attaining appropriate capacities to carry out their responsibilities. In particular, strengthen the capacity of domestic actors, such as meteorological agencies, to produce, process and interpret long-term and localised climatic projections and make this information available to a wide range of actors.
- Actively link with national and/or regional adaptation plans. Supporting the development and implementation of national plans, as has been done with the Beira Master Plan and the Bangladesh Delta Plan, is also a good option.

Limited inclusion of marginalised groups

Most programmes struggle to reach and involve the most marginalised groups. The main reason for this conclusion is that a pro-poor and gender-sensitive approach to CCA lags behind in both design and implementation. It lags behind in design because vulnerability and exposure analyses (step 1) are absent or limited and, when they are conducted, they are often not linked to gender analyses.

It lags behind in implementation for several reasons. First, many CCA solutions are not tailored to the knowledge and means of the most marginalised groups. Often the solutions are too expensive and/or too complex for them. While such solutions can be applied to more advanced groups, this does not help the most marginalised, as the trickle-down logic does not work. Second, marginalised groups often live in vulnerable locations and suffer from compounded risks that put them further behind. Third, related to this, it is more costly and difficult to reach the most marginalised groups. For reasons of efficiency, and/or a desire for 'tangible' results, programmes sometimes focus on groups that are (somewhat) better off. Fourth, the evaluation found limited use of the participatory approach needed to include marginalised groups at various stages of the programme.

Application of the climate lens helps to include marginalised groups

A few of the more comprehensive programmes that perform better in applying the climate lens are also better at reaching and including marginalised groups. Involving marginalised groups in the application of the climate lens was found to be good for the adoption and scaling up of CCA practices. Addressing immediate needs and (recent) climatic shocks in the process was also found to be a good short-term entry point for developing long-term CCA capacity. Finally, implementing gender analysis findings was found to increase the participation of women.

The following are recommended to improve the inclusion of marginalised groups:

- Use exposure and vulnerability assessments to identify the most marginalised groups and their specific risks of being adversely affected by climate change. Link these analyses with gender analyses. Involve marginalised groups when making these analyses.
- Implement an approach that emphasises participation and ownership, as these are important enabling conditions for the adoption, scaling up and sustainability of CCA practices. Such an approach requires:
  i. a long-term approach to building relationships and trust;
  ii. time to embed programmes in the local context and meaningfully involve marginalised groups in the process. This could be done as part of an inception phase; and
  iii. flexible results frameworks to be able to incorporate local knowledge and needs.
- Ensure that CCA solutions are affordable and suitable for marginalised groups.
- Use immediate needs and experienced shocks as an entry point for developing further CCA capacity.
- Target marginalised groups directly, do not rely on trickle-down logic, and do not let return-on-investment logic and a drive for short-term results interfere with including the most marginalised groups. Combined approaches are also possible, focusing partly on groups where greater gains can be made (e.g. semi-commercial farmers), combined with groups that are lagging behind (e.g. subsistence farmers).

Little is known about the effectiveness of CCA measures

It is not easy to determine the effectiveness of CCA measures: information on risk reduction through increased resilience and/or reduced exposure is almost universally lacking. The main reasons for this are limited attention for CCA, lack of monitoring and evaluation systems for CCA, difficulty in distinguishing between CCA and 'mainstream' development results, and in some cases, the unfinished nature of the programme. While these reasons clearly point to lower effectiveness, there is also a strong possibility of underreporting, making it difficult to come to a final judgement. Several of the more comprehensive programmes report some positive short-term results in terms of reduced vulnerability (e.g. increased yields and incomes) and reduced exposure (communities able to withstand the impact of extreme weather). At the same time, these programmes conclude that their efforts are insufficient to prepare vulnerable countries and groups for the negative effects of climate change. Based on the fieldwork, this conclusion can also be drawn for Bangladesh and Mozambique. Despite many CCA efforts (in general, not specifically those supported by the Netherlands) examples of loss and damage were found everywhere, underscoring the need to step up efforts.

The following are recommended to improve (insight into) the effectiveness of CCA measures:

- An ambitious CCA policy would require the new cabinet to provide additional climate finance to developing countries, as labelling existing ODA as 'CCA relevant' does not cover the additional needs arising from climate change.
- Conduct proper climate, vulnerability and exposure analyses to design and implement comprehensive approaches that:
  i. are context-specific to be relevant
  ii. are flexible to remain relevant
  iii. Have a long-term focus to avoid maladaptation
  iv. strengthen ownership and participation for sustainability and scale-up
- Not all programmes need to cover all types of strategy and (governance) levels. Programmes can choose to occupy a niche. However, to remain coherent with other efforts, they need to be linked to a balanced and coordinated approach at a higher level, e.g. a comprehensive Delta Plan.
- For each type of strategy, the following lessons from the evaluation should be taken into account:
  i. Nature-based: Fundamental to the conservation of natural resources on which many communities depend for their livelihoods. Good no-regret solution in cases of uncertainty.
  ii. Infrastructural: Important for adaptation but avoid pitfalls of maladaptation, corruption, environmental and social issues, maintenance and lock-in effects.

   iii. Technological: For effective application, technologies need to be tailored to target groups in terms of available knowledge and resources for use, maintenance and repair.
   iv. Knowledge: Good low-risk intervention for building up absorptive capacity. More effective when linked to concrete implementation and when combined with local knowledge.
   v. Political/institutional: Governance changes provide an enabling architecture for sustainability and for achieving the necessary scale of CCA strategies in the future.
   vi. Economic/financial: Especially important for strengthening people's resilience. The main dilemma is how to include the most marginalised groups, as 'trickle-down' logic does not work.
   vii. Social/behavioural: Link behaviour change to immediate needs and actually experienced shocks, as these catalyse the adoption of new practices.
- Introduce M&E systems that can track (long-term) CCA results in terms of reduced exposure and increased resilience. Use the climate lens to identify such context-specific results. Avoid centralised quantitative indicators. Consider using qualitative data and/or basket indicators instead.

1 Introduction

1.1 Rationale for integrating climate change adaptation

Although the negative impacts of climate change affect people all over the world, vulnerability to these impacts is very unevenly distributed. The latest report of the Intergovernmental Panel on Climate Change (IPCC)[2] reaffirms that 'vulnerability is higher in locations with poverty, governance challenges and limited access to basic services and resources, violent conflict and high levels of climate-sensitive livelihoods (e.g. smallholder farmers, pastoralists, fishing communities)' (IPCC, 2022, p. 12). Many of the countries and communities that have contributed least to climate change are the most vulnerable to its increasingly severe impacts, such as droughts, floods, storms and rising sea levels. As early as 2007, the United Nations Development Programme (UNDP) warned that climate change is having a devastating impact on the world's poor, even threatening to reverse development gains already achieved (Dervis, 2007). Current discussions on loss and damage underline this point by acknowledging that some effects of climate change are already beyond adaptation, and that the most vulnerable communities will continue to suffer the most (Bhandari, Warszawski, Cogan, & Gerholdt, 2022).

To safeguard the development gains of the past and coming decades, the 2015 Paris Agreement on Climate Change stresses the need to integrate climate change adaption (CCA) into development cooperation. It commits its signatories to implement adaptation measures and contains a pledge by high-income countries to support low-income countries through the provision of climate finance. From 2020

[2] The IPCC is an independent body founded under the auspices of the World Meteorological Organization and the United Nations Environment Programme (UNEP). Its aim is to synthesise the available knowledge on the climate, climate change and their impacts.

onwards, this should amount to USD 100 billion annually for both mitigation and adaptation. At the 2021 Climate Adaptation Summit hosted by the Netherlands, UN Secretary-General António Guterres called for 50% of this amount to be spent on adaptation.[3] While adaptation planning is increasing, funding and follow-up are lagging behind. Funding is lagging behind due to rapidly increasing adaptation costs, which continue to outpace the rise in adaptation financing (UNEP, 2022). Follow-up is lagging behind due to the complexity of integrating CCA, as each thematic area and context requires different adaptation measures. Due to the slow progress on both fronts, the latest IPCC report on adaptation states there is 'a rapidly narrowing window of opportunity to enable climate resilient development' (IPCC, 2022, p. 30).

Given this context, it is important to see how the Netherlands is integrating CCA into its development cooperation portfolio. As a party to the 2015 Paris Agreement, the Netherlands is committed to delivering its 'fair share' of climate finance, which it estimated at EUR 1.25 billion annually from 2020.[4] The Policy and Operations Evaluation Department's (IOB) evaluation of Dutch climate finance for development concludes that the Netherlands is on track to meet this commitment (IOB, 2021). At the same time, little is known about how this translates into concrete adaptation activities and results in developing countries. Therefore, this evaluation looks at how CCA is integrated into Dutch development cooperation, how and to what extent it addresses the needs of the most marginalised groups, how it involves partner countries and what can be concluded about its effectiveness. Within its international climate policy, the Netherlands has focused on a limited number of topics related to Dutch expertise, e.g. the water, food and agriculture sectors. As a result, most of the programmes with a Rio Climate Adaptation marker focus on water and food security issues, and this will also be the focus of this evaluation. However, the findings may also inform the integration of CCA into other types of programmes (e.g. health or private-sector development [PSD]). As this evaluation is a building block for the periodic review of the Dutch climate policy for development (scheduled for 2024), it covers the period 2016-2022.

1.2 Conceptual framework

1.2.1 Climate change adaptation

In the field of climate change, the two main concepts are climate change mitigation (CCM) and climate change adaptation (CCA). Mitigation involves measures to prevent climate change by reducing the emission of greenhouse gasses (GHG), for instance by promoting the use of renewable energy and sustainable forest management. Initially, most of the international attention focused on mitigation. However, the concept of adaptation has gained prominence as it has become clear that the effects of climate change are already upon us and that we need to adapt to its negative impacts. The IPCC defines CCA as follows:

> 'Adaptation is defined, in human systems, as the process of adjustment to actual or expected climate and its effects in order to moderate harm or take advantage of beneficial opportunities. In natural systems, adaptation is the process of adjustment to actual climate and its effects; human intervention may facilitate this.' (IPCC, 2022, p. 5)

The IPCC defines several types of adaptation. It can be either anticipatory or reactive; before or after negative impacts have occurred. Ideally, CCA in development policy should be anticipatory. However, as the impacts of climate change are already upon us and our response is lagging behind, it is at least partly reactive. It can also be incremental or transformational, involving small changes or fundamental systemic shifts. Given the enormous challenges, transformational change is seen as the most viable option (Bours, McGinn, & Pringle, 2014). Transformational change can be defined as crossing thresholds into new development trajectories, for instance by using crises as windows of opportunity for novelty and innovation (Folke et al., 2010). Finally, adaptation can be autonomous/spontaneous or planned. From a policy perspective, adaptation should always be planned. At the same time, policy should be aware of autonomous adaptation patterns in natural and/or human systems (e.g. shifting migration patterns), and address, harness or mitigate them as they occur.

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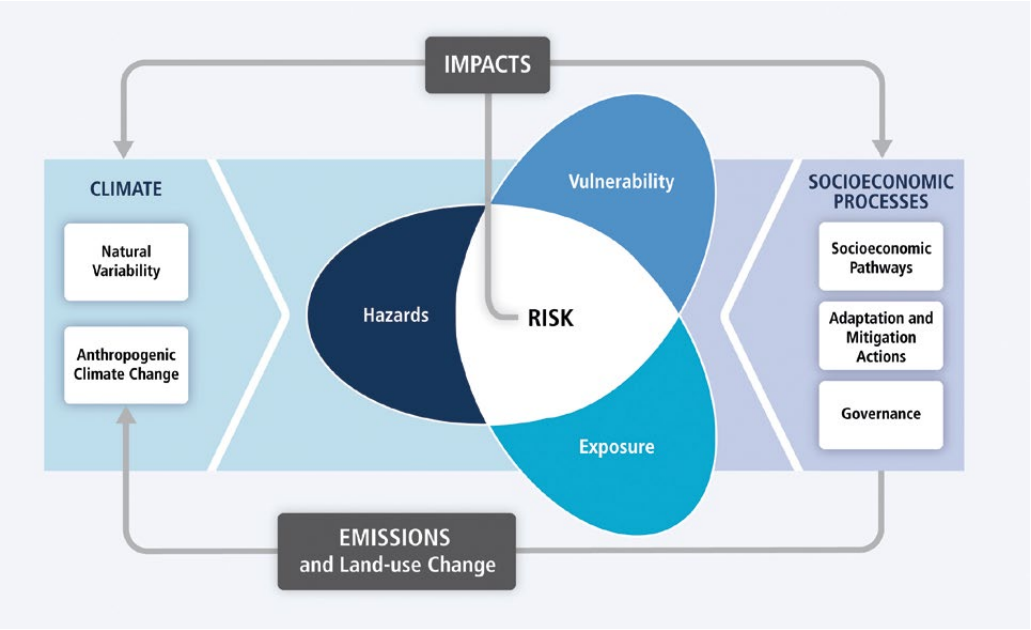
3 https://unfccc.int/news/antonio-guterres-50-of-all-climate-finance-needed-for-adaptation.

4 The latest policy note on foreign trade and development cooperation (Do what we do best, 2022) estimates this figure at EUR 1.8 billion in 2025.

1.2.2 Risk, exposure, resilience and vulnerability

The concept of CCA is often analysed in conjunction with the concepts of risk, exposure, resilience and vulnerability (IPCC, 2022). Box 1 provides the IPCC definitions of these concepts, some of which overlap and remain rather abstract. However, by combining them in a conceptual model, it is possible to get a sense of how they relate to each other and use them in our research. The key concept is risk, which is the propensity of adverse consequences for human or natural systems as a result of climate change, be it gradual changes such as rising sea levels and temperatures, or extreme events such as droughts, floods and storms. According to the IPCC, risk is a function of natural hazards, exposure and vulnerability (see Figure 1).

Figure 1: Determinants of risk



Source: IPCC WGII AR5 SPM Fig 1

Box 1: Definitions of key concepts

Key risk

Key risks have potentially severe adverse consequences for humans and social-ecological systems resulting from the interaction of climate-related hazards with the vulnerability of exposed societies and systems.

Exposure

The presence of people, livelihoods, species or ecosystems, environmental functions, services and resources, infrastructure, or economic, social or cultural assets in places and settings that could be adversely affected.

Resilience

The capacity of interconnected social, economic and ecological systems to cope with a hazardous event, trend or disturbance, and to respond or reorganise in ways that maintain their essential function, identity and structure. Resilience is a positive attribute when it maintains the capacity for adaptation, learning and/or transformation.

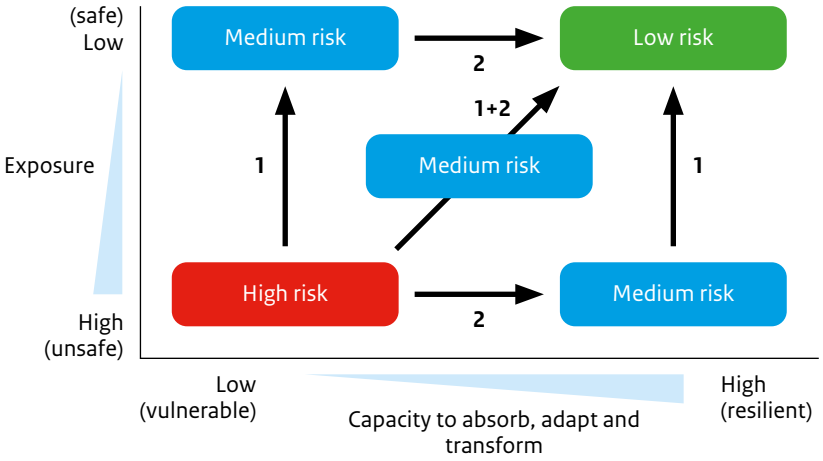
Vulnerability

The propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt.

Source: IPCC, 2022: Annex II: Glossary

Mitigation strategies mainly aim to reduce key risks by preventing (further) climate change, which should reduce the (increase in) the number of natural hazards. Adaptation strategies are implemented in a context where climate change hazards are unavoidable. They aim to mitigate risk by reducing (1) exposure and (2) vulnerability to these hazards (see Figure 2). Exposure refers to the likelihood that something in a given location will be affected by natural hazards. This 'something' can be many things, such as communities, a drinking water system or an agricultural area. Communities can be exposed to natural hazards if they live in flood plains or in a hurricane-prone area. A drinking water system or an agricultural area near the sea can be exposed to saltwater intrusion caused by drought. Reducing exposure mainly involves tangible aspects, such as relocating communities, building hurricane-proof houses or building barriers against saltwater intrusion.

Figure 2: Risk, exposure, vulnerability and resilience



Vulnerability refers to intangible aspects such as the lack of capacity of people or systems to cope with hazards. Vulnerability is closely related and opposite to resilience: 'The data that are needed to measure resilience are typically the same or in many ways similar to those needed to understand vulnerability' (Alfani, Dabalen, Fisker, & Molini, 2015, p. 2). As a positive trait, resilience is described as the extent to which individuals, households or systems are able to maintain, recover and improve their integrity and functionality after experiencing a shock (IFAD, 2015). This is directly related to the capacity to absorb, adapt and transform (Béné, Wood, Newsham, & Davies, 2012; IPCC, 2022). There are many different approaches to measuring resilience at many different levels, such as measuring household income before and after shocks, or through communities' perceptions of their own resilience (Bahadur & Pichon, 2017). They all face methodological barriers as they use over-aggregated units of analysis and untested assumptions about linkages between shocks and development outcomes (Barrett, Brooks, Quadrianto, Anderson, & Nebsu, 2020). To add to the complexity, climate resilience measurements must be context- and sector-specific and be able to accommodate long time frames and uncertainty about future climate conditions (IDB, 2019). Due to this complexity, this evaluation will inductively relate various programme outcomes to the three categories of resilience (capacity to absorb, adapt and transform).

1.2.3 Poverty, marginalisation and climate risks

Due to high levels of inequality and a lack of social justice, the world's poorest people run the highest risk of being affected by climate change. Research shows that the poor and marginalised are disproportionately exposed (see for instance: Narloch & Bangalore, 2018). Poverty forces them into climate-sensitive livelihoods such as subsistence farming or living in informal settlements (IPCC, 2022). Subsistence farming is easily threatened by incremental changes in temperature and precipitation, causing crop failure and hunger (Coulibaly, Gbetibouo, Kundhlande, Sileshi, & Beedy, 2015). Informal settlements are often located in unsafe areas with unsafe housing where climate change may pose risks through heat waves, floods, storms and disease (Williams, Máñez Costa, Sutherland, Celliers, & Scheffran, 2019). Interrelated patterns of social, political and economic exclusion are also root causes of low resilience. Poor people have limited resources such as networks, economic means and access to political institutions to cope and adapt, let alone transform. This also explains why they are most likely to experience loss and damage from climate change, making addressing the issue a matter of climate justice (Bhandari et al., 2022).

1.2.4 Strategies for climate-proof development

The black arrows in Figure 2 represent the dual aim of integrating CCA into development cooperation: (1) reducing the exposure of marginalised groups, and/or (2) increasing their capacity to absorb, adapt and/or transform. This can be achieved through a wide range of strategies (see Table 1) that can be applied in a variety of sectors.[5] As these interventions are context-specific, integrating CCA adds to the complexity of designing effective development interventions. Area A may need a technological intervention in the water sector (e.g. desalination), while area B may need a financial intervention in the agricultural sector (e.g. weather insurance). It is therefore almost impossible to design standardised solutions and have standardised measures of success (e.g. resilience and exposure). In any case, CCA strategies should include 'rights-based approaches that focus on capacity-building, meaningful participation of the most vulnerable groups, and their access to key resources, including financing, to reduce risk and adapt' (IPCC, 2022, p. 29).

Table 1: typology of CCA strategies

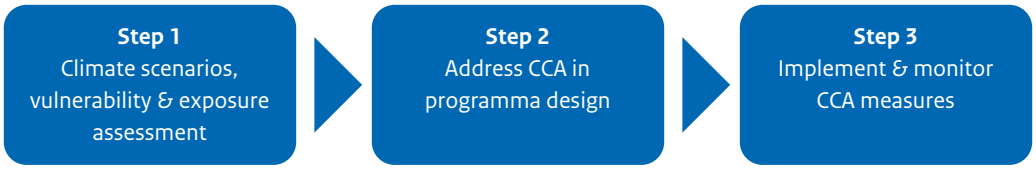
Arena of engagement	Intervention types	Description
Ecological	Nature-based options	Activities that make use of ecosystems and biodiversity as well as sustainable management, conservation and restoration of ecosystems.
Infrastructural	Built infrastructure/ structural	Any new or improved physical infrastructure designed to provide direct or indirect protection against climate hazards.
Technology	Technological options	Development or extension of climate-resilient technologies.
Knowledge	Informational/ educational	Development of human resources, institutions and communities to enable them to adapt to climate change.
Political	Institutional/planning/ policy/ laws/regulations	The creation of new or revised policies or regulations to allow flexibility to adapt to a changing climate.
Economic and financial	Income diversification, financial/market mechanisms	Activities that include income generation, financial transactions or are market driven.
Socio-cultural	Social/behavioural	Activities that include social support and change or behaviour change.

