Ministry of Foreign Affairs

Business opportunities for Dutch companies in projects on Climate Adaptation in Vietnam, Philippines and Indonesia

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Netherlands Enterprise Agency

Market Study
Business opportunities for Dutch companies in projects on Climate Adaptation in Vietnam, Philippines and Indonesia

Studio Flow | River & Water Management Consultancy

In collaboration with

Water Bridge Myanmar

Commissioned by: Netherlands Enterprise Agency (RVO)
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Executive summary

RVO-Team International Organizations (RVO-TIO) serves as a focal point and linking pin for Dutch companies who work or want to work on projects for International Financing Organizations in Southeast Asia such as the World Bank Group (WBG) and Asian Development Bank (ADB) in particular on themes serving the development agenda of the Government of the Netherlands such as Climate Adaptation. Climate Adaptation is an important theme for development banks in relation to the global challenges we face as a society. RVO commissioned Studio Flow, in collaboration with Water Bridge Myanmar, to;

1) provide insight in the business opportunities (pipeline of projects) for Dutch companies in projects with a climate adaptation profile financed by development banks in three focus countries (Vietnam, Philippines, and Indonesia) in Southeast Asia, and
2) provide strategic guidance to Dutch companies to enhance chances to capitalize on opportunities in these projects and thus further strengthen the position of the Dutch as an important global player in climate adaptation.

This market study is prepared with information derived from publicly available sources available on the website (or so-called “operations portal”) of the respective banks, information obtained from interviews with World Bank (WB) and ADB (ADB) key people involved in climate adaptation projects, Dutch companies and sector specialists and officers at Dutch embassies in the three target countries and completed with the author’s personal experience at the World Bank.

According to the UN definition (UNFCCC), Climate Adaptation is the “adjustment in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts”. The World Bank and ADB amongst other development banks have embedded these ambitions in their corporate policies, at national level in the partnership frameworks/strategies with the borrowing county and at project level as project development objective, reflected by amongst others in a shift to implementation of climate resilient infrastructure.

For Dutch companies to capitalize on opportunities in Climate Adaptation projects, the market study shows that foremost, full understanding of the principles of Bank financing and procurement regulations is required. WB/ADB interviewees pointed out that this is often lacking with companies, hence being their largest obstacle in successfully doing business with the WB/ADB. Other obstacles identified in this study are related to smaller sized companies, experiencing limitations in their chances of participating in WB/ADB tenders, or finding the right platform to promote their work. Generally, smaller companies express lacking the capacity to follow the large flow of information needed to be well prepared for upcoming WB/ADB tenders.

Project documents lay out the basic structure of the project, institutional arrangements, and technical /geographical scope. The Procurement Plan provides information on planned Works, Goods, and (non-) Consultancy contracts under the project. Amongst the basic guidance provided in this report, one key recommendation is that all WB/ADB project related information is publicly accessible through the respective project portals.

For good understanding of the selection of companies who are - or could be - active in Climate Adaptation projects for the WB/ADB, a sector analysis was carried out. For the sector analysis, the business profile of companies was used to organize companies based on the climate

related services they provide or knowledge products they develop. The conclusion from the market study is that Dutch companies in general are well distributed over the various climate related knowledge fields required in Climate Adaptation projects. At the service line level, Dutch companies are strong in providing a broad range of consultancy services, but there is a market opportunity in the "system modernization" field. This involves projects with a strong transformational character, e.g., climate-smart agriculture or hydro-met modernization, involving the design of high-end technical solutions including installation and operation. Market consultations could help bringing companies with a complimentary profile together to increase chances of winning the tender.

Apart from knowledge of basic business principles when working for the WB/ADB, the market study identified the following key recommendations for companies to gain more traction from the WB/ADB and their clients and to increase chances to support in project preparation activities of the World Bank and ADB:

- **Project status:** there are business opportunities for companies in the project preparation and implementation stages of a WB/ADB project, and participation in the preparation stage does not necessarily exclude the company from participating in the implementation stage, provided that procurement regulations are strictly followed.
- **Strategic position:** Participating in project preparation brings an advantage of having influence on the design of project activities (e.g. setting up technical requirements for climate resilient infrastructure).
- **Parallel grant funding:** Grant funding (Partners for Water or other grant funding) is a useful instrument to support WB/ADB project preparation and to ultimately inform/influence the design of investments.
- **Expertise:** In the scope description of Dutch funded Technical Assistance it is recommended to include a Market Consultation to leverage input from a broader range of companies when working on project preparation.
- **Pilot studies –** pilot projects are the best playground to test the feasibility of innovations (Proof-of-Concept) in climate adaptation and climate resilient concepts in practice.
    - ADB/WB expressed the need for pilot projects but meanwhile acknowledges challenges with regards to embedding pilot projects in the project design due to the short time for implementation and monitoring.
    - Pilot studies/projects should cover all aspects of the bankability of a concept including *technical soundness, economic viability, social acceptance, and environmental sustainability.* Dutch companies tend to limit their input to technical support.
- **Support:** The Embassies and RVO are available to companies in engaging with the WB/ADB.

Market opportunities in projects on Climate Adaptation: one of the key conclusions of the market study is that Climate Adaptation projects are no different from traditional infrastructure investment projects, yet the difference lies in the climate resilient and multi-functional character of the investments. Climate Adaptation projects under preparation for Indonesia, Philippines and Vietnam are presented in Annex 1-6 of this report. Typical subjects that serve the Climate Adaptation agenda of the WB/ADB are: (Urban) Flood Risk Management and Climate Resilience, Climate-smart Agriculture & Irrigation modernization, amongst others. The sector analysis conducted under this market study showed that a long list of Dutch companies may qualify to participate in WB/ADB tenders for Climate Adaptation projects each coming in from their own field of expertise**.**

1 Introducing the market study

1.1 The assignment

RVO-Team International Organizations (RVO-TIO) serves as a focal point and linking pin for Dutch companies when working for International Financing Organizations in Southeast Asia such as the World Bank Group (WBG) and Asian Development Bank (ADB) in particular on subjects serving the development agenda of the Government of the Netherlands such as Climate Adaptation. Climate Adaptation is an important theme for development banks in relation to the global challenges we face as a society. In addition, climate adaptation is one of the key topics under the Dutch foreign policy, which is apparent from the active role that the Netherlands has played in the Climate Adaptation Summit (CAS) in January 2021, for which the Netherlands was the host country or the active role the Dutch climate envoy (Mr. Jaime Bourbon de Parme) and water envoy (Mr. Henk Ovink) play internationally.

In early 2021 RVO-TIO finished a study on the effects of the Corona crisis on Dutch companies doing business with development banks and international organizations which shows, among other things, that there is an increasing need to capitalize on opportunities in climate adaptation in development projects. The reason is that from the Dutch business community, people look with great expectations at climate adaptation projects, as climate adaptation was not hindered by delays caused by the Corona crisis as much as other themes/sectors. Motivated by the results of the recent IPPC report (2021) and outcomes of the COP26 summit in Glasgow, development banks and the borrowing governments have this topic high on the agenda. TIO concluded that companies in the construction and production sectors that previously participated in many development projects, which came to a standstill, postponed, or halted as a result of the Corona pandemic, have been hit hard by the Corona crisis, and are placing their hopes on new climate adaptation projects. During the Corona crisis, most new projects had a heavy weight on COVID-19-related health care, while a lot of new infrastructure projects were postponed, and ongoing projects were asked to shift funding to new emergency response healthcare projects.

RVO-TIO has requested support in providing information about business opportunities related to climate adaptation of WB and ADB and recommendations for the positioning of relevant Dutch companies that can play a role in international climate adaptation projects in Southeast Asia. TIO wants to support Dutch companies that can play a role in the preparation and implementation of international climate adaptation projects that are financed by the development banks (World Bank and ADB) and thus further strengthen the position of the Dutch as an important global player in climate adaptation.

The region chosen for this market study is Southeast Asia that faces a range of societal challenges, including coastal erosion, over-exploitation of natural resources, marine and coastal pollution, rapid urbanization, unsustainable land use and relatively weak environmental management. The livelihoods of millions of people on the coast depend on productive and healthy ecosystems. Unless coastal hazards are addressed, communities will remain vulnerable and less resilient to new shocks from climate change. Apart from this, there are also other reasons to focus on this region, namely that it has also grown into an important economic player for The Netherlands in recent decades, the Dutch business community there already has a track record for many years with knowledge and expertise that can be well applied in climate adaptation projects. To unlock the full potential of the Dutch contribution to climate adaptation projects, this study will provide a thorough analysis of the current and

future opportunities for the Dutch water, infrastructure and agriculture sector to participate in development projects in Southeast Asian countries.

