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Climate finance and water security

Synthesis report

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List of abbreviations

ADB	Asian Development Bank
AFD	Agence Francaise de Developpement
AfDB	African Development Bank
BCCASP	Bangladesh Climate Change Strategy and Action Plan
BCCRF	Bangladesh Climate Change Resilience Fund
BCCTF	Bangladesh Climate Change Trust Fund
CCA	Climate Change Adaptation
CCPL	Climate Change Programme Loan
CFU	Climate Fund Update
CIFs	Climate Investment Funds
COP	Conference of Parties
CPI	Climate Policy Initiative
CRGE	Climate Resilient Green Economy
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
EBRD	European Bank for Reconstruction and Development
ENSO	El Niño Southern Oscillation
FAO	Food and Agriculture Organisation of the United Nations
FCPF	Forest Carbon Partnership Facility
FIP	Forest Investment Program
FSF	Fast Start Finance
GCF	Green Climate Fund
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GTP	Growth and Transformation Plan
IIMCCS	Interim Inter-Ministerial Climate Change Secretariat
IPCC	Intergovernmental Panel on Climate Change

ITCZ	Inter-Tropical Convergence Zone
JICA	Japan International Cooperation Agency
KP	Kyoto Protocol
LDCF	Least Developed Country Fund
MDB	Multilateral Development Bank
MDG	Millennium Development Goal
MoEWD	Ministry of Energy and Water Development (Ethiopia)
MoEF	Ministry of Environment and Forests (Bangladesh)
MoFED	Ministry of Finance and Economic Development (Ethiopia)
MoFNP	Ministry of Finance and National Planning (Zambia)
MoLGH	Ministry of Local Government and Housing (Zambia)
MoLNREP	Ministry of Lands, Natural Resources and Environmental Protection (Zambia)
MoTENR	Ministry of Tourism, Environment and Natural Resources (Zambia)
MoWE	Ministry of Water and Energy (Ethiopia)
NAPA	National Adaptation Plan of Action
NCCRS	National Climate Change Response Strategy
NDA	National Designated Authority
NGO	Non-Governmental Organisation
NIEs	National Implementation Entities
NMA	National Meteorological Agency
ODA	Official Development Assistance
ODI	Overseas Development Institute
OECD CRS	Organisation for Economic Cooperation and Development – Creditor Reporting System
OECD DAC	Organisation for Economic Cooperation and Development – Development for Assistance Committee
OOF	Other Official Flows
OPM	Oxford Policy Management
PPCR	Pilot Program for Climate Resilience
REDD+	Reducing Emissions from Deforestation and Forest Degradation (and enhancing carbon stocks, forest conservation, reforestation and afforestation)

RoZ	Republic of Zambia
SCCF	Special Climate Change Fund
SNDP	Sixth National Development Plan
SREP	Scaling-Up Renewable Energy Program
UEA	University of East Anglia
UK	United Kingdom
UN	United Nations
UNDP	UN Development Programme
UNFCCC	United Nations Framework Convention on Climate Change
US	United States
WASH	Water, Sanitation and Hygiene
WB	World Bank
WHO/UNICEF JMP	World Health Organisation / UN Children's Fund Joint Monitoring Programme

1 Introduction

This synthesis report has been developed for the project **'Research on climate finance and water security'**, funded by WaterAid. The study aims to identify the type and scale of national and sub-national programmes and projects that have been funded by climate finance and how they relate to local water security.

The link between climate change and water security is evident. As described in the IPCC 5th Assessment, coastal systems and low-lying areas will be affected by submersion, coastal flooding and sea level rise. The frequency and intensity of water-related extreme events, such as droughts and floods, is also likely to increase in coastal areas, having negative effects on both economic and social development (e.g. infrastructure, health). Climate change may also reduce available surface water and groundwater resources, especially in dry subtropical regions, leading to an increase in competition between agriculture, ecosystems, domestic needs, industry, and energy production. Water quality is also expected to worsen due to temperature rise and the increase in the proportion of sediments, nutrients and pollutants (Jimenez Cisneros et al, 2014; Wong et al, 2014).

Without adequate adaptation and mitigation measures, millions of people are likely to be displaced due to land loss in low-lying coastal areas, especially in South, East, and Southeast Asia (mainly Bangladesh, China, Vietnam, India and Indonesia), while southern Africa will likely face significant water shortages (Jimenez Cisneros et al, 2014; Wong et al, 2014). Both population growth and economic development, especially among poor and middle-income developing countries, will reinforce the negative effects of climate change.

Given the urgency to prevent and address climate change impacts, developed countries, during the United Nations Framework Convention for Climate Change (UNFCCC) Conference of Parties (COP) in 2009, pledged to provide US $30 billion of fast start finance between 2010-2012 and to jointly mobilise US $100 billion per year by 2020 to address key adaptation and mitigation needs of developing countries.

Although evidence and policy related to climate finance is still incipient, most of it is directed to mitigation and REDD+ activities (e.g. reduction in the emissions of greenhouse gases, reforestation, etc.), with adaptation activities, which generally encompass water-related projects, receiving relatively low attention. This study thus aims to explore the climate finance-water security nexus in more detail, unpacking the complex and evolving climate finance landscape to understand how it relates to water security. Through in-country case studies, the study also aims to identify the types of projects that have been financed and how, as well as the opportunities for climate financing in the future.

This report summarises the findings from three case studies in **Bangladesh**, **Ethiopia** and **Zambia**. Each case study is based on:

1. A review of the secondary literature on water security, and climate change trends, policy and finance;
2. In-country key informant interviews with water and climate change stakeholders to gain some insights into local policy and knowledge about water security and climate finance; and
3. An analysis of project-level data from the Climate Finance Update (CFU) and the OECD DAC Creditor Reporting System (CRS).

The synthesis report is structured as follows:

- **Section 2** provides a brief description of the definitions and methodology;
- **Section 3** describes the water security, climate change trends and expected impacts for each country;
- **Section 4** gives a comparative summary of climate policy and finance trends across all countries based on previous findings from each case study;
- **Section 5** presents the main conclusions; and
- **Section 6** provides key recommendations for different stakeholders.

The **Annexes** contain the Terms of Reference for this study and a summary of the questions and key informant interviews for all countries.

2 Definitions and methodology

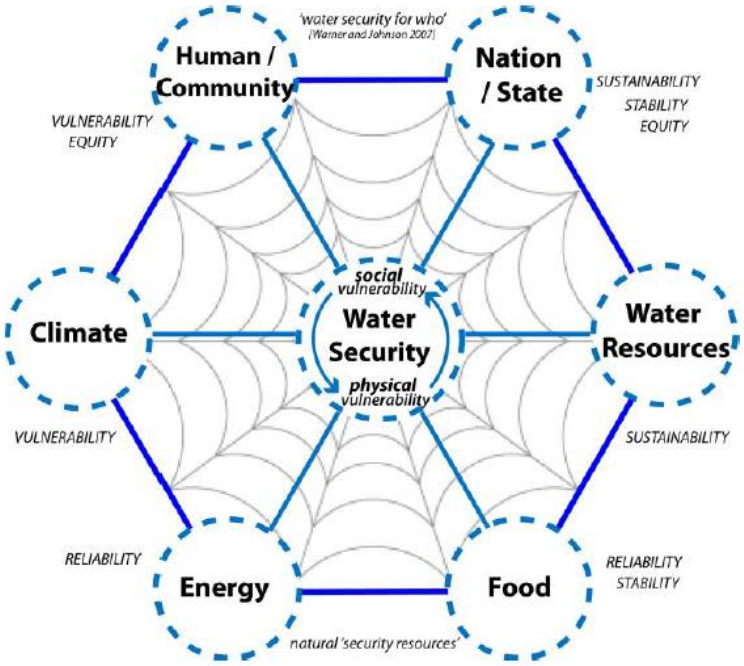
This section describes the main definitions and methodology followed across all case studies. A more detailed explanation can be found in the Inception Report.

2.1 Water security

Although there is a broad understanding around what water security is, there is still no consensus on a specific definition of the term. Different stakeholders and organisations usually tailor the concept to match their particular needs and programmatic objectives, such as providing equitable water, sanitation and hygiene (WASH) services to all, guaranteeing food security or enhancing environmental sustainability. As Zeitoun et al (2013) put it, "there may be as many interpretations of 'water security' as there are interests in the global water community". They go on to argue that a frame is more effective than a definition, and their preferred frame is a "web of sustainable water security", hereafter referred to as the "UEA web" (since its proponents are based in the University of East Anglia). The UEA web is shown in Figure 1 below.

The web is only one way of thinking about water security, but it is intuitively appealing in the sense that it encompasses four main sectoral areas (water, food, climate and energy) while also emphasising the interaction of the individual / community level and the national level, which underlines equity considerations[1].

Figure 1 UEA's frame – the web of sustainable water security



Source: Zeitoun et al (2013).

Given that we want to encompass the broader universe of water security related projects that are funded by climate finance, we will follow the UEA web as our frame or "conceptual tool"[2] for water security. The UEA web also allows for a categorisation of projects based on the dimension or nexus

[1] This is important because an individual or group may be perceived to be "water secure" but the nation as a whole may not.
[2] Zeitoun (2011).

to water security each is trying to address, e.g. human / community security (i.e. WASH), water resources security, and so on.

2.2 Climate finance

There is no internationally acknowledged definition for 'climate finance', with several definitions in current usage. After a review of the definitions used by the United Nations Framework Convention on Climate Change (UNFCCC) and other key stakeholders, we have chosen the Overseas Development Institute (ODI) definition, as it is both clear and comprehensive, and we are also using their data to identify projects funded by climate finance. Climate finance is thus understood as:

> "*The financial resources mobilised to help developing countries mitigate and adapt to the impacts of climate change*"
>
> Nakhooda, Watson & Schalatek (2013), p.1.

2.3 Methodology

The methodology follows three steps:

- Step 1: Documenting background and country context;
- Step 2: Understanding climate finance in the country; and
- Step 3: Identifying and analysing climate finance flows and projects.

Step 1: Documenting background and country context

This encompasses a desk review of available public information on water security, climate change and impacts, and the effects of climate change on water security and related sectors in the country.

Useful resources include national communications to the UNFCCC and any other study, policy, or document describing the impacts and vulnerability of the country and relevant sectors (i.e. studies on the economics of climate change, climate change strategies and action plans, and national and sub-national adaptation plans).

Step 2: Understanding climate finance in the country

This step entails research on the available information on climate finance architecture, challenges, barriers and opportunities. This is carried out through desk-based research, and validated through key stakeholder interviews in-country. Stakeholders are selected from the donor community, government, non-government organisations, and academic institutions.

Projects were identified through consultation of the Climate Finance Update (CFU) database, and descriptions of these projects were sought (including, where available, financial records). CFU project-level data was verified with information from the OECD Creditor Reporting System (CRS), which encompasses all Official Development Assistance (ODA) from member countries[3].

[3] The Development Assistance Committee (DAC) has 29 members: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, EU, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Luxembourg, The Netherlands, New Zealand, Norway, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, United Kingdom and United States.