Adapted from: (Biagini, Bierbaum, Stults, Dobardzic, & McNeeley, 2014, p. 104; Doswald et al., 2020, p. 9; IPCC, 2022, p. 31)

1.2.5 Integrating climate change adaptation into development policy

A widely known tool to support the integration of CCA into development is the Organisation for Economic Co-operation and Development's (OECD) Rio marker climate lens (OECD, 2016). This lens divides the process of integrating CCA in development into three interrelated steps: an assessment of the impact of climate change, the translation of the results of this assessment into (a modified) programme design, and finally the implementation and monitoring of CCA measures (see Figure 3). The Ministry of Foreign Affairs of the Netherlands also uses this lens to integrate CCA into its development cooperation programmes.[6] It can be applied at different levels, to make projects, programmes and even entire policy areas climate-proof, following a similar logic. The World Bank provides useful climate and disaster risk screening tools for these different levels.[7] The description of the three steps below focuses on the project/programme level, which is the focus of this research.

Figure 3: Climate change adaptation lens



Source: Adapted from OECD & World Bank

[5] See Doswald et al. (2020, pp. 10-11) and OECD (2016, pp. 11-32) for an overview of concrete strategies per intervention broken down by sector (e.g. water, agriculture and health).

[6] In January 2017, it distributed a guideline for integrating climate-smart actions into development policies and activities titled: Climate-smart = future-proof!

[7] See Methodology | Climate & Disaster Risk Screening Tools (worldbank.org).

Step 1 involves developing and/or using existing climate change scenarios, and exposure and vulnerability assessments, culminating in a climate change risk profile for a development programme. Climate change scenarios provide a sense of how climate change will affect weather patterns and rising sea levels in locations where programmes are implemented. Various online databases provide (sub) national climate change scenarios on which this analysis can be based.[8] Vulnerability and exposure assessments link this information to the goals and target groups of the programme. Exposure assessments show the extent to which people, systems, livelihoods and assets, for example, are located in places and settings that could be adversely affected by drought, floods or hurricanes. Vulnerability assessments show what capacities target groups or systems have and/or lack to absorb, adapt and/or transform to cope with such changing climatic conditions. Taken together, these assessments provide a picture of the risk that a programme and its target groups run to be negatively affected by climate change.

Step 2 involves designing specific interventions to reduce this risk. These can be both measures to reduce exposure and measures to increase resilience. These measures can take many forms, as described in Table 1. Step 3 involves the actual implementation and monitoring of these measures. Just as there is no one-size-fits-all approach for designing adaptation interventions, monitoring & evaluation (M&E) systems for CCA also require tailored methodologies and indicators, both quantitative and qualitative, directed at both process and output/outcome. To be able to adapt to changing circumstances, M&E systems need to be aware of shifting baselines and keep risk assessments up to date. For the monitoring of results, indicators that measure adaptation play an important role in ensuring that interventions are not simply 'window dressed' as adaptation projects (IOB, 2018).

To assess the extent to which programmes integrate a CCA lens, this evaluation created the CCA scale as an adaptation of the gender scale. The gender scale is used for integrating gender into development cooperation by rating programmes on their (lack of) contribution to gender equality.[9] A similar methodology can be useful for integrating climate change adaptation into development. Based on the three steps described above, development programmes can be rated on their contribution to risk reduction in terms of reduced vulnerability (= increased resilience) and reduced exposure to climate change. Table 2 provides an overview of the scale, ranging from CCA maladaptive to CCA transformative.

Table 2: CCA scale

CCA label	Description	Score step 1	Score step 2	Score step 3	Risk of future negative impacts
Maladaptive	The programme increases exposure and/or vulnerability	-	-	-	Highest
Blind	The programme does not take exposure and/or vulnerability into account	0	0	0	High
Sensitive	The programme addresses exposure and/or vulnerability in its design, but less in its implementation	+	+	0	High
Responsive	The programme addresses exposure and/or vulnerability in specific actions	+	+	+	Medium to low
Transformative	The programme addresses the root causes of exposure and/or vulnerability	++	++	++	Lowest

8 See, for instance, Climate Risk Country Profiles | Climate Change Knowledge Portal (worldbank.org).

9 See, for instance, UNFPA (2021), Joint Evaluation of the UNFPA-UNICEF Joint Programme on the Elimination of Female Genital Mutilation: Accelerating Change Phase III (2018-2021), p. 2.

1.3 Evaluation aim and questions

This evaluation aims to identify how climate change adaptation is integrated in water and food security programmes funded by the Netherlands; how and to what extent these programmes relate to (sub)national adaptation policies; how and to what extent they address adaptation needs of the most marginalised groups; and what evidence of effectiveness is available. With this knowledge, the evaluation aims to contribute to policy learning by providing lessons for strengthening and accelerating the process of integrating CCA into Dutch development cooperation. It also has an accountability aim: directed nationally towards the Dutch Parliament and the Dutch public, and internationally towards the United Nations Framework Convention on Climate Change (UNFCCC), and to recipient countries and beneficiaries.

The research is guided by the following key research question:

> How is climate change adaptation being integrated into Dutch water and food security programmes, and how has this reduced risks for people vulnerable to (the effects of) climate change?

This question is broken down into the following sub-questions:

1. **How and to what extent do Dutch water and food security programmes apply a climate change adaptation lens and why?**
   Integrating CCA into development cooperation is complex as it involves many different solutions to many different problems. While there is no one-size-fits-all solution, the three steps for integrating CCA into development programmes can be applied across the board. Therefore, the evaluation uses the CCA scale (see 1.2.5) to analyse how and to what extent Dutch water and food security programmes have integrated climate change adaptation measures into their programming. It also looks at the type of measures that are being implemented.

2. **How does the Dutch policy on integrating CCA into water and food security programmes relate to (sub)national climate adaptation policies and to what extent does it support (sub)national ownership?**[10]
   Dutch CCA policy aims to be relevant to partner countries by aligning with national and/or sub-national policies on climate change adaptation. Therefore, this evaluation aims to see how and to what extent this is the case. It is also important for long-term sustainability to see to what extent domestic government agencies can exercise ownership of adaptation programmes.

3. **How and to what extent does the Dutch policy on integrating CCA into water and food security programmes address the needs of the most marginalised groups?**
   The link between poverty, inequality and social injustice, on the one hand, and vulnerability and loss and damage, on the other hand, has been firmly established. Dutch policy on integrating CCA into development therefore aims to be relevant to the poorest and most marginalised groups. This evaluation aims to determine whether and how these groups are reached and involved, and to what extent CCA measures have been useful to them.

4. **To what extent is it possible to determine the effectiveness of CCA measures in terms of reduced risk (e.g. increased resilience and/or decreased exposure)?**
   Determining the effectiveness of CCA measures is difficult as they anticipate the effects of future climate change. By focusing on trends and disasters that have already occurred, it is possible to get a sense of how effective previous CCA measures have been at reducing exposure and/or increasing resilience. It is also possible to assess intermediate results or conditions for reduced exposure and/or increased resilience. However, it is difficult to determine whether they are actually helping communities to adapt and maintain or even improve their livelihoods in the medium to long term. A counterfactual is also lacking. Many CCA measures are designed to prevent loss and damage, which can be estimated but is difficult to measure.[11]

[10] The original research question as formulated in the ToR did not include the element of ownership, but during the research this emerged as an important topic related to alignment with (sub)national adaptation policies.

[11] See (IOB, 2018, p. 22) for an overview of the methodological challenges in monitoring and evaluating CCA.

1.4 Methods

1.4.1 Research design

This evaluation uses a comparative case study design to explore how CCA is integrated into development cooperation. A case study design is appropriate for understanding real-life phenomena in their natural context. It is particularly suited to answering *how* and *why* questions by providing an in-depth analysis of a case and *how* it relates to its context (Yin, 2009). The *case* serves as the unit of analysis, the choice of which depends on the aim of the research (Ragin & Becker, 1992). For this evaluation, the case is the process of integrating CCA into Dutch development programmes. In the absence of a previous evaluation, the study is exploratory in nature, with both descriptive (how) and explanatory (why) elements. The evaluation includes two country cases: Bangladesh and Mozambique. Both countries are facing major effects of climate change and receive a large share of Dutch development cooperation with a climate adaptation marker. While this is also the case for Ethiopia and Rwanda, Mozambique and Bangladesh were chosen as they show a greater diversity of types of adaptation strategies.[12] For both countries, the research consists of two parts: fieldwork and a systematic review of a strategic selection of (mainly) water and food security programmes (see below). As the scope of the study is limited to two countries and a subset of programmes, the aim is not to generalise findings to all Dutch development programmes. The aim is to generalise the findings to the process of integrating CCA, which means that the findings also provide lessons for other contexts and programmes (e.g. health and PSD).

1.4.2 Description of the fieldwork

The fieldwork sites and programmes were selected to provide a diverse set of climatic contexts covering various water and food security programmes with a Rio marker on climate change adaptation (40%/100%). For Bangladesh, this included visits to programmes such as Blue Gold, the Southwest Area Integrated Water Resources Planning and Management Project (South West for short) and the Sustainable Agriculture, Food Security and Linkages (SaFaL). These programmes operate in the South West delta of the country and were selected because this area is highly vulnerable to the effects of climate change. Blue Gold and South West are Integrated Water Resources Management (IWRM) programmes that focus on resilience to climate change-related events such as floods, cyclones, salination and changing rainfall patterns. SaFaL is a food security programme that addresses salination, cyclones, tidal surges, changing rainfall patterns and droughts. In addition to programme visits, interviews were conducted at various ministries in Dhaka to gather information on the national policy level, in particular the Bangladesh Delta Plan 2100. The evaluation team spent one week in Dhaka and one week in the South West Delta.

The fieldwork involved a variety of data gathering techniques with several groups at numerous sites, including:

- focus group discussions with members of water user groups and farmers' cooperatives at community sites;
- interviews with programme staff and programme beneficiaries (farmers or labourers) on-site;
- interviews and discussions with beneficiaries not related to the programme, mainly buyers and sellers of agricultural produce;
- observations at programme interventions (e.g. pumping station, embankment, inlet gate, irrigation/drainage canal, demonstration plot, collection house, training site and market place);
- meetings with key people working at annexes of the Bangladesh Water Development Board (Ministry of Water), Directorate of Agricultural Extension (Ministry of Agriculture) and Local Government Engineering Department at different administrative levels; and
- in Dhaka, interviews with key persons from the Ministry of Water, Ministry of Agriculture and the Ministry of Cooperatives, which focused on the three programmes visited, other adaptation activities and their relation to the Bangladesh Delta Plan 2100.

In Mozambique, several programmes and sites were visited. The programme on support to inclusive and sustainable agricultural development in the Zambezi Valley (ISA II) was visited near Tete and Angonia. This food security programme aims to make agriculture more climate-resilient in an area affected by rising temperatures, droughts, floods and cyclones. Communities that were part of the Shared Resources Joint Solutions (SRJS) programme around Tete, near the Cahora Basa dam, were also visited.

[12] See Annex B for a more elaborate justification of the country selection.

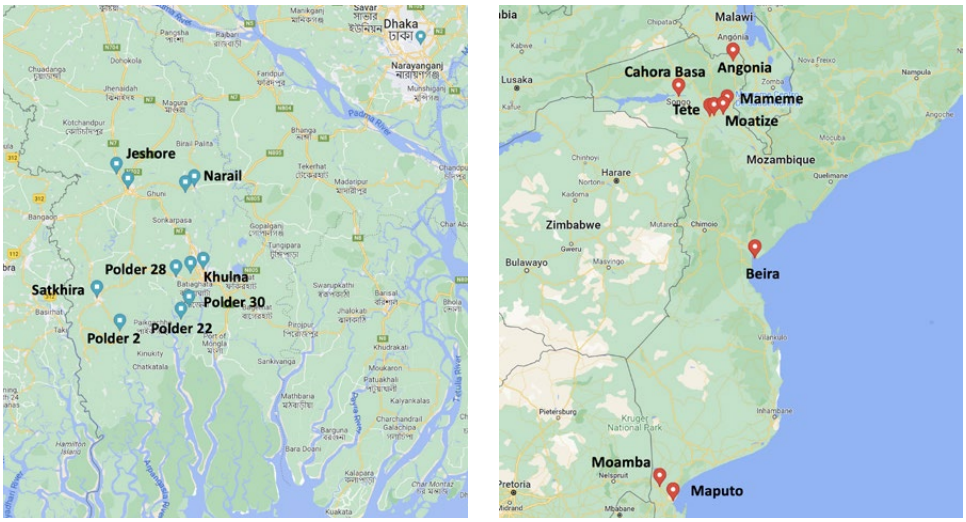
These communities rely on rainfed agriculture and are affected by drought followed by short periods of heavy rainfall. The coastal city of Beira was visited to learn about the Beira Master Plan to protect the city against rising sea levels, coastal erosion and cyclones. In and around Maputo, programmes with urban (the Fund for Investment and Assets of Water Supply - FIPAG) and semi-urban (Water Supply and Sanitation Infrastructure Administration - AIAS) water providers were visited. Providing drinking water in this region has become more challenging due to drought, salination, erosion and the destruction of infrastructure by flooding. Also in Maputo, several ministries, agencies and the university were visited for interviews at the national policy level. In order to cover three areas, two visits were organised with different teams. The first visit included one week in Maputo and one week in Beira. The second visit included one week in and around Maputo and one week in Tete Province. An intern who joined the first visit stayed about a month in Beira to collect data for her master's thesis (see: De Zoeten, 2022). She then joined the second visit.

The fieldwork involved a variety of data gathering techniques with several groups at numerous sites, including:

- focus group discussions with rural and urban communities;
- interviews, discussions and presentations with programme staff;
- interviews and discussions with beneficiaries and community members not involved in the programme;
- interviews at provincial and local government departments (i.e. Beira Municipality and the Provincial Directorate of Agriculture and Fisheries in Tete);
- observations, interviews and discussions at demonstration plots, subsistence farming communities, commercial farms, vulnerable neighbourhoods (Beira), water inlets, pumping stations, a water treatment facility and a programme field office; and
- interviews in Maputo with ministries and institutes, including the Ministry of Finance, the Ministry of Agriculture, the Ministry of Land and Environment, UEM university, the National Meteorological Institute and the Centre for Emergency Operations.

Notes have been kept of all interviews, discussions and observations. These notes have been analysed using MaxQDA. Throughout the report, reference is made to interviews and site visits. For a full overview of organisations/communities interviewed and sites visited, see Annex F. See Figures 4a and 4b for an overview of the visited locations on a map.

Figure 4a and 4b: Maps of the locations of the site visits in Bangladesh (a) and Mozambique (b)



Source: Google Maps

1.4.3 Description of the systematic review

To complement the fieldwork, the systematic review includes a strategic selection of programmes with a Rio adaptation marker in the selected case countries. Annex D provides an overview of this selection of 19 programmes. It covers the programmes visited for the fieldwork, the largest programmes (budget), different thematic areas (mainly water and food security), different channels (Gov, NGO, PPP, UN, MDB,

Uni)[13] and both central and decentralised funding.[14] For Bangladesh, the selection covers about 55% of the total spending on climate adaptation finance for the period 2016-2022, and for Mozambique about 60%. Section 2.3.2 contains a short description of the selected programmes in both countries. For each programme, the systematic review collected a range of internal documents, including appraisal documents, programme proposals, inception reports, the most recent annual reports, evaluations and, in a few cases, separate vulnerability and exposure assessments. In total, over 100 documents were included in the analysis. Annex E lists the evaluations that were used.

The data analysis was structured through an iterative process of inductive and deductive coding (Linneberg & Korsgaard, 2019). To ensure the reliability and transparency of this process, the qualitative data analysis software programme MaxQDA was used. Table 3 shows the analytical framework that formed the basis of the coding process. For each programme, a summary of the various steps in this analytical framework was made, based on the documents reviewed. For those programmes that were included in the fieldwork, this summary also includes the fieldwork data. Each summary was reviewed and discussed with a member of the team to improve inter-coder reliability and the consistency of the analysis. The summaries per programme are published in a separate background document. The main report presents an overall conclusion based on these summaries.

Table 3: Analytical framework

Subject	Leading question	Score
Climate lens step 1	• How have climate scenarios been taken into consideration? • How have they been linked to exposure and vulnerability assessments?	Unknown
		Low
		Medium/Mixed
		High
Climate lens step 2	• How has step 1 informed the design of the programme? • What type of strategies does it employ to reduce risk/exposure and/or increase resilience?	Unknown
		Low
		Medium/Mixed
		High
Climate lens step 3	• To what extent are CCA strategies being implemented? • To what extent are they flexible and updated as circumstances change?	Unknown
		Low
		Medium/Mixed
		High
CCA scale	• Determine the overall CCA scale score based on steps 1, 2 and 3.	Maladaptive Blind Sensitive Responsive Transformative
Inclusions of marginalised groups	• To what extent are marginalised groups reached, how are they involved, to what extent does the programme meet their needs, how and why?	Unknown
		Low
		Medium/Mixed
		High
Fit with domestic adaptation policies	• How does the programme fit in with national/regional adaptation policies, how and why? • To what extent do domestic government institutions have influence and ownership over development programmes?	Unknown
		Low
		Medium/Mixed
		High
Level of effectiveness	• Is there any information on effectiveness in terms of increased resilience (capacity to absorb, adapt and/or transform) and reduced exposure? • What are the explanatory mechanisms, factors and conditions? • How are CCA results monitored?	Unknown
		Low
		Medium/Mixed
		High
Colour codes	Unknown	Low / Medium/Mixed / High

[13] Government-to-government (Gov), multilateral development banks (MDB), non-governmental organisations (NGOs), public-private partnerships (PPPs), United Nations organisations (UN) and knowledge institutes and networks (Uni).

[14] We mostly include programmes for which a mid-term review or evaluation is available.

1.4.4 Validity, reliability and limitations

To ensure the validity of the findings and reduce bias, the research used the following techniques:

- It triangulated methods (fieldwork and systematic desk review) and data collection techniques (observation, interviews, focus group discussions and collecting documentation). Annex C provides an evaluation matrix linking the research questions to these data gathering techniques and sources.
- Both insider and outsider perspectives have been included to balance and check the findings. Insider perspectives include policy officers, project staff and beneficiaries involved in the programmes covered. Outsider perspectives include external experts, in-country government officials, civil society organisations and citizens who are not (directly) involved in the programmes.
- It used local interpreters to ensure that questions could be asked and answered in the local language.
- Both an internal (IOB) and external reference group (consisting of academic and policy experts) were involved throughout the research process.
- Debriefing sessions were held at the embassies at the end of the country visits. Afterwards, country-reports with preliminary finding were shared and discussed in a validation meeting with each embassy.
- During the systematic review, the team reached a point of saturation, where the assessment of additional programmes did not add new elements to the conclusions.
- As approximately one third of the selected programmes operate in several countries around the world, conclusions are considered relevant beyond the context of Bangladesh and Mozambique.

To ensure the reliability of the findings and reduce bias, the research used the following techniques:

- It used MaxQDA for a structured analysis.
- It improved inter-coder reliability by coding some programmes together.
- It improved the reliability of the analysis by having each project summary critically reviewed by another team member.
- By publishing the scores per project in a background document, it is transparent about the underlying analysis.

The main limitation of the analysis is that due to time and capacity constraints, the site visits could only cover 8 out of the 19 selected programmes. Triangulation based on methods is therefore only partially available. During the analysis, there were a few cases where the additional data collected during the fieldwork gave a different picture from the document analysis. This was particularly the case for the ISA II programme, where the programme evaluation found no evidence of climate-resilient agricultural techniques, while the site visits did. This could also be the case for some of the programmes that were not visited, for instance due to emerging insights and continued developments since their last mid-term review (MTR) or evaluation. For some of the programmes, the conclusions may therefore be (partly) outdated and/or incomplete. At the same time, for most programmes, the fieldwork and document analysis led to similar conclusions. Another limitation is that the design of the research does not allow conclusions to be drawn about differences between channels (e.g. Gov, NGO and MDB). While this was a deliberate choice due to time and capacity constraints, it would have provided an interesting additional perspective.

1.5 Outline of the report

Chapter 2 provides an overview of the Dutch policy on integrating climate change adaptation into development cooperation. It describes general developments, aims and resources, and provides an overview of the most important activities in the two case countries. Chapter 3 answers sub-question 1 by describing how climate change adaptation is integrated into food security and water programmes. It follows the logic of the three-step analytical model to arrive at CCA scale scores for the various programmes. It focuses on providing explanations for these scores in order to draw lessons. Chapter 4 answers sub-question 2 by looking at how CCA activities contribute to country ownership and/or alignment with national adaptation policies. Chapter 5 answers sub-question 3 on the contribution of programmes to addressing the needs, ownership and participation of the most marginalised groups in these countries. Chapter 6 responds to sub-question 4, mainly by looking at findings from external evaluations on evidence of increased resilience and/or reduced exposure.