Studio Flow | River & Water Management Consultancy together with Water Bridge Myanmar were assigned by RVO to conduct a Market study on climate adaptation projects at the World Bank and ADB, of which the findings are presented in this report.

1.2 The objectives

The main goal of this assignment is providing insight in the business opportunities (pipeline of projects) for Dutch companies in projects with a climate adaptation profile financed by development banks in three focus countries (Vietnam, Philippines and Indonesia) in Southeast Asia. This will support the Dutch business community to take advantage of the momentum now that climate-related projects are receiving increasing attention of the borrowing governments and development banks, especially in the wake of the COP21.

1.3 Methodology

This report is built around the following 5 key tasks:

- Task 1: Climate Adaptation in World Bank and ADB financed projects.
- Task 2: Climate Adaptation ambitions in the collaboration between IFIs and their clients.
- Task 3: Listing targeted private sector companies (by name and type) that may be relevant for and interested in participating in tenders as mentioned under Task 1.
- Task 4: Assessing the conditions and obstacles for Dutch Companies in tender preparation and project implementation.
- Task 5: Recommendations for Dutch private sector companies in being better positioned for Climate Adaptation projects.

This Market study is prepared with information derived from publicly available sources available on the website (or so-called “operations portal”) of the respective banks, information obtained from interviews with World Bank and ADB key people involved in climate adaptation projects, Dutch companies and sector specialists at Dutch embassies in the three target countries and completed with the author’s personal experience working for the World Bank.

Literature
Task 1 and task 2 are prepared using information that is publicly available on the Bank’s website, either at the corporate level, national level or project level such as the World Bank operations portal. At the corporate level it concerns flagship reports on climate adaptation, climate resilience or more specifically Nature-Based Solutions (NBS). At national level it concerns the Country Partnership Framework (CPF for World Bank) or Country Partnership Strategy (CPS, for ADB). And at project level it concerns the Monthly Operations Summaries (MOS) or operations portal with detailed project information on the respective projects.

Figure 1: examples of World Bank corporate level report on climate change, World Bank flagship report on NBS, and ADB project case-study brief on application of NBS in the Philippines.

Interviews

Interviews with World Bank & ADB key people

Apart from publicly available information, additional project information was obtained through interviews with key contacts within the World Bank and ADB country offices in Vietnam, Philippines, and Indonesia[1].

Chapter 5 & 6 reflect the key findings from the interviews with World Bank Task Team Leaders (TTLs) and ADB Project Officers (POs) and recommendations drawn from the interviews are further supported by the personal experience of the author of this report as former World Bank Task Team Leader.

Interviews with sector specialists at the Netherlands Embassy in Vietnam, Philippines and Indonesia.

Sector specialists at the Embassy of the kingdom of The Netherlands (EKN) in the three countries serve as the local point of contact for Dutch companies providing information and network to Dutch companies. Sector specialists (water delegated representative, First Secretary Water Management & Climate Change, Agricultural council etc.) generally maintain good relations with the International Financing Institutions (IFIs) and can be considered as focal points for the local IFIs and governments. Under this Market study, the following meetings have taken place with the Embassies of the Kingdom of the Netherlands:

Vietnam:

1. Laurent Umans, First Secretary Water Management & Climate Change
2. Willem Schoustra, Agricultural council

Indonesia:

1. Robin van Boxtel: First Secretary Water and Climate Change
2. Joost van Uum, Agricultural council
3. Rien Dam: Water Delegated Representative

[1] Or headquarter (Manilla or Washington DC or Beijing).

Philippines:

1. Pieter Terpstra – Head of Economic Affairs
2. Aileen Vizmonte – Deputy Head of Economic Affairs

Interview with Dutch Companies

The last round of interviews was held with Dutch companies with a strong climate adaptation portfolio, active in the target countries and/or with ambitions to develop business in World Bank and ADB funded projects in these countries. Although many more companies may qualify, for the interviews a selection was made aiming at a diverse group of companies, ranging from engineering firms to more specialized firms, Urban Planning companies, and suppliers of specialized equipment.

The interviews with Dutch companies aimed at building a profile of how companies see the World Bank or ADB as important business partners, including the opportunities and obstacles they see when doing business with the World Bank and ADB, and what they need in terms of support from the Netherlands Embassies and RVO (TIO) to improve their visibility and opportunities to participate in World Bank or ADB funded projects?

World Bank and ADB funded projects often make use of individual consultant services (Short-Term Consultants (STC) in World Bank jargon) to support project preparation and implementation and provide technical expertise. This Market study will not consider market opportunities for individual consultants, as STC positions have no direct linkage to the Climate Adaptation agenda of the ADB and World Bank.

2 Task 1: Climate Adaptation in World Bank and ADB financed projects

2.1 Principles of Development Bank financing.

International development organizations such as the World Bank (WB) and the Asian Development Bank (ADB) have committed to work according to the ambitions laid out in the Paris Agreements, and through their financing powers they are global key players in supporting development countries in transitioning to climate resilient economies. This support comes in the form of projects comprising investment financing, technical assistance, and development of knowledge products (flagship reports, analytics reports).

In order to understand how projects are being designed and what higher level objectives they serve, it is first important to understand World Bank and ADB corporate objectives and subsequent priorities/strategies. Corporate objectives are high level, informed by amongst others global macro-economic, social trends and climate policies. At country level, corporate objectives are being translated into country specific objectives and ambitions and articulated in the so-called Country Partnership Framework (CPF – for World Bank) or Country Partnership Strategy (CPS, ADB equivalent). Although the focus areas under the CPF/CPS are too high level for Dutch companies, it gives a sense of where priority investments can be expected, and what can be expected in terms of environmental, societal and economic transitions supported by the World Bank or ADB. These transitions - although still high level - lead to increased investments in for instance renewable energy or climate resilient infrastructure over time. It is unlikely though that a country specific strategy announced by the World Bank or ADB may boost R&D investments of companies as most companies with a high-tech/innovation profile are way ahead of the corporate strategies of the development banks.

Figure 2 below shows how corporate objectives cascade down to the level of individual (Non)-Consultancy, Goods and Works contracts with individual firms (or JV of firms). One will see a clear time lag between announcement of corporate objectives and how these objectives are subsequently being reflected in individual contracts at project level. This time lag provides Dutch Companies the time to adapt their businesses to be better positioned when tenders are being floated.

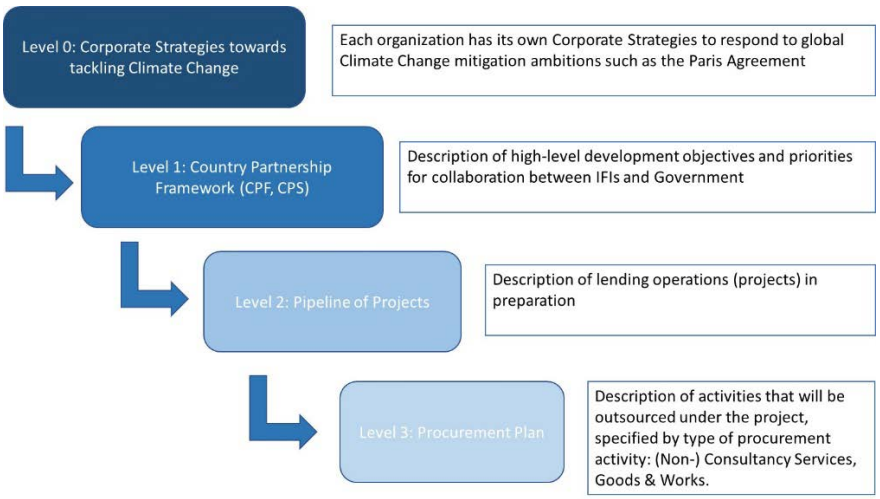


Figure 2: flow chart showing how corporate priorities of IFIs cascade down to the level of individual contracts (source: Studio Flow, 2021).

2.2 Definition of "Climate Adaptation projects"

The approach explained in the previous chapter applies to all aspects of Bank financing. This Market study specifically focusses on market opportunities supporting the Climate Adaptation agenda of the World Bank and ADB in targeted countries. Hence, it is important to understand the definition of Climate Adaptation and how Climate Adaptation is embedded in the corporate strategies of development banks.