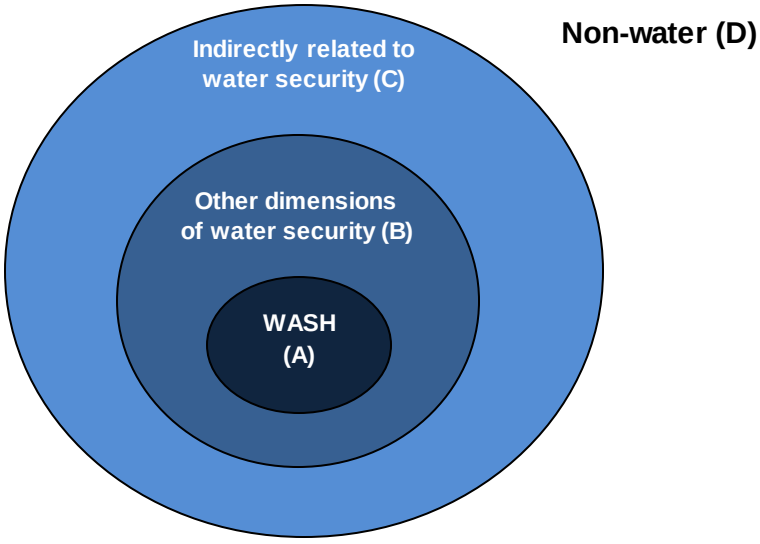
While we are aware that a number of initiatives are underway in developing countries to identify allocations in their own budgets for climate change projects, these funds were not examined, as they are not part of international commitments.

Step 3: Identifying and analysing flows and projects

Using CFU data and project documentation, we used the following procedure for each country:

Step 3.a: Divide the projects in four different categories (A, B, C, and D) as presented in Figure 2. This categorisation follows the multi-level (human / community and national) and multi-sectoral (water resources, energy, climate and food) nature of the UEA web frame.

Figure 2 Project classification



Category A includes projects that are primarily related to Water Supply, Sanitation and Hygiene (WASH), i.e. those which would directly contribute to MDG7 and associated hygiene requirements. The selection of these projects is based on the criteria used by the OECD CRS to identify the sector of destination for ODA and other official flows (OOF)[4]. Exclusive water and sanitation activities are presented in Table 1.

Table 1 Water supply and sanitation activities

Description (CRS code)	Definition
Water supply - large systems (14021)	Potable water treatment plants; intake works; storage; water supply pumping stations; large scale transmission / conveyance and distribution systems.
Sanitation - large systems (14022)	Large scale sewerage including trunk sewers and sewage pumping stations; domestic and industrial waste water treatment plants.

[4] The OECD-CRS codes for reporting are available in: http://www.oecd.org/dac/stats/documentupload/2012%20CRS%20purpose%20codes%20EN.pdf.

Basic drinking water supply (14031)	Rural water supply schemes using handpumps, spring catchments, gravity-fed systems, rainwater collection and fog harvesting, storage tanks, small distribution systems typically with shared connections / points of use. Urban schemes using handpumps and local neighbourhood networks including those with shared connections.
Basic sanitation (14032)	Latrines, on-site disposal and alternative sanitation systems, including the promotion of household and community investments in the construction of these facilities.
Education and training in water supply and sanitation (14081)	Education and training for sector professionals and service providers.

Source: OECD (2014).

Category B includes projects pertaining to other 'natural security resources' that are inter-related to water security, as identified by the UEA frame. These include projects or programmes related to integrated water resource management (IWRM), agricultural water resources (i.e. food security), and water-related energy security. A full list of all other water-related activities (i.e. non-WASH) is presented in Table 2, following OECD CRS criteria.

Table 2 Other water-related activities

Description (CRS code)	Definition
Water and sanitation (140)	
Water sector policy and administrative management (14010)	Water sector policy and governance, including legislation, regulation, planning and management as well as transboundary management of water; institutional capacity development; activities supporting the Integrated Water Resource Management approach.
Water resources conservation (including data collection) (14015)	Collection and usage of quantitative and qualitative data on water resources; creation and sharing of water knowledge; conservation and rehabilitation of inland surface waters (rivers, lakes etc.), groundwater and coastal waters; prevention of water contamination.
River basins' development (14040)	Infrastructure-focused integrated river basin projects and related institutional activities; river flow control; dams and reservoirs.
Waste management / disposal (14050)	Municipal and industrial solid waste management, including hazardous and toxic waste; collection, disposal and treatment; landfill areas; composting and reuse.
Energy generation and supply (230)	
Hydro-electric power plants (23065)	Including power-generating river barges.
Ocean power (23069)	Including ocean thermal energy conversion, tidal and wave power.
Biomass (23070)	Densification technologies and use of biomass for direct power generation including biogas, gas obtained from sugar cane and other plant residues, anaerobic digesters.
Agriculture (311)	
Agricultural water resources (31140)	Irrigation, reservoirs, hydraulic structures, groundwater exploitation for agricultural use.
Multisector / cross-cutting (400)	

Flood prevention / control (41050)	Floods from rivers or the sea, including sea water intrusion control and sea level rise related activities.

Source: OECD (2014).

Category C includes projects that are indirectly related to water security, in particular those that present co-benefits or trade-offs from mitigation activities. These may include:

- *Forestry and peatlands* – there are potential co-benefits between avoiding deforestation (or forest conservation and afforestation) and resilience because of the reduction in GHG emissions and the role of forests in watershed management (Savage & Chiappe, 2014).

- *Energy efficiency* – in particular, projects aiming at increasing resource efficiency and that target sectors that use water in their operations, such as pulp and paper, and garments.

Category D includes projects funded by climate finance that are unrelated to water security. For example, projects in non-water related energy security (e.g. wind power, solar power, geothermal energy) and transport, where the linkages with water security are either not evident or very weak.

As a 'quality check', we compared CFU data with OECD CRS data, which provides key information[5] about individual projects financed by ODA and OOF[6]. In particular, we looked at sector and sub-sector categorisation (CRS codes) to verify our project classification. Given the additionality principle of climate finance, these funds should not be classified as ODA. However, since the OECD Development Assistance Committee (DAC) does not consider additionality, some of the projects identified by the CFU were classified under either ODA or OOF within the CRS.

There are two caveats to consider when assessing project categorisation and additionality. First, there may be some climate finance projects that have not been captured by CFU (but may be in ODA or OOF), and are thus not included in our analysis. Second, given that OECD DAC does not explicitly consider additionality, there may be cases where climate-marked ODA projects are actually funded with additional resources. It is not possible for us to determine if this is the case, but recent OECD DAC documents suggest they are making efforts to better capture climate finance and climate-related projects within the CRS.

Step 3. b: Analyse financial records and flows to estimate:

- Total climate finance to the country;
- Climate finance by sector (mitigation, adaptation, REDD+, multiple foci);
- Climate finance by project categories (A, B, C, and D);
- Climate finance by type of financial instrument (grants, concessional loans, loans, and other – potentially equity and guarantees); and
- Climate finance by source and disbursement channels (i.e. funds).

[5] The following information is available for each project: recipient country, donor, sector and sub-sectors, annual commitments and gross disbursements, flows, channel of delivery, and type of aid.

[6] ODA is defined as flows to countries and territories on the DAC list of ODA recipients and to multilateral institutions, which are provided by official agencies, promote the economic development and welfare of countries, and are concessional in character (convey a grant element of at least 25%). Other official flows are "transactions by the official sector with countries on the DAC list of ODA recipients which do not meet the conditions for eligibility as ODA, either because they are not primarily aimed at development, or because they have a grant element of less than 25 %". For more information, please refer to www.oecd.org.

Step 3.c: Analyse projects in categories A and B in-depth, by providing more insight into the distribution of funds by project objectives and their consistency with identified country needs (as outlined in national plans or IPCC assessments).

The desk based research is strengthened by conducting in-depth country visits to gain further insights into the research questions of interest to this study, which include, but are not limited to:

- What proportion of climate finance flows from national to local level? How does this compare to domestic finance allocations?
- What types of projects are funded by climate finance and what has been their impact on water security?
- Has climate finance changed existing priorities and financial allocations to water and sanitation?

The complete list of questions for stakeholders can be found in Annex B. For clarity, Table 3 below presents a summary of the methodology.

Table 3 Summary of methodology

Section	Sub-section	Research tool	Source of information
Background and context	Water security	Desk-based research	▪ National Communication to the UNFCCC ▪ Specialised research on water security (FAO, UN Water, WHO/UNICEF JMP, national studies and independent research)
	Climate change vulnerability	Desk-based research	▪ National Communication to the UNFCCC ▪ National Adaptation Plans ▪ Climate Change Plans / Action Plans ▪ Specialised research (e.g. World Bank economics of adaptation)
	Climate change impacts on water security	Desk-based research	▪ National Communication to the UNFCCC ▪ National Adaptation Plans ▪ Climate Change Plans / Action Plans ▪ Specialised research (e.g. World Bank economics of adaptation)
Climate finance	Architecture	Desk-based research and stakeholder interviews to validate	Desk-based research on: ▪ Climate Change Plans / Action Plans ▪ Specialised documents on national funds for climate change Key interviews to: ▪ International stakeholders: ODI, CPI, WRI, etc. ▪ National: coordinating ministry / agency; other ministries / agencies; research Institutes, and development partners (if possible, a coordinating body)
	Data	Database query and stakeholder interviews to validate	Databases: ▪ Climate Funds Update ▪ OECD DAC CRS Key Interviews to:

			▪ Coordinating ministry/agency ▪ Other ministries/agencies ▪ Research Institutes ▪ Development partners (if possible, a coordinating body)
Identification of flows	Climate finance to water security	Analysis of data above	From data above.

3 Water security and climate change contexts

This section briefly describes water security and climate trends for our case study countries: Bangladesh, Ethiopia and Zambia.

3.1 Bangladesh

3.1.1 Water security

Bangladesh is located within the floodplains of three major rivers: the Ganges, Brahmaputra and Meghna. Around 7% of the total surface area of the country is covered with rivers or other water bodies. Nonetheless, there is great variability in the availability of water resources throughout the year, especially between the monsoon (June-September) and dry seasons, with around 80% of rainfall occurring during the former. Frequent floods, droughts and cyclones are also key determinants of the availability of water in the country.

Estimates suggest that around 88% of total water withdrawal is used for agriculture, followed by household consumption (10%) and industrial use (2%) (Frenken, 2012). Although agriculture relies heavily on surface water, it has become increasingly dependent on groundwater resources, especially given the variability of surface water availability. This increased demand has contributed to the over-abstraction of groundwater resources, which has been associated to increased water pollution, lowering of water tables, salt water intrusion in coastal areas, and land subsidence. There is also evidence of groundwater depletion, mainly around the Dhaka metropolitan area and in the Northwest region of the country (Ibid, 2012).

Regarding household consumption, Joint Monitoring Programme (JMP) 2012 figures suggest that the majority of people in Bangladesh rely on improved water sources for drinking (85%). Likewise, 85% of the population also use an improved or shared sanitation facility. Differences between urban and rural areas have been significantly reduced since 1990, and current coverage of improved drinking water and sanitation is very similar between areas.

3.1.2 Observed and projected climate trends and its effects

Observed climate trends

Bangladesh has a tropical monsoon climate with significant variations in temperature and rainfall across the country. In general, there are four main seasons:

- Pre-monsoon, from March to May;
- Monsoon, from June to September;
- Post-monsoon, from October to November; and
- Dry season, from December to February

The mean annual temperature is 25°C, ranging from 18°C in January to 30°C between April and May, and with extremes as low as 4°C and as high as 43°C. The Northern and Western regions of the country tend to be hotter in the summer and colder in the winter. Mean annual rainfall is 2,200mm, of which about 80% falls during the monsoon months. The Northern and Western regions also experience lower rainfall as compared to other areas of the country (MoEF, 2012).