2 Climate change adaptation policy

2.1 Policy development

2.1.1 Rutte II cabinet (2012-2017)

Over the past decade, climate change has become a priority topic for Dutch development cooperation. This was clearly articulated in *A World to Gain (2013)*, the policy note of the Minister for Foreign Trade and Development Cooperation (BHOS). In addition to a stronger focus on mitigation, adaptation became more prominent through the integration of climate change considerations and objectives in the development cooperation portfolio. The integration of CCA was pursued first and foremost in the priority sectors of water and food security (BHOS art. 2.1 and 2.2). This was facilitated by a subsidiary budget article for climate, energy and natural resources (art. 2.3). As cooperation with the private sector had become increasingly important since 2013, partnerships were sought and new funds for public-private sector investments (blended finance) were set up.

In 2015, the Paris Agreement provided new momentum and political commitment to climate action. For the first time, it stipulated that all financial flows should be aligned with climate targets. Indeed, the Dutch budget for climate-relevant finance has increased significantly since 2015, largely through the official development assistance (ODA)[15] budget. During the same period, subsequent cabinets introduced

[15] As defined by the OECD DAC.

budget cuts and failed to meet the international donor commitment to contribute 0.7% of gross domestic product to ODA. Some critics have suggested that climate mainstreaming and increased private sector funding were intended (or hoped) to compensate for reduced direct contributions to climate-relevant funds and programmes.

2.1.2 Rutte III cabinet (2017-2021)

The Rutte III cabinet maintained the priorities of its predecessor, including action on climate change. The policy note *Investing in Global Prospects* identified the response to climate change as a cross-cutting priority. It stressed the need to safeguard development gains for the most marginalised groups, which are threatened by climate change. It also presented working with local institutions as a guiding principle, so that activities can continue after funding has ended. During this period, the Netherlands increasingly advocated for CCA. In 2018, the cabinet announced a Dutch Fund for Climate and Development worth EUR 160 million, with an emphasis on adaptation. In the same year, the Netherlands helped to set up and host the Global Climate Adaptation Centre.[16] In 2018-2019, a climate diplomacy team was set up within the Inclusive Green Growth Department (IGG) to encourage non-EU countries to raise their climate ambitions. In the run-up to the 26th meeting of the Conference of Parties (COP26), the Netherlands also took the initiative to set up a Champions Group for Adaptation Finance and organised a Climate Adaptation Summit in January 2021.

2.2 Policy aims

The 2015 Paris Agreement provides the overall framework for the Dutch international climate policy in the research period. For climate change adaptation, this means that the Dutch government committed to integrating it into Dutch development cooperation. The main aim was to increase the resilience of poor and vulnerable people to deal with the negative effects of climate change. At the same time, the Netherlands aimed for a reasonable contribution or 'fair share' of the collective donor commitment of USD 100 billion per year for climate action in developing countries, at least 50% of which should go to adaptation. The Netherlands also sought to mobilise private sector funding equivalent to 50% of this contribution.[17]

To meet these commitments, the Directorate-General for International Cooperation (DGIS) aimed to increase the climate relevance of all its activities under the development cooperation budget. According to a DGIS Theory of Change (ToC) from November 2018, the main aim was climate-resilient economic growth in developing countries. The Netherlands would focus on a limited number of topics related to Dutch expertise, namely the water, food and agriculture sectors. At the same time, IGG published its ToC on climate, water and food security, focusing on mitigation and adaptation.[18] Both documents stressed that special attention would be paid to the most vulnerable countries and groups, including women and girls. In doing so, the Netherlands' guiding principle is to work with local institutions so activities can continue after funding has ended.

Figure 5 below shows a schematic representation of the climate policy ToC, as reconstructed and adapted by IOB.[19] This figure illustrates that climate finance, climate diplomacy and knowledge are seen as a means to achieve mitigation and adaptation. The underlying assumption is that most developing countries acknowledge the urgency of climate action but lack the capacity, knowledge, technology and finance to do so. They require assistance in these areas, as well as help in attracting climate investment. The private sector must contribute if the international community is to achieve its adaptation objectives. A fundamental economic transformation is required, which comes with challenges and opportunities, such as innovation and green growth.

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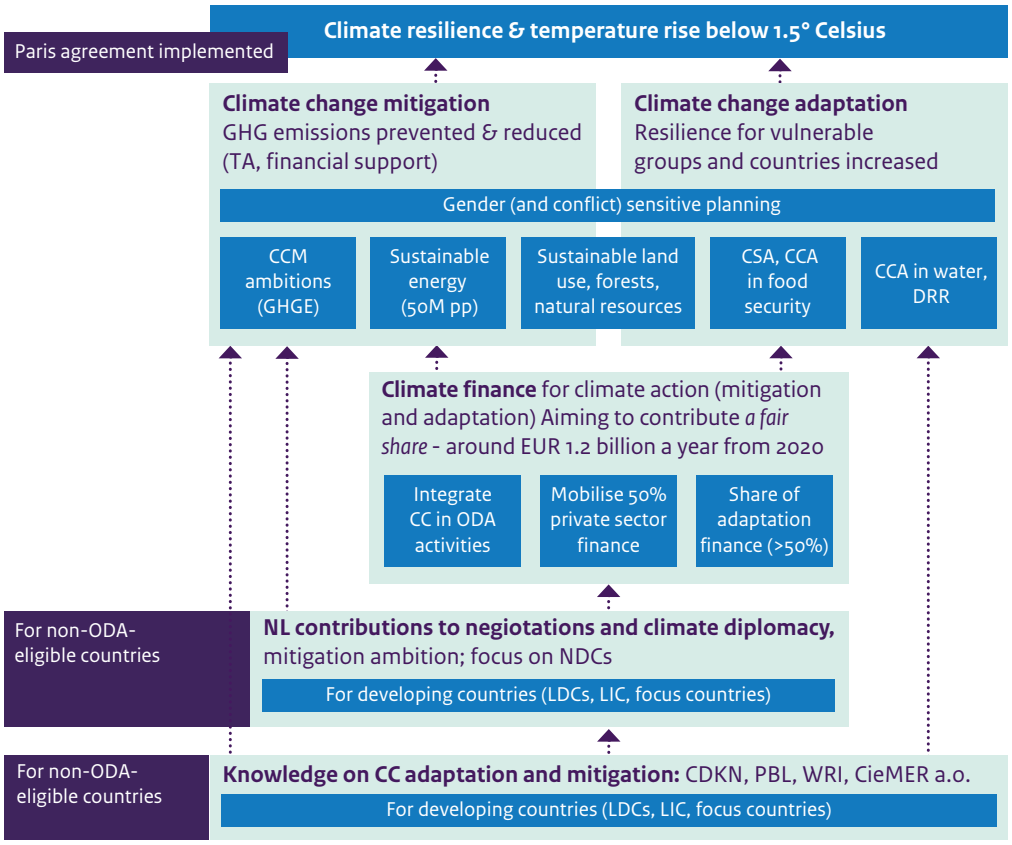
16 The Ministry of Infrastructure and Water was in the lead.

17 This aim, reflected in the DGIS ToC on climate (2018) was discussed in a debate in parliament on 20 June 2013, for instance.

18 Available online in Dutch here.

19 The aims in the top layer reflect the aims of the Paris Agreement rather than the objective of climate-resilient economic growth that was mentioned in the DGIC ToC document.

Figure 5: Reconstructed ToC on climate-related development policy



Source: DGIS ToC, 2018; IGG ToC, 2018; reconstruction by IOB

2.3 Policy resources and activities

2.3.1 Climate finance for development

Like almost all Development Assistance Committee (DAC) donors, the Netherlands follows the OECD DAC guidelines for the Rio climate markers to calculate climate finance expenditure. Climate-relevant development activities are labelled as mitigation, as adaptation or as both. Furthermore, they are classified as significantly (40%) or fully (100%) climate relevant (see Box 2). The application of a climate lens (see section 1.2.5) is mainly recommended for justifying a fully climate-relevant ('principal') score. Some multilateral organisations are not scored according to these 40%/100% indicators but rather using 'imputed shares', based on a calculation of the share of their expenditure that is climate relevant. Although this is the only internationally agreed system, it is not very precise. The amounts reported differ significantly between donor institutions, as some use 50%/100% or 60%/100% instead of the recommended 40%/100%.

Box 2: The Rio markers for climate-relevant development assistance

Mitigation and/or adaptation as 'principal' or 'significant' objective:

Principal: The activity would not have been funded (or designed that way) in the absence of the explicit climate objective; 100% of the support is reported as climate finance.

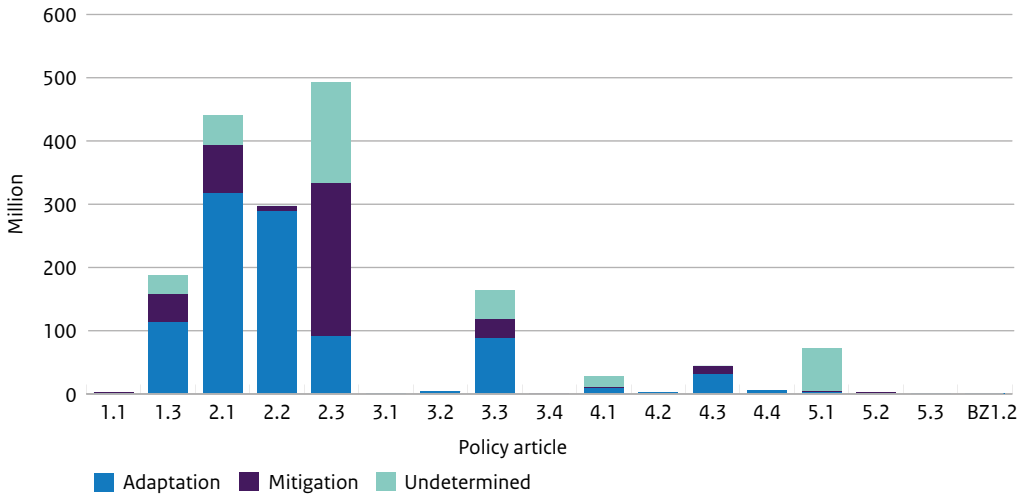
Significant: The climate objective is explicit but not the main driver of the activity; 40% of the support is reported as climate finance. Like many other donors, the Netherlands considers this percentage to be a reasonable estimate of the average climate contribution of projects that have climate change adaptation or mitigation as a significant objective.

Source: OECD DAC Rio Markers for Climate – Handbook (OECD, 2016).

Using the Rio climate markers, the total amount of Dutch public climate finance for development for the period 2016-2019 is estimated around EUR 2 billion (IOB, 2021). This is about 9%-12% of the annual ODA expenditure in this period. EUR 1.75 million of this EUR 2 billion is financed by the MFA.[20] For the MFA, this includes 24% for mitigation, 55% for adaptation and 21% for undetermined finance.[21] Undetermined climate finance does not distinguish between mitigation and adaptation. This is used for unearmarked contributions to some of the multilateral organisations.[22] In addition, private sector climate finance that is mobilised by public finance is also reported as Dutch climate finance. In the same period, this amounts to EUR 1.86 billion. As private finance is not labelled with the Rio markers, it is difficult to determine percentages for mitigation and adaptation. The IOB study on climate finance was able to calculate an estimate for 2019: 44% for mitigation, 41% for adaptation and 15% for undetermined. The share of adaptation activities was higher than expected, given the international concern that commercial finance would focus more on mitigation activities such as renewable energy, where it is easier to make a business case. Another international concern is that commercial activities would focus more on middle-income countries. While this is the case for mitigation activities, a large share of the adaptation activities (65%) focused on low-income countries (IOB, 2021, p. 62).

The EUR 1.75 billion of reported climate finance for the period 2016-2019 is financed from several articles of the BHOS budget (see Figure 6).[23] Most of this is from activities managed by IGG under budget article 2, with large programmes on food security (2.1) and water (2.2), and large contributions to specific climate funds and programmes (2.3). Other notable parts of the climate-relevant expenditures are managed by the Social Development Department (DSO) and by the Sustainable Economic Development Department (DDE). This concerns climate-relevant programmes to strengthen civil society and the private sector, respectively. Some of the DSO programmes are co-managed by IGG as they focus on water, food security and nature conservation.

Figure 6: Total disbursements (2016-2019) per sub-article for adaptation, mitigation and undetermined climate activities [24]



Source: (IOB, 2021, p. 54)

[20] The rest is financed by the Ministry of Finance.

[21] These figures will be updated to 2022 in the upcoming IOB periodic review on Dutch international climate policy for development.

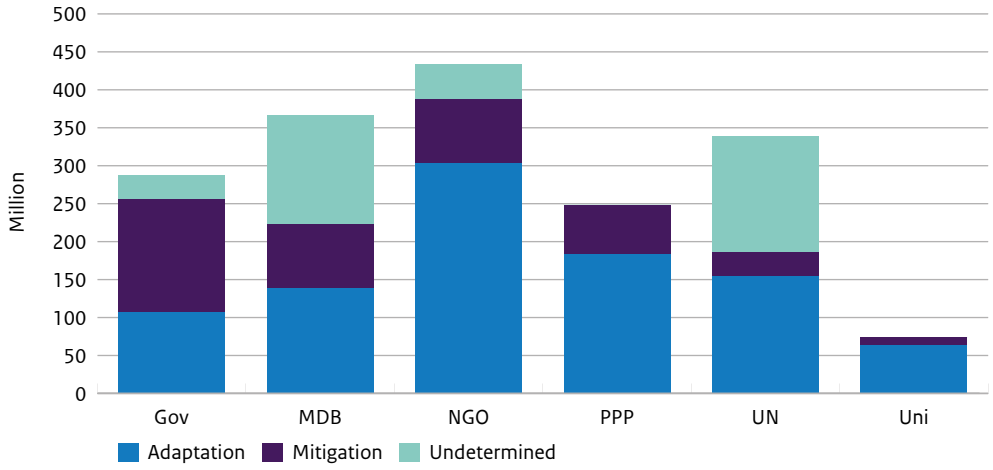
[22] The UNFCCC reports refer to this category as 'imputed climate shares'.

[23] Figures 6 and 7 will be updated to 2022 in the upcoming IOB periodic review on Dutch international climate policy for development.

[24] BHOS articles: 1.1 Sustainable trade and investment system, including responsible business conduct; 1.3 Private sector development and enabling business climate; 2.1 Food security; 2.2 Water management and WASH; 2.3 Natural resources, energy and climate; 3.1 Sexual and reproductive health and rights; 3.2 Equal rights for women; 3.3 Support to civil society; 3.4 Education; 4.1 Humanitarian aid; 4.2 Reception and protection in the region and migration development; 4.3 International security, rehabilitation, rule of law, institutions; 4.4 Emergency relief fund; 5.1 Multilateral cooperation; 5.2 Other poverty policies; 5.3 Migration and development.

The BHOS budget funds numerous CCA activities labelled with the OECD Rio climate marker. As CCA is a 'cross-cutting issue', these activities cover a wide range of topics such as water, agriculture, health and private sector development. They are also funded through different types of channels, categorised by recipient organisation (see Figure 7).

Figure 7: Total disbursements (2016-2019) in EUR millions, subdivided by channel[25]



Source: (IOB, 2021, p. 56)

2.3.2 Climate change adaptation activities in Bangladesh and Mozambique

The list of selected activities with a climate adaptation marker includes a variety of programmes operating in Bangladesh and Mozambique (see Annex D). The selection focuses mainly on water and food security programmes but also includes one strategic partnership of the Dialogue and Dissent policy framework (SRJS), and one private sector development programme, the Facility for Infrastructure Development (ORIO). In both Bangladesh and Mozambique, several government-to-government programmes have been selected. In Bangladesh, Blue Gold is by far the largest (EUR 63 million). It is funded through the embassy and focuses on socio-economic development in coastal polders, with a focus on water security and agricultural development. In Mozambique, large government-to-government programmes include the ISA II programme for inclusive and sustainable agricultural development in the Zambezi Valley, the Integrated Water Resources Management Fund, and cooperation on the implementation of the Beira Master Plan (BMP) for coastal protection and economic development. The South West Integrated Water Resources Programme in Bangladesh is the only programme in the sample implemented by a multilateral development bank, namely the Asian Development Bank. It focuses on improved flood control, drainage and irrigation systems to increase incomes, and livelihood standards for disadvantaged groups.

In both Mozambique and Bangladesh, several NGO programmes have been included, with both centralised (The Hague) and decentralised (embassy) funding. In Bangladesh, these include the centrally funded Netherlands Water, Sanitation and Hygiene Sustainable Development Goals (NL WASH SDG) programme implemented by Simavi, and the programme on Sustainable Agriculture, Food Security, and Linkages (SaFaL) funded by the embassy. In Mozambique, this includes the previously mentioned centrally funded SRJS programme implemented by the World Wide Fund for Nature (WWF) and the International Union for Conservation of Nature (IUCN), and the SNV programme on value chain and youth development in Cabo Delgado funded by the embassy. Several decentral PPPs in Mozambique were also involved, including institutional support to the water utility FIPAG in cooperation with Dutch water companies. In both countries, UN programmes have been included, some of which are active in both, such as the Agricultural Smallholder Adaptation Programme (ASAP) of the International Fund for Agricultural Development (IFAD). This programme is quite unique in that it aims to mainstream climate change adaptation throughout IFAD's portfolio. Finally, the DGIS - IHE Programmatic Cooperation

[25] Government-to government (Gov), multilateral development banks (MDB), non-governmental organisations (NGOs), public-private partnerships (PPP), United Nations organisations (UN), and knowledge institutes and networks (Uni).

(DUPC2) has been included as a knowledge programme. It also operates in both countries and is implemented in cooperation with the IHE Delft Institute for Water Education. It focuses on education, knowledge generation and dissemination, and strengthening the capacity of water sector organisations, higher education and research institutes.

2.3.3 Staff and representatives

The Ministry of Foreign Affairs' staff and representatives are involved in implementing climate policy. In the case of adaptation, this mostly involves IGG staff. The IGG's climate section had three policy officers working on adaptation until 2021. Two worked in the international arena to put adaptation on the agenda as an important topic and to represent the Netherlands in the context of UNFCCC. There was also one person working internally to promote the integration of CCA into development from The Hague, and one expert seconded from the World Resources Institute to assist embassies in this from Nairobi. Other IGG policy officers include 14 staff working on water and around 13 on food security - these sections are expected to integrate climate change adaptation into their work. Other staff at DGIS, as well as the EU department, embassies and missions, also work occasionally on climate mainstreaming.

3 Integrating climate change adaptation

3.1 Climate risks and vulnerability in Mozambique and Bangladesh

Bangladesh and Mozambique are extremely vulnerable to the negative impacts of climate change. In both countries, climate change and its devastating effects are already visible and are projected to worsen in the future. It is therefore extremely important to know what is coming and where. The Global Climate Risk Index places both Bangladesh and Mozambique in the top ten countries most exposed to natural hazards.[26] Between 2000 and 2019, Mozambique experienced 57 and Bangladesh 185 extreme weather events such as floods, droughts and cyclones, causing widespread loss of life and economic damage. Looking to the future, the University of Notre Dame Global Adaptation Initiative (ND-GAIN) presents a ranking that combines a country's vulnerability to climate change and other global challenges with its readiness to improve resilience. This ranking places both countries near the bottom of the list.[27] Bangladesh ranks 164 out of 182 and Mozambique 156. In short, while they are among the most vulnerable countries, they are also among the countries with the least capacity to cope with these impacts. Several agencies provide factsheets and country reports on the impacts of climate change impacts.[28] Below we summarise the World Bank's climate risk country profile for Bangladesh (World

26 Global Climate Risk Index 2021 | Germanwatch e.V.
27 https://gain.nd.edu/our-work/country-index/rankings/.
28 Up until 2018, IGG also provided country climate factsheets. They stopped doing so as other institutions made them widely available.

Bank, 2021) and the United States Agency for International Development's (USAID) 2018 factsheet for Mozambique.[29]

Bangladesh is a low-lying flat country situated in the delta of some of the world's largest rivers, the Brahmaputra, the Ganges and the Meghna. It has 230 major rivers and thousands of tributaries and canals. As two-thirds of the country is less than five metres above sea level, it is susceptible to rising sea levels and flooding from rivers and rainwater. In an 'average', year approximately one-quarter of the country is inundated.[30] The World Bank country report mentions the following key issues for Bangladesh (World Bank, 2021, p. 2). Projected average temperature increases in Bangladesh are broadly in line with the global average, but increases in minimum and maximum temperatures are considerably higher. More frequent periods of prolonged high heat are a major threat to human health and living standards. Throughout the country, flash floods, river floods and coastal floods are likely to be exacerbated by more intense rainfall, tropical cyclones and associated storm surges. Without adaptation, the number of people exposed to extreme river flooding is expected to increase by 6-12 million by the 2040s, and the number of people facing coastal flooding could increase by 2-7 million by the 2070s. This puts lives, infrastructure and economies at risk. Global modelling and local evidence suggest that poor and marginalised groups and women are likely to suffer disproportionately in a changing climate. In particular, the livelihoods of many of the poorest communities in Bangladesh's coastal zone are under threat by the degradation of natural resources. Food production and the agricultural sector could face reduced yields due to increases in growing season temperatures, saline intrusion, increased drought frequency, floods and waterlogging.