The world is experiencing changes in average temperature, shifts in the seasons and an increasing frequency of extreme weather events and other climate change impacts. The Asia and Pacific region in particular, is at extreme risk of undoing its economic and social development gains due to unchecked disasters and unabated climate change (ADB). The faster the climate changes, and the longer adaptation efforts are put off, the more difficult and expensive it could become to mitigate the impacts of climate change to our living environment.
According to the definition spelled out by the UNFCCC (United Nations Framework Convention on Climate Change) *adaptation* refers to *"adjustments in ecological, social, or economic systems in response to actual or expected climatic stimuli and their effects or impacts*". It refers to changes in processes, practices, and structures to moderate potential damages or to benefit from opportunities associated with climate change. In simple terms, countries and communities need to develop adaptation strategies and action plans to respond to the impacts of climate change that are already happening, as well as prepare for future impacts (source: UNFCCC).

Successful adaptation to adverse climate change impacts not only depends on government action but also on the active and sustained engagement of stakeholders including national, regional, **multilateral and international organizations**, the public and private sectors, civil society organizations and other relevant stakeholders, as well as **effective management and exchange of knowledge by all parties involved**. Figure 3 shows graphical illustration of the adaptation cycle under the UN climate change regime, a cycle that is largely followed by World Bank and ADB projects on Climate Adaptation although monitoring and evaluation of development impact (aftercare) remains a weakness in the programs of the IFIs.

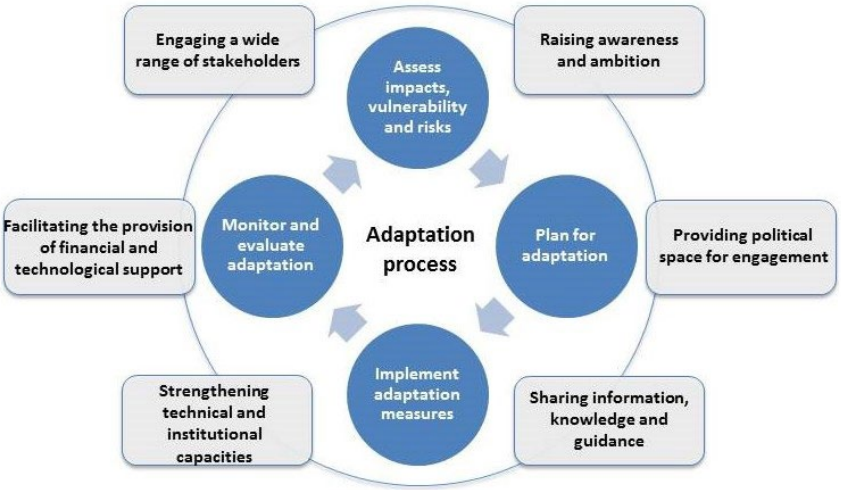


Figure 3: graphical illustration of the adaptation cycle under the UN climate change regime[2]

[2] https://unfccc.int/topics/adaptation-and-resilience/the-big-picture/what-do-adaptation-to-climate-change-and-climate-resilience-mean

3 Task 2: Climate Adaptation ambitions in the collaboration between IFIs and their clients

The priorities between the International Financial Institutes (IFIs) or Development Banks (DBs) and the borrowing country (Client) are captured in a multi-annual strategic action plan also referred to as "Country Partnership Framework" for the World Bank and the "Country Partnership Strategy" as the ADB equivalent of the CPF. Although the CPF and CPS addresses much of the country specific needs (e.g. vulnerability to Climate Change), a large share of the priorities at country level result from corporate (global level) priorities as agreed by the Bank's shareholders (see Textbox 1). This chapter highlights the key strategies that contribute to corporate objectives of the World Bank and ADB in supporting the Climate Change / Climate Adaptation agenda.

Textbox 1: Who are the shareholders of the World Bank[3]

The organizations that make up the World Bank Group are owned by the governments of member nations, which have the ultimate decision-making power within the organizations on all matters, including policy, financial or membership issues. Member countries govern the World Bank Group through the Boards of Governors and the Boards of Executive Directors. These bodies make all major decisions for the organizations. To become a member of the Bank, under the IBRD Articles of Agreement, a country must first join the International Monetary Fund (IMF). The World Bank Group has 189 member countries.

3.1 The World Bank Group is ramping up support for countries' efforts to adapt and build resilience to a changing climate.

The World Bank Group is the largest multi-lateral provider of climate finance to developing countries and committed to aligning financing flows with the objectives of the Paris Agreement through the key elements of the World Bank Group's new Climate Change Action Plan issued by World Bank Group President David Malpass on April 2, 2021[4].

The Action Plan commits to doubling adaptation financing, ensuring that the Bank's adaptation financing will equal its financing for mitigation – reductions in greenhouse gas emissions. In addition to boosting direct finance, the plan will also support countries' efforts to systematically manage climate risks at every phase of policy planning, investment design, and implementation.

Monitoring results of past investments in resilient infrastructure done by the World Bank shows that investments to improve the resilience of infrastructure and boost adaptation are both sound and profitable: the overall net benefits of investing in resilient infrastructure in developing countries could benefit US$4 for each dollar invested in resilience[5].

Textbox 2 below provides some more insight in the objectives specified under the Climate Change action plan 2021-2025 that are relevant for this Market study. The World Bank and ADB short-term and medium-term ambitions on Climate Adaptation can be read as a common goal to supporting governments in making the transition to more climate resilient

[3] https://www.worldbank.org/en/about/leadership/members
[4] https://www.worldbank.org/en/news/statement/2021/04/02/world-bank-group-president-statement-on-climate-change-action-plan
[5] https://www.worldbank.org/en/topic/climatechange/brief/3-things-you-need-to-know-about-adaptation-and-resilience

infrastructure. This is however a slow process that requires intensive handholding of the client and often sailing against the current. The transformative character of the projects provides opportunities for Dutch companies, as the Dutch sector is often ahead when it comes an integral and often innovative way of working, such as in agriculture (e.g. climate smart agriculture, water use efficiency, transition to high-value crops, etc.), water and urban (resilient infrastructure, adoption of nature-based solutions, etc.).

Textbox 2: key priorities under the World Bank Climate Change Action Plan (2021-2025)[6]

The Climate Change Action Plan (CCAP) 2021–2025 aims to advance the climate change aspects of the WBG's Green, Resilient, and Inclusive Development (GRID) approach, which pursues poverty eradication and shared prosperity with a sustainability lens. The Action Plan supports countries and private sector clients to maximize the impact of climate finance, aiming for measurable improvements in adaptation and resilience and measurable reductions in GHG emissions. The Action Plan also considers the vital importance of natural capital, biodiversity, and ecosystems services and will increase support for nature-based solutions, given their importance for both mitigation and adaptation.

The CCAP supports transformative public and private investments in five key systems: *energy; agriculture, food, water, and land; cities; transport; and manufacturing*. These systems are being prioritized because they contribute the most to emissions. Transforming them is key for countries at all stages of development and requires action from the public sector to catalyze the private sector, both to unlock major economic opportunities and create new jobs and to reduce emissions and limit the impacts of climate change.

Under this Market study the following two systems Agriculture, Food, Water, and Land and Cities are most relevant, and will be briefly elaborated below:

Agriculture, Food, Water, and Land

The WBG will step up support for climate-smart agriculture (CSA) across the entire agriculture and food value chains, including the blue economy, via policy and technological interventions, using nature-based solutions where appropriate. Doing this can achieve triple-win benefits: enhancing productivity, reducing GHG emissions, and improving resilience. The WBG will address policy options and tradeoffs involved in tackling food loss and waste. It will help countries manage flood and drought risks together, reducing the water-related shocks and protecting livelihoods and productive resources. IFC will work with clients to improve productivity while reducing input use, GHG emissions per ton of output, and decreasing post-harvest losses in supply chains globally.

Cities

The WBG will step up support to cities, including technical assistance and financing, to help them decarbonize and build resilience, while supporting broader development goals. This means supporting policies, regulations, and investments to improve urban air quality; decarbonize urban energy systems; promote green and resource-efficient buildings and infrastructure; promote integrated solid-waste management and circular-economy approaches; improve urban transportation; and improve the coverage, efficiency, and resilience of urban water supply, sanitation, and wastewater treatment. Improving urban land use planning and regulations is particularly important.