Estimates suggest that between 1948 and 2008, Bangladesh experienced an increase in the minimum temperature by 0.5°C during both dry and monsoon seasons, while maximum temperatures have increased during the pre-monsoon and post-monsoon seasons by 0.9°C and

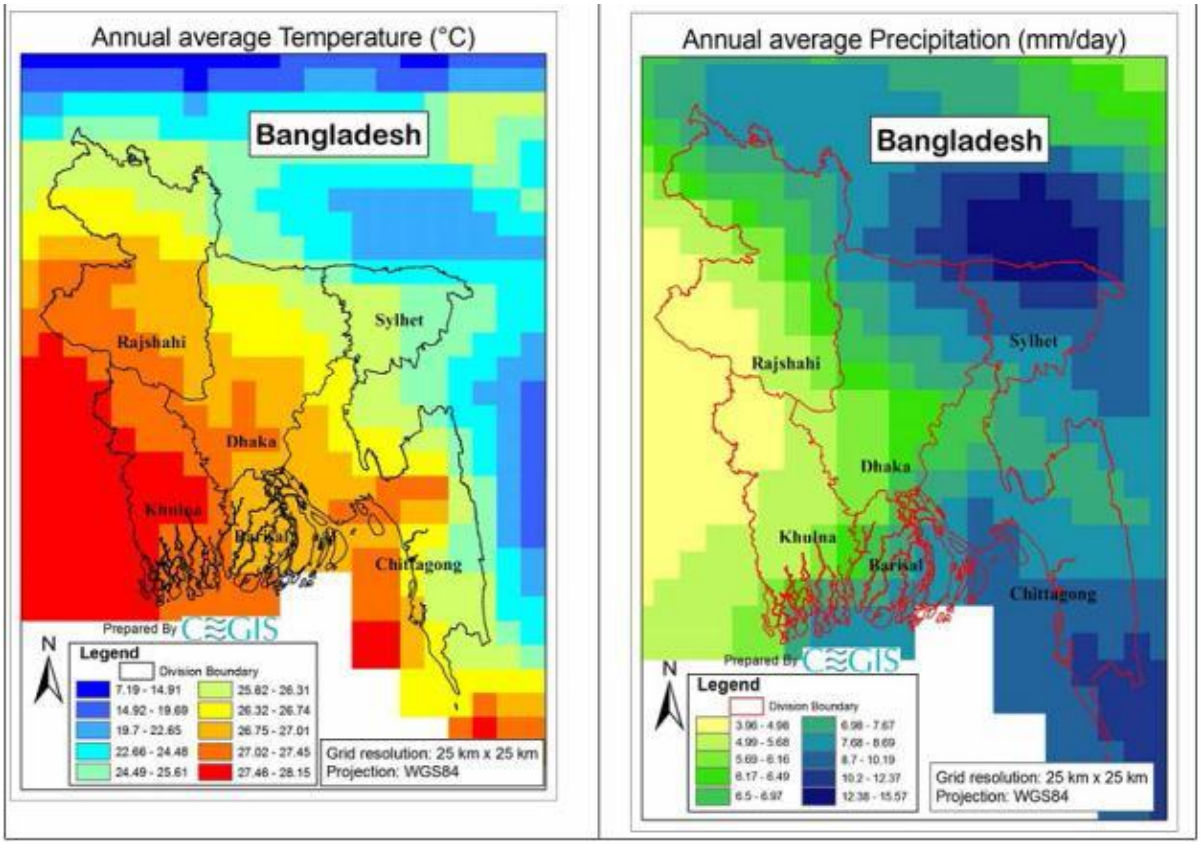
0.4°C respectively. Mean annual rainfall during the same period was estimated at 2,347mm, varying between 1,640 and 2,831mm (Ibid, 2012).

Projected climate trends

MoEF (2012) suggests that mean annual temperature is expected to rise by around 1°C by 2030 and 2°C by 2050. Mean annual rainfall is also expected to increase by a maximum of 2% by 2030 and by 2-4% by 2050. Expected changes in rainfall vary significantly with seasons, with estimations indicating a decrease during the dry season and an increase during monsoon months. Estimated trends further indicate that there will be heavier rainfall in the coastal areas, but there is no clear pattern across seasons, except for the post-monsoon months where rainfall is likely to increase (Frenken, 2012; MoEF, 2012).

Figure 3 shows the average changes in temperature and precipitation by 2050 under an A2 emissions scenario[7]. On average, by 2050, mean annual temperature is expected to increase by 1.3°C, while mean annual precipitation is projected to increase by 8%. As explained by MoEF (2012), although these changes appear relatively small, given current climate variability and the likelihood of natural disasters, they will likely increase both the magnitude and frequency of floods, droughts and cyclones.

Figure 3 Changes in average annual temperature and precipitation by 2050 (A2 scenario)



Source: MoEF (2012).

[7] An A2 emissions scenario is characterised by independently operating nations, increasing population and regionally-oriented economic development. For further information, please refer to http://www.ipcc.ch/ipccreports/sres/emission/index.php?idp=94.

Climate change impacts

Given that Bangladesh has a large low-lying coastal zone, the country is particularly vulnerable to coastal hazards and future sea level rise (SLR). SLR projections suggest that the sea level may rise between 5.1 and 7.4mm per year by 2050, with inundated areas increasing by 14%[8] (MoEF, 2012).

Overall, there is likely to be an increase in extreme weather-related events such as floods, heavy rains, cyclones and storm surges. Indeed, in drought-prone areas in the Northwest region of the country, Ramamasy & Bass (2007) predict higher temperatures in the dry season, which will be accompanied by reduced soil moisture and increased water scarcity. This area is also likely to experience increased rainfall variability during the monsoon months and intermittent dry spells.

Table 4 summarises some of the main climate change impacts expected up to 2050.

Table 4 Climate change impacts in Bangladesh

Sector	Climate change effects
Water	• Western regions will be at greater risk of drought, with drought severity increasing with increasing temperatures. • Flooded areas will increase by 6% by 2030 and 14% by 2050. • Cyclone and storm surge affected areas will increase, putting at risk the lives of 38 million people by 2050. • Coastal areas will face salinity intrusion and freshwater scarcity during the dry season, which will be worse with SLR. • Erosion of riverbanks will worsen.
Agriculture	• Decrease in crop yields and increased crop damage associated with floods.
Fisheries	• Capture fish production may increase in floodplain fisheries while freshwater habitats may be negatively affected.
Health	• Spatial distribution of vectors may be altered, increasing the incidence of malaria. The incidence of cholera and diarrhoeal disease may also increase, especially if floods become more frequent.

Source: Authors based on MoEF (2012).

At a regional level, the IPCC 5th Assessment suggests that water scarcity is likely to be a major issue for Asia, with climate change compounding the effects of population growth, rapid urbanisation, industrialisation, and economic growth. Likewise, sea level rise driven by climate change poses an important risk for the region, increasing the likelihood of coastal flooding, erosion and saltwater intrusion in coastal areas, as is the case of Bangladesh. Indeed, by the 2070s, Dhaka will be among the top Asian cities with population exposed to coastal flooding (Hijioka et al, 2014).

3.2 Ethiopia

3.2.1 Water security

Although Ethiopia has abundant water resources, with a mean total surface water flow of 122 billion m^3 per year, they are unevenly distributed across the country: while around 85% of surface water is found in the Western basins, only 40% of the population lives in these regions (Calow, Ludi & Tucker,

[8] Estimations for the proportion of inundated areas rely heavily on rainfall assumptions so these are likely to be less reliable.

2013). Ethiopia also experiences frequent droughts and high rainfall variability, which have a direct effect on the availability of water at different points in time.

Ethiopia has 12 major river basins that form four key drainage systems: (1) the Nile Basin, covering 33% of the country; (2) the Rift Valley, which covers 28%; (3) the Shebeli-Juba basin, covering 33%; and (4) the North-East Coast, which covers the remaining 6% (Frenken, 2005). Groundwater is more widely available, providing around 90% of the drinking water supply. However, in some areas groundwater may only be found at great depths (e.g. Somali Region) or may be chemically polluted (Calow et al, 2013).

Although Ethiopia relies heavily on rain fed agriculture, 94% of total water withdrawal is used for irrigation, with the remaining 6% used for domestic purposes (Frenken, 2005). 2012 JMP indicators suggest that improved drinking water coverage has increased substantially since 1990, with 97% of the urban population and 42% of the rural population having access to an improved drinking water source. However, around 31% of the rural population still relies on surface water for drinking. Inequities are also observed in sanitation coverage, with 69% of the urban population as compared to 30% of the rural population using an improved or shared sanitation facility.

3.2.2 Observed and projected climate trends and its effects

Observed climate trends

Ethiopia encompasses five agro-climatic zones that have different topographic and climatic conditions, as shown in Table 5. Temperature ranges from about 10°C in the highlands in the Northwest, Central and Southeast to 35°C in the North-eastern lowlands. Rainfall ranges from 2,000mm over some areas in the Southwest to less than 250mm over the Afar and Ogaden lowlands (EEA & EPRI, 2010).

Table 5 Agro-climatic zones of Ethiopia

Zone	Altitude	Mean annual temperature	Mean annual rainfall
Berha	< 500m	> 25°C	< 600mm
Kolla	500 to 1,500m	20 to 28°C	600 to 900mm
Weyna Dega	1,500 to 2,300m	16 to 20°C	> 900mm
Dega	2,300 to 3,200m	6 to 16°C	> 900mm
Wurch	> 3,200m	< 6°C	> 1,400mm

Source: Calow et al (2013).

Nonetheless, the country generally shares three common seasons, which are largely determined by the Inter-Tropical Convergence Zone (ITCZ):

- *Kiremt*, the main rainy season (June – September);
- *Bega*, the dry season (October - January); and
- *Belg*, the short rainy season (February – May)

The intensity of rainfall is also determined by the El Niño Southern Oscillation (ENSO), which tends to reduce rainfall in the main rainy season and increase rainfall in the *Belg* season (Calow et al, 2013).

Estimations suggest that between 1960 and 2006 mean annual temperature increased by 1.3°C, with an increase in the number of hot days and nights by 20% and 38% respectively (McSweeney, New & Lizcano, 2010). Additional estimations also show that in the past 60 years, the country has

experienced several dry and wet years, as well as an increase in the number of warm and cool years. Rainfall trends have remained relatively constant across the whole country, although there is some indication that annual rainfall is decreasing in the South (EEA & EPRI, 2010; McSweeney et al, 2010).

Projected climate trends

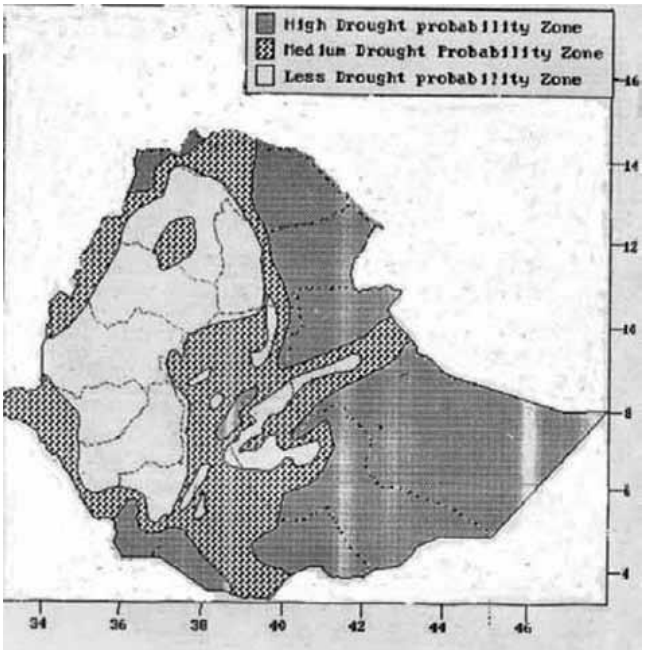
Mean annual temperature is expected to increase by 1.1 - 3.1°C by the 2060s and 1.5 - 5.1°C by the 2090s. Estimations also point to a further increase in the number of hot days and nights, as well as an increase in the number of cold days and nights. Rainfall projections suggest an increase in annual rainfall, especially during 'heavy' rain events (McSweeney et al, 2010). Further estimations from the World Bank (2010) indicate that in a 'dry scenario', mean annual rainfall will decrease by 10-25% in the Central highlands, by 0-10% in the South, and by more than 25% in the Northern areas of the country. On the contrary, in a 'wet scenario' mean annual rainfall would increase by 10-25% in the South and Central highlands and by more than 25% in the rest of the country.