Mozambique has several climate zones, ranging from tropical and subtropical in the north and centre, to semi-arid steppe with a pocket of tropical dry desert in the south. The main climate change issues are an average temperature increase of 1° C by 2037, an increase in droughts and the duration of dry spells, an increase in heavy rainfall events, an increase in cyclone intensity and 13–56 cm rise in sea levels by 2090. Higher temperatures and shifting precipitation patterns will mainly cause problems inland and in the south, while cyclones and rising sea levels will mainly affect coastal areas. As a downstream country, Mozambique is projected to receive both more (south) and less (central) water in its major rivers, contributing to droughts and floods, and impacting hydropower production. With about 45% of the population living below the poverty line (2018) and relying largely on rainfed subsistence farming, Mozambique's population is highly vulnerable to climate change. Agriculture is experiencing shifts in growing seasons, lower yields and multiple pest problems due to higher temperatures, shorter and more intense rainy seasons and longer dry spells. This has a major impact as more than 75% of Mozambique's labour force works in agriculture, most of which are subsistence or smallholder farmers. With one of the longest coastlines in Africa (2,470 km), Mozambique is also particularly vulnerable to rising sea levels. The resulting erosion, saltwater intrusion and increased storm surges threaten ecosystems, drinking water and agriculture. The coastal area is also highly vulnerable to storms and cyclones, which are projected to increase in frequency and intensity. In recent years, Mozambique has been hit by several destructive cyclones (Idai, Kenneth, Ana, Freddy), killing many and leaving millions in need of humanitarian aid.[31] They also cause widespread economic damage, destroying homes, infrastructure and crops. In their aftermath, outbreaks of deadly diseases such as cholera have been recorded. As about 60% of the population lives in the low-lying coastal areas, a large proportion of the population is exposed to these hazards.

3.2 Climate risk, vulnerability and exposure assessments

The fieldwork and systematic review of programmes found that only a few programmes conducted (and/or used) detailed climate change scenarios and vulnerability and exposure assessments.[32] The lack of more detailed analyses is a problem for most programmes, but not all, as it depends on the type of

29 USAID factsheet Mozambique retrieved from: https://www.climatelinks.org/.
30 USAID factsheet Bangladesh (2015) retrieved from: https://www.climatelinks.org/.
31 https://www.unicef.org/mozambique/en/cyclone-idai-and-kenneth.
32 See the separately published background document for detailed appraisals of all programmes included in the research; for a summary see Table 6 in section 3.4.

programme. The research found three different approaches to integrating CCA, requiring different types and sequences of analyses. Table 4 provides an overview.

Table 4: Different ways of integrating CCA

	Integration approach	Detail and timing of analysis*	Programmes
1	Integrating CCA into (existing) development programmes to safeguard the sustainability of their goals from climate change.	For *centralised programmes*, this usually means doing a general analysis before the start, and for country programmes a detailed analysis during an inception phase. For *decentralised programmes*, this usually means carrying out detailed analyses prior to the start of the programme.	This category covers most programmes, e.g. food security projects introducing climate-smart agricultural techniques or IWRM programmes introducing climate-resilient infrastructure.
2	Encouraging the integration of CCA into other programmes to ensure the sustainability of their goals from climate change.	The programme encourages others to undertake a detailed analysis of scenarios, vulnerability and exposure, and provides the tools and support to do so.	There is only one programme in this category, namely the ASAP programme, which aims to mainstream CCA across IFAD's portfolio.
3	Providing a prerequisite for the effective integration of CCA. In this case the goals of the programme itself are not threatened by climate change.	Depending on the subject and scope of such a programme, a detailed or more general analysis prior to the start of the programme may be sufficient to justify the need for the prerequisite.	This category includes two programmes: (1) DUPC2 trains professionals and strengthens the capacities of key water sector institutions, so they can mainstream CCA; (2) FAO's Water Productivity Database should allow other actors to make climate-smart decisions on water use in different sectors.

* For all categories, it is important that the analyses are regularly updated.

Both programmes in the third category (DUPC2 and FAO Water Productivity Database) present a general but sound argument that the programme serves as a prerequisite for climate change adaptation. For example, DUPC2 presents a general analysis of how water-related hazards such as floods, droughts and pollution are expected to increase in frequency and intensity almost everywhere in the world due to climate change. In light of this analysis, the programme aims to educate and train the water scientists, engineers and managers of the future to manage water resources and deliver water services in a sustainable manner. Similarly, the Food and Agricultural Organization's (FAO) Water Productivity Programme argues that climate change will affect agriculture through higher temperatures and more variable rainfall, with substantial reductions in precipitation in semi-arid and sub-humid areas. The global database of satellite data should enable actors in many places to reduce water consumption and increase availability during periods of drought. While these general analyses are sufficient to justify the need for these programmes, in later stages it should be assessed whether they actually contribute to the ability of others to carry out more detailed analyses of climate, vulnerability and exposure.

The programmes in the first and second categories need more detailed climate, vulnerability and exposure analyses to safeguard the goals of the programme (or of IFAD programmes in the case of ASAP) against the negative impacts of climate change. Such analyses can be carried out before the start of the programme or during an inception phase. The evaluation found only a few programmes that conducted more detailed, localised analyses, most notably the BMP in Mozambique and NL WASH and SaFaL in Bangladesh. For example, the in-depth analysis carried out by the coastal city of Beira provided a great deal of information about its vulnerabilities. As a coastal city only slightly above sea level, Beira is becoming more vulnerable to flooding due to rising sea levels combined with periods of excessive rainfall. The BMP uses climate scenarios to illustrate the likelihood and magnitude of these risks and relates them to current levels of exposure and vulnerability. The city's coastal defences against tides and sea surges, both natural and artificial, are failing. This has resulted in coastal erosion, leading to severe flooding with numerous impacts on the community, including disruption of movement and accessibility, economic damage, environmental degradation and health problems, such as increased cases of malaria and cholera. The fact that the poorest (usually illegal) neighbourhoods are located in swampy areas with failing drainage canals aggravates the situation. The main omission from this analysis was the risk of

cyclones. Despite several attempts by the Netherlands to include the impact of cyclones, the municipality decided to focus on rising sea levels. This omission had grave implications (see section 3.3).

For most programmes, the analyses remain rather general, mentioning rising sea levels, droughts, floods and/or cyclones, without taking into account a longer time span, without tailoring this information to local realities, and little distinction between vulnerability and exposure. For example, the SNV programme proposal for Cabo Delgado briefly mentions climate change as an important issue for Mozambique in the form of increasingly extreme weather conditions, droughts, changing rainfall patterns, floods and cyclones. It also mentions that smallholder farmers in developing countries in general are particularly vulnerable to climatic changes, as they have limited resources to cope with shocks and stresses. However, there is no more specific analysis of particular climate projections and how they affect the programme's goals and the vulnerability and/or exposure of the target groups. Some programmes announce such analyses but do not carry them out, such as the WaterWorX programme. Others only partially implement them, such as the IWRM programme in Mozambique. At the programme level, the appraisal document clearly shows that the programme has been designed with climate change adaptation in mind. However, the general design and rationale of the programme is not followed up by more specific analyses coordinated by the fund manager. Only the regional water authorities in the programme provide a more detailed analysis (Regional Water Administration Mozambique ARA-norte and ARA Zambeze), but they present exactly the same analysis in their proposal, even though they are located in very different regions. Even a programme such as ASAP, which has climate and vulnerability analyses at the core of its design, is found to be in need of localising, updating and expanding the time span of its analyses to better inform the design and implementation of the programme. The evaluation of ASAP concludes that the technical challenge of efficiently establishing climate information services relevant to farmers' needs is a major constraint to smallholders' adaptive capacity. In Bangladesh, site visits found that a weak analysis can lead to a situation where climate change is blamed for some of the problems with flooding and sedimentation that are not always related to climate change. Finally, there are also a few programmes that do not elaborate much on the link to climate change, such as AIAS, Gesterra and DFS.

Three underlying explanations for the lack of thorough climate, vulnerability and exposure analyses were identified. First, policy officers cite limited capacity in terms of time, expertise and full-time equivalents (FTEs), both in The Hague and at embassies, as a reason for the limited application of the climate lens. They mention that policy officers manage an average of 10 programmes, which leaves little time per programme to review the integration of CCA. Currently they are often checking the integration of CCA too late, namely at the appraisal stage, while it should be integrated earlier. Also, as people frequently move from position to position, expertise is lost and/or not developed, and institutional memory is limited. With only two people (one in The Hague and one in Nairobi) dedicated to promoting the integration of CCA, support is very limited given the large number of programmes. Several respondents mentioned that they would like to see something similar to the Task Force on Women's Rights and Gender Equality, which has about 16 FTEs to integrate a gender lens into MFA programmes. Such an approach would also help to develop a more uniform approach, which respondents felt was currently lacking.

Second, the application of the climate lens is not mandatory. It is mainly recommended as a best practice for justifying a 'principal' score, while the vast majority of selected programmes have a 'significant' Rio adaptation marker (40%). As a result, integrating CCA may receive limited attention, as was noted in interviews with policy officers and NGO staff: 'we haven't thought of that', 'this was not the goal of the programme', 'the programme was not designed with this in mind'. It can also mean that other priorities take precedence. For the WaterWorX programme, for instance, both the annual report and the evaluation cite the lack of immediate urgency of climate change adaptation, partly due to the impact of the Covid-19 pandemic. While this reasoning is understandable for activities that received a Rio marker later on, it is not the case for programmes that received such a label from the outset.

A third important reason, identified during the site visits and also noted in several evaluations, is the difficulty and lack of capacity to provide long-term and downscaled meteorological forecasts. Site visits and interviews in Bangladesh and Mozambique revealed that analyses have a short time span or monitor the current situation. In Mozambique, for example, the meteorological service only provides seasonal forecasts. Farmers use these to plan their crop cycle, but there is hardly any multiannual planning. The meteorological agency is well aware of this shortcoming. In an interview, they mentioned the lack of capacity and skills to create scenarios and downscale IPCC and other global scenarios to the local level. On

the one hand, they lack a robust network of meteorological stations, both on land and at sea, for raw data, and on the other hand, they lack staff with the capacity to carry out such complex analyses. The result is short-term predictions and a situation where they say they do not know what rainfall will be like in 20 to 30 years from now. Similar problems have been observed in Bangladesh. The UNDP concludes that the technical capacity to collect, generate and disseminate climate information remains weak, and that climate scenarios need to be downscaled to the local level (UNDP, 2017). Site visits to the South West and Blue Gold programmes revealed that the lack of climate data can lead to climate change being blamed for some of the problems with flooding and sedimentation, which are not always related to climate change. However, these difficulties should not prevent programmes from initiating more detailed exposure and vulnerability analyses that can already incorporate current and known climate change impacts.

3.3 Design and implementation of CCA strategies

3.3.1 Designing CCA strategies

In the absence of detailed climate, vulnerability and exposure analyses, there is often no basis for a clear rationale for the chosen strategies. This often results in rather abstract strategies, without a clear explanation for target groups and how the intervention will increase their resilience and/or reduce their exposure. For instance, several programmes mention the use of climate-smart agricultural techniques without specifying what this entails. For example, the DFS proposal briefly mentions the aim of increasing poor women's productive engagement in climate-resilient agriculture and contributing to their empowerment and resilience, without further elaboration. Similarly, the ISA II programme in Mozambique mentions the use of climate-smart agricultural techniques without providing a definition of the concept and without formulating explicit pathways for change. In some cases, CCA strategies are absent from proposals, such as AIAS, Profitable Opportunities for Food Security (PROOFS) and Gesterra. In some cases, it is not clear why strategies are reported as CCA strategies, such as the nitrogen fixation strategy in SNV's Cabo Delgado programme, which is primarily a soil fertility improvement strategy.

Programmes with a more thorough analysis also design a more comprehensive/systemic approach with several types of strategies at different levels (e.g. infrastructure, capacity strengthening, governance and behaviour change). Examples of such approaches are the BMP, NL WASH, SaFaL, Blue Gold and ASAP. However, even here the strategies sometimes remain rather abstract. For example, based on a local climate and vulnerability analysis, the NL Wash programme in Bangladesh proposes to work on climate-resilient and disaster-proof technologies and infrastructure, without explaining what this is and why it is important. Continuing with the example of Beira in the previous section, the Beira Master Plan, based on the climate risk analysis, included many types of strategies to address the identified threats. These included nature-based solutions, early warning, strengthening the capacity of government institutions, infrastructure measures, behaviour change interventions, studies, land development and economic development. As rising sea levels, combined with periods of excessive rainfall, was identified as the main threat, the idea was that there was still some time. The BMP therefore focused on feasibility studies and economic development in the short term, and planned the larger infrastructure measures such as coastal defences for the long term.

3.3.2 CCA strategy implementation

A first finding is that, for various reasons, only a few programmes score well on implementation (for an overview, see Table 6, section 3.4). In many cases, implementation was difficult to track from documentation such as the annual report of an activity and its evaluation. This relates directly to the observation that strategies often remain abstract. For instance, the DFS project mentioned climate-resilient agriculture, but there is no mention of its implementation in various documents. Another reason is that implementation lags behind due to other urgencies such as the Covid-19 pandemic (WaterWorX, SRJS), recovery from previous disasters (BMP, ISA II) or instability and conflict (SNV Cabo Delgado). A third reason is that some of the programmes that designed a more comprehensive approach failed to implement it as such. Both the BMP and the Bangladesh Delta Programme suffer from fragmented implementation of individual projects with weak links to the overall Delta Plan. Similarly, the different parts of the IWRM programme in Mozambique continued to operate as stand-alone projects, mainly

because the fund manager failed to fulfil its coordinating role.[33] There are also positive exceptions, such as SaFaL in Bangladesh. This shows that a thorough and holistic analysis provides a solid basis for designing and implementing clear adaptation strategies that can be tracked over time.

A second finding is that due to the limitations of climate risk analyses (limited detail, limited time span), strategies are often reactive, responding to past or current weather events. A clear example of this is the drinking water programme AIAS. It expected the town of Mocuba to become a system with many connections, and hence a good revenue generator. This did not happen, however, due to the damage caused by major flooding in 2015. As no analysis had been carried out, this possibility was not included in the proposal. The revised appraisal document (2016) mentions the floods as a reason for additional investments in the affected areas. The CCA strategies of the PROOFS programme in Bangladesh are also likely to be reactive, as no strategies were announced in the proposal but were found during the evaluation. Both site visits in Bangladesh and Mozambique confirmed this reactive approach. In Bangladesh, for instance, after each cyclone, the infrastructure in the polders is temporarily repaired by the communities while they wait for a more sustainable solution to be implemented by the government. In some cases, fieldwork revealed that more CCA was being done in response to weather events than the documentation showed. For example, the evaluation of the ISA II programme only found mulching as a CCA strategy, but interviews and site visits documented several other techniques used by farmers in response to severe drought, namely the use of shade nets, drought-resistant varieties, humidity meters, waterflow sensors and collective planning. The case of Beira shows that even when more detailed analyses have been carried out and a more concrete and comprehensive set of strategies has been designed, there is still the possibility of a reactive approach. As planned, the implementation focused on feasibility studies and economic development in the short term, leaving the bigger infrastructure measures such as coastal defences for the long term. It was only after the city was hit by several devastating cyclones that it was realised that much more emphasis should have been placed on infrastructure measures and hurricane-proof housing in the short term.

While anticipatory action would be better, reactive strategies are still very important for CCA, as this means that action is being taken to address the negative impacts of climate change. Also, the fact that there is a learning-by-doing process for some programmes, such as the PROOFS programme, can be seen as a positive development. This means that there is a recognition along the way that adaptation to climate change should become an integral part of implementation. At the same time, the IPCC stresses that both observations (limited implementation and short-term reactive approach) need to be addressed, concluding that: 'Most observed adaptation is fragmented, small in scale, incremental, sectorspecific, designed to respond to current impacts or near-term risks, and focused more on planning rather than implementation' (IPCC, 2022, p. 21).

3.3.3 Different types of strategy found

From the systematic review it can be concluded that more attention is given to technological, infrastructure and knowledge-based strategies and less to nature-based, political/institutional, economic/financial and social/behavioural strategies. This finding is (partly) consistent with the IPCC's finding that globally more financing is directed at physical infrastructure than natural and social infrastructure. In particular, they underscore the importance of stepping up nature-based solutions, as protecting biodiversity and ecosystems is fundamental to climate-resilient development (IPCC, 2022). Table 5 below provides a list of specific strategies found in programme documents and during site visits. This list is not exhaustive but gives a good indication of the wide variety of strategies. Many of these strategies are considered by the IPCC to be relevant for CCA, depending of course on how they are applied and in what context. Section 5.2 contains an assessment of the (short-term) effectiveness of these different types of strategies.

[33] The IWRM programme consists of five different programmes covering international negotiations on transboundary river management, national ministries for IWRM and WASH, and two regional water authorities.

Table 5: Overview of strategies

Strategy type	Strategies encountered
Nature-based	• Agroforestry • Mangrove and dune restoration for coastal protection • Lobby for environmental river flow regime • Biological fertiliser and pest control • Natural resource management (e.g. ecosystem-based water storage, fuel-efficient cook stoves) • Soil conservation (e.g. mulching, zero tillage) • Environmentally friendly fishing techniques (for livelihood diversification)
Infrastructural	• Coastal and riverbank protection/flood control • Drainage rehabilitation • Hurricane-proof housing • Land development • Rainwater infiltration dams/water storage facilities • Boreholes • Maintenance and rehabilitation of drinking water system • Climate-resilient water treatment facility • Hydrological monitoring and forecasting stations • Rehabilitation of rural infrastructure, protected against climate events
Technological	• Climate-smart agricultural techniques (humidity meters, water flow sensors, irrigation systems, shade nets, drought-resistant seeds, saline resilient seeds, soil tests, water capture techniques) • Fans for livestock cooling • International water productivity database based on satellite data • Early warning systems • Flood-proof plots • Transboundary information-sharing system on water resources
Knowledge	• Training activities/field days for smallholders on the use of climate-smart agricultural techniques • Training activities on dam construction and management for technicians • Joint international training activities on IWRM • Incorporate local knowledge to make adaptation interventions fit the local context • Capacity strengthening of communities and (semi)government institutions on various CCA aspects (IWRM, land administration, WASH, climate-smart agriculture, disaster risk reduction) • Feasibility studies (e.g. for infrastructure or technical investments such as coastal protection and land development) • Studies on various subjects (environmental and social impact assessments, water management, water governance, nature-based solutions, contextualisation of CCA measures, salinity levels, groundwater reserves mapping exercises, flood risk maps, food market/value chain research) • Monitoring and dissemination of meteorological conditions and climatic forecasts
Political/ institutional	• International, national and regional policy dialogues to adjust agricultural policies • Adjustment and update of policies and regulations for adaptation in the water sector • Increased institutional coordination for adaptation in the water sector • Formation of water management groups at community level • Lobby for inclusion of WASH in climate adaptation policies, and for inclusion of environmental standards and climate resilience aspects in quality standards for WASH service providers • Advocacy initiatives at the COP in Glasgow to make the water sector more climate resilient • Transboundary river management • Multi-stakeholder dialogues • Planning for large dams • Registration of land titles
Economic / financial	• Seed company for multiplication and distribution of drought resistant seeds • Land company for land development • Promote new business ventures for smallholders • Connect smallholders to markets, collective buying of inputs and selling produce • Provide direct financial support to smallholders • Vocational training for livelihood diversification • Sign climate-sensitive investment proposals in the water sector • Feasibility studies for leveraging funding • Link to ongoing climate change programmes for maximum leverage • Develop climate- and disaster-proof services and products for bottom of the pyramid consumers • Incorporate responsibilities in case of extreme weather events in WASH service providers contracts • Promote smart public finance and investments that consider the vulnerabilities of WASH services as well as the most-affected people • Establish a disaster risk reduction contingency fund

Strategy type	Strategies encountered
Social / behavioural	• Collective crop planning, use of drought resistant varieties, use of short duration varieties • Maintenance of drainage canals by local population • Participatory planning/community-based planning (agriculture and water use) • Encourage better hygiene practices • Early warning • (Compensation for) resettlement • Create demand for climate-resilient technologies • Promote monitoring of water quality, use and availability • Social contracts with communities on treating catchment areas

3.4 CCA scale scores

The logic of Table 2 in section 1.2 makes it possible to determine the CCA scale scores of the various programmes. Table 6 provides an overview of these scores and the separately published background document provides detailed explanations for each programme.