Textbox 3: World Bank's approach towards adoption of resilient infrastructure: "Integrating Green & Gray"

"While nature-based solutions are gaining traction, the implementation of the concept of 'next generation infrastructure,' where green and gray infrastructure work in harmony, is still in its early stages. Many reasons account for this slow uptake, but fundamentally green infrastructure requires a new way of doing

[6] https://openknowledge.worldbank.org/bitstream/handle/10986/35799/CCAP-2021-25.pdf

business: governments and development partners need to perceive the infrastructure challenges from new perspectives, and develop innovative techniques for planning, designing, and financing green infrastructure." — Browder et al., Integrating Green and Gray: Creating Next Generation Infrastructure, 2019[7]

3.2 Asian Development Bank's Operational Priority to tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability

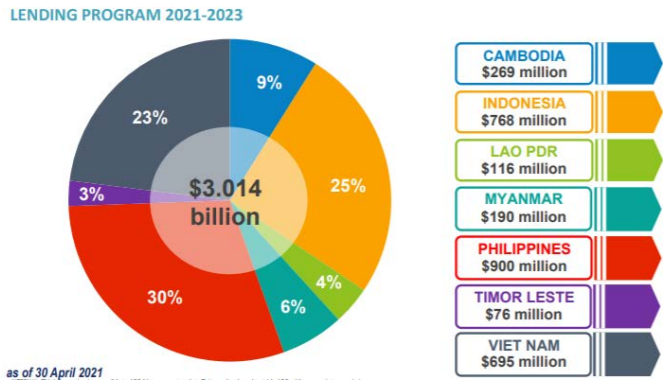
The ADB has developed a corporate strategy towards 2030, which describes the objectives and strategy of the ADB in how to embed Climate Change objectives in their operations. "Climate Adaptation" related objectives are to a large extend captured under their so-called Operational Priority 3: "*Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability*". In the face of rapidly growing greenhouse gas (GHG) emissions, increasing impacts from climate change and disasters, and accelerating environmental degradation, ADB's key responses identified in Strategy 2030 operational priority 3 include:

1. scaling up support to address climate change, disaster risks, and environmental degradation
2. accelerating low GHG emission development
3. ensuring a comprehensive approach to build climate and disaster resilience
4. ensuring environmental sustainability
5. increasing focus on the water–food–energy nexus

Climate Adaptation is also addressed under Operational Priority 4 "Making Cities more Livable", which sets out the direction and approach for ADB to help its developing member countries build livable cities that are *green, competitive, inclusive, and resilient*.

Textbox 4: relevance of understandings the available funding for Climate Adaptation projects

The total funding envelope for climate adaptation projects is large – billions US$, but can't just be assigned to Climate Adaptation projects as many planned investments are now shifted to projects with a Climate Adaptation label. The question is whether knowledge of the total funding envelope would be a relevant proxy for business opportunities as a large share of the funding goes to construction of infrastructure, which is often under National Competitive Bidding (NCB) and hence not relevant for Dutch companies. On the other hand, one can imagine that US$ 5 million of a US$ 200 million project sounds small, but at the same time winning a US$ 5million contract could be a gamer changer for some companies.



[7] Browder, G., Ozment, S., Bescos, I., Gartner, T. & Lange, G-M. 2019. Integrating Green and Gray: Creating Next Generation Infrastructure. Washington, DC: World Bank and World Resources Institute.

Figure 4: ADB's lending pipeline in the Asia Pacific region for the Environment, Natural Resources and Agriculture division (SEER) reaches $3.014 billion over the period 2021 – 2023[8]

Most of ADB's projects with a strong Climate Adaptation focus in the Asia Pacific Region, fall under the Environment, Natural Resources & Agriculture Division (SEER). The total lending envelope for the period 2021 – 2023 is US$ 3.014 billion for the entire region with US$ 900 for the Philippines, US$768 for Indonesia and US$695 for Vietnam (see Figure 4)

ADB's SEER Division key areas for engagement and Climate Adaptation ambitions are:

- **Integrated flood resilience infrastructure**: O&M bringing together soft and infrastructure investments
- **Irrigated Agriculture**: towards greater water efficiency, improved farming productivity and profitability; and environmental sustainability
- **Infrastructure O&M:** bringing together soft and infrastructure investments
- **Source to tap** bringing upstream and downstream actors to work together for comprehensive water supply development
- **Readiness and bankability of investments** through rigorous planning and robust engineering to sustain function of investments and improve budget efficiency
- **Planning & technology** innovation for smart infrastructure planning and monitoring

Figure 5: key projects under ADB's SEER division under preparation for the period 2021 – 2023

Textbox 5: ADBs investment ambitions in Climate Resilient Infrastructure[9]

Infrastructure is central to improving the lives of people and achieving inclusive and sustainable development. ADB recognizes that investing in resilient infrastructure systems is a human, environmental and economic imperative with clear economic benefits. Asia and the Pacific will need to invest $26.2 trillion in infrastructure during 2016–2030 to maintain its growth momentum, eradicate poverty, and respond to climate change.

"Nature-based solutions" (NbS) are the most tangible applications under a new generation of approaches in resilient infrastructure. Older terms capture different nuances of NbS, such as ecosystem services, environmental reserves, ecological engineering (or sometimes eco-engineering), biomimicry, green

[8] https://events.development.asia/system/files/materials/2021/06/202106-virtual-business-opportunities-seminar-spain-focus-water-sector.pdf

[9] Source: Regional: Protecting and Investing in Natural Capital in Asia and the Pacific

infrastructure, and hybrid infrastructure. ADB prepared a working paper on the value of NbS in achieving climate resilient objectives and included lessons learned from some of ADBs projects that piloted the implementation of NBS in the Southeast Asian region.

3.3 Country Strategies & Climate Adaptation

The World Bank Country Partnership Framework (CPF) and ADB Country Partnership Strategy (CPS) lays out the investment priorities between the Government and ADB and World Bank over the coming years (2-5). Each country has a specific profile with regards to Climate Adaptation, often prompted by the occurrence of a natural hazard. Indonesia, Vietnam and the Philippines are all three countries highly vulnerable for the emerging impact of climate change and face severe urbanization problems. Hence, all CPF/CPS' have a strong emphasis on urban and rural flood protection & integrated water resources management. One of the interventions proposed to meet Climate Adaptation objectives is the implementation of sustainable and resilient infrastructure to tackle all kinds of climate related hazards (flood risk, irrigation and drainage, water management etc.). Surprisingly, none of the CPS and CPF advocate for the use of Nature-Based Solutions for meeting Climate Adaptation objectives as alternative to conventional hard infrastructure solutions although at project level, the application and development of NBS is a hot topic. It is expected though that newer versions of the CPF/CPS will put more emphasis on NBS, given the vast efforts under Advisory & Analytics (TA) studies in promoting application of NBS in bank funded projects. At project level (World Bank Project Information Document (PID) and Project appraisal Document (PAD), the requirement for adopting NBSs as an important Climate Adaptation measure is present though.

3.3.1 Vietnam

The ADB Country Operations Business Plan (COBP) 2021–2023 for Vietnam

The ADB prepared a Country Operations Business Plan (COBP), 2021–2023 for Vietnam in the context of the Coronavirus Disease (COVID). The COBP takes into consideration the likely emerging priorities of the upcoming Socioeconomic Development Plan, 2021–2025 and ADB's CPS, 2021–2025, for which the preparation has just started. The emerging priorities include (i) remaining poverty and inequality, (ii) infrastructure deficits and public service delivery, (iii) institutional and structural weaknesses, (iv) vulnerability to natural disasters and climate change, and (v) regional cooperation and integration.

ADB's Country Partnership Strategy (CPS) 2016–2020 supported Viet Nam's goal to rise to an upper-middle income country. Although the CPS has expired and a new CPS is under preparation, the strategy for the Agriculture & Natural resources sector largely continues. Under the 2016-2020 CPS the focus was primarily on multisectoral rural infrastructure for inclusive growth and on efficient water use for enhanced agricultural productivity and climate resilience.

According to the COPB, the 2021-2022 pipeline includes a few projects with a strong Climate Adaptation focus:

i) Second Climate-Resilient Inclusive Infrastructure for Ethnic Minorities Project
ii) Climate Smart Development Project.

Annex 7A.1 provides more information on these two projects.

Key areas with a strong Climate Adaptation focus that remain of priority for the ADB are:

i) Urban climate and disaster resilience and urban infrastructure and urban service provision (urban flood protection).
ii) Serve irrigation command areas by water-efficient irrigation infrastructure and technologies (irrigation and rural flood protection).

The ADB country knowledge plan, 2016-2020 identified three main operationally relevant priorities as the focus for ADB knowledge production and dissemination: (i) structural reform and economic competitiveness, (ii) integrated urban development, and (iii) private sector development. It is not known whether these focus areas shift under the new CPS.

World Bank Country Partnership Framework 2018-2022, Vietnam
Vietnam is one of the world's most vulnerable countries to climate change impact, including sea level rise, longer and more severe droughts and floods, and tropical cyclones; the poorest are the most exposed. By 2050, a 1–3 percent loss in real GDP is predicted from climate change impacts. Natural disasters have caused average annual economic losses estimated at 1–1.5 percent of GDP in the last two decades, and more than 70 percent of the population is already exposed to significant natural hazard risk. Ongoing climate disaster events and climate change effects can also set back development gains, particularly as safety net programs have not yet been adapted to support the poor and vulnerable in response to natural hazard shocks (WB CPF).