However, Calow et al (2013) note that climate forecasts in Ethiopia are generally based on inaccurate and unreliable information as there are several gaps in the observations recorded. The high variability in climate and topographic conditions also limit the accuracy of climate change projections.

Climate change impacts

Ethiopia is particularly vulnerable to climate change due to its location, topography and low adaptive capacity. Changes in temperature and rainfall patterns and variability are likely to increase the frequency of severe droughts and floods, which will subsequently have a negative impact on human and livestock health, food security, and land degradation. Figure 4 shows the estimated probabilities of drought across the country. As observed, many of the lowland areas in eastern Ethiopia have a high drought probability, while the West and central North highlands have a low drought probability (EEA & EPRI, 2010).

Figure 4 Drought probability in Ethiopia



Source: NMA (2007).

The National Adaptation Programme of Action (NMA, 2007) further identified the most vulnerable sectors to climate change – both small-holder rain-fed farmers and pastoralists were found to be the most vulnerable populations, while the arid, semi-arid and dry sub-humid areas of the country were identified as the most likely to be affected by drought. Table 6 summarises the different impacts and vulnerable sectors identified by the NAPA.

Table 6 Climate change impacts in Ethiopia

Sector	Potential impacts
Agriculture	▪ Shortening of the maturity period and decrease in crop yield
Grasslands and livestock	▪ Change in livestock feed availability ▪ Effects of climate change on animal health, growth and reproduction ▪ Impacts on forage crops quality and quantity ▪ Change in the distribution of diseases ▪ Change in the decomposition rate ▪ Change in income and prices ▪ Contracting pastoral zones in many parts of the country
Forests	▪ Expansion of tropical dry forests and the disappearance of lower montane wet forests ▪ Expansion of desertification
Water resources	▪ Decrease in river runoff ▪ Decrease in energy production ▪ Increase in the likelihoods of floods and droughts
Human health	▪ Expansion of malaria to highland areas
Wildlife	▪ Shift in physiological responses of individual organisms ▪ Shift in species distribution from one to the next ▪ Shift in biomes over decades / centuries ▪ Shifts in genetic makeup of the population ▪ Loss of key wetland stopover and breeding sites for threatened bird species and in general endemic and threatened species of flora and fauna are frontline victims

Source: NMA (2007).

To analyse some of the effects of climate change on water security, the World Bank (2010) used a water planning model to assess the potential interactions in the use of water across different sectors (i.e. municipal and industrial, irrigation, and hydropower). Results indicate that, under a 'dry scenario' with priority allocated to agriculture, there is a significant loss of hydropower capacity. On the contrary, if priority is given to hydropower, up to 1 billion m^3 of water may be taken away from agriculture, causing a 30-40% drop in crop yield.

At a regional level, projections within the IPCC 5th Assessment indicate that climate change (both natural and anthropogenic) will likely amplify water stress in Africa. Droughts are expected to intensify in Southern and Eastern Africa due to reduced rainfall or increased evapo-transpiration. Freshwater ecosystems are particularly at risk from changes in land use, over-abstraction of groundwater, diversions of rivers and lakes, and increased pollution and sedimentation. Groundwater resources may also be affected, especially in areas receiving less than 500mm of annual rainfall, as is the case of the Horn of Africa. Like Asia, sea level rise is also a threat for coastal areas in African countries (Niang et al, 2014).

3.3 Zambia

3.3.1 Water security

Zambia lies within two large river basins: the Zambezi River basin and the Congo River basin, and is one of the most water secure countries in Sub-Saharan Africa. The country has several major rivers, including the Zambezi and its tributaries (Luangwa and Kafue), Chambeshi, and Luapula – the Kafue River basin is one of the most developed in the country, supporting about 40% of its total population (Frenken, 2005; RoZ, 2008). However, surface water resources tend to be unevenly distributed across the country, with the South experiencing local water shortages (Ibid, 2008).

Due to the unequal surface water distribution, groundwater is also a major source in some areas of the country. Although RoZ (2008) did not find evidence of groundwater depletion, it did indicate that the Lusaka aquifer was at a heightened risk of pollution and over-abstraction for agricultural use. Indeed, both surface water (especially in the Kafue basin where many industries are located) and groundwater have been found to be at risk of pollution from dumping of solid waste, the release of dissolved substances from industrial activity, and poor sanitation.

Estimations for 2000 indicate that the majority of total water withdrawal is used for hydropower generation (90%), with the remaining distributed between agriculture (8%), domestic use (~2%), and industry (RoZ, 2008). Zambia experiences high inequities in access to both improved drinking water and sanitation – while in 2012, 85% of the urban population had access to an improved drinking water source, only 49% of the rural population had access. Similarly, 80% of the urban population in 2012 had access to an improved or shared sanitation facility as compared to 42% of the rural population (WHO/UNICEF JMP, 2012).

3.3.2 Observed and projected climate trends and its effects

Observed climate trends

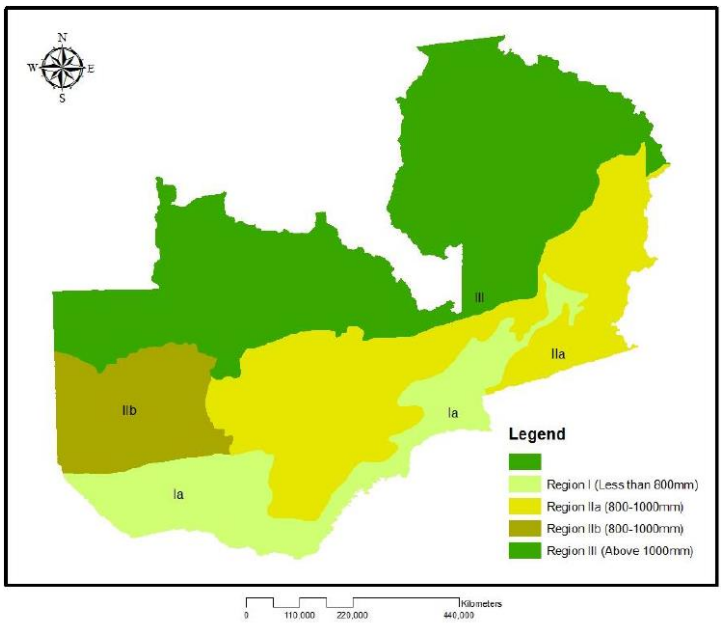
Zambia has a tropical climate, with temperatures remaining relatively cool throughout the year due to the high altitudes of the East African Plateau. Mean annual temperature varies from 18-20°C, and the country experiences two broad seasons: a rainy season (November to April) and a dry season (May to October). The hot summer months are very dry, and the country receives very little rainfall between June and August. The wet season rainfalls are mainly determined by the tropical rain belt, bringing rain between October and April of 150-300mm per month (McSweeney et al, 2010; MoLNREP, 2014).

Mean annual rainfall is about 1,000mm, ranging from 600mm in the South to 1,400mm in the North (RoZ, 2008). Rainfall is strongly influenced by ENSO, which causes further inter-annual variability. El Niño conditions (warm phase) bring drier than average conditions in the wet summer months in the Southern half of the country, whilst the North of the country experiences significantly wetter conditions. The reverse pattern occurs with La Niña (cold phase) episodes (McSweeney et al, 2010).

Estimations suggests that mean annual temperature has increased by 1.3°C since 1960, with an increased frequency in the number of hot days and hot nights across all seasons. Mean annual rainfall has also decreased by an average rate of 1.9mm per month since 1960 (McSweeney et al, 2010). Zambia has also experienced a number of climatic threats over the past few decades. The most frequent and serious have been drought, floods, extreme temperatures and dry spells. Droughts and floods have increased in frequency, intensity and magnitude over the last two decades, having a negative impact on both food and water security (MoTENR, 2007).

At a sub-national level (as shown in Figure 5), and based on data for 1940-2000, a slight increase in temperature has been observed across all agro-ecological zones. Regarding rainfall, region I was found to be tending towards dryness, experiencing a significant decline in rainfall throughout 1970-2000. This region was found to be the most vulnerable to climate change. There were no indications of declining rainfall in region II, while region III was found to be the most stable (MoLNREP, 2014).

Figure 5 Agro-ecological zones in Zambia



Source: MoLNREP (2014).

Projected climate trends

McSweeney et al (2010) estimate that annual temperature in Zambia will increase by 1.2-3.4°C by the 2060s, and by 1.6-5.5°C by the 2090s. Warming will be more rapid in the Southern and Western regions of the country as compared to the Northern and Eastern regions, with a significant increase in the number of hot days and nights. At a sub-national level, projections by MoLNREP (2014) up to 2070 indicate that region I is more likely to experience droughts and extreme temperatures, region II will increasingly experience a decline in rainfall and higher temperatures, and region III will experience a slight variation in rainfall (see Figure 5).

Climate change impacts

Although Zambia has abundant surface water and groundwater resources, communities living in arid parts of the country are likely to experience water shortages during the dry season. Population growth in urban centres has already put pressure on groundwater resources by increased pollution and over-abstraction, and climate change, via droughts, may put additional pressure by leading to inadequate recharging, lowering of the water table, and drying of boreholes and rivers (MoTENR, 2007).

Droughts and floods in recent years have also had negative effects on the ability of the country to generate hydro-electric power. A potential increase in the number of dry years could result in reduced runoff and reservoir storage, which may further reduce power generation capacity (MoLNREP, 2014). The increased frequency and severity of floods has also had an effect on Zambia's existing and planned infrastructure. Estimations suggest that over the last three decades Zambia has lost around US $13.8 billion in GDP due to floods and droughts (Watson, van Rooij & Nakhooda, 2013).

Table 7 further describes some of the potential impacts associated with climate-related threats across different sectors. Most of the effects are related to lower agricultural output, and thus a heightened risk of food insecurity and loss of income.

Table 7 Impacts of climate-related threats

Drought	Floods	Extreme heat	Shorter rainy season
Crop damage leading to food scarcity	Crop damage leading to food scarcity	Loss of life	Increased risk of crop failure
Water shortages	Increase in diseases	Increase in diseases	Crop damage
Income loss	Destruction of infrastructure	Decreased human capacity to do work	Income loss
Increase in diseases	Loss of life	Crop damage	Reduced forest regeneration
Decreased water quality	Interference with energy production due to change in water flows	Reduced water quality	
Increased soil erosion			
Decreased soil fertility			

Source: MoTENR (2007).

Based on our interview with the Zambia Climate Change Network (ZCCN), there is generally great concern with (1) the high dependence of agriculture on rainfall (95% of agriculture is rain fed); (2) the lack of adequate systems for water storage, and, more broadly, (3) the lack of mechanisms to cope with droughts and floods. Agriculture is particularly vulnerable, with the potential to lose between US $2.2 to $3.1 billion of GDP due to climate variability. Total GDP loss due to climate change, as estimated by the Ministry of Lands, Natural Resources and Environmental Protection (MoLNREP), may amount to US $4.3 – 5.4 billion in the next decade, equivalent to a loss of 0.9 – 1.5% in GDP growth (MoTENR, 2010).