Table 6: CCA scale scores

Programme	Step 1 - Analysis	Step 2 - Design	Step 3 - Implementation	CCA scale score*
ISA II				Sensitive
ASAP				Responsive/potentially Transformative
FAO Water Productivity				Responsive/potentially Transformative
AIAS				Blind
Gesterra				Blind
DUPC2				Probably Responsive
Cabo Delgado SNV				Sensitive
WaterWorX				Sensitive
Beira Master Plan				Responsive
IWRM Programme				Sensitive/Responsive
SRJS				Responsive
FIPAG				Blind/Sensitive
SaFaL				Responsive
DFS				Blind
NL WASH SDG Programme				Responsive
Blue Gold				Responsive/potentially Transformative
PROOFS				Blind/Sensitive
ORIO				Blind
South West				Responsive

** See Table 2 for definitions, see Table 3 for colour codes*

Due to the limited application of the climate lens, about half of the programmes are given a score of either 'CCA blind' or 'CCA sensitive'. For these programmes, it cannot be verified that they substantially address CCA. This is problematic because they are reported by the Netherlands as climate finance. This situation is partly caused by OECD's marker allocation system. The criteria for assigning markers are relatively light, as the application of the climate lens is not mandatory. It is only recommended as a best practice, and mainly for justifying a 'principal' score. According to a study by Oxfam, this system of climate markers leads to an overestimation of the climate relevance of activities and hence to an overestimation of the bilateral climate finance (Oxfam, 2023). On a positive note, the site visits found that in some cases more was being done in practice than could be deduced from programme documentation. The ISA II programme would have scored CCA blind based on documentation alone, but the site visit found more evidence of CCA strategies. As not all programmes could be visited, this may be

the case for more. Also, some of the programmes may be contributing to resilience or exposure reduction without reporting this (e.g. Gesterra and DFS). To be able to make this claim requires a good analysis in step 1, design in step 2 and implementation in step 3, which shows the importance of dedicated monitoring to capture CCA. Failure to do so can lead to wrong prioritisation or even maladaptation.

The other half of the programmes are given the label CCA responsive. In this category, there are some more detailed analyses of climate risk, vulnerability and exposure that form the basis for the design and implementation of more specific and comprehensive strategies. The Blue Gold programme in Bangladesh is a good example. A detailed analysis of the polders where the programme is implemented identifies risks and vulnerabilities, both physical (e.g. flooding, erosion, salination) and socio-economic (market disruption, health). Based on the analysis, the programme proposes various strategies to address these aspects, such as physical water management infrastructure to reduce exposure to high tides, the use of salt-tolerant crop varieties, training communities in disaster preparedness and response, raising awareness of environmental stewardship, and market-oriented value chain development. Programmes that combine such an array of strategies have the potential to be transformative. What is currently mainly lacking for this, is a greater focus on the long-term results in terms of reduced exposure and increased resilience. For example, FAO's Water Productivity Database has the potential to transform water resource management, but the evaluation found that it has not developed specific long-term strategies to unlock this potential.

3.5 Conclusions on integrating CCA

This section answers the following research question.

> How and to what extent do water and food security programmes funded by the Netherlands apply a climate change adaptation lens and why?

Based on the analysis, the following conclusions can be drawn:

- For most programmes, the analyses of climate change impacts remain rather general, mentioning rising sea levels, droughts, floods and/or cyclones, without taking into account a longer time span, without tailoring this information to local realities, and little distinction between vulnerability and exposure.
- This results in reactive and rather abstract strategies, without a clear explanation for target groups and how interventions should reduce vulnerability and/or exposure.
- Overall, more attention is given to technological, infrastructure and knowledge-based strategies, and less to nature-based, political/institutional, economic/financial and social/behavioural strategies.
- In many cases, implementation was limited and difficult to track, which is directly related to the observation that strategies often remain abstract.
- Due to the limited application of the climate lens, about half of the programmes are given a score of either 'CCA blind' or 'CCA sensitive'. For these programmes, it cannot be verified that they substantially address CCA. This is problematic because they are reported by the Netherlands as climate finance. This situation is partly caused by OECD's marker allocation system, the criteria of which are relatively light. The application of the climate lens is not mandatory, but is only recommended as a best practice, and mainly for justifying a 'principal' score.
- The other half of the programmes are given the label responsive. Several of these programmes have undertaken a more thorough analysis, enabling them to design and implement a more comprehensive/systemic approach with several types of strategies at different levels (e.g. climate-resilient infrastructure, capacity strengthening, governance change, behaviour change). Some are potentially transformative, but they would need to integrate a longer-term perspective.
- There is a positive learning curve. Some programmes started with no concept of CCA but have developed an understanding along the way. While anticipatory action would be preferred, reactive strategies are still very important for CCA.
- Three underlying explanations for the limited application of a climate change adaptation lens were identified:
  - i It was not mandatory for programmes that receive a 'significant' (40%) Rio adaptation marker, which applies to most of the selected programmes. This explains the possibility of having a 'significant' Rio adaptation marker, while having limited attention for CCA integration.

ii The complexity and lack of capacity to provide and interpret long-term and downscaled climate projections. However, this should not preclude more detailed exposure and vulnerability analyses that can already incorporate current and known effects of climate change.
iii Limited capacity in terms of time, expertise and FTEs, both in The Hague and at embassies.

4 National adaptation planning, ownership and alignment

4.1 Adaptation planning in Bangladesh and Mozambique

Both Bangladesh and Mozambique have a National Adaptation Plan (NAP). Bangladesh was one of the pioneers in adaptation planning. It submitted its first National Adaptation Programme of Action in 2005, which was updated in 2009 and 2018, culminating in the current NAP (2023-2050).[34] To prepare these plans, impact and vulnerability assessments were carried out and climate scenarios were developed for 2030 and 2050. These helped identify priority sectors and areas. As a low-lying river delta country vulnerable to rising sea levels and cyclones, much attention has been directed to disaster risk reduction. In both urban and rural areas, this includes measures for flood protection, drainage and dredging, storm surge protection, early warning, cyclone shelters and cyclone-proof housing. Attention has also been paid to knowledge management, health, biodiversity and ecosystems, (institutional) capacity strengthening and food security in terms of climate-resilient crops, livestock and fisheries. An important underlying plan

[34] Source: National Adaptation Plan of Bangladesh (2023-2050).

to achieve these results is the 2018 Bangladesh Delta Plan (BDP2100) for adaptive water management, which was developed with support from the Netherlands.

An analysis by the UNDP concludes that Bangladesh has a long history of implementing adaptation projects in a range of sectors, particularly at the community level, which provides a good basis for scaling up adaptation measures. It also has a solid national policy framework with strong government support, enabling planning and prioritisation. Challenges remain in the areas of finance, gathering and processing climate information, institutional coordination, and integration of climate change adaptation into budgets and performance frameworks (UNDP, 2017). Interviews with several government agencies and site visits confirm this picture. Respondents stated that activities are based on outdated information due to long delays, and many of the larger projects have not commenced implementation due to lack of funding. Respondents added that the BDP2100 lacks integrated implementation. It presents a coherent strategic vision but is implemented through isolated projects where the link between the various parts is lost. Another observation was the concern among government officials about the continued need for technical assistance after Bangladesh's graduation to middle-income status.

Mozambique adopted its National Adaptation Programme of Action in 2007, followed in 2012 by its National Climate Change Adaptation and Mitigation Strategy (2013-2025).[35] A series of climate-related disasters (droughts, floods and storms) since 2000 had created a sense of urgency in the Mozambican government. In response, the adaptation strategy defined both adaptation and climate risk reduction as national priorities. The 2012 strategy defines a wide range of adaptation goals, including strengthening early warning systems; improving water resources management; increasing the resilience of agriculture, livestock and fisheries; maintaining food security, nutrition and health; increasing the capacity of vulnerable people; protecting biodiversity and forests; protecting urban areas; and adapting the development of tourism areas. Through a decentralised and inclusive process, the national strategy is being translated into many local adaptation plans at the district and community levels.

An analysis by the UNDP concludes that while Mozambique has been able to establish a National Climate Change Monitoring and Evaluation System, several gaps and barriers remain, mainly related to government capacity. Insufficient coordination and governance mechanisms lead to a lack of policy coherence at the national, provincial and district levels. There is also a general lack of technical capacity at these levels to mainstream climate change in planning and budgeting systems. Furthermore, climate change and gender-sensitive data and information are poor, which is hampering the planning process (UNDP, 2020). Interviews with government agencies in Mozambique confirm this picture. For example, the National Directorate for Climate Change points to coordination challenges at the district and provincial levels. At these levels, adaptation plans are not integrated with other district/provincial plans, as they lack the capacity for this complex task. The difficulty of national coordination and planning was also mentioned in interviews with other ministries. According to one respondent, this results in a 'wish list' rather than a strategic plan. A common concern was the difficulty of accessing international funds such as the Green Climate Fund to finance all adaptation plans.[36]

4.2 Government ownership of CCA programmes

National ownership of the development programmes is generally high in Mozambique and medium to high in Bangladesh (see Table 7 below). In many cases, national, regional and/or local government entities are involved in or are part of the programme, and as such are able to pursue their priorities. For example, the ISA II programme in Mozambique is implemented by the Zambezi Valley Development Agency (ZVDA), which is a government body with a mandate to develop the lower Zambezi River basin. Its locally owned development programme is aligned with the Mozambican government's policies and programmes, including those on climate change adaptation. It also uses national systems for programme design and implementation, financial management, and monitoring and evaluation. Nevertheless,

35 Source: National Climate Change Adaptation and Mitigation Strategy (2013-2025).

36 On the one hand, respondents blame bureaucratic procedures and the difficulty of distinguishing between adaptation needs and regular development needs. On the other hand, they also acknowledge the role of the 'hidden debt' corruption scandal, which has made it more difficult for Mozambique to obtain the accreditation needed for access.

several programme evaluations have identified a lack of national ownership. In the case of the Water Productivity Database, the MTR concludes that the project needs to find more decentralised and nationally owned implementation structures to foster national engagement and uptake. This is directly related to effectiveness, as the database can only contribute to CCA through uptake.

To create ownership, a demand-driven and inclusive approach with transferral of responsibilities to national actors is important. The evaluation of the DUPC2 programme found weak links with national governments, despite their crucial role in defining the end uses of project results and improving their countries' enabling environment. Conversely, the evaluation of FAO's Water Productivity Database found that a lack of a demand-driven approach based on national/local needs, priorities and opportunities led to lower levels of uptake. The evaluation of ASAP concludes that grants are an attractive mechanism for prioritising government action on adaptation. However, it is uncertain whether this prioritisation is maintained after the grant period. Alternatively, the DUPC2 evaluation finds co-funding to be a mechanism that enhances both local engagement and ownership, contributing to the long-term sustainability of results.

At the same time, government agencies need to have the appropriate capacity to take responsibility and ownership. Site visits to the Blue Gold and South West programmes in Bangladesh found that the sustainability of results was threatened by the weak capacity of the Bangladesh Water Development Board (BWDB), which was supposed to take over responsibilities after the end of the programme. Interviews revealed that the BWDB lacked the financial and human capacity to take ownership of maintenance and to act as a reliable link between the community-based water management groups and the Ministry of Water. Interviews also revealed that the programme did too little to strengthen the capacity of the BWDB. Instead, the programme implementer took on many responsibilities during the implementation phase. Similar aspects are mentioned in the evaluation of the PROOFS programme, where NGOs tend to complement rather than strengthen government services. Also in Mozambique, cases of weak institutional and financial capacity of government institutions were found to affect ownership and sustainability. For instance, the weak meteorological department in Mozambique hampers long-term scenario planning in several sectors, making it more difficult to take control of national adaptation planning. Strengthening institutional capacity may therefore be a prerequisite for ownership.

Table 7: National ownership and alignment to CCA policies

Programme	National ownership	Alignment with CCA policies
ISA II		
ASAP		
FAO Water Productivity		
AIAS		
Gesterra		
DUPC2		
Cabo Delgado SNV		
WaterWorX		
Beira Master Plan		
IWRM Programme		
SRJS	Not applicable	Not applicable
FIPAG		
SaFaL		
DFS		
NL WASH SDG Programme		
PROOFS		
Blue Gold		
ORIO		
South West		

4.3 Alignment with domestic adaptation policies

Alignment with adaptation policies is generally good in Bangladesh. In Bangladesh, a solid national policy framework with strong government support helps to link with adaptation policies, especially the BDP2100 for large water and agriculture programmes such as South West and Blue Gold. While government officials interviewed are usually positive about donor alignment with national adaptation plans, respondents at the embassy note some inconsistencies between different donors. Several large programmes funded by the Asian Development Bank (Assam Project, the Flood and Riverbank Erosion Risk Management Investment Program - FRERMIP) and the World Bank (River Bank Protection Project, the Coastal Embankment Improvement Project), manage different parts of the same river from upstream to downstream, with limited coordination between them. Government bodies such as the Bangladesh Water Development Board are not seen as powerful enough to promote alignment between the two. This leads, among other things, to treating symptoms rather than addressing systemic causes at the river basin level, as confirmed by site visits. For the NL WASH programme, alignment is difficult as few of the (national) climate policies in Bangladesh contain specific WASH policies as they are buried among many competing priorities. The aim of this programme is therefore to promote the integration of WASH policies into climate change policies, on which the MTR concludes that limited progress has been made.

While some of the programmes in Mozambique make a clear link with adaptation policies (e.g. ISA II & BMP), for many this link remains implicit. Links are made to various national policy documents (e.g. agricultural policy) without mentioning adaptation policies. Given the difficulties of coordination between different ministries, it remains unclear whether such a link automatically implies a link to adaptation policy. Furthermore, apart from the BMP, there was no mention of links to local and/or regional adaptation plans, which is remarkable, given the emphasis on local adaptation planning in Mozambique. Interviews with various ministries (Ministry of Economy and Finance, Ministry of Land and Environment Mozambique, National Directorate for Water Resources Management [DNGRH]) revealed that the lack of alignment with national adaptation priorities is generally caused by a lack of donor coordination (different donors pursuing their own priorities) and diverging interests (i.e. donors focusing on income generation and reforestation, while local government wants infrastructure). Respondents also mention an improvement in donor coordination since the recent formation of a coalition of the willing. The Netherlands is mentioned as a good donor coordinator in the area of IWRM and in the case of Beira after cyclone Idai. The coordination mechanisms established by the Beira-NL programme in the years leading up to Idai, facilitated the rapid establishment of a joint damage and needs assessment after Idai. This was instrumental in securing over USD 200 million in donor pledges for recovery.

4.4 Conclusions on government ownership and alignment

This section answers the following research question.

> How does the Dutch policy on integrating CCA into water and food security programmes relate to (sub)national climate adaptation policies and to what extent does it support (sub)national ownership?

Based on the analysis, the following conclusions can be drawn:

- National ownership of the development programmes is generally high in Mozambique and medium to high in Bangladesh. In many cases, national, regional and/or local government entities are involved in or are part of the programme, and as such are able to actively pursue national priorities.
- To create ownership, a demand-driven and inclusive approach with transferral of responsibilities to domestic actors is important. At the same time, the research found that government agencies do not always have the appropriate capacity to take responsibility and ownership.
- Alignment of the selected programmes with adaptation policies is generally good in Bangladesh. In Bangladesh, a solid national policy framework with strong government support helps to establish links with adaptation policies.
- While some of the selected programmes in Mozambique make a clear link with adaptation policies, for many this link remains implicit. Links are made to various national policy documents without mentioning adaptation policies. Given the limited coordination between different ministries in

Mozambique, it remains unclear whether such a link automatically implies a link to adaptation policy. Despite the emphasis on local adaptation planning in Mozambique, for the selected programmes, there was no mention of links to local and/or regional adaptation plans, apart from the Beira Master Plan.

- The lack of alignment is generally caused by a lack of coordination between international donors and diverging interests between donors and the Mozambican government. Coordination has recently started to improve, and the Netherlands is mentioned by government officials as a good donor coordinator in the area of IWRM and in the case of Beira after cyclone Idai.

5 Inclusion of marginalised groups

This section discusses three aspects: (1) marginalisation and climate risk encountered during site visits; (2) an assessment of how programmes are able to reach marginalised groups; and (3) an assessment of the degree to which programmes are able to involve them.

5.1 Marginalisation and climate risk encountered during site visits

Interviews and site visits confirmed that the poorest and most marginalised groups are indeed most vulnerable to the effects of climate change. These groups suffer from compounded risks, where climate change is only one of the many threats to their livelihoods, alongside others such as the recent Covid-19 pandemic, inflation, and/or conflict. Within these groups, the impacts of climate change and other natural disasters often weigh heaviest on women and children, who lack the means to cope.

In Bangladesh, this includes poor households living in polders that are vulnerable to rising sea levels, saltwater intrusion and cyclones. These families have limited means to protect themselves against current climate effects, let alone prepare for future ones. Population growth and a growing middle class are driving up prices in cities, pushing poor people into vulnerable areas such as low-lying polders. They even settle on temporary islands in the delta, known as *chars*. These areas are in constant danger of flooding. On the one hand, sea levels are rising due to climate change, and on the other hand, sedimentation is causing water levels to rise in the rivers. In addition, frequent cyclones cause storm

surges and bring excessive rainfall. These events push back development, which was clearly visible in one polder visited near the city of Satkhira. This polder has been almost permanently inundated since a cyclone in 2011. Site visits to the vulnerable polders in south-west Bangladesh revealed that people are very poor, often relying on subsistence farming, and literally surrounded by water. Several focus group discussions revealed that people do not have the means to settle permanently in areas that are less vulnerable to weather events. Instead, it is mostly men who leave the rural areas for the cities or abroad on a seasonal basis in order to diversify their sources of income, leaving women and children behind.

A similar picture emerged in Mozambique, where poor communities live in places that are highly exposed to the negative impacts of climate change. Around Tete, Cahora Bassa and Angonia, communities have faced droughts, floods and cyclones. Rainfed agriculture has become more difficult due to extended periods of drought followed by shorter and more intense periods of rainfall. Near the Cahora Bassa dam, the SRJS programme found that communities were resorting to maladaptive practices such as slash-and-burn activities, unsustainable fishing and deforestation for charcoal production to compensate for the loss of income from rainfed agriculture. Many communities were unaware of the long-term harmful effects of their practices. In other areas, it has driven many subsistence farmers to settle in flood-prone areas near rivers to farm. Site visits and interviews with farmer groups around Tete and Angonia revealed that women were particularly vulnerable. Lacking access to irrigation pumps, they tended to irrigate their plots by hand, which required them to be close to water sources. Some of the more advanced farmers also settled near rivers for irrigation purposes because it was too expensive to prepare land in safer places. They reported losing several irrigation pumps due to flooding after cyclones. According to a respondent from the ministry responsible for IWRM (DNGRH), the lack of spatial planning and coordination aggravates this situation, as 'the energy sector provides energy to people in places where they should not live, even for public lighting'. In coastal urban settings, the most marginalised groups also live in the most exposed areas, such as the informal neighbourhood of Praia Nova in Beira. This is a low-lying, flood-prone area with dilapidated drainage canals, most of which were destroyed during and after cyclone Idai. In both rural and urban areas, DNGRH finds it difficult to reach the poorest groups with early warning systems, which increases their risk: 'As an institution, we may need to improve strategic communication to explain things to people. These people are poor and have little education. They have no alternatives.' Several respondents stated that a lack of awareness, misinterpretation of the message, distrust and/or fear for loosing (agricultural) investments make early warning systems less effective in reaching these communities.

5.2 Reaching marginalised groups

The majority of programmes face difficulties in reaching the most marginalised groups (see Table 8 below). This relates directly to the IPCC's conclusion that the largest adaptation gaps exist among low-income population groups, and that these gaps will continue to grow at current rates of adaptation planning and implementation (IPCC, 2022). Difficulties arise for various reasons: (1) lack of vulnerability and exposure analyses; (2) a missing link with gender; (3) efficiency dilemmas; (4) a belief in trickle-down logic; and (5) a lack of means to invest in CCA solutions.

First, reaching the poorest and most marginalised groups with relevant interventions requires a thorough climate vulnerability and exposure assessment, which is often lacking. For example, it remains unknown how communities will be reached for FAO's Water Productivity Database and its DFS project. The WaterWorX programme has good plans for reaching marginalised groups, but little is known about their implementation and effects. Even when a good analysis has been done, and specific measures have been designed for the poorest households, reaching them can be difficult. For example, the NL WASH programme in Bangladesh found that despite a strong approach towards inclusion, many structural barriers remain, such as entrenched restrictive social norms that limit the participation of marginalised groups in sanitation development at the village level.