The proposed WBG program in Vietnam over the CPF period will have three focus areas: (i) enable inclusive growth and private sector participation; (ii) invest in people and knowledge; and (iii) ensure environmental sustainability and resilience, with governance as a cross-cutting engagement area. Climate Adaptation objectives can be found under focus area 3 "sustainability &resilience":

- Objective 10: Increase climate resilience and strengthen disaster risk management.
- Objective 11: Strengthen natural resource management and improve water security.

Under objective 10, the World Bank supports interventions in regional planning and decision-making and **climate-resilient livelihoods and infrastructure.** The World Bank will provide specific and spatially targeted support for **climate-smart practices in key rice- and coffee-growing districts**. Upstream, the WBG will provide strategic support for policy reforms relating to climate resilience (e.g. water and forests).

Under objective 11, the World Bank will engage in six thematic areas aimed to: (i) strengthen institutional DRM policy and planning capacity; (ii) strengthen core DRM technical capacity and investments; (iii) support development of hydro-meteorological services and an early warning system; (iv) mainstream DRM in key sectors; (v) increase household level resilience to disasters; (vi) support stronger DRM financial protection and post-disaster resilience; and (vii) ensure pandemic preparedness.

3.3.2 Indonesia

Asian Development Bank – Country Partnership Strategy, Indonesia 2020-2024
Indonesia will have to overcome its longstanding development challenges, including human development constraints and a lack of competitiveness, manage **climate change and disaster risks**, and achieve environmental sustainability, including building back greener.

The ADB identified three strategic pathways for their collaboration with the Government of Indonesia, of which pathway 3: "**strengthening resilience"** provides entry points for projects on Climate Adaptation — by supporting **climate change mitigation and adaptation measures,** environmental sustainability and green recovery, disaster risk management and finance, and **water and food security**.

Innovative features in the Country Partnership Strategy include:

i. Presenting a flexible and agile framework to effectively respond to Indonesia's rapidly evolving priorities in the coronavirus disease context
ii. Prioritizing climate and environment
iii. Emphasizing innovation and technology to offer cutting-edge solutions
iv. Introducing innovative finance and knowledge solutions on national and local levels
v. Advancing gender equality
vi. Supporting Indonesia's new aid agency in promoting emerging areas such as ocean health
vii. Promoting an integrated, One ADB approach in delivering knowledge and finance

Source: Asian Development Bank – Country Partnership Strategy, Indonesia 2020-2024, "Emerging Stronger".

The Indonesia CPS spells out the knowledge needs for successfully implementation of their development agenda. Efforts are needed to build awareness of the environmental problems and improve the capacity of stakeholders to solve them. Partners in ADB funded projects are challenged to find solutions for water pollution, environmental degradation, natural hazards, and climate change — particularly given escalating climate and environmental costs and commitments to the Sustainable Development Goals

The World Bank Country Partnership Framework for Indonesia 2019 -2023

The World Bank has structured their objectives with the Government of Indonesia in a similar manner as done by the ADB with most Climate Adaptation related activities falling under Engagement Area 2: "Improve Infrastructure" and Engagement Area 4: "Sustain Management of Natural Assets, Natural Resources – Based Livelihoods and Disaster Resilience", see Figure 6. The CPF will aim to accelerate long-term economic growth through efforts to build back better after the COVID pandemic. A central guiding principle of the CPF is **resilience** as part of the effort to help the authorities achieve a recovery path that is resilient, sustainable, inclusive, and efficient.

Under Engagement Area 2, the WB aims at supporting the Government of Indonesia with adequate sanitation systems and improved solid waste management helping Indonesia to improve the quality of both surface water and groundwater, whilst improving the health conditions of many communities. Large-scale and local infrastructure investments build urban resilience to climate change and disaster risks, reducing the
vulnerability of assets and livelihoods of urban communities.

Under Engagement Area 4, the WB aims at strengthening management of natural assets and environment, as well as improving agriculture and natural resources-based livelihoods, and strengthening multi-hazard disaster resilience. This entails amongst others disaster risk reduction investments in national programs addressing flood and seismic risks, resilient post-disaster recovery, community preparedness and awareness raising, and a multi-hazard early warning system platform, as well as mainstreaming disaster and climate change resilience principles intro multi-sectoral investments.

Climate Change is one of the three cross-cutting objectives under the CPF with Climate Mitigation and Adaptation objectives integrated into all Bank sectoral activities.

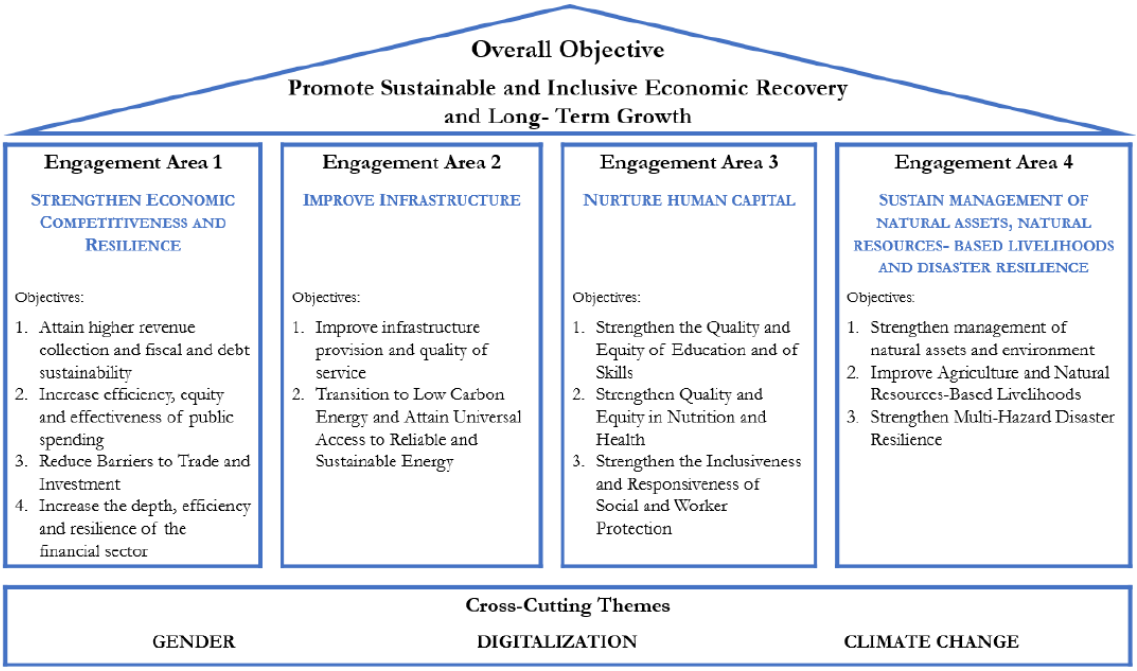


Figure 6: Summary of CPF Objectives for Indonesia (CPF, 2019-2023)

3.3.3 Philippines

World Bank Country Partnership Framework for the Philippines - 2019 -2023

High vulnerability to climate change impacts and steep environmental and disaster risks are core threats to sustainable development in the Philippines. In the long run, climate change poses the largest risk to the long-term prosperity of the Filipino people. Natural hazards, including climate-related events such as typhoons, floods, landslides and droughts as well as earthquakes and volcanic activity, generate large costs for the Philippine economy and disproportionately affect the poor and vulnerable (WB, CPF).

Natural capital, agriculture, fisheries, and natural resources contribute significantly to the Philippines' wealth, but key resource-dependent sectors have fallen short of their abundant potential. In particular, weak agriculture sector performance owes to the emphasis on traditional crops and limited diversification; lack of irrigation; and the need for more extension services for farmers. Notably, climate-related risks have heavy impacts on agriculture, with total loss and damage from weather related shocks amounting to US$3.8 billion from 2006-2013. In 2018 alone, the impacts of some 11 typhoons contributed to weak agriculture performance (WB, CPF).

Multisectoral actions to build resilience are wide-ranging, varying from promotion of climate-resilient cropping systems and protecting mangroves to strengthening financial protection instruments and promoting strong water resource management and climate-resilient buildings and infrastructure.