4 Climate policy and finance trends

This section describes climate change policy, climate finance architecture and trends, and the relationship between climate finance and water security across our case study countries.

4.1 Climate policy

All three case study countries (i.e. Bangladesh, Ethiopia and Zambia) are at varying stages in developing their climate policy. Each has sought to mainstream climate concerns into their main national development strategies and develop specific climate change legislation setting out thematic priorities. In terms of the specific relationship between climate change and water security within national policy frameworks, we have found the following:

- In **Bangladesh**, the National Adaptation Plan of Action (NAPA) (2005, 2009) recognised the need to develop a comprehensive strategy for safe-drinking water supply in coastal areas, prioritising one water supply and sanitation project in areas threatened by sea level rise and saline intrusion. More recently, the 2009 Bangladesh Climate Change Strategy and Action Plan (BCCSAP) has also included priorities on water and sanitation by listing '*implement drinking water and sanitation programmes in areas at risk from climate change (e.g. coastal areas, flood and drought prone areas)*' in the fourth objective under the first theme. As a result, the country has developed the 'Water and sanitation programme for climate vulnerable areas' (MoEF, 2008).

- In **Ethiopia**, climate policy is guided by the Climate Resilient Green Economy (CRGE) strategy, which is itself being implemented into the overall Growth and Transformation Plan (GTP II). WASH does not appear as a strategic focus within the CRGE, with water security issues having greatest relevance to improved crop and livestock production practices (i.e. irrigation efficiency), and indirectly in relation to the hydropower sector from a mitigation perspective.

- In **Zambia**, climate policy is framed by the draft National Climate Change Response Strategy (NCCRS, 2010) and the draft National Climate Policy (NCP), both of which identify water as a vulnerable sector. This is also reflected within the development priorities of the 2014 Sixth National Development Plan (SNDP). Water security issues, however, are not defined in detail, and further work is required to elaborate programming priorities. WASH does not appear as an explicit aim, and it does not seem that the Ministry of Local Government and Housing (MoLGH) participates in the Climate Secretariat.

In conclusion, while all countries have developed climate strategies and sought to integrate these into national development plans, only in Bangladesh has WASH emerged as a clear climate policy objective, particularly in coastal zones that are prone to sea level rise, saline intrusion and storm surge. In Ethiopia and Zambia, WASH does not currently appear as a priority within climate policy frameworks, although water is addressed in a wider context (e.g. agriculture, energy).

4.2 Climate finance architecture

In terms of the development of climate finance architecture, again there is a degree of variation between the three countries.

- In **Bangladesh**, two dedicated national climate change funds have been in operation since 2010. The first of these, the Bangladesh Climate Change Trust Fund (BCCTF), is financed and managed directly by the Government of Bangladesh. This fund has primarily financed

government projects, with a small set reserved for NGOs. The fund has financed a number of water sector projects, including the construction and rehabilitation of embankments, canals, river protection, drainage, water control and deep tubewells for safe-drinking water. The fund, however, is now discontinued. The second fund is the Bangladesh Climate Change Resilience Fund (BCCRF), which has been funded by donor contributions. The BCCRF has funded water security projects in a more limited way, with some activities relating to solar irrigation. Going forward, the BCCRF may evolve as part of the national climate finance infrastructure for the Green Climate Fund (GCF).

- In **Ethiopia**, the CRGE is supported by a funding facility seeking to mobilise £200 billion of funds over a 20-year period. The facility, managed by the Ministry of Finance and Economic Development (MoFED), and supported by the Environmental Protection Agency (EPA), aims to pool national and international funds, and to deploy a broad range of instruments for both mitigation and adaptation. It will provide funds to government at both national and regional levels, with funding windows for external non-state actors. For government, these will be disbursed on the basis of agreed Sector Reduction Action Plans (SRAPs). The facility does not appear to have a focus on WASH, reflecting the overall CRGE strategy. The CRGE facility is seeking to achieve accreditation with a number of international funds, including the GCF.

- In **Zambia**, there is no formal climate finance infrastructure, although the Interim Inter-Ministerial Climate Change Secretariat (IIMCCS), which coordinates the Pilot Program for Climate Resilience (PPCR), has implicitly adopted this function, and represents the country at the GCF. The draft National Climate Change Response Strategy sets out a proposal to mobilise climate funds from a range of sources, but this has not yet been implemented. The PPCR, which finances adaptation and infrastructure on sub-basins of the Zambezi River (Barotse and Kafue) and provides policy support to government, is the main funding vehicle.

In addition, all three countries have accessed a number of international climate funds, such as the Global Environment Facility (GEF) funds for climate change, including the Least Developed Countries Fund (LDCF), and the Climate Investment Funds (CIF) (encompassing the Pilot Program for Climate Resilience and Scaling Up Renewable Energy in Low Income Countries – SREP), managed by the World Bank. In terms of focus on water, the PPCR in Bangladesh is co-financing the Coastal Climate Resilient Water Supply, Sanitation and Infrastructure project. This project aims to improve water supply, sanitation and connectivity; make water supply and sanitation systems that are resilient to climate change impacts (particularly post-disaster); alongside other infrastructure improvements (e.g. roads). This initiative also supports the development of water management cooperative associations in their maintenance of water systems.

All three countries are eligible for funding through the Green Climate Fund, which is expected to begin disbursement in 2016. In Bangladesh for example, the Economic Relations Division (ERD) at the Ministry of Finance has been appointed the National Designated Authority (NDA), and is currently being supported by a number of donors (e.g. UNDP, GIZ, and DFID) as part of the GCF accreditation process. Fourteen national entities have been identified as potential National Implementing Entities (NIEs) under the GCF, and an assessment is currently underway. GCF preparedness activities are also underway in Ethiopia and Zambia.

In conclusion, the three countries are at different stages of development with regards to their national climate finance architecture. Bangladesh has operated two climate trust funds (both national and donor funded) since 2010 that have financed a range of water infrastructure (including wells). These are now evolving with a view to getting direct access to the GCF. Ethiopia is developing the CRGE financing facility with the potential for both government and non-state access, while Zambia has indicated its interest, but not yet progressed, in establishing a formal finance facility. Reflecting the policy environment, WASH is only formally prioritised within the national climate finance architecture

in Bangladesh, with water security being addressed indirectly through the agriculture and energy sectors in Ethiopia, and in a less structured way in Zambia.

4.3 Climate finance trends

This section sets out the scale of finance provided from dedicated international climate funds. This report is based on three country case studies, and as such, it only offers a partial, rather than a representative global picture of climate finance trends. As described in section 2.3, the report focuses on international finance flows from dedicated climate funds as reported by the Climate Funds Update (CFU). The report does not analyse in detail the value of funds sourced locally (within national budgets or from other local resources), nor does it review potential projects within climate-relevant Overseas Development Assistance (ODA). The value of both of these is significantly larger than that of dedicated climate finance alone.

On the basis of CFU data, since 2003, all three countries have received significant climate finance from recognised international funds. Bangladesh has been in receipt of larger volumes than the two other countries, with approximately US $500 million of programming. Ethiopia and Zambia have received less than a quarter of these funds (in excess of US $100 million each). In terms of reported disbursement, there is a high level of variability between funds, with reported disbursement in the range of 5-15% of funds approved (see Table 8). However, the quality of information relating to disbursement is less robust than that reported for approval, which may be explained by the lack of accurate and timely reporting as well as by implementation delays. Indeed, the change of approvals into disbursements is largely dependent on implementing partners rather than donors, and is subjected to specific project dynamics.

Unlike global trends, where mitigation-related projects account for the bulk of climate finance (i.e., 67%), in all three countries, adaptation-related funding is predominant, accounting for 40% of funds in Ethiopia and 89% in Zambia. Adaptation funds tend to be more oriented towards the use of grants, rather than loans, which are more common in market-based sectors (e.g. renewable energy) or for large infrastructure projects (e.g. the Khulna Water Supply Project financed by Japanese Fast Start Finance in Bangladesh).

Table 8 Overview of climate finance (2003 – 2014)

	Bangladesh	Ethiopia	Zambia	World
Funding				
Funds approved (US million)	$489	$123	$105	$21,162
Funds disbursed (US million)	$26	$20	$17	$3,071
% of disbursement	5%	16%	16%	15%
Thematic area				
Adaptation	63%	40%	89%	16%
Mitigation	30%	32%	4%	67%
REDD	0%	15%	7%	10%
Multiple foci	7%	13%	0%	7%
Instrument				
Loan	56%	0%	0%	37%
Concessional loan	10%	0%	21%	17%
Grant	21%	86%	79%	37%
Other	13%	14%	0%	9%

Source: CFU (2014).

Table 9 explores the differences between approvals and disbursements across thematic areas for all case study countries. In general, activities where the majority of funding is concentrated show the lowest disbursement rates (i.e. adaptation and mitigation), while REDD+ and multiple foci activities have higher disbursement rates. For all countries, disbursement rates tend to be higher for projects related to the development of national structures and plans, such as the National Adaptation Programme for Action (NAPA) in both Bangladesh and Zambia or the design of the Strategic Programme for Climate Resilience (SPCR) in Zambia. All disbursement figures should be read in light of the caveats mentioned above.

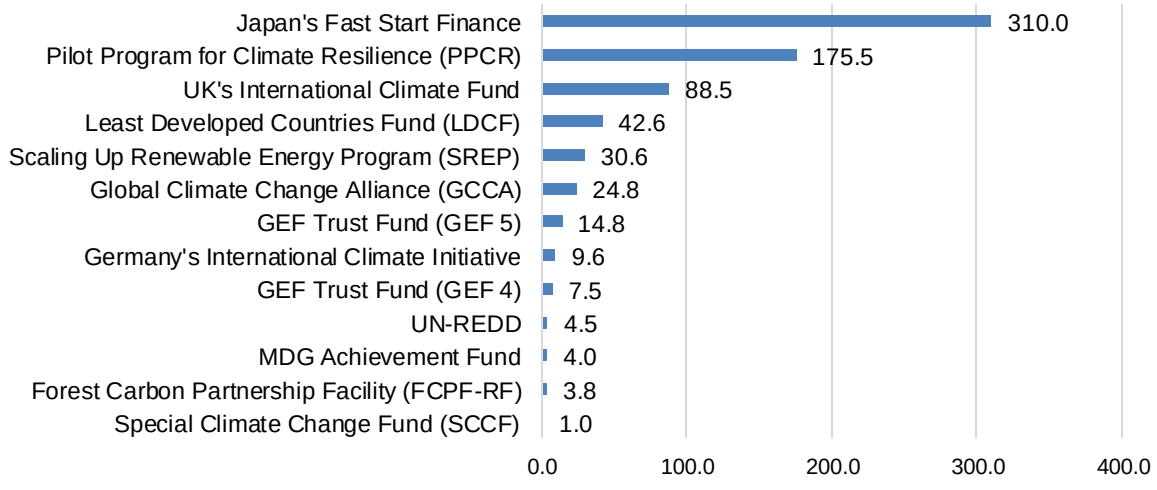
Table 9 Approvals and disbursements by area of focus (2003 – 2014)

Funds (US million)	Bangladesh	Ethiopia	Zambia	World
Adaptation				
Approved	$308	$50	$93	$3,447
Disbursed	$6	$19	$8	$607
% disbursed	2%	39%	9%	18%
Mitigation				
Approved	$146	$39	$5	$14,153
Disbursed	$12	$0	$5	$1,530
% disbursed	8%	0%	100%	11%
REDD				
Approved	$0	$19	$8	$2,061
Disbursed	$0	$1	$5	$703
% disbursed	-	3%	60%	34%
Multiple foci				
Approved	$34	$15	n.d.	$1,501
Disbursed	$8	$0	n.d.	$232
% disbursed	23%	0%	-	15%

Source: CFU (2014).