Table 8: Inclusion of marginalised groups	
Programme	**Inclusion of marginalised groups**
ISA II	
ASAP	
FAO Water Productivity	
AIAS	
Gesterra	
DUPC2	
Cabo Delgado SNV	
WaterWorX	
Beira Master Plan	
IWRM Programme	
SRJS	
FIPAG	
SaFaL	
DFS	
NL WASH SDG Programme	
PROOFS	
Blue Gold	
ORIO	
South West	

Second, vulnerability and exposure analyses need to be linked to or integrated with a gender analysis, as women are often the most vulnerable to climate change. Sometimes programmes have good gender and vulnerability analyses that are not linked to climate change. In several cases, the lack of monitoring data makes it difficult to track the implementation of a gender-specific approach (e.g. DUPC2, WaterWorX, the IWRM programme and DFS). In other cases, gender analysis is announced but not implemented, such as FAO's Water Productivity Programme and the ISA II programme. For the ISA II programme, site visits revealed that women could not afford irrigation due to financial barriers, and that the men who owned the pumps did not believe in sharing them for fear they might break. To address such inequalities, programmes need strategies that specifically target women. The involvement of vulnerable women in climate change adaptation should also be sensitive to stigma. In Beira, interviews revealed that marginalised women involved in waste collection to keep drainage channels clean felt ashamed of their work and reported that it was bad for their image. While poverty forced them to do this work, it did not provide them with sufficient income to improve their position (De Zoeten, 2022). Programmes that manage to combine both aspects have more comprehensive approaches and are better able to reach women (ASAP, NL WASH, SaFaL, South West and Blue Gold). The evaluation of SaFaL, for instance, concludes that it has a strong focus on women's empowerment through training and engagement in income-generating activities. It also concludes that women are increasingly involved in decision-making positions at the farm cluster level.

Third, several programmes (choose to) work with groups that are not the most marginalised for reasons of efficiency. This is often related to the logic of return on investment. For example, a World Bank employee in Mozambique stated that the same budget could provide drinking water to many more people in a (semi-) urban environment than to the poorest, dispersed rural communities. For this reason, the Dutch water programme in Mozambique made a conscious decision to focus on semi-urban areas, also based on the findings of the IOB evaluation of water management in Mozambique (IOB, 2012). In the ASAP programme, the evaluators note that the drive for quick, demonstrable results sometimes leads ASAP to work with better-off farmers. In other cases, the drive to create viable market solutions that can be sustained after the programme ends leads programmes to work with (relatively) better-off groups, such as the PROOFS programme. Even a programme with a strong focus on marginalised groups, such as SaFaL in Bangladesh, faces this dilemma. The evaluation questions whether SaFaL should continue

to focus on marginal subsistence and semi-subsistence farmers or whether it should focus more on entrepreneurial farmers to develop sophisticated, self-managed value chains. The researchers conclude that a mix should continue.

Fourth, several programmes assume a trickle-down logic, despite a lack of evidence on the success of such an approach in reaching the most marginalised. Evaluators of the ASAP programme, for instance, conclude that ASAP assumes a trickle-down from better-off farmers to the poorest, without explaining how this should work. Similarly, the ISA II programme relied on more advanced farmers to share their techniques and inputs during training days with subsistence farmers in their area. The idea was that this would help them grow. When asked, only a few cases were mentioned where small farmers had become medium farmers. Site visits revealed that women in particular had limited opportunities to grow, as they tended to have smaller plots, less money to invest and were more likely to irrigate their plots by hand. In Beira, too, the idea of trickle-down, whereby hurricane-proof housing for the middle class would lead to lower house prices and make the housing market more affordable for lower income groups, did not work. This assumption was not tested and proved to be wrong in a context where a middle-income group is almost non-existent (De Zoeten, 2022). Instead of assuming trickle-down effects, the IPCC (2022, p. 34) concludes that: 'the greatest gains in well-being can be achieved by prioritizing finance to reduce climate risk for low-income and marginalized residents including people living in informal settlements'. However, the IPCC finds little evidence of investment in the informal settlements, where the most vulnerable urban residents live.

Fifth, poverty and high interest rates prevent smallholder farmers from investing in adaptation. Climate-smart agriculture and water management often require many inputs and knowledge, which are difficult to obtain for marginalised groups. Shocks also affect the ability and resources to respond. While people are still recovering from the last disaster, they have limited resources to prepare for the next one, which needs to be factored into programmes. For example, the ISA II evaluation found that high-tech equipment and solutions are not an efficient intervention choice in areas where farmers are resource-poor and lack access to markets for replacement and repairs. Site visits to this programme confirmed that, in addition, many farmers, even the more advanced ones, were still recovering from previous cyclones. To overcome this resource gap, interviews with farmer groups in Mozambique revealed the need for a collective approach. By working together, both male and female farmers said they have access to better information and are able to negotiate better prices when buying inputs and selling produce. However, this was less the case for water management and irrigation, as mentioned above. In Bangladesh, such a collective approach to water management has already been implemented by organising subsistence farmers into water management groups (Blue Gold and South West). This approach empowered them to engage in polder management, including infrastructure works such as rehabilitating drainage canals and sluices, which would have been difficult for households to organise. The collective approach resulted in better water management, and, in turn, better agricultural yields. However, the site visits also exposed the fragility of this approach, as group members have little means of sustaining maintenance work without financial support.

5.3 Involving marginalised groups

In addition to difficulties in reaching marginalised groups, programmes also face difficulties in involving them. In most programmes, participation and ownership is low, either because there is no approach to involving marginalised groups, or because of poor implementation and/or monitoring. Sometimes this is even the case with programmes that have a strong poverty focus but have not done enough to promote local ownership (e.g. SNV Cabo Delgado). In the case of the Beira Master Plan, the mayor acknowledged that the focus was more on economic development, with relatively little attention to issues of inclusiveness, consultation and resilience of the most vulnerable population. Recently, more attention has been paid to this aspect. For the IWRM programme, the MTR concludes that both a pro-poor and gender-sensitive approach are lacking, as they are not linked to concrete activities or results. It therefore recommends that these issues be made more visible and integrated into the programme, its components, activities and results framework. The fieldwork activities in Mozambique revealed that women's participation could be improved. Gender equality was rarely mentioned during interviews and it was often difficult to speak to women during site visits (also see: De Zoeten, 2022, pp. 50-52).

Several programmes are able to create local ownership, namely ASAP, SRJS, SaFaL, NL Wash and Blue Gold. For example, ASAP mentions participation and ownership as an important prerequisite for the adoption of CCA practices and social inclusion as an important element of scaling-up. It found that vulnerability mapping and scenario planning have high smallholder participation when designed around experienced shocks. Climatic shocks trigger awareness of the need for CCA and catalyse the adoption of new practices. Combined with addressing farmers' immediate priorities, they are a good entry point for the development of long-term CCA capacity. To enable this, the evaluation finds ample evidence of project field staff spending considerable time with smallholder farmers to understand their needs. The participatory approach has also proved valuable in involving women. Based on gender and social analyses, important steps have been taken to include women and to consider the impact of climate change on their agricultural work. However, according to the evaluators, ASAP should do more to change the circumstances that make women more vulnerable to climate change. In this sense, SaFaL's approach of empowering women in decision-making positions and increasing their involvement in income-generating activities is more transformative.

5.4 Conclusions on the inclusion of marginalised groups

This section answers the following research question.

> How and to what extent does the Dutch policy on integrating CCA into water and food security programmes address the needs of the most marginalised groups?

Based on the analysis, it can be concluded that the majority of programmes have difficulties in reaching and involving the most marginalised groups. The main reason is that a pro-poor and gender approach to CCA is lagging behind in both design and implementation.

- It lags behind in design because of:
  - i a lack of vulnerability and exposure analyses
  - ii a missing link with gender analyses
- It lags behind in implementation because:
  - i Many CCA solutions are not tailored to the knowledge and means of the most marginalised groups, as they are too expensive and/or too complex for them. The trickle-down logic does not work.
  - ii It is more expensive and difficult to reach the most marginalised groups. For reasons of efficiency and/or to achieve 'tangible' results, programmes sometimes focus on (somewhat) better-off groups.
  - iii There is limited use of a participatory approach.
  - iv Marginalised groups often live in exposed locations and suffer from compounded risks that push them further behind.

Some of the more comprehensive programmes that score better at applying the climate lens are also better at reaching and including marginalised groups. In particular, the evaluation of the ASAP programme documents important mechanisms for the inclusion of marginalised groups:

- Inclusion is an important prerequisite for the adoption and scaling up of CCA practices.
- Vulnerability mapping and scenario planning have high participation when designed around experienced shocks, as they show the need for CCA and catalyse the adoption of new practices.
- Addressing immediate needs is a good entry point for developing long-term CCA capacity. Field staff need to spend considerable time with communities to understand these needs.
- Implementing findings from gender and social analyses increases women's participation.

6 Effectiveness of CCA programmes

6.1 Limited insight into the effectiveness of CCA

The main conclusion is that the effectiveness of CCA measures is largely unknown, particularly in the long term. For those programmes that scored either blind or sensitive on the CCA scale, this probably means limited effectiveness due to limited attention for CCA. However, it is also possible that results are missed because they are not reported as CCA results. For instance, some programmes are likely to have some effectiveness, but this is not reported (e.g. DUPC2, SNV Cabo Delgado). In a few cases, effectiveness is not yet known as projects are halfway through and/or there have been delaying factors (e.g. Covid-19, conflict and/or natural hazards). Evaluations are lacking for some large activities in Bangladesh (South West, the Char Development and Settlement Project, FRERMIP). In one case, natural hazards were cited as a reason for the limited effectiveness of CCA measures (NL WASH). This is contradictory, as these were exactly the types of events for which CCA measures were designed, proving their ineffectiveness. For a few programmes (ASAP, FAO Water Productivity, BMP, NL WASH, SaFaL, PROOFS), more is known about their effectiveness, and some positive short-term results are mentioned (see section 6.2 and the background document).

Table 9: Effectiveness of CCA measures

Programme	Short-term effectiveness	Long-term effectiveness
ISA II		
ASAP		
FAO Water Productivity		
AIAS		
Gesterra		
DUPC2		
Cabo Delgado SNV		
WaterWorX		
Beira Master Plan		
IWRM Programme		
SRJS		
FIPAG		
SaFaL		
DFS		
NL WASH SDG Programme		
PROOFS		
Blue Gold		
ORIO		
South West		

An important reason for the lack of insight into the effectiveness of CCA measures is the lack of dedicated M&E for tracking CCA. Almost none of the programmes have clear definitions of results in terms of reduced exposure and increased capacity to absorb, adapt and/or transform (resilience). This is directly related to the limited application of the climate lens (steps 1, 2 and 3), which is the basis for identifying and defining such results. On the one hand, this lack of clarity undermines effectiveness itself, while on the other hand, it can also lead to underreporting, as potential results are missed. For example, the IOB site visits found more examples of adaptation than the evaluation of the same programme (ISA II). The type of results favoured by the ministry can also lead to underreporting, as a respondent from the embassy in Maputo explained: 'Results are underreported due to a quantitative results framework that focuses on indicators such as "How many people have access to water?" How can we measure our institutional capacity building in relation to that?'

In addition to a general lack of M&E, existing M&E efforts are too focused on the need to ensure demonstrable success in the short term, which has several negative consequences. According to the ASAP evaluation, this has overridden local ownership, strained natural resources through rapid scale-up and promoted quicker 'hardware' solutions, rather than less tangible components such as awareness, ownership and capacity. Similar elements are mentioned for the BMP, with more focus on water retention basins and drainage due to the visibility of results and the number of people served. The respondent who noted this also claimed that it takes more courage to invest in something more abstract like the overall Beira Master Plan (which The Netherlands did) with indirect results in the long term. Respondents from the embassy in Maputo add the cycle of build-neglect-repair to the list of negative effects. They refer to a donor tendency to report new water connections rather than maintaining existing ones, which leads to the deterioration of existing ones, which can then be rebuilt and reported as new connections again. They want to break this cycle and put more emphasis on long-term maintenance. These shortcomings in M&E are also noted by the IPCC. They conclude that while M&E is critical for tracking progress and enabling effective adaptation, M&E of adaptation is currently limited and focuses mainly on short-term planning and implementation rather than long-term outcomes (IPCC, 2022).

A major difficulty in defining CCA results is that it is difficult to distinguish them from 'mainstream' development results, as there is considerable overlap between the two. While for some measures it is quite clear that they relate to CCA (e.g. drought-resistant seeds, hurricane-proof housing, coastal protection), for many others it depends on the context whether something would be important for CCA (e.g. capacity strengthening, PSD, WASH), as these can also reduce exposure and vulnerability. A sound analysis of climate, exposure and vulnerability can provide an argument for incorporating both 'mainstream' development interventions and specific CCA interventions to address vulnerability and exposure. As this type of argument is currently lacking, results are likely to be missed because the relevance of certain 'mainstream' development interventions for reducing exposure or building resilience to climate change is not demonstrated. Box 3 below explains this overlap for both exposure and resilience. Policy officers in The Hague acknowledge this overlap. One describes it as a political game of labelling something as CCA that used to be 'mainstream' development. Another points out a contradiction: on the one hand, the international community promotes a systemic approach, while on the other hand, there are very specific funds and projects for climate adaptation.

Box 3: CCA or 'mainstream' development?

Resilience - large overlap
Resilience refers to intangible aspects such as the readiness of a system, the knowledge of communities on how to respond to natural disasters, the capacity of government institutions to plan and implement CCA, the ability of households to generate alternative sources of income, and so on. These types of results and underlying activities can be difficult to distinguish from mainstream development interventions. Many types of 'mainstream' capacity strengthening may be a prerequisite for promoting CCA, e.g. a local government agency may need basic planning and financial skills, or smallholder farmers may need collective approaches in cooperatives to access irrigation schemes. In addition, many regular development interventions in areas such as education, healthcare, private sector development and WASH can directly increase the capacity to absorb, adapt or transform. Given this large overlap, presenting a sound climate and vulnerability analysis is needed to claim such results in relation to resilience against climate change.

Exposure - medium overlap
The concept of exposure mostly refers to infrastructural, technological and nature-based strategies. These are 'tangible' aspects that reduce the likelihood of people or systems being affected by droughts, floods, rising sea levels and cyclones. This includes interventions such as irrigation systems, coastal protection, hurricane-proof housing, drought-resistant seeds, mangrove restoration and borehole drilling. Such measures can be easily distinguished from 'mainstream' development interventions as their usefulness for climate change adaptation is apparent. Nevertheless, even for them, a sound analysis is needed to argue for their contribution to reducing exposure in the long term. For instance, in some areas, irrigation or borehole drilling could lead to the depletion of water resources and as such be a maladaptive practice. The reverse is also true: some 'mainstream' development measures can also be important for reducing exposure, such as rehabilitating a leaky drinking water system to save water during droughts.

6.2 Effectiveness of CCA strategies

This section summarises the findings of those programmes for which more is known about their short-term effectiveness. As the findings are based on a limited number of cases, it serves mainly as an example of what (short-term) effectiveness might look like. Nevertheless, it provides valuable insights and also good examples of CCA results. To verify the validity of the findings, they are linked to IPCC findings. First, two enabling conditions for effective strategies are presented, and then findings and dilemmas per type of strategy are discussed.

6.2.1 Enabling conditions for effectiveness

First, evaluations mention the importance of combining strategies, especially technological and infrastructural ones, with behaviour change and knowledge strategies such as studies and capacity

building (ASAP, BMP, NL WASH, Blue Gold, FIPAG). Knowledge, skills and information are important for the proper maintenance and use of technologies and infrastructure. Combining these strategies therefore ensures sustainability. The IPCC adds the importance of combining infrastructural and nature-based solutions to reduce adaptation costs and contribute to flood control, sanitation, water resource management, landslide prevention and coastal protection (IPCC, 2022). Combining strategies is a challenge even for some of the more comprehensive programmes. The ASAP evaluation mentions that many of the programmes focus on hardware solutions without sufficient attention for strengthening the capacity to use and maintain these solutions properly. The BMP evaluation comes to the opposite conclusion. There was too much emphasis on carrying out (feasibility) studies and too little on following up on the findings of these studies. Overall, the choice of The Netherlands to invest in comprehensive programmes in vulnerable coastal areas (e.g. BMP, BDP2100, SaFaL, Blue Gold, South West) is a good one, as coastal cities and settlements play a particularly important role in advancing climate-resilient development (IPCC, 2022).

Second, evaluations find that a long-term approach is needed to improve effectiveness and avoid maladaptation. The evaluation of FAO's Water Productivity Programme found that a lot of investment had been made in building the Water Productivity Database (in the short term), but not enough thought and effort had gone in its long-term application for CCA, thus limiting the effectiveness of this potentially very useful tool. The ASAP evaluation found that while short-term needs can be a good entry point, more focus is needed on long-term resilience to ensure sustainability. This is consistent with the IPCC's finding (IPCC, 2022, p. 28) that 'Actions that focus on [...] short-term gains often lead to maladaptation if long-term impacts of the adaptation option and long-term adaptation commitment are not taken into account.' Both the ASAP evaluation and the IPCC report mention the option of identifying no-regret solutions for the short term. These solutions mainly relate to improving or conserving natural resources, such as mangrove restoration, pasture land preservation, soil conservation, water storage and efficiency measures, and energy-efficient cook stoves.

6.2.2 Nature-based solutions

The SRJS and ASAP programmes in particular document examples of nature-based strategies. SRJS, for instance, found that wood-saving stoves are an effective way of managing natural resources. They help decrease deforestation, which can contribute to both climate change mitigation and reduced exposure. Reducing the cost of cooking can also help households save income, which can build resilience. The ASAP evaluation found that land rehabilitation, improved cropland management practices and the establishment of agroforestry systems can be considered important risk reduction measures and 'stepping stones' to enhancing people's broader resilience capacities. However, both programmes also found that nature-based solutions can be costly in the short term, which can be a barrier. In the longer term, however, these solutions can be beneficial, such as the SaFaL programme's promotion of the use of organic pesticides in vegetable and fish farming. In the event of flooding, this limits pollution of the inundated area. According to the IPCC (2022), effective nature-based adaptation reduces a range of climate change risks to people, biodiversity and ecosystem services with multiple co-benefits. These benefits include livelihoods, human health and well-being, and the provision of food, fibre and water, as well as contributions to disaster risk reduction and climate change mitigation. Expanding and protecting natural areas and ecosystems is therefore an important adaptation strategy. This is also linked to a pro-poor approach, as marginalised groups often depend on local ecosystems for their livelihoods. In this context, the IPCC particularly emphasises the importance of stepping up nature-based solutions, as protecting biodiversity and ecosystems is fundamental to climate-resilient development.

6.2.3 Infrastructure

While investing in climate-resilient infrastructure is highly relevant and urgently needed to reduce exposure and increase resilience, there are also several pitfalls to avoid. The ASAP evaluation concludes that there has been notable success in building 'hardware', such as water technologies and productive infrastructure. This has included the rehabilitation and maintenance of existing infrastructure, which bodes well for sustainability and efficiency. There is some evidence that climate-resilient infrastructure contributes to absorptive and adaptive capacity, as it has helped smallholder farmers to withstand the impact of floods and made more strategies available to cope with climate change. As such, shocks provide a test case for the effectiveness of CCA measures. The BMP evaluation suggests that the new Development-Related Infrastructure Investment Vehicle (DRIVE) projects are highly likely to contribute to a safer and more resilient Beira. The Blue Gold and South West programmes found that rehabilitating

polder infrastructure helped to improve drainage congestion and water logging conditions, creating a balanced and safer environment for agriculture, fisheries and aquatic life. This improved household incomes, making families more resilient. However, these results are only short-term and there are uncertainties in the long-term.

In the long term, there are sustainability issues associated with investing in infrastructure. Site visits and interviews with FIPAG and AIAS found that while drilling additional boreholes may provide temporary relief during droughts, a long-term strategy was lacking due to limited hydro-geological analysis. For instance, there were no mappings of borehole salinity levels because the private companies drilling the boreholes did not record their findings, and no strategy was presented to prevent aquifer depletion. The ASAP evaluation found that it is difficult to assess how sustainable the 'hardware' introduced by ASAP will prove to be, because of the limited attention given to formal and climate-appropriate exit strategies. Part of such an exit strategy is that programmes should couple hardware solutions with appropriate capacity strengthening to use, maintain, reassess and alter these solutions. Site visits and interviews with the Blue Gold and South West programmes in Bangladesh revealed the same picture. Long-term sustainability was threatened by the weak institutional capacity of the government body that was supposed to take responsibility for the infrastructure and operating water management groups. The IPCC (2022) adds that infrastructure will become more vulnerable with each additional rise in global temperature. This is confirmed by the ASAP evaluation, which found that some of the infrastructure is already weakened by weather events that are projected to worsen in the coming years.

Major infrastructure projects in particular need to be approached carefully to avoid maladaptation. Interviews with several government institutions and the World Bank in Mozambique revealed that while many development programmes support small infrastructural measures, respondents expressed a desire for large dams to regulate river flows. High costs, corruption scandals and environmental and social risks are cited as main reasons for donors' reluctance to invest in such large infrastructure. According to the IPCC, this reluctance is justified because hard defences against flooding 'reduce space for natural processes and represent a severe form of maladaptation for the ecosystems they degrade, replace or fragment, thereby reducing their resilience to climate change and the ability to provide ecosystem services for adaptation' (IPCC, 2022, p. 28). Incorporating biodiversity and autonomous adaptation into long-term planning processes can reduce the risk of maladaptation. This argues for the 'environmental flow' strategy promoted by the SRJS programme, which restores natural processes of seasonal flooding. Another form of maladaptation identified by the IPCC is lock-in effects. Seawalls, for instance, can reduce impacts on people and assets in the short term, but can also lead to lock-in and increased exposure to climate risks in the long term. Such lock-in effects can be avoided if they are integrated into a long-term adaptation plan, such as the BMP and the BDP2100. Finally, several respondents in Mozambique and Bangladesh mentioned that sometimes programmes need to focus on larger geographical areas to avoid maladaptation, i.e. at the transboundary, basin or catchment level.