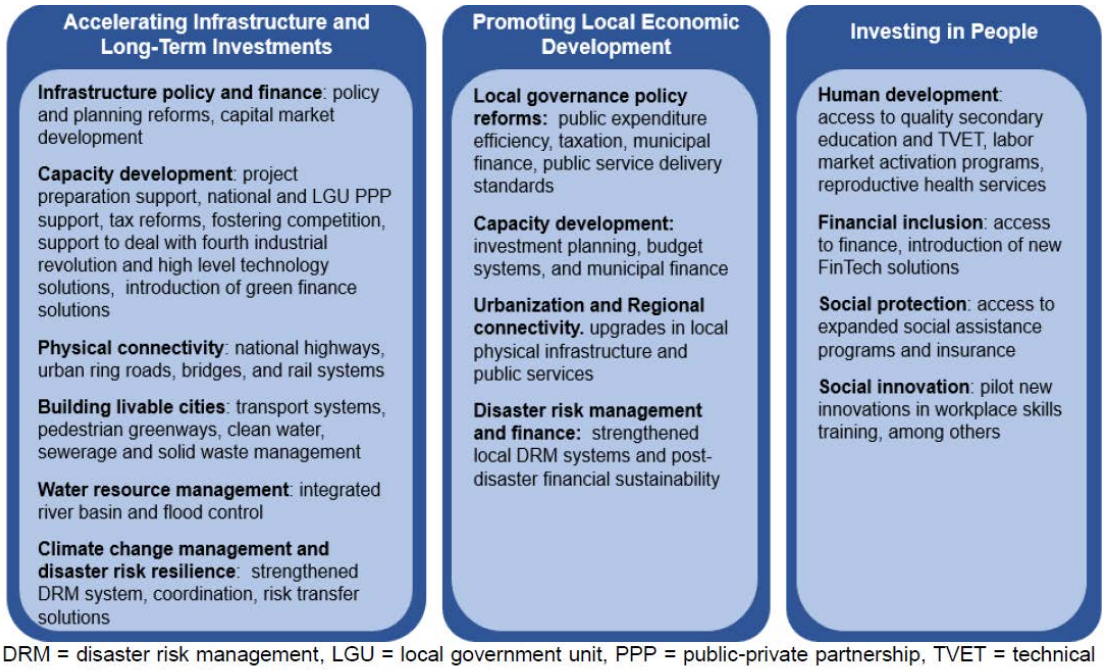
Under the 2019-2023 CPF for the Philippines, the Word Bank has identified 3 focus areas for engagement. Under focus area 3 "Competitiveness and Economic Opportunities for Job

Creation" the CPF objective is to improve infrastructure services in selected areas. Under Focus Area 3 "Addressing Core Vulnerabilities by Building Peace and Resilience", the CPF objective is to increase resilience to natural disasters and Climate Change.

ADB Country Partnership Strategy 2018 -2023 Philippines

The ADB Country Partnership Strategy 2018 -2023 for their operations in the Philippines rest on three strategic pillars: (i) accelerating infrastructure and long-term investments, (ii) promoting local economic development, and (iii) investing in people.

Most Climate Adaptation business opportunities can be found under strategic pillar 1 "accelerating infrastructure and long-term investments" with amongst others a focus on improved infrastructure supporting clean water, sewage and solid waste management and Water Resources Management systems in place as well as investments in Climate Change Management and Disaster risk resilience.



DRM = disaster risk management, LGU = local government unit, PPP = public-private partnership, TVET = technical and vocational education and training.

The CPS also spells out the knowledge gaps (see Table 1) limiting successful implementation of activities to achieve the objectives under the CPS.

Table 1: section of relevant knowledge needs identified under the CPS

Strategic Pillar	Knowledge Gap
Sustainable, climate-, and disaster-resilient infrastructure	Knowledge solutions and capacity development for infrastructure planning, design, implementation, and monitoring
	Knowledge building for PPP delivery, including capacity development for PPP implementers
	Knowledge solutions for climate-resilient urban infrastructure, renewable energy solutions, and social and institutional development for sustainable transport
	Institutional capacity development for urban infrastructure

3.4 Selection of Climate Adaptation committed projects

Based on the findings from Chapter 2, it can be concluded that the nature of WB and ADB funded activities supporting the Climate Adaptation agenda is very broad, ranging from structural investments in climate resilient infrastructure to policy development and transition to renewable energy and reduction of carbon emissions. It is generally assumed that Dutch Companies offer a wide range of services covering a large part of the spectrum of activities implemented under WB and ADB funded projects, of which to a large extend provision of services related to infrastructure investments such as analytical work, engineering design of infrastructure, construction works, provision of specialized equipment and innovative technologies to support countries in transitioning to climate adaptive (economic) development models.

Based on the definition of "climate adaptation" in WB and ADB funded projects, the following sectors and thematic fields are being considered in the Market study:

- Water (Integrated Water Resources Management, Flood Risk Management and to a minor extend Water Supply and Sanitation etc.)
- Urban (mainly focusing on cross-cutting themes such as Sustainable Urban Development (e.g. "Climate Resilient Cities") and "Disaster Risk Management").
- Agriculture (Climate Smart Agriculture and Irrigated Agriculture).
- Environment[10]: thematic fields such as Integrated Coastal & Delta Management often in collaboration with other sectors such as water and agriculture.

Although thematic fields such as Solid Waste Management, Renewable Energy and Transport are not part of the scope of this assignment, these topics are often closely linked to topics that are considered relevant for the scope, hence whenever considered relevant they are being addressed in+ the analysis.

Due to the broad definition of "Climate Adaptation" and the need for Development Banks to ensure that their projects contribute to the corporate objectives on Climate Change / Climate Adaptation, many projects can be labeled as "Climate Adaptation" committed. On this basis, it is difficult to establish selection criteria for making a clean cut of projects that do link to Climate Adaptation and those that do not. Projects in the Pipeline of Projects (see Annex 1) where assessed on their contribution to Climate Resilient Infrastructure, policy development or knowledge development on Climate Adaptation and Climate Resilience for sectors as listed above and mentioned in the ToR. The responsibility for making a selection of relevant projects lies with the respective company that uses this study as a basis for their business development.

3.5 Findings from literature review

Most companies that bid for tenders under WB or ADB funded projects are already active in the country and have established personal relationships with the Embassy of the Netherlands, Government Agencies/ministerial departments (in short: Clients) and the Multilateral Development Banks (in short: The IFIs) already.

[10] Carbon accounting does not fall under this market study as it is considered being an indirect benefit of Climate Adaptation infrastructure or Climate policies supported under bank financed projects. Climate Financing doesn't fall under the scope of this assignment either as it involves a distinct service level.

Country partnership arrangements (CPF, CPS)

Companies who are new to the country and interested in participating in IFI funded projects on Climate Adaptation, may want to start by reviewing the respective country partnership agreements between the IFI and the country, and project documents that are publicly available through online project portals. It can be concluded that information provided in the CPF/CPS remains high level and general and may be perceived as less relevant for companies seeking for business opportunities in the three countries. However, it can give companies (mainly newbies) the insight in the emerging challenges of a country and priorities in the collaboration between the government and the development banks as it will be driving the design of future projects prepared during the CPF/CPS period. CPF/CPSs are a gateway document that provide some insight, but ultimate responsibility lies with the companies to get insight through their professional network in the country. More about this and the recommendations for companies can be found in chapter 0

Pipeline of projects

Annex 1 of this report presents a list of pipeline projects that were listed in the CPF and CPS and Monthly Operating Summary of the World Bank, or mentioned by World Bank and ADB TTLs/POs. Companies can access most of this information through the respective project portals as it is publicly available and select the information that is most relevant to them. The Pipeline of Projects provides a first insight in the upcoming tenders enabling companies to prioritize their business development efforts. This study already prioritizes projects with a strong Climate Adaptation focus.

Textbox 6: explanation of Monthly Operational Summary (MOS)

The Monthly Operational Summary (MOS) reports on the status of projects while they are in the World Bank's lending pipeline. Projects appear in the MOS from the point they are identified up to the signing of the loan or credit agreement. After loans or credits are signed, entries for projects are dropped from the MOS

Procurement Plan

Project specific information of selected projects from the 'pipeline of projects' can be found on the World Bank operations portal (or the ADB equivalent). The portal gives access to project information such as the Project Concept Note (for projects in preparation), safeguards documents and the procurement plan when the project is in a more advanced stage of preparation and has reached Project Appraisal stage. The procurement plan is a floating document and not always accurate and up to date, especially when the project is in the preparation stage. Hence it is important to get early understanding of the specific project needs (including need for specific knowledge and technologies) through establishing relationships with the borrower (Client) and Task Team Leader/Project Officer (Bank team) in charge of the project.