Within the three countries, the majority of funds are sourced from two funds: the Japanese Fast Start Finance and the Pilot Program for Climate Resilience (PPCR). These together account for 67% of total funds provided to these countries (Figure 6).

Figure 6 International sources of climate finance (US million, 2003 – 2014)



Source: CFU (2014).

The report has not looked in detail at wider climate-relevant ODA not sourced from dedicated climate funds. The scale of climate relevant ODA is, however, captured in the OECD DAC data by the Rio Markers. These flows (which may include dedicated climate funds) are of a magnitude greater than those provided by the climate funds alone. For example, in 2013, the size of climate-relevant ODA was more than four times that provided by climate funds for the entire period since 2003.

Table 10 OECD DAC Climate relevant financial flows – Rio markers (US million, 2013)

	Bangladesh	Ethiopia	Zambia
Total	$1,818	$420	$374
Source			
Multilateral	$758	$46	$322
Bi-lateral principal	$47	$249	$43
Bi-lateral significant	$1,012	$125	$9
Thematic area			
Mitigation	$1,462	$118	$330
Adaptation	$342	$232	$27
Both	$13	$71	$17

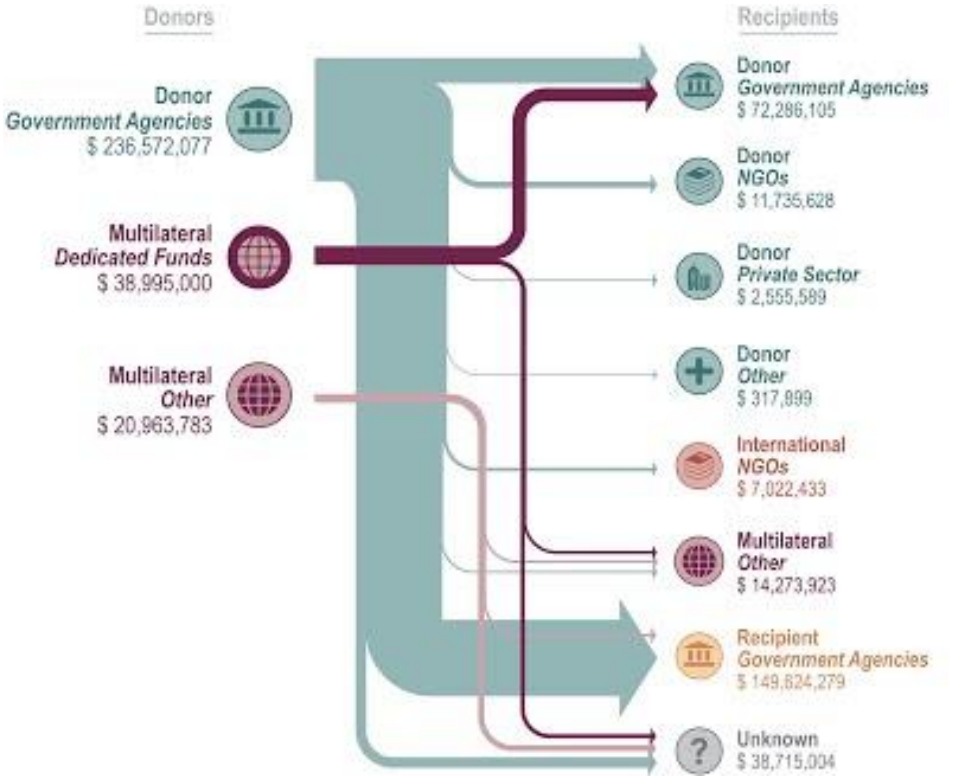
Source: OECD DAC (2015).

In addition, developing country governments also provide significant volumes of climate relevant funding through the budgetary system (including into the WASH and water sectors). These are generally more challenging to track due to the absence of local budget tracking systems. However, some attempts have been made to identify the scale of climate relevant expenditure at the national level. A 2012 Climate Public Expenditure and Institutional Review (CPEIR) conducted by UNDP indicated that between 5-8% of overall government revenues were climate relevant. In Ethiopia, Eshetu et al (2014) estimated that average annual percentage share of such expenditure was 15% or 1.8% of GDP.

Private finance is also a source of funding, but data is not widely available, particularly outside the thematic area of large-scale renewable energy. Private finance is likely to represent a significant proportion of climate finance, and efforts are underway within the OECD to align methodologies for estimating private sector flows.

In terms of the type of recipient, it is difficult to assess the end beneficiary (e.g. national vs. regional). Many of the projects have a regional focus (e.g. river basin or province), but may be implemented by national agencies or international partners. The below figure seeks to present an analysis of climate adaptation flows in Zambia for 2010-11 (Figure 7).

Figure 7 Estimate of climate relevant flows and recipients in Zambia (2010-11)



Source: Adaptation Finance Accountability Initiative (2010-11).

In conclusion, financial flows provided by dedicated climate finance funds are only a small portion of climate-relevant investment in the three countries reviewed. Climate-relevant ODA, national sector budgets and private sector finance play a significantly larger role. On the basis of a review of climate finance alone, it is not therefore possible to say whether overall funding for water security and WASH in particular is adequate to address the impacts of climate change (particularly, for the poor). The scale of dedicated climate funds is nonetheless significant (approximately US $700m since 2003). The flows for the three countries are dominated by Japanese Fast Start Finance, GEF funds (including LDCF) and the Climate Investment Funds (PPCR and SREP). Adaptation represents a large but variable share of climate finance, ranging from 40% in Ethiopia to 89% in Zambia. Adaptation funds tend to be more oriented towards the use of grants, rather than loans, although the latter may be used in large resilience infrastructure projects (e.g. the Khulna Water Supply Project financed in Bangladesh).

4.4 Climate finance and water security

This section analyses the relevance of climate finance projects to water security (and in particular WASH) using the framework set out in section 2.3. The report finds that, among those projects funded by international climate funds, there is only a limited number that are relevant directly to WASH, with the majority of projects not being related to water at all (Table 11).

Table 11 Categorisation of climate finance projects

Category	Bangladesh		Ethiopia		Zambia	
	No. of projects	Finance approved (US millions)	No. of projects	Finance approved (US millions)	No. of projects	Finance approved (US millions)
A	3	$190	1	$11	1	$0.03
B	0	$0	2	$3	1	$3
C	1	$6	2	$20	4	$81
D	18	$293	15	$89	6	$21

Source: CFU (2014).

- In **Bangladesh**, water projects represent the majority of overall reported funding by dedicated climate funds. The largest water relevant project is the Khulna Water Supply Project (2011-18) funded by the Asian Development Bank (ADB), the Japanese International Cooperation Agency (JICA), and the Government of Bangladesh to a total of US $364 million. This project is addressing water access and sanitation in the coastal belt of Bangladesh where groundwater is a key water source. This is accompanied by the ADB-financed Coastal Towns Infrastructure Improvement Project (2013-2020) for a total of US $117 million, which addresses similar water supply and sanitation issues in the coastal area. A smaller JICA-funded project is also examining desalination opportunities in Bangladesh.

- In **Ethiopia**, the largest and most relevant water project, funded by JICA, provided grant support for rural water supply in the Tigray region (US$ 11 million). The project aims to increase safe-water access to c. 500,000 people. Two smaller grants (each of US $2-3m) from SCCF and GICI support sustainable water management (irrigation) and land practices in drought prone regions.

- In **Zambia**, only one small project was directly related to WASH type activities, with a number of projects potentially having co-benefits (reforestation and conservation).

It should be noted that these are only those projects funded through dedicated climate funds. There are a range of additional projects funded by donors or government from mainstream development budgets that address WASH, IWRM and other related areas.

Table 12 shows the amounts approved and disbursed for water-related projects (i.e., those classified as A, B or C). Although Bangladesh has the largest amount of water-related funding, none of these funds appear to have been disbursed so far. Ethiopia shows the highest disbursement rate for water-related projects, with 18% of approved funds disbursed to date. As discussed in section 4.3, low disbursements are likely related to specific project implementation dynamics.

Table 12 Approvals and disbursements for water security (2003 – 2014)

Funds (US million)	Bangladesh	Ethiopia	Zambia
Approved	$196	$34	$84
Disbursed	$0	$6	$6
% disbursed	0%	18%	8%

Source: CFU (2014).

Finally, Table 13 shows the amounts approved for water security projects as a proportion of both total adaptation and total climate finance. Given the high vulnerability of coastal areas in Bangladesh, water security projects encompass 62% of total adaptation funds and 39% of total climate finance.

Water security projects are less significant in both Ethiopia and Zambia, encompassing 28% and just 4% of total adaptation funds, respectively.

Table 13 Approvals for water security as a proportion of total funding (2003 – 2014)

% Funds	Bangladesh	Ethiopia	Zambia
Approved / total adaptation	62%	28%	4%
Approved / total climate finance	39%	11%	3%

Source: CFU (2014).

In conclusion, WASH-type activities remain only a small proportion of the overall number of projects financed by dedicated international climate funds. Only in Bangladesh, where WASH has been identified as a strategic issue in the national policy frameworks, have funds directly addressed the issue at scale. However, these projects are relatively narrowly targeted and there remains scope for upscaling and expanding such activities. In Ethiopia, there is one project providing water supply in a drought area, but no evidence that this project has influenced policy or financing decisions more broadly. There is only limited evidence of a WASH focus within climate funds in Zambia. More broadly, there has been a tendency to 'rebadge' mainstream infrastructure projects in climate vulnerable areas as climate adaptation projects in order to access climate finance, but such projects are equally likely to be funded through mainstream budgets or sector funds.

5 Conclusions

Exposure to climate change

Each country views climate change and water security through a different lens. While areas of Bangladesh are prone to drought, the climate change-water nexus is primarily an issue of low lying areas exposed to sea level rise, saline intrusion and flood events arising from cyclones. Ethiopia and Zambia both have significant water resources, but they are not evenly distributed. Both countries tend to view the climate change-water nexus in terms of agriculture and energy production (hydropower). Current rainfall patterns are already highly variable (e.g. Ethiopia) and future projections carry a high degree of uncertainty. In all three countries, the impacts of climate change on water availability are compounded by poor governance, population growth and over-abstraction of groundwater resources.

Climate and water security policy approaches

While all countries have developed climate change strategies and sought to integrate these into national development plans, only in Bangladesh has WASH emerged as a clear climate policy objective, particularly in the coastal zones that are prone to sea-level rise, saline intrusion and storm surge. In Zambia, climate proofing of urban sanitation was identified in the NAPA but never financed, and WASH was not taken forward as a national priority in later policy frameworks. In Ethiopia, WASH does not currently appear as a priority within climate policy frameworks, although water security is addressed in a wider context (agriculture, energy).

National financing infrastructure

The three countries are at different stages of development with regards to their national climate finance architecture. Bangladesh has operated two climate trust funds (both national and donor funded) since 2010 that have financed a range of water infrastructure (including drinking water wells). The fund structure is now evolving to get direct access to the GCF. Ethiopia is developing the CRGE financing facility with the potential for both government and non-state access, while Zambia has indicated its interest in a formal finance facility. Reflecting the policy environment, WASH is thematically prioritised within the national climate finance architecture in Bangladesh, with water security being addressed primarily through the agriculture and energy sector in Ethiopia.