6.2.4 Technology

Several evaluations and site visits confirmed that the use of technological options is important in reducing exposure and vulnerability. For example, SaFaL found that the adoption of climate-resilient agricultural techniques increased household income and production, making them more resilient to shock. Similarly, ASAP found that food production measures increased incomes, which is likely to increase absorptive capacity and resilience. It also found that technological solutions, like infrastructure, need proper capacity strengthening for use and maintenance. The ORIO evaluation cites an example of a satellite-based early warning system for predicting extreme flood events. Site visits in Mozambique found improvements in water and fuel efficiency through the use of hydrometers, and in Bangladesh improved sluice technology reduced salination and improved water allocation. The evaluation of the ISA II programme found that the use of irrigation reduced dependence on rain (exposure) and increased yields and income (resilience). However, it also found that the cost of purchase, maintenance and repair was too high for many producers. Most switched from drip and sprinkler irrigation to gravity irrigation because it was easier to use and maintain. The IPCC (2022) recognises irrigation as an important technology for providing food security in the face of climate change, but also warns that it needs to be properly managed to avoid potential adverse impacts, including accelerated depletion of (ground) water sources and increased soil salinisation. It also warns that the effectiveness of most water-related adaptation options will decrease as global warming increases.

6.2.5 Knowledge

Enhancing knowledge of climate risks, impacts and their consequences, as well as available adaptation options, promotes societal and policy responses (IPCC, 2022). It is considered a low-risk intervention. Almost all programmes included some form of knowledge strategy, such as capacity strengthening through awareness raising, training, participatory modelling, or information gathering through studies or mapping exercises. Many different actors were targeted with capacity strengthening trajectories. The SaFaL programme targeted farming clusters, and the evaluation found that through constant follow-up and regular information dissemination, they became better at managing significant challenges such as water logging, excessive rainfall and other weather conditions. The evaluation of the ASAP programme notes that capacity strengthening in agricultural production, business and market processes or organisational capacity is likely to be beneficial in building up absorptive capacity and may eventually lead to a transformation in the economic conditions of the groups involved. According to the evaluators, not enough has been done to build smallholders' adaptive capacity, as many projects focus more on hardware, and that a lack of adaptive capacity presents a general concern for sustainability. This problem was encountered in several programmes, such as the low institutional capacity of the Beira municipality and the Bangladesh Water Development Boards.

The effectiveness of knowledge strategies is enhanced when they are linked to concrete implementation and when they make use of different types of knowledge. The evaluation of FAO's Water Productivity Programme found that the effectiveness of capacity strengthening activities was lower because they were not linked to field activities and actual cases. The same applies to studies, which should be linked to concrete follow-up. The evaluation of the BMP found that two-thirds of the programme's budget was spent on feasibility studies, process support and technical assistance, with limited concrete follow-up (e.g. in terms of better infrastructure). Respondents at the embassy noted that this was a deliberate strategy to use a limited budget efficiently to leverage funding from other donors. This strategy could pay off in the future, but there are risks. It could be that no one follows up on the results, or that other donors conduct their own feasibility study when considering implementation, a case mentioned by a respondent from the Mozambican government. Nevertheless, studies that are of direct use are highly valued, such as the mapping of flood risks, aquifers and borehole salinity. Another important element of knowledge and information strategies is that they should combine different types of knowledge. According to the IPCC (2022, p. 32): 'Evidence shows that climate resilient development processes link scientific, Indigenous, local, practitioner and other forms of knowledge, and are more effective and sustainable because they are locally appropriate and lead to more legitimate, relevant and effective actions.' The NL WASH programme and ASAP present strong strategies in this regard. Conversely, the evaluation of FAO's Water Productivity Programme found that the effectiveness of capacity strengthening activities was lower because local trainers were not used, and the evaluation of the BMP found that Dutch consultants were mainly used for the studies, which was criticised by several respondents.

6.2.6 Political/institutional

Climate change adaptation measures are more effective when they are supported by the right policies and (government) institutions. There is some attention for this aspect in the programmes, but given its importance there could be more. This is also the conclusion of the ASAP evaluation, which found that governance changes provide an enabling architecture that bodes well for sustainability of CCA strategies and increase the likelihood that interventions will reach the necessary scale in the future. Examples include aiming for better governance in the water sector (DUPC2), advocacy initiatives at the CoP in Glasgow (WaterWorX), international negotiations on IWRM (PRIMAII), adjustment and updating of adaptation policies, regulations and institutional coordination (IWRM programme), the development of the Beira Master Plan as a localised adaptation policy (BMP), and efforts to integrate WASH into adaptation policies in Bangladesh (NL WASH). The IPCC identifies several enabling factors for successful governance change, including political commitment, institutional frameworks, policies and instruments with clear goals and priorities, and inclusive governance processes (IPCC, 2022). As policies and governance processes can only be implemented by strong institutions, there is a close link here with capacity strengthening efforts, which have been identified as an important enabler by several programmes.

6.2.7 Economic/financial

Economic and financial strategies are particularly important for strengthening people's resilience. These include strategies for income generation and livelihood diversification, weather-related insurance funds,

involving the private sector in CCA activities, and introducing or strengthening market-driven processes. Several programmes use such strategies. The BMP, for instance, implemented vocational training for women and youth, and the South West programme trained farmers to increase their production of crops and fish for higher and more diversified incomes to make households more resilient. The ASAP evaluation found that such livelihood strategies were likely to increase the absorptive capacity and resilience of smallholder farmers. This is consistent with the IPCC's (2022) conclusion that livelihood diversification and employment in climate-sensitive economic activities enhances resilience, particularly for low-income and marginalised groups. Site visits to a remote community supported by the SRJS programme in Mozambique showed that the introduction of alternative livelihoods for a group of women proved to be beneficial to them. A small starting grant enabled them to set up a small business. To sustain this over time, a savings group was set up, which continued after the programme ended. The women said that this initiative had taught them that they could contribute to the household income, and they provided several examples of how they had done this, including selling fish, baking cakes and rearing livestock. However, their businesses also proved very vulnerable to external shocks, as some collapsed during the Covid-19 pandemic.

The main dilemma for economic and financial strategies is how to reach and include the most marginalised groups when introducing market mechanisms. In many cases, programmes try to establish market linkages in agricultural value chains (e.g. ISA II, Blue Gold, SaFaL, SNV Cabo Delgado, ASAP). On the one hand, they can improve the sustainability and upscaling of solutions, but on the other hand, they can exclude most marginalised groups. Working with a market-based logic tends to drive programmes away from the most marginalised groups, as they cannot afford competitive prices for products, (insurance) fees and services. As the 'trickle-down' effect does not manifest itself as anticipated, it can lead to these groups' exclusion. The ISA II programme is a good example of this dilemma. On the one hand, by strengthening market linkages through the collective sale of produce and the purchase of inputs, farmers fetch a better price. On the other hand, many market actors demand consistent quality and year-round production, which in turn requires the use of expensive techniques and intricate planning and coordination. As the ISA II evaluation concluded, this is not feasible for subsistence farmers. Site visits to the plots revealed that some farmer groups were experimenting with this, but that even when they succeeded, success could be fragile. They were supplying mining companies with vegetables, but lost these contracts due to Covid-19. Therefore, it is important to keep monitoring the validity of the assumptions behind such approaches. The SaFaL programme, for instance, assumed that market linkages would help farmers enter into new business ventures in the supply chain. This was expected to lead to higher incomes that would enable them to invest and diversify, thereby increasing their resilience. The evaluation found that this line of reasoning mainly applies to more entrepreneurial farmers, who can help build more sophisticated value chains, but less so to subsistence farmers. Finally, some of the water programmes, such as AIAS, FIPAG and WaterWorX, are trying to overcome this dilemma by using a better financial position as a precondition for improving services in poor areas. AIAS, for instance, offers water operators a package deal in which they combine high revenue areas with low revenue areas to increase service delivery to marginalised groups.

6.2.8 Social/behavioural

Promoting climate-resilient behaviour change is related to and partly overlaps with knowledge strategies. Typically, training or awareness-raising campaigns are used to change the way institutions, communities and/or individuals act. As was explained in section 5.2.3, it is important to link behaviour change to actual shocks experienced, as these are catalysts for the adoption of new practices. For example, interviews in Beira revealed that the cyclones had increased the mentality or sense of urgency to prepare Beira for the rainy season. Vulnerable and weak trees are being cut down, sand(bags) are being placed on roofs and ditches are being cleaned. Many of the farmers interviewed in the Tete region were also aware of the danger of cyclones, improving the reach of early warning systems. Nevertheless, further efforts are needed as unsafe behaviour, such as settling near rivers, remains problematic.

According to the IPCC, integrating CCA into social protection programmes, such as cash transfers or public works programmes, is also a highly feasible way to build resilience to climate change. They note that social safety nets are increasingly being reconfigured to build adaptive capacities among the most vulnerable in both urban and rural communities, and that such safety nets have strong co-benefits with development goals such as education, poverty reduction, gender inclusion and food security (IPCC, 2022). Only a small number of programmes in our sample used such a strategy, for instance ASAP and

SRJS, which provided cash transfers and small grants, both of which had positive short-term impacts but uncertain long-term ones. The Blue Gold programme used a public works programme for landless farmers, which increased their income slightly and temporarily, but could not be continued after the end of the programme due to lack of funds. In Beira, women were employed to clean communities to prevent the tertiary drainage canals from becoming clogged. However, as noted above, this did not improve their position.

6.3 Reflections on the effectiveness of CCA

Overall, the research found that current CCA activities (in general, not specifically those supported by NL) are insufficient to prepare vulnerable countries such as Bangladesh and Mozambique for the negative effects of climate change. This conclusion is directly in line with the latest United Nations Environment Programme (UNEP) Gap Report, which concludes that international adaptation finance flows to developing countries are 5-10 times lower than estimated needs and that the gap is widening (UNEP, 2022). IOB's site visits, interviews and focus group discussions revealed that in Bangladesh, many people are struggling to cope with current climatic conditions, while in Mozambique, cities and communities are still recovering from previous shocks such as droughts, floods and cyclones. In both countries, marginalised groups were particularly affected. Examples of loss and damage were widespread. In Mozambique, this included collapsed bridges due to flooding (Tete), damaged water inlets due to erosion and flooding (Moamba, Beira), damaged buildings (Beira), damaged irrigation systems (near Tete and near Beira), and reports of reduced industrial and agricultural productivity due to water shortages (near Maputo). In Bangladesh, site visits in the south-west region revealed flooded polders that can no longer drain naturally; salination of arable land; damaged water management infrastructure, including embankments, sluice gates, drainage/irrigation canals, culverts, and roads; and changes in river courses causing widespread loss of land, houses and infrastructure.

Several respondents from ministries and local government institutions pointed out that measures are too dispersed, too small, and that their budgets are insufficient. Particularly for slow-onset events such as droughts, there is a lack of long-term vision and a risk of maladaptation. Even for programmes with a thorough approach to integrating CCA and a strong focus on reducing vulnerability (e.g. ASAP, NL WASH and Blue Gold), the conclusion is that their efforts are insufficient. ASAP is a large programme that is fully dedicated to CCA and one of the few with positive results (in the short term). Nevertheless, the evaluation concludes that in no country have ASAP interventions reached the full scale needed and that the challenges smallholders face in coping with climate change remain. The NL WASH programme, found that despite a strong focus on marginalisation, climate change had actually worsened access to water for the most marginalised groups during implementation of the programme. For Blue Gold, site visits revealed that reaching the necessary scale is an issue, as many of the problems in the polders (sedimentation, floods, salination) are related to upstream river management, which is not part of the programme. These findings underscore the importance of scaling up CCA.

6.4 Conclusions on the effectiveness of CCA

This section answers the following research question.

> To what extent is it possible to determine the effectiveness of CCA measures in terms of reduced risk (e.g. increased resilience and/or decreased exposure)?

Based on the analysis, the following conclusions can be drawn:

- Effectiveness is largely unknown, especially for the long term, for the following reasons:
  - i Limited attention for CCA as only half of the programmes are responsive. This indicates low effectiveness.
  - ii Timing: some programmes are only halfway through, so it is too early to measure.
  - iii Lack of M&E to track exposure and vulnerability, with possible underreporting.
  - iv Difficulty in distinguishing between CCA and 'mainstream' development results, which may also lead to underreporting.

- Several programmes, particularly the more comprehensive ones, report some positive short-term results in terms of reduced vulnerability (e.g. increased yields and income) and reduced exposure (communities able to withstand the impact of extreme weather).
- Enabling conditions for effectiveness include a long-term approach and a combination of different types of strategies.
- For each type of strategy, the following lessons from the review should be taken into account:
  - i Nature-based: Fundamental for the conservation of natural resources on which many communities depend for their livelihoods. Good no-regret solution in cases of uncertainty.
  - ii Infrastructural: Important for adaptation but avoid pitfalls with maladaptation, corruption, environmental and social issues, maintenance and lock-in effects.
  - iii Technological: For effective application, technologies need to be tailored to target groups in terms of available knowledge and resources for use, maintenance and repair.
  - iv Knowledge: Good low-risk intervention for building up absorptive capacity. More effective when linked to concrete implementation and combined with local knowledge.
  - v Political/institutional: Governance changes provide an enabling architecture for sustainability and for reaching the necessary scale of CCA strategies in the future.
  - vi Economic/financial: Especially important for strengthening people's resilience. The main dilemma is how to include the most marginalised groups, as 'trickle-down' logic does not work.
  - vii Social/behavioural: Link behaviour change to immediate needs and actually experienced shocks, as these catalyse the adoption of new practices.
- Overall, the research found that current CCA measures (in general, not specifically those supported by NL) are insufficient to prepare vulnerable countries such as Bangladesh and Mozambique for the negative effects of climate change.

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Abbreviations and acronyms

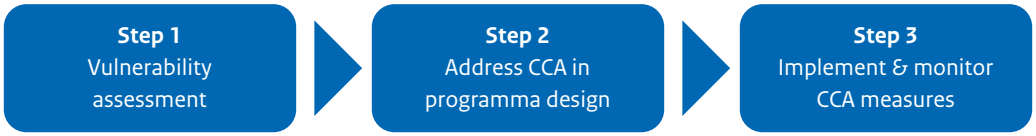
AIAS	Water Supply and Sanitation Infrastructure Administration
ARA	Regional Water Administration Mozambique
ASAP	Adaptation for Smallholder Agriculture Programme
BDP2100	Bangladesh Delta Plan 2100
BHOS	Foreign Trade and Development Cooperation
BMP	Beira Master Plan
BWDB	Bangladesh Water Development Board
CCA	climate change adaption
CCM	climate change mitigation
CENOE	Regional Emergency Operation Centres
COP	Conference of Parties
DAC	Development Assistance Committee
DDE	Directorate for Sustainable Economic Growth
DGIS	Directorate-General for International Cooperation
DNGRH	National Directorate for Water Resources Management
DRR	disaster risk reduction
DSO	Social Development Department
DUPC	DGIS - IHE Programmatic Cooperation
FAO	Food and Agricultural Organization
FIPAG	Fund for Investment and Assets of Water Supply
FRERMIP	Flood and Riverbank Erosion Risk Management Investment Program
FTE	full-time equivalent
IDB	Inter-American Development Bank
IFAD	International Fund for Agricultural Development
IGG	Department for Inclusive Green Growth
IHE	Delft Institute for Water Education
INAM	Mozambique National Meteorology Institute
INGC	Mozambique National Institute of Disaster Management
IOB	Policy and Operations Evaluation Department
IPCC	Intergovernmental Panel on Climate Change
ISA	Support to Inclusive and Sustainable Agricultural Development in the Zambezi Valley
IUCN	International Union for Conservation of Nature
IWRM	Integrated Water Resources Management
M&E	monitoring and evaluation
MDB	Multilateral Development Bank
MI-BZ	Management Information system of the Ministry
MTR	Mid-term review
ND-GAIN	University of Notre Dame Global Adaptation Initiative
NGO	non-governmental organisation
NL	The Netherlands
ODA	official development assistance
OECD	Organisation for Economic Co-operation and Development
ORIO	Facility for Infrastructure Development
PPP	public-private partnership
PROOFS	Profitable Opportunities for Food Security
PSD	private-sector development
RVO	Netherlands Enterprise Agency
SaFaL	Sustainable Agriculture, Food Security and Linkages
SASB	Beira Autonomous Sanitation Service
SDG	Sustainable Development Goal
SDUB	Land Development Company Beira
SNV	Netherlands Development Organisation
SRJS	Shared Resources Joint Solutions
ToC	Theory of Change

ToR	Terms of Reference
UN	United Nations
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
USD	United States Dollar
VEI	Vitens Evides International
WASH	Water, Sanitation and Hygiene
WMG	Water Management Group
WMO	Water Management Organisation
WWF	World Wide Fund for Nature
ZVDA	Zambezi Valley Development Agency

Annexes

Annex A - Analysis strategy/interview guide

For projects/programmes provide a description of:



Step 1 - Climate change risk profile:

- How have climate scenarios been taken into consideration to assess potential exposure?
- Has an assessment been made of the potential impact of climate change on programme objectives?
- Has an assessment been made of the adaptive capacity to modulate these potential impacts?

Step 2 – Adaptation strategies

- How has step 1 informed the design of the programme?
- What type of strategies does it employ to reduce risk/exposure and/or increase resilience? (See table below for reference)

Arena of engagement	Intervention types	Description
Ecological	Nature-based options	Activities that make use of ecosystems and biodiversity as well as sustainable management, conservation and restoration of ecosystems.
Infrastructural	Built infrastructure/ structural	Any new or improved hard physical infrastructure designed to provide direct or indirect protection against climate hazards.
Technology	Technological options	Development or extension of climate-resilient technologies.
Knowledge	Informational/ educational	Development of human resources, institutions and communities to enable them to adapt to climate change.
Political	Institutional/planning/ policy/ laws/regulations	The creation of new or revised policies or regulations to allow flexibility to adapt to changing climate.
Economic & financial	Income diversification, financial/market mechanisms	Activities that include income generation, financial transactions or are market driven.
Socio-cultural	Social/behavioural	Activities that include social support and change or behaviour change.

Step 3 - Implementation

- To what extent are these strategies being implemented?
- To what extent are they flexible and updated as circumstances change?
- How are they monitored, and how is success measured?

Step 4 – Compare the selected programmes with the CCA scale

- Provide a description of each step
- Provide an (aggregated) analysis of the applicable CCA labels
- Focus on description and explanation (the how and the why)

CCA label	Description	Score step 1	Score step 2	Score step 3	Risk of future negative impacts
CCA maladaptive	The programme increases vulnerability	-	-	-	Highest
CCA blind	The programme does not take vulnerability into account	0	0	0	High
CCA sensitive	The programme addresses vulnerability in its design, but less so in implementation	+	+	0	High
CCA responsive	The programme addresses vulnerability in specific actions	+	+	+	Medium to low
CCA transformative	The programme addresses the root causes of vulnerability	++	++	++	Lowest

Step 5 – Marginalised groups

- Determine the programme's focus on marginalised groups: To what extent are they reached, how are they involved, to what extent does the programme meet their needs?
- Focus on description and explanations (the how and the why)

Step 6 – Fit with national/regional adaptation plan

- How does the programme fit with national/regional adaptation policies?
- Focus on description and explanation (the how and the why)

Step 7 – Effectiveness

- Is there any information on effectiveness in terms of increased resilience (capacity to absorb, adapt and/or transform) and reduced vulnerability?
- Focus on description and explanation (the how, the how much and the why)

Annex B - Case selection

The selection of cases for this study was coordinated with the ongoing study on policy coherence in the BHOS article 2 policy. This was done to ensure synergy between the two studies in terms of feeding into each other and saving time and money by organising joint site visits. For this to work, both subjects needed to be prominent in the case countries. A first selection criterion was therefore based on the amount of spending, both in terms of the various sub-articles of BHOS article 2 for the coherence study and in terms of climate adaptation for this study. The table below presents the countries that emerged after applying this criterion. Based on spending, the top four countries were Ethiopia, Rwanda, Bangladesh and Mozambique. Bangladesh and Mozambique were mainly selected for their interesting policy coherence hotspots[37] and diversity in terms of climate adaptation programmes.[38]

Spending on policy goals per country (in MLN EUR, 2017-2021)

Country	Food Security (BHOS art. 2.1)	Water (BHOS art. 2.2)	Climate (BHOS art. 2.3)	Climate adaptation marker	Climate mitigation marker
Ethiopia	216	23	0.8	67	15
Rwanda	103	34	0.2	39	4
Bangladesh	49	84	0.0	49	3
Mozambique	53	41	5.9	31	8
Benin	33	55	*	34	9
Kenya	34	35	2.1	23	5
Uganda	57	9	1.1	23	5
Ghana	41	20	0.0	17	9

**Not all funds under BHOS art. 2.3 can be traced to the country level*

For this study on integrating CCA into development, the main goal of the case selection was to capture the complexity of integrating CCA into development. This complexity has several dimensions related to the type of climate change effects (e.g. droughts, storms, rising sea levels), the type of development programme (e.g. agriculture, water), and different social, political and economic contexts. The aim of the case selection was to diversify along these dimensions to see how the integration of CCA factors in all these different aspects. To this end, a list of different climate adaptation strategies was first drawn up in relation to different climate change impacts and different types of development programmes. Based on this list, the countries were scored on the number of activities that were implemented between 2016-2020 on these different CCA strategies (see list and table below). The same four countries score well on this criterion. Mozambique and Bangladesh were chosen as they have a higher diversity of strategies, while Ethiopia and Rwanda focus mainly on food security issues. In addition, by selecting two country cases from different continents (South Asia and Southern Africa), the research ensured a varied social, economic and political context for integrating CCA into development.