Knowledge gaps

The CPS - and the CPF to a less extend - and other project information documents provide a good understanding of the knowledge needs for the project and technologies required to meet project objectives. Most projects show a strong demand for innovative solutions for climate-resilient infrastructure, and the need for capacity building activities to transfer specific knowledge and examples of international good practices to the implementing agencies of the borrowing country. Dutch companies should be aware of these knowledge needs when doing business with clients under ADB and World Bank supported projects.

Among other things, this Market study lists these knowledge needs whenever available through interviews or found in project documents.

3.6 Understanding basic principles of Development Bank operations

Before diving into obstacles companies face when doing business with the World Bank or ADB, it is good to list a few basic principles of Bank operations which should be known to all companies who do or want to do business with the World Bank and ADB:

1. Know how to access project information
2. Stage in the project cycle: initiation, appraisal, or implementation?
3. Importance of networking within the World Bank/ADB (role and responsibility) and Implementing Agency?
4. Know who is your client and who does the evaluation of proposals?
5. What is the financing mechanism of the project: Trust Fund financed or lending operation?
6. Understanding of procurement regulations (QCBS, CQS, etc.)

Know how to access project information. The responsibility to get project related information for WB/ADB projects lies primarily with the firm. Good understanding of how Bank operations work is pivotal to access information and know how to read it. All project documents are stored in the project operations portal and are publicly available. As a courtesy to interested companies, Annex 1 of this report provides a summary table with project specific information of selected Climate Adaptation projects.

Stage in the project cycle: initiation, appraisal, or implementation: Depending on where the project is in the preparation process, the specifics of the project information vary. Early in the project preparation process, project descriptions are general and may not provide the company specific enough information about the nature of the investments. It gives just as much information to allow companies to judge whether to follow the project or not. Procurement Plans become public in the final stage of the project preparation process and provide information at contract level – in fact most valuable to companies as it provides tangible information on the scope and size of the project.

Importance of networking & building relationships: The foundation of business development is building a trusted relationship with potential clients. World Bank Task Team Leaders and ADB Project Officers are most important when it comes to relationships, but the company may as well establish good relationships with the technical sector specialist working for the Bank task team or members of the Implementing Agency. Partnerships between the Bank and The Netherlands in this stage may help companies to be at the forefront when it comes to building trusted relationships with TTLs, sector specialists and Implementing Agencies. Relationships with the Implementing Agency are an important source to understand project related risks. It will not help in receiving project related information that may provide the bidder an advantage in the tender process.

What is the financing mechanism of the project and who is your client: Project financing comes through a range of financing instruments available to the World bank and ADB. The two

most important lending instruments available to the World Bank are IDA & IBRB[11]. The ADB has access to the Concessional Ordinary Capital Resources Lending (COL) or a blend with ordinary capital resources (OCR). Project financing is sometimes complemented with counterpart funding and/or grant funding from Trust Funds (e.g. Asian Development Fund (ADF) for the ADB). More about ADB's financing instruments can be found at: https://www.adb.org/what-we-do/public-sector-financing/lending-policies-rates.

The most common financing structure is the lending operation where the Bank acts as the financier and the government is the borrower. It should be noted that for lending operations government agencies (the Implementing Agency) are responsible for the implementation of the loan and as such, the TTL has no influence on the evaluation of tenders or selection of companies. The role of the TTL is limited to undertaking the due diligence process and making sure the procurement process follows the Bank's procurement regulations. The role of the TTL is perhaps more relevant in the project preparation phase of the project in which the scope of the project is being shaped and companies are not restricted to reach out to TTLs and POs.

On some occasions, projects receive additional grants for project preparation activities or analytics and diagnostics studies (Technical Assistance (TA)). TAs can accelerate new lending activities. Although this study focusses on lending operations alone, trust fund money can play an important role in the financing of Technical Assistance studies falling under the project preparation phase. Some larger and well-known Trust Funds available for World Bank projects are the Green Climate Fund (GCF), Global Environment Fund (GEF), ProBlue and under the GFDRR World Bank-Japan Trust Fund for Disaster Risk Reduction. The Asian Development Fund (ADF) and Water Financing Partnership Facility are examples of Trust Funds that are available to the ADB.

Under the World Bank, Trust Fund grants come as Bank Executed Trust Funds (BETF) or Recipient Executed Trust Funds (RETF). For BETFs, the Bank TTL is responsible for the selection of firms. For RETF, the Implementing Agency is responsible and does the proposal evaluation.

Understanding of procurement regulations. For those engaging for the first time in World Bank and ADB activities may find the procurement highly complex. Procurement regulations are not only complex, but they also change from time to time as do the standard procurement forms. Despite these complexities there is a logic behind the procurement regulations that should be known to the Bidder as it determines the efforts required to prepare a winning proposal/bid. Without explaining the Banks procurement regulations under this Market study it is recommended to consult a procurement specialist when working on World Bank and ADB tenders.

[11] IDA – International Development Association, IBRD – International Bank for Reconstruction and Development are both lending arms of the World Bank.

4 Task 3: Sector analysis

The objective of this task is to provide guidance to Dutch companies that are active in IFI funded projects or have an ambition to become more active in future, in the opportunities Climate Adaptation projects at the World Bank and ADB provide, under influence of the shift of investments to meet the Climate Adaptation objectives of the Development Banks. For this purpose, an analysis was carried out for a selected group of companies to put the typical services and knowledge products Dutch companies provide, against the Climate Adaptation agenda of the Development Banks. The result of the analysis leads to a profile that demonstrates the gaps, overlap, interdependence and complementarity of companies vis-à-vis the demand for Climate Adaptation services and technologies. The sector analysis can be seen as an attempt to picture Dutch companies as a "The Netherlands b.v.", as if it were a company with individual 'units' or 'experts' providing their expertise to the 'Project' (read: to meet Climate Adaptation).

4.1 Methodology

The first step was to make a long list of companies, selected based on their prior experience or involvement in IFI funded projects in the three target countries and/or because of their typical company profile that shows a natural fit with the selected climate adaptation projects of WB and ADB. This doesn't mean that these companies have a history in doing business with the IFIs, but their profile is suitable enough to potentially participate in future tenders. NWP has helped in selecting companies for this purpose.

For practical reasons the detailed analysis was done with a selection of companies. The selection was made based on the following selection criteria:

1. Companies with local presence or active in three target countries; Indonesia, Philippines and Vietnam.
2. Companies with a strong climate profile: e.g. active in flood risk management, water management, water-food security-disaster risk management nexus, of a city resilience profile or similar relevant knowledge / business fields.
3. Selected companies could be solely private sector companies or research-oriented companies or institutes as long as they qualify for providing services to IFI funded projects, irrespectively of their profit motive/business modality.
4. It is aimed at a diversified group of companies, representing all aspects of climate adaptation, ranging from large international renowned consultancy companies (RHDHV, Arcadis etc.) to the more research-oriented companies/institutes (Deltares, WUR), to companies who operate in a niche market such as suppliers of high-tech equipment (Royal Eijkelkamp) or firms with a highly specialized profile (e.g. Rebel Group, HKV, Salt Doctors). As the list of companies is non-exhaustive, there may be companies that were not selected for this Sector Analysis but with a good fit to the topic of climate adaptation. They can compare themselves to companies with a comparable profile.

A group of 12 companies participated in interviews for this Market study. Amongst others, the interviews were used to support the Sector Analysis and validate the outcomes.

4.2 Results of the sector analysis

There are multiple ways to position organizations within the climate adaptation context. Under this sector analysis, two so-called "Climate Adaptation business spheres" have been developed as a means to organize companies according to the knowledge products they deliver (e.g. flood risk management, urban resilience, hydraulics, agricultural diversification, river engineering etc.) or the type of services they provide (Goods, Works, non-Consultancy services):

1. Sphere 1: Knowledge Oriented
2. Sphere 2: Service Oriented

The sector analysis results are being presented in two so-called 'spheres' (see next page), 2-dimensional visualizations providing better understanding of how companies with a certain profile are positioned in relation to each other and within the climate adaptation context.

It may also help initiating a dialogue between companies, RVO and embassies in how the Dutch companies are organized and where most of Dutch business interest lie with regards to climate adaptation.