International climate finance flows

Financial flows provided by dedicated climate finance funds are only a small portion of climate relevant investment in the three countries. Climate relevant ODA, national sector budgets and private sector finance play a larger role. On the basis of a review of climate finance alone, it is not therefore possible to say whether overall funding for water security and WASH in particular is adequate to address the impacts of climate change (e.g. for the poor). The scale of dedicated climate funds is nonetheless significant (approximately US $700m since 2003). The flows for the three countries are dominated by Japanese Fast Start Finance, GEF funds (including LDCF) and the Climate Investment Funds (PPCR and SREP). Adaptation represents a large but variable share of climate finance, ranging from 40% in Ethiopia to 89% in Zambia. Adaptation funds tend to be oriented towards the use of grants, rather than loans, although the latter may be used in large resilience infrastructure projects (e.g. the Khulna Water Supply Project in Bangladesh).

Relevance to water security

WASH-type activities remain only a small proportion of the overall number of projects financed by dedicated international climate funds. Only in Bangladesh, where WASH has been identified as a

strategic issue in the national policy frameworks, have funds directly addressed the issue at scale. However, these projects are relatively narrowly targeted. In Ethiopia, there is one project providing water supply in a drought area, but no evidence that this project has influenced policy or financing decisions more broadly. There is only limited evidence of a WASH focus within climate funds in Zambia. More broadly, there has been a tendency to 'rebadge' mainstream infrastructure projects in climate vulnerable areas as climate adaptation projects in order to access funds.

6 Recommendations

Donors and funding agencies

While recognising that the resilience agenda will be primarily nationally driven, donors should seek to ensure that the impacts of climate change on water supply and sanitation and the potential co-benefits arising from WASH programmes (e.g. health, livelihoods) have sufficient priority. At a national level, this may involve blending support to WASH-type activities from both existing sector development budgets and national climate funds as well as promoting mainstreaming of the resilience agenda into water sector planning. At a global level, donors should also promote the WASH and water security agenda within the international climate finance architecture (e.g. GCF, CIF, GEF) using both their contributions and their influence in the governance structures. Promoting effective governance of the WASH sector remains equally as effective as a resilience strategy.

Green Climate Fund

The GCF has identified health, food and water security (including water supply and sanitation) as one of 8 potential result areas. Infrastructure and cities also feature as results areas with potential WASH relevance. At the last GCF board meeting (BO9), the GCF board approved 5 thematic and geographic investment priorities (thematic priorities being cities, agriculture, forestry, SIDS resilience and energy generation / access). This guidance was designed to provide direction to project developers to ensure the relevance of project proposals. Although water was not included explicitly as one of the five investment priorities, water considerations are implicit in the first four of these in one form or another. The GCF should be encouraged to clarify how WASH activities will fit into these 5 investment priorities. Given that the GCF will be to a great extent country-driven, there is the danger that those governments with programme concepts related to water and sanitation may choose not to bring these forward unless given explicit guidance to do so by the GCF, instead prioritising proposals more closely aligned with the 5 priorities set out above.

Recipient governments

National governments should consider how WASH-type activities might be better integrated into both climate policy and national climate finance architecture where relevant. This involves ensuring that agencies responsible for WASH activities are included in climate finance governance structures and sector planning processes (e.g. the CGRE in Ethiopia), and that they are accredited for access to the GCF. Dedicated windows for WASH-type activities might be considered within climate finance structures (both for government and non-state actors). Consideration should be given to mainstreaming WASH considerations into larger agriculture or energy projects (e.g. multi-purpose dams), where these are the primary sectoral focus for resilience spending.

International organisations

International organisations (including WaterAid) should work to raise the profile of WASH and water security within the climate resilience agenda. This can be done by building consortia of like-minded organisations (NGOs, academia, parliamentarians) both at a national and international level. At a national level, influencing should be done in a targeted way to reflect national climate exposure and concerns (e.g. coastal impacts in Bangladesh). Entry points into national policy dialogue should be sought, such as the restructuring of the national climate funds in Bangladesh, the CRGE/GTP process in Ethiopia, and the National Climate Policy process in Zambia. The GCF accreditation processes in all three countries provides a window of opportunity to influence prioritisation and financing strategy. International organisations should also promote the use of climate funds as a way of achieving additionality, rather than as substituting or displacing existing WASH or water sector development funding.

WaterAid

WaterAid itself should seek to operate both as an advocacy organisation promoting the role of WASH within the wider water and climate security agenda, as well as an advisor to governments and project developers wishing to integrate WASH. Where possible, it should seek a formal advisory to government and donor community role on climate policy and finance (as it has achieved in Ethiopia). This could include the preparation of sector guidance and mainstreaming notes for climate change and WASH. WaterAid should monitor the evolution of the institutional architecture with a view to identifying potential entry points for WASH activities. WaterAid may offer to support strategic applications for WASH-related climate finance being prepared by government or other actors. WaterAid may also consider building the evidence base around the socio-economic benefits of WASH related investment in a climate change context.

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Annex A Terms of reference

Climate finance research – Terms of Reference

Despite growing attention to water, people are still chronically water insecure. There is a fundamental disconnect between policy and reality. Significant sums of finance have been pledged for climate change and much of it is beginning to flow. However, there has been little assessment of where this money is going; how it relates to various national plans; nor evaluation of its impact on reducing vulnerability.

One of the strategies of WaterAid's policy work on water security and climate change is to make the links between local scale water security needs and international climate finance. This study therefore complements other work that looks at what needs to change at a local level to improve water security[9]. Together, these studies aim to help WaterAid to understand the relationship between international climate finance; national climate policy; and measures to improve water security - and thereby develop our core advocacy on water security and climate change.

Objective

Identify the type and scale of national and sub-national programmes and projects that have been funded by climate finance and how they relate to local water security.

Key research questions

- How much climate finance has been pledged, allocated and disbursed in-country? (at least 2 WaterAid countries)
- What proportion of this money flows from national to local level?
- How does this compare to domestic finance allocations?
- What types of project are funded by climate finance and what has been their impact on water security?
- Has this money changed existing priorities and financial allocation to the water and sanitation sectors and geographical areas?

Approach

The study will be limited to a set of indicative countries, so will not be generalizable, but will point to some key trends.

An initial scoping resulting in an inception report that sets out a clear methodology and identifies at least 2 countries (ideally where WaterAid works) - we are initially proposing Ethiopia, Mozambique and Niger as they have all received significant funding through the PPCR[10].

Country case studies based on a combination of desk study and key informant interviews, resulting in a synthesis report highlighting key trends and issues.

[9] Voices from the Source: Struggles with local water security in Ethiopia (http://www.odi.org.uk/sites/odi.org.uk/files/odi-assets/publications-opinion-files/8226.pdf).
[10] PPCR is one of the few climate funds with an explicit focus on integration with national plans, hence its use as an indicator of interesting countries.

Annex B Questions and summary of key stakeholder interviews

Questions	Bangladesh	Ethiopia	Zambia
Water security (WS)			
Definition (What do you understand as water security? Is there a specific framework you refer to define water security? Is there a consensus in your institution / organisation about this definition?)	**No single definition or framework** ▪ WS framework is skewed towards Africa (DM Programme) ▪ WS is mainly related to water availability and the protection of ecosystems (MoEF) ▪ WS has 5 dimensions: household, economic, urban, disaster resilience and environmental (ADB)	**No single definition or framework – different agencies use different definitions (WaterAid, EFRI, GGGI)** ▪ WS is related to protection of catchment areas, smoothening of water flow, flood prevention, ecosystems protection, water availability and storage (GIZ)	**No single definition or framework** ▪ WS is seen as WRM; new concept. WaterAid is starting to build consensus over the concept, at least among NGOs and other international partners (WaterAid) ▪ The prevailing definition is the one used by the donor who provides funding (WB)
Evidence (What are the main threats to water security in the country?)	▪ Devastating cyclones and floods (BFP) ▪ Scarcity of drinking water (DM Programme) ▪ Groundwater depletion and saline intrusion, surface water contamination and natural disasters (MoEF) ▪ Groundwater depletion and saline intrusion, surface water contamination and natural disasters (WaterAid, MoEF, BCCTF)	▪ Natural resource degradation; vanishing catchment areas and lakes (WaterAid) ▪ Concerns over water availability for hydropower and irrigation (GGGI)	▪ Groundwater pollution and depletion (WaterAid, ZCCN); partly linked to mining development ▪ Multiple localised challenges due to varying topography. The transboundary nature of the Zambezi could also become a problem in the future (WB). ▪ Limited water storage (GIZ, Water Affairs) ▪ Droughts and floods (Water Affairs)
What are the main policies / research undertaken related to water security?	**Limited knowledge of local water policies. Stakeholders mentioned the need for enforcement and further development / improvements (WaterAid, ADB)** ▪ National water policy (1999), water management (2005) and water act (under preparation) (MoEF)	▪ Water Policy has 3 components: irrigation, hydropower and WASH policy (WaterAid) ▪ There is a water sector development program that identifies projects and needs (GGGI)	▪ Given the lack of clear definition, there is no overarching policy for water security. Current policies separately address different components of water security, such as water supply, energy and food security. ▪ Water Policy, WRM Act, WASH Act. Water encompasses WASH and WRM (Water Affairs)
What governmental bodies or people have mandate over water security?	**Water responsibility is fragmented at both national and sub-national levels** ▪ Dept. of Public Health & Engineering for WASH, Dept. of Food & Disaster for		**Water responsibility is fragmented at both national and sub-national levels** ▪ MoEWNR; MoLGH; MoFNP (WaterAid)

Questions	Bangladesh	Ethiopia	Zambia
	DRM; MoEF for NAPA plus different bodies at the sub-national level (BFP) ▪ WARPO (WaterAid)		▪ There is a Water Advisory Group with NGOs, government and other relevant stakeholders (Water Affairs)
Climate change			
Evidence (What are the main threats to water security from climate change? Over what timescale do you expect these threats to take place? Is there any awareness of the impacts of climate change on water security? Have costs to address these impacts been identified, i.e. from other non-climate change related events)?	▪ Main vulnerable areas: coastal belt, Northern regions (drought prone) and wetlands. Risks include water table depletion, water scarcity, flash floods, sea level rise, saline intrusion, erosion, and cyclones (DM Programme). ▪ ADB is planning to assess the additional costs of climate change. Climate proofing guidelines have already been drafted. ▪ Long term costs of CC are uncertain and poorly understood (NCC)	▪ Impacts of CC on water security still need to be studied – main threats are likely to be floods, droughts and variability of rainfall (EFRI). ▪ Additional costs are currently being studied by the Centre for Climate Science of Addis University (FarmAfrica) ▪ Water supplies are drying up (MoWIE) ▪ Additional costs are difficult to identify (ARI)	▪ Awareness of CC is mainly related to agriculture (e.g. rainfall variability); there is more focus on food security vs. water security, leaving out fundamental issues related to drinking water (WaterAid, GIZ)
Are these impacts addressed in current policy, and if so, where? (NAPAs, NatComms, etc.)	▪ NAPA had given importance to develop a comprehensive strategy for safe-drinking water supply in coastal areas, but the BCCSAP has overlooked these needs (NCC)	▪ CRGE Strategy (Addis Uni)	▪ Water is not a priority in the NAPA (it is included in agriculture) (Water Affairs) ▪ The National Climate Policy is still in draft stage (GIZ)
Is there a clear definition of 'adaptation' as opposed to 'development'?			▪ There is no distinction between adaptation and development; currently these concepts are used as synonyms (WaterAid)
Climate finance			
Definition (Is there a shared definition of climate finance?)	▪ Climate finance remains an imprecise term that has no commonly accepted definition. However, it is generally understood to mean those financial resources that are directed at supporting climate change related actions in developing countries (i.e. both adaptation and mitigation as well as relevant reporting activities). It covers a wide range of sources (both public and private) and mechanisms (e.g. grant finance and concessional loans) (NCC)		**No shared definition or framework**