Based on a literature review commissioned to a group of master's students at Wageningen University & Research, the following list of CCA strategies was compiled:

1. Flood protection

a. Conservation of ecosystems (forests, coastal zones, river borders) to reduce vulnerability.
b. Disaster risk reduction (early warning, community development, shelters).
c. Infrastructure:
    i Resilient infrastructure, roads, buildings.
    ii Cyclone shelters
d. Land use planning, anticipating flood and drought risks, and reserving land for specific purposes (agriculture, nature/forest, built-up areas).
    i Land tenure, land ownership.

37 See the ToR of the coherence study for details.
38 The coherence study will include Ethiopia as it has more time available.

2. Irrigation

a. Water efficiency (crop per drop) and
b. Water accounting (water balance) in irrigation schemes.
c. Adapted seeds and practices (salt tolerant, crop residues).

3. Rainfed agriculture

a. Drought-resistant farm practices (heat and drought-tolerant crops, varieties; tillage methods).
b. Reducing land degradation and increasing water retention and buffering capacity by (i) soil and water conservation, and (ii) agroforestry (integrating trees/perennials in farming).
c. Agroforestry, e.g. cocoa, oil palm and coffee, to reduce deforestation.
d. Weather information for farmers:
    i Weather-based advice to farmers (pastures: sowing, fertilising, spraying).
    ii Weather-based insurance linked to rural credit for farm inputs.

4. River basin management (incl. international)

a. Integrated water management plans (e.g. Beira, Jakarta, Bangladesh).
b. Large dams for hydropower (and irrigation).
c. Governance of national or local rivers and catchments, different water users.
d. Management of transboundary rivers (Nile, Senegal).

5. Water and sanitation

a. Climate proofing of drinking water and sanitation (against drought and floods).
b. Micro catchments, water use planning.

6. Income diversification

a. Farm diversification to reduce the risk and impact of complete crop failures.
    i Introduction of new crops, new varieties.
    ii Value chain development, linking to markets.
    iii Food and nutrition security, self-sufficiency.
b. Non-farm income, jobs.

Number of activities with a climate adaptation-marker (based on MIBZ project spending 2016-2020). Bangladesh was added based on experience of the research team.

Strategy / Country	Benin	Ethiopia	Ghana	Kenya	Mozambique	Uganda	Rwanda	Bangladesh
1a ecosystems		2		2	4		4	+
1b DRR		1			9		1	+
1ci Infra general		1		2	7		4	+
1cii Cyclone shelters					2			
1d Land plan; tenure	3	1		2	11	1	3	+
2a Water efficiency	1		1	1	1		2	+
2b water accounting		1		1				+
2c Adapted practices	2	7			1		2	+
3a Drought resistant practices	1	6	1	2			2	
3b soil and water conservation	1	11		3	3		6	
3c Agroforestry		1	3	4		1	1	
3di Weather information								+
3dii Weather-based insurance								
4a Integrated water mgt		4		4	8		3	+
4b Large dams								
4c Governance rivers		4	1	4	8	2	4	+
4d Governance transboundary					1		3	
5a WASH	7	14	4	13	6	6	5	
5b Micro catchments		11	2	3	8	1	5	+
6ai Farm diversification		8	1	1	5	4	2	+
6aii Value chain development	8	19	12	11	3	10	10	+
6aiii Food and nutrition security	5	11	4	12	6	9	2	
6b Income, jobs	5	4	8	2	4	7		+

Annex C - Evaluation Matrix

Research question	Data gathering techniques and sources
1. *How and to what extent do Dutch development programmes apply a climate change adaptation lens and why?*	Interviews • Policy officers MFA (IGG, embassies) • Project staff and beneficiaries in case countries • Government officials and policy officers at various levels in case countries • External experts Document review • Policy documents NL: policy briefs, ToCs, appraisal documents, etc. • Project documentation Observation • Project site visits in case countries Systematic review • Analyse how existing evaluations integrate CCA
2. *How does the Dutch policy on integrating CCA into development relate to (sub)national climate adaptation policies?*	Interviews • Government officials and policy officers at various levels in case countries • Experts in case countries Document review • National/regional/local CCA policies and strategies in case countries
3. *How and to what extent does the Dutch policy on integrating CCA into development address the needs of the most marginalised groups?*	Interviews • Representatives of the most marginalised groups • Project staff and beneficiaries in case countries • Government officials and policy officers at various levels in case countries • External experts Document review • Project documentation Observation • Project site visits in case countries Systematic review • Analyse existing evaluations on (the reach of) marginalised groups
4. *To what extent do CCA measures reduce vulnerability and what explains these results?*	Interviews • Policy officers MFA (IGG, embassies) • Project staff and beneficiaries in case countries • Government officials and policy officers at various levels in case countries • External experts Document review • Project documentation/monitoring systems Observation • Project site visits in case countries Systematic review • Analyse findings of existing evaluations on effectiveness of CCA

Annex D - Selected CCA activities in Bangladesh and Mozambique

Selected activities Bangladesh								
Sub-article	**Budget holder**	**Activity name**	**Activity start / end**	**Executing organisation**	**Channel**	**Disbursements in country 2016-2022**	**Total budget**	**CA %**
Food security	DHA	Sustainable Agriculture, Food Security, and Linkages (SaFaL)	01-11-2012 / 31-12-2017	Solidaridad Network Asia Limited	NGO	€6,162,377	€14,998,579	40%
Food security	DHA	Sustainable Agriculture, Food Security, and Linkages II (SaFaL)	01-07-2017 / 30-06-2022	Solidaridad Network Asia Limited	NGO	€14,489,864	€14,813,444	40%
Water	DHA	Southwest Area Integrated Water Resources Planning and Management Project	01-11-2015 / 30-06-2023	Asian Development Bank	MDB	€4,798,922	€6,323,000	40%
Water	DHA	Blue Gold Programme	01-01-2012 / 31-12-2021	Recipient Government Group	Gov	€41,758,052	€62,670,000	40%
Food security	DHA	Dhaka Food Systems Project (DFS)	01-07-2018 / 31-12-2023	Food and Agriculture Organization (FAO)	UN	€11,136,007	€11,049,048	40%
Water	IGG	NL WASH SDG Programme	01-01-2017 / 30-06-2024	Simavi	NGO	€7,783,709	€65,000,000	40%
Water	IGG	WASH Alliance 2016	27-10-2015 / 31-12-2017	Simavi	NGO	€1,200,000	€6,000,000	40%
PSD	DDE	Facility for Infrastructure Development (ORIO)	01-03-2009 / 31-12-2026	Netherlands Enterprise Agency (RVO)	Gov	€3,397,990	€942,208,422	23%
Food security	DHA	Profitable Opportunities for Food Security (PROOFs)	01-07-2013 / 31-12-2018	Interchurch Organization For Development Cooperation (ICCO)	NGO	€3,944,676	€11,599,226	40%
Water	IGG	DGIS UNESCO-IHE Programmatic Cooperation 2 (DUPC2)	01-12-2015 / 31-12-2024	UNESCO-IHE	Uni (UN)	€1,408,889	€40,453,863	40%
Food security	DDE	Agricultural Smallholder Adaptation Programme (ASAP)	01-11-2012 / 09-12-2020	International Fund for Agricultural Development (IFAD)	UN	€1,000,000	€40,000,000	100%
					Sum	**€97,080,488**		
				Total disbursements climate adaptation activities Bangladesh*		**€174,363,733**		

* This includes disbursements allocated to Bangladesh that had either a climate change adaptation Rio marker or a certain percentage allocated to climate change (undetermined). Note that the activities in the 'undetermined' category could have both adaptation and/or mitigation objectives. All activities with only a climate change mitigation Rio marker were excluded from the selection. This figure is likely to be a slight underestimate of the actual total disbursements for climate change adaptation, as the Ministry's Management Information System (MI-BZ) does not provide a country-specific allocation for all programmes.

Selected activities Mozambique								
Sub-article	**Budget holder**	**Activity name**	**Activity start/ end**	**Executing organisation**	**Channel**	**Disbursements in country 2016-2021**	**Total budget**	**CA %**
Food security	DDE	Agricultural Smallholder Adaptation Programme (ASAP)	11-01-2012 / 12-09-2020	International Fund for Agricultural Development (IFAD)	UN	€400,000	€40,000,000	100%
Water	MAP	Capacity Building for operations of Secondary Urban water Systems and Urban Sanitation (AIAS)	01-01-2013 / 10-11-2019	Administracao De Infra-Estruturas De Agua e Saneamento (AIAS)	Gov	€6,216,455	€9,480,709	40%
Water	IGG	DGIS UNESCO-IHE Programmatic Cooperation 2 (DUPC2)	12-01-2015 / 31-12-2024	UNESCO-IHE	Uni (UN)	€1,320,889	€40,453,863	40%
Water	MAP	Institutional Support FIPAG	06-01-2011 / 12-31-2017	Fipag Maputo	PPP	€474,140	€7,050,000	40%
Water	MAP	Institutional Support FIPAG	01-01-2016 / 31-12-2022	VEI B.V.	PPP	€15,786,787	€17,500,000	40%
Water	MAP	Integrated Water Resources Management Fund	08-01-2019 / 31-07-2025	Multiple Parties	Gov	€8,186,005	€21,000,000	40%
Food security	MAP	Land Management and Administration (Gesterra)	08-01-2013 / 12-31-2019	Ministerio Da Agricultura	Gov	€5,875,802	€11,656,000	40%
Food security	MAP	Value Chain & Youth Development Programme (Cabo Delgado)	07-01-2019 / 31-07-2024	SNV	NGO	€8,759,660	€11,150,000	40%
Civil society	IGG	Shared Resources, Joint Solutions	10-01-2015 / 31-12-2021	IUCN, WWF	NGO	€2,374,802	€59,523,750	20%
Food security	MAP	WaterWorX	16-11-2017 / 31-12-2022	UNICEF	UN	€1,749,142	€3,600,000	40%
Food security	MAP	Support to inclusive and sustainable agricultural development in the Zambezi Valley (ISA-II)	01-01-2017 / 31-12-2023	Ministerio da Economia e Financas	Gov	€22,518,633	€23,984,120	40%
Water	MAP	Support to inclusive and sustainable agricultural development in the Zambezi Valley (ISA-II)	31-12-2021 / 31-12-2023	Business and other services	Gov	€984,120	€984,120	40%
Food security	MAP	ZAMBEZI VALLEY AGENCY (related to ISA-II)	11-01-2012 / 12-31-2018	Ministry of Planning and Development Maputo	Gov	€17,218,264	€17,497,789	40%
Water	MAP	MAP WATER PRODUCTIVITY (related to ISA-II and FAO Water Productivity database)	07-01-2016 / 30-06-2018	Ministerio da Economia e Financas	Gov	€1,561,057	€1,561,057	100%

Sub-article	Budget holder	Activity name	Activity start/ end	Executing organisation	Channel	Disbursements in country 2016-2021	Total budget	CA %
Water	IGG	Water productivity	03-09-2015 / 31-12-2022	Food and Agriculture Organization (FAO)	UN	€674,380	€11,074,695	40%
Water	IGG	Water Productivity Database Phase 2	11-01-2020 / 31-12-2026	Food and Agriculture Organization (FAO)	UN	€480,000	€17,797,160	40%
PSD	DDE	Facility for Infrastructure Development (ORIO)	03-01-2009 / 31-12-2026	Netherlands Enterprise Agency (RVO)	Gov	€5,096,985	€942,208,422	23%
Water	MAP	Implementation Beira Master Plan (BMP)	10-09-2017 / 11-08-2018	No organisation name specified	Gov	€3,433,110	€4,205,884	100%
Water	MAP	MAP/ Maraza Land Development Pilot Project (related to BMP)	06-07-2019 / 31-01-2023	Conselho Municipal Beira	NGO	€2,395,036	€1,000,000	100%
Water	MAP	Rapid Intervention Plan Beira	04-01-2019 / 31-12-2022	VEI B.V.	PPP	€1,757,500	€1,850,000	40%
					Sum	€107,262,767		
					Total disbursements climate adaptation activities Mozambique*	€176,557,097		

* This includes disbursements allocated to Mozambique that had either a climate change adaptation Rio marker or a certain percentage allocated to climate change (undetermined). Note that the activities in the 'undetermined' category could have both adaptation and/or mitigation objectives. All activities with only a climate change mitigation Rio marker were excluded from the selection. This figure is likely to be a slight underestimate of the actual total disbursements for climate change adaptation, as the Ministry's Management Information System (MI-BZ) does not provide a country-specific allocation for all programmes.

Annex E - List of evaluations

Programme	Evaluation
ISA II	MDF (2021), Final External Evaluation of Support to Inclusive and Sustainable development in the Zambezi Valley, Mozambique.
ASAP	Itad (2020), Mid-term review of IFAD's Adaptation for Smallholder Agriculture Programme.
FAO Water Productivity	FAO (2020), Mid-term evaluation of the project "Monitoring water productivity by remote sensing as a tool to assess possibilities to reduce water productivity gaps".
AIAS	Transition International & Transtec (2020), End evaluation of AIAS po35 programme "capacity building for operations of secondary urban water systems and urban sanitation systems, under the mandate of aias, phase 2".
Gesterra	Sida (2020), Final Evaluation of GESTERRA Capacity Building Programme on Land Management and Administration within DINAT.
DUPC2	Technopolis Group (2021), Effect evaluation of the DUPC2 programme.
SNV Cabo Delgado	Impact (2022), Mid-term Evaluation for the Value Chain and Opportunity for Youth Employment Programme – Cabo Delgado.
WaterWorX	MDF (2021), End-Term Review WaterWorX programme.
BMP	Ecorys and Eurosis (2021), Mid-term review of the Beira-Netherlands delta cooperation programme 2011-2020.
IWRM fund	MDF (2022), Integrated Water Resource Management MTR.
SRJS	Blomeyer & Sanz (2020), End of programme evaluation - shared resources, joint solutions.
FIPAG	Transition International / Cowater International (2023), END EVALUATION OF "INSTITUTIONAL SUPPORT TO FIPAG, PHASE 2"
SaFaL	PWC (2022), Impact Assessment of Sustainable Agriculture Food Security and Linkages (SaFaL)- Phase-II. Kessler et al. (2017), Evaluation of the Dutch food security programme in Bangladesh – including impact studies of SaFal and Blue Gold projects.
DFS	Meisner et al. (2021), Mid-Term Evaluation of the project Support for Modelling, Planning and Improving Dhaka's Food System (DFS).
NL WASH SDG	WASH SDG Consortium (2021), WASH SDG programme - Midterm review – Overall report. WASH SDG Consortium (2021), WASH SDG programme - Midterm review – Bangladesh report.
PROOFS	Gordon et al. (2018), The profitable opportunities for food security (PROOFS 1) project end-project evaluation.
Blue Gold	Kessler et al. (2017), Evaluation of the Dutch food security programme in Bangladesh – including impact studies of SaFal and Blue Gold projects.
ORIO	Van der Wind and de Jong (2020), Evaluation ORIO "Ontwikkelingsrelevante Infrastructuurontwikkeling", Erasmus University Rotterdam.
South West	ADB (2021), AIDE MÉMOIRE Loan 3302-BAN (SF) and Grant 0441-BAN: Southwest Area Integrated Water Resources Planning and Management Project – Additional Financing Midterm Review Mission (4 – 12 April 2021). Kessler et al. (2017), Evaluation of the Dutch food security programme in Bangladesh – including impact studies of SaFal and Blue Gold projects.

Annex F - List of interviewees: location, organisation and setting

Location	Organisation	Number of respondents	Setting
NL	Ecorys	Single	Online
	Embassy of the Netherlands in Bangladesh	Multiple	Online
	Embassy of the Netherlands in Kenya	Single	Online
	Embassy of the Netherlands in Mozambique	Multiple	Online
	Inclusive Green Growth Department of the MFA	Multiple	Online
	Netherlands Commission for Environmental Assessment	Single	Online
	Regieteam	Multiple	Online
	VNG International	Single	Online
	WWF	Single	Online
Maputo	AIAS • Water inlet, treatment, distribution (Moamba) • Local inhabitants	Multiple	Office & site visit
	CENOE	Single	Office
	DNGRH	Multiple	Office
	Embassy of the Netherlands in Mozambique	Multiple	Office
	FIPAG • Water distribution • Local water users	Multiple	Office & site visit
	INAM	Single	Office
	INGC	Multiple	Online, office
	Ministry of Agriculture and Rural Development	Multiple	Office
	Ministry of Economics and Finance	Multiple	Office
	Ministry of Land and Environment	Multiple	Office
	Resilience BV	Single	Office
	University Eduardo Mondlane	Single	Office
	World Bank	Single	Office
Beira	ARA Centro / Division Pungue	Multiple	Office
	Combined visit with Dutch MFA country team to the drainage, coastal protection, market, municipality and SDUB	Multiple	Office & site visit
	FACE • Waste collection point • (Tertiary) drainage • Waste recycling point	Multiple	Office & site visit
	FIPAG • Water inlet, treatment, distribution	Multiple	Office & site visit
	Local inhabitants • Praia Nova neighbourhood • Around water retention basin and drainage	Multiple	Site visit
	Municipality: • Mayor • Coastal protection department • Beira Autonomous Sanitation Unit (SASB)	Multiple	Office
	Resilience BV • Medium-scale farmers in Nhamatanda	Multiple	Site visit
	SDUB Land Development Company Beira	Multiple	Office
	UNDP • Resettlement areas	Multiple	Office & site visit
	VNG International	Single	Office
	Young Africa Education centre	Multiple	Office & site visit

Location	Organisation	Number of respondents	Setting
Tete	Administration office Moatize	Multiple	Office
	APSAN Vale	Multiple	Site visit
	ARA Centro	Multiple	Office
	Cahora Bassa dam communities	Multiple	Site visit
	District office Cahora Bassa	Multiple	Office
	Provincial Department of Economic Activities	Single	Office
	Provincial Department of Ministry of Environment	Single	Office
	Provincial Directorate of Agriculture and Fisheries	Single	Office
	Solidaridad • Seed hub • Farmers group	Multiple	Office & site visit
	WUR experimental farm in Angonia	Multiple	Site visit
	WWF • Village meetings Cahora Basa	Multiple	Site visit
	Zambezi Valley Development Agency (ZVDA) • Farm in Cateme • Farm in Mameme • Farmers group	Multiple	Office & site visit
Dhaka	Blue Gold	Multiple	Office
	Embassy of the Netherlands in Bangladesh	Multiple	Office
	International Centre for Climate Change and Development	Single	Office
	Ministry of Agriculture	Multiple	Office
	Ministry of Environment	Multiple	Office
	Ministry of Local Government, Rural Development and Cooperatives	Multiple	Office
	Ministry of Planning - General Economics Division	Multiple	Office
	Ministry of Water Resources	Multiple	Office
Narail	WMO • Mulia • Barenda Khal	Multiple	Site visit
	Seed Business Centre Barenda Khal	Multiple	Site visit
	BWDB Office	Multiple	Office
Khulna	Bangladesh Water Development Board • Noor Nagar • Khulna	Multiple	Office
	Directorate of Agricultural Extension • Upazila Agri Office Dumuria • Khulna	Multiple	Office
	Royal HaskoningDHV	Single	Site visit
	Village Super Market	Multiple	Site visit
	WMO • Polder 22 • Polder 30 • Polder 28-1	Multiple	Site visit
Jeshore	Solidaridad • Business centre • Female Group Abdulpur • Food and vegetable cluster Abdulpur • Vegetables production export cluster Churamonkati	Multiple	Site visit
Sathkira	WMG Polder 2	Multiple	Site visit
	Deltares Sagla-Mashkhola	Multiple	Site visit

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