Questions	Bangladesh	Ethiopia	Zambia
Evidence (How do you consider the general knowledge around climate finance?)		▪ Awareness on climate finance is still needed (WaterAid, GGGI)	
Architecture (Is there a climate finance architecture for this country? Who are the major donors? Who are the main beneficiaries? Are there National Designed Entities for the GCF?)	▪ BCCTF for DRM & a BCCRF for the GCF (stalled because WB will no longer be a trustee) (DM Programme, ADB) ▪ CIF (PPCR) – 3 projects and 2 TAs; mostly grants and some concessional loans (ADB) ▪ NDA is MoF with 14 institutions as NIEs (ADB, WB, BCCTF)	▪ CRGE is the main policy umbrella – all interventions will be managed by it (GIZ, GGGI). It is now operative (Phase I – 18 months) with US $6m for 5 projects (MoWIE). CRGE is superseding NAMA and NAPA (GGGI) ▪ Climate finance currently flows thorugh MoF (EFRI) ▪ Funding through the CRGE will probably be channelled to cooperative and unions for community-level investments vs. households (MoEF) ▪ CRGE is NDA for GCF. The Facility is also considering other sources of funding, e.g. private sector (GGGI)	▪ There is limited awareness of the climate finance architecture, both relating to current and planned structures (WaterAid) ▪ Climate finance is still relatively new area for the government. There is an interim secretariat, but it's still not fully operational. Policy instruments and legal frameworks are still incipient (WaterAid, MoFNP) ▪ CC projects are generally approached through call for proposals, and eventually, the GCF (EU Delegation) ▪ The Secretariat has been active since 2012 and is collaborating with provincial and district level planning units (IICCS) ▪ There are 2 work streams for the GCF: the Readiness Program and integration of CC into planning and budgeting (e.g. helped MoFNP develop the climate proofing manual); there is limited local capacity (GIZ)
Data / identification initiatives (Are climate finance flows distinct from ODA? Are there tools or methods to identify climate finance?)	▪ Difficult to separate impacts of climate change from other development needs (DM Programme) ▪ Adaptation is aligned with development (WaterAid)	▪ Difficult to separate climate finance from development – ODI report on financing found that all sectors have received some climate finance (Addis Uni) ▪ There is not much space for additionality – climate change projects should have a development purpose (GGGI) ▪ Separating ODA from CF is almost impossible (MoEF)	▪ Following PPCR and GCF criteria (IICCS, GIZ)
Monitoring (Are there tools or methods to monitor climate finance? e.g. databases, coordination meetings Is there a	▪ More coordination and capacity is needed (WaterAid, MoEF)	▪ There is a coordinating body that meets every month (Addis Uni)	▪ There are different CP groups – the EU delegation leads the energy group and the German Embassy chairs the water

Questions	Bangladesh	Ethiopia	Zambia
donor coordinating body? If so, how effective is it? E.g. frequency of meetings, attendance, etc.)	▪ Climate finance is tracked by each MDB or donor through their own tracking and reporting systems (WB) ▪ BCCT is audited by Comptroller and Auditor General (CAG) of Bangladesh. The Trustee Board of BCCTF is also required to submit to the Government an Annual Report on its activities of the previous fiscal year (BCC)	▪ There are no monitoring systems (MoWIE) but CRGE will eventually have this task (GGGI)	group, with increasing involvement from the MCC (EU Delegation) ▪ NPD has contracted external consultants to mainstream CC into national development plans (MoFNP) ▪ Monitoring in not fully developed (PPCR, GIZ) Resources are usually channelled via MoFNP and it is not clear if it is ODA or CF (GKI)
Challenges (What are the major challenges related to climate finance? e.g. access, disbursement, implementation, transparency etc. If transparency is an issue, what do you think is the most successful way to address it, in particular in the context of water security?)	▪ Transparency is an issue, especially in the context of multiple NGOs and lack of coordination; there is a high level of corruption (WaterAid, ADB) ▪ Slow process for the selection of projects and disbursement of resources (WaterAid, ADB) ▪ Lack of technical capacity (ADB)	▪ Capacity building in rural water supply (WaterAid) ▪ Limited transparency and accountability from donors (Addis Uni) ▪ Coordination for CRGE is needed at the community and watershed level (ARI)	▪ There are no clear strategies for water security; working mainly *ad hoc* (WaterAid) ▪ Policy instruments and legal frameworks are still incipient (WaterAid) ▪ Water responsibilities are too fragmented so it has been very difficult to mainstream CC; coordination is a problem (WaterAid, GIZ) ▪ There are important governance issues in the water sector due to fragmented responsibilities (EU delegation) ▪ There is limited technical knowhow and capacity to facilitate the process for accessing climate finance – there is some knowledge on how to mainstream CC in national plans but there is no specific knowledge related to mainstreaming it in the water sector (WaterAid)
Water security (Is there any climate finance allocated to water security projects? How much climate funding is directed towards water security? How are these water security projects identified, and what has made them eligible? Are you confident that climate finance will	▪ Focussed on DRM (early warning systems, evacuation plans, recovery); there is a Community CC Programme funded by the WB that uses microfinance to support communities in developing DRM strategies (BFP) ▪ There is a project dealing with water scarcity in coastal areas (WaterAid)	▪ GIZ is implementing a sustainable land management program – sustainable forest mgmt., farmland mgmt., and climate smart agriculture (GIZ) ▪ SHARE project to sustain low- and high-land rivers (Farm Africa) ▪ There are some initiatives in the CRGE (ARI, GGGI)	▪ Very weak linkages between climate finance and water security. There are some projects dealing with droughts in the South and the improvement of irrigation systems (WaterAid) ▪ The EU focusses on energy and transport, with very limited involvement in the water sector – they have 1 project in the Copperbelt province working with

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adequately address these issues?)	▪ There are some projects related to water and energy (co-benefits) (MoEF)		water utilities to encourage best practice in the sector and they are also financing a project led by EIB, but no funds have been disbursed so far. The EU is also rehabilitating the Kariba Dam for 80-90m euro, but this is not climate finance (?) (EU Delegation) ▪ Besides the PPCR, the WB is increasingly including CC and climate resilience components in their programmes to tap into climate finance resources (WB) ▪ The PPCR has focussed on mainstreaming the CC agenda in national budgets and strengthening institutional arrangements. Other projects include DRM, early warning systems and capacity building at the community level. There are also some projects in the Barotse and Kafue basins. In the Western province, they are also investing in improving water canals to make them more secure and climate resilient (WB, GKI, IICCS) ▪ The Secretariat is also working with UN agencies on projects related to REDD+ preparedness and with GEF on early warning systems and low carbon. They are also doing a GHG inventory (IICCS) ▪ There is a project led by Water Affairs (in development) – they have committed US $1.5m to support WRM (IICCS) ▪ The MCC has allocated US $555m for Lusaka WASH programmes in peri-urban areas – not sure if this is CF (GKI) ▪ GIZ has 3 different areas of work: institutional support, integration of CC into WRM projects (i.e. TA - 3m Euro, financial cooperation with KfW – 9m

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			Euro), and a stewardship programme funded by CIF (GIZ). ▪ There is a Water Resources Development Project worth US $50m; the WB works mostly on WRM (WB)
At what level of government are funds being spent and to what extent are local priorities considered vis. national or even international priorities?		▪ Funds are channelled to regional states but there is limited capacity and awareness (MoWIE) ▪ The CRGE still needs to define how links between national and sub-national agencies will be addressed (GGGI)	
Private sector (Are there any specific climate finance initiatives to incentivise private sector involvement in water security?)	▪ Phased approach based on bankable projects that can be scale up (ADB) ▪ There is some opportunities for private sector involvement in sanitation and in the development of saline-water resistant crop varieties (DM Programme) ▪ WS is not attractive for the private sector and there are few government incentives. There is some involvement in coastal areas where they work on river osmosis and water purification (WaterAid)	▪ Incentives for the private sector are currently being developed; more focus on mitigation vs. adaptation (Addis Uni) ▪ Private sector in Ethiopia still needs to be developed; faces financial constraints (FarmAfrica)	▪ Limited attention to the private sector – for instance, there are no initiatives looking at the impact of extractive industries on water resources and water pollution (WaterAid) ▪ Lack of understanding of CC on behalf of private sector. E.g. 'the financial sector does not get involved with CC because of a lack of understanding and capacity'. There is some potential to get the private sector involved in the hydropower sector, where climate finance could subsidise investments (GKI) ▪ There are matching grants in the PPCR for the private sector (AfDB)
Recommendations (What is the level of progress on the Green Climate Fund, and what are your views on the attention paid to grants vs loans? What are your key recommendations for the Green Climate Fund? Do you have any key recommendations for the Financing for Development conference?)	▪ It is important to mainstream DRM and CC and enable linkages with the education system to increase awareness and sustainability (DM Programme) ▪ Water is not likely to be the focus but can be addressed through other sectors like energy, agriculture and health. Focus could also be given to sanitation (DM Programme) ▪ Water security is a concern, but more awareness is required before it can be	▪ NGOs need to stop thinking about access to finance, and think about how to influence key government issues, this can achieve more water security. WA can leverage its impact in this way, rather than thinking about accessing money. Dichotomy between charity, and advocate for change (GGGI) ▪ CRGE should focus more on adaptation and agriculture vs. mitigation. Coordination is also needed with the GTP (GGGI)	▪ WaterAid should be involved in advocacy at different levels (national and community) and should stay away from service provision. For instance, WaterAid could work jointly with the government to support the establishment of the policies and institutions needed for climate finance management (WaterAid) ▪ WaterAid and others should focus on advocacy and mainstreaming CC into

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	mainstreamed into the CC agenda (WaterAid) ▪ Community-driven initiative should be encouraged; grants should be given for climate proofing while concessional loans should be used for infrastructure projects (ADB) ▪ Core development issues should not be set aside – CC is part of these and adds to future challenges. Mainstreaming CC in all operations is the best option – climate change projects should not be carried out for their own sake. The focus of climate finance should be on making development 'climate smart' (WB)	▪ WaterAid can amplify national voices and be pragmatic about what needs to change (GGGI) ▪ WaterAid could have a role on the advisory board, but would have to get away from implementation (GGGI) ▪ CRGE needs to be involved in more than just CC – vision & transformation (GGGI)	national plans, programmes and initiatives, e.g. Vision 2039 (WaterAid) ▪ There is likely to be an interest from development banks on transport and infrastructure as they can pitch for loans (EU delegation) ▪ The Secretariat will be the main channel for the GCF (IICCS) ▪ Ideally, climate finance should initially be provided in the form of grants, but in the future, the objective is to have a balance between grants and loans (IICCS) ▪ Funds should be initially disbursed as grants but eventually there should be a balance between grants and loans (PPCR, MoFNP) ▪ Water issues should also be mainstreamed through REDD+ (ZCCN) ▪ Zambia could tap into climate finance by addressing issues related to water and deforestation, and water and agriculture (GKI) ▪ Commitments for the GCF are still uncertain from the donor side – they will only make commitments when full structures are in place. Currently, there is low implementation capacity at the local level, which may delay progress towards meeting GCF standards (GIZ) ▪ Links between food, water and energy are a good way to mainstream CC (e.g. multipurpose dams) (Water Affairs) ▪ WaterAid should be involved in service delivery, advocacy at the international level, understanding nexus across sectors, supporting stakeholders on the ground and local communities, and encourage development of PPPs (Water Affairs)