Sphere 1: Knowledge oriented

The first approach to position companies within the climate adaptation context is the positioning according to three knowledge fields: 1) Integrated Water Resources Management (IWRM), 2) Urban resilience and 3) Sustainable Agriculture. Figure 7 shows the 'knowledge sphere' as a triangle with one knowledge field at either corner of the triangle. The axis connecting one knowledge field with another can be characterized as a 'nexus'; in this example the water-food security nexus on the axis between the *IWRM* and *Sustainable Agriculture* knowledge fields, the *urban-agri* nexus and *disaster-risk management* nexus on the other two axis. As a next step, one can identify specific knowledge themes within the climate adaptation context such as *Nature-based Solutions*, *Resilient Cities*, *Agro parks* etc. These knowledge themes are multi-sectoral and act across all nexuses. Some of the most relevant knowledge themes under climate adaptation are marked in orange circles in Figure 7. The last step is to project a selected group of companies/organizations in 'knowledge sphere' according to their typical business profile. The selection was made based on input received during interviews with some of the companies and/or general understanding of the companies' business profile. There is no single solution for positioning companies this way and all results are subject to further refinement.

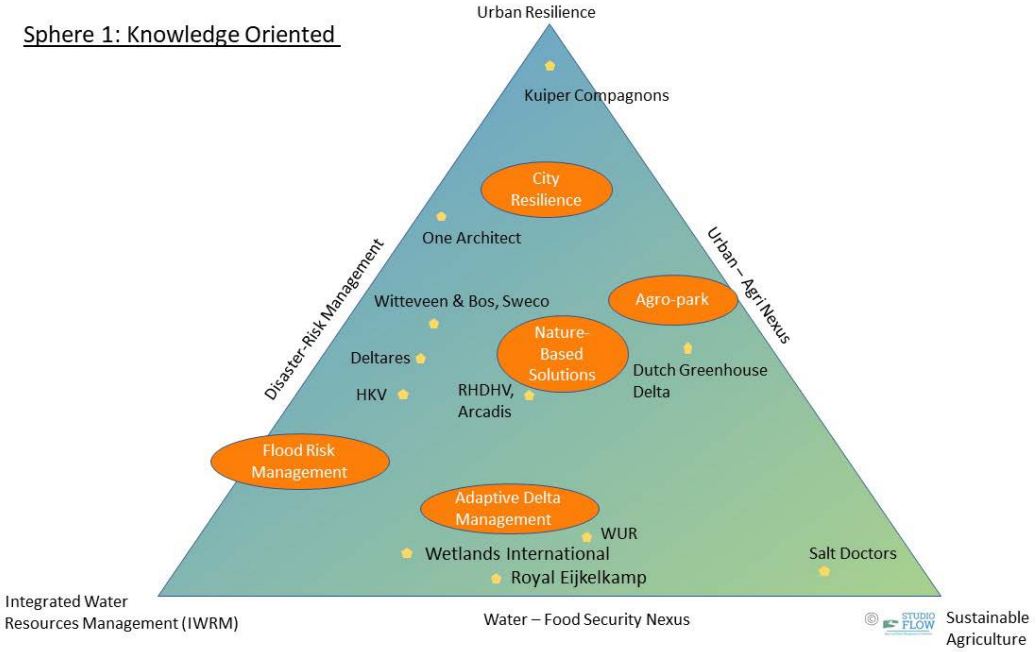


Figure 7: Organization of selected Dutch knowledge-oriented companies through the Water-Food security - Urban resilience Nexus

The clustering of companies shows a rather well-distributed pattern with companies active in all parts of the knowledge spectrum of climate adaptation. Companies with a typical water profile are active along the *Disaster-Risk Management* nexus, which is illustrative for the reputation of the Netherlands as global water experts. But as much as The Netherlands is a country with water expertise, Figure 7 also shows that The Netherlands has a strong agriculture profile. This demonstrates how well-acquainted Dutch companies/organizations are with all aspects of climate adaptation. The other conclusion that can be drawn is that the more centered companies/organizations are positioned, the more integral / multidisciplinary they operate. Companies that find themselves in the corner of the spectrum are considered niche-players (from a knowledge perspective) and dependent on other companies to form a consortium when participating in World Bank / ADB tenders as projects often have a strong multi-disciplinary character.

Typical studies along the DRM-nexus are flood risk management studies, river basin planning studies as well as city resilience studies and design of climate resilient infrastructure. Typical companies that are active in this nexus are the engineering firms but also dredging companies, urban planning companies and knowledge institutes. When looking at the Water-Flood Security nexus, one can find research institutes such as WUR and consultancy companies with a strong agriculture profile as well as equipment suppliers supporting the implementation of climate resilient agriculture models. On the Agri-urban Nexus, companies active in the horticulture sector appear, for example companies linked to Dutch Greenhouse Delta.

Nowadays, under influence of corporate requirements to incorporating Climate Change objectives in projects and address the possibility of disruptive technologies as possible technical solution to make systems more climate resilient, a shift can be seen towards investments in the Water-Food Security nexus, with a focus on smart technology systems to improve water efficiency of irrigated agriculture and support clients to transitioning to more

drought resilient cropping systems. This is reflected by the projects such as the ABD "Vietnam, Climate Adaptation through Irrigation Modernization Sector Project
(see Annex).

Sphere 2: Service oriented

Business Sphere 2 describes the organization of companies through a service-orientation lens.

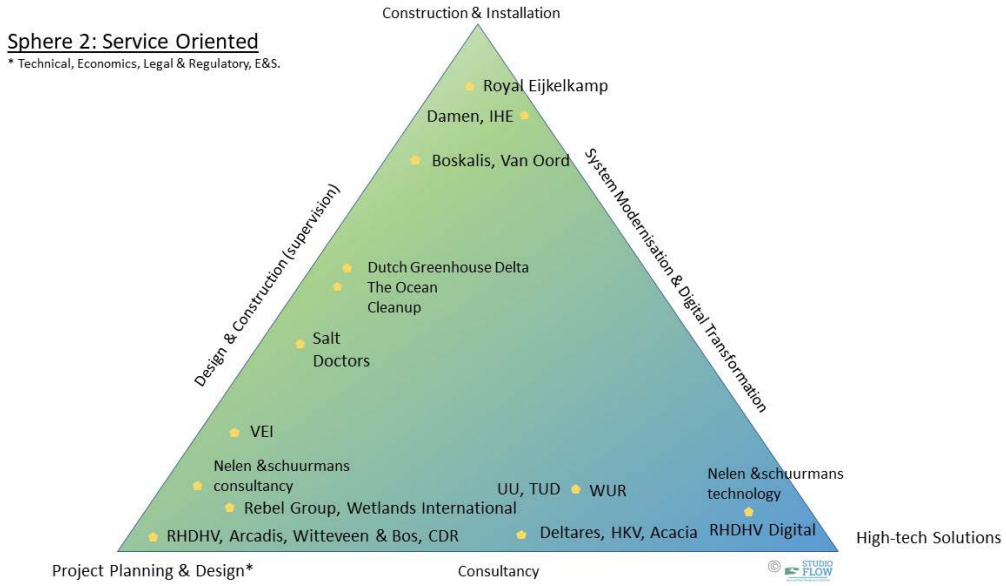


Figure 8: Organization of selected Dutch companies in a Design – to- Construct sphere.

Figure 8 shows the same triangle shaped sphere as explained above but the positioning of companies is different, yielding different results. This business sphere is organized according to three distinct service lines: 1) *Project Planning & Design*, 2) *High-tech Solutions* and 3) *Construction & Installation*. At the intersection of these service lines one can identify so-called service streams:

- "Consultancy" reflects the axis between "Project Planning & Design" and "High-Tech Solutions". This type of services is most asked by the IFIs under Technical Assistance contracts for both project preparation and implementation.
- "Design and Construction (supervision)" reflects the axis between "Project Planning & Design" and "Construction & Installation" and covers all services from project preparation all the way to construction of works or installation of equipment. Standard World Bank and ADB projects follow this implementation pathway, especially when it concerns construction of infrastructure. Construction supervision consultancy services are an example that nicely fit here.
- "System Modernization & Digital Transformation" connects the services "High-tech solutions" with "Construction & Installation" and represents a business model that is increasingly utilized under Bank financing and concerns the design, installation and operation of highly specialized systems. An example is hydro-met modernization investments such as recently implemented in Myanmar (under the AIRBM project) and in Lao PDR under the Lao PDR Disaster Risk Management project (Lao SEA-DRM).

A comparison between the Knowledge sphere with the service sphere learns that where in Figure 7 companies such as WUR and Royal Eijkelkamp are within close distance in terms of knowledge products, their services vary distinctively. Figure 8 shows this as both companies are located in opposite position in the service sphere. The contrast between how companies are placed in sphere over the other provides good insight in the level of complementarity of companies in comparison with its 'competitor'. It may help in identifying which companies are more depending on participation in the early stage of projects and which companies come in later. A combination of both, such as applies for the Ocean Cleanup who is active in both the design and implementation stage of a project, is also possible. Till now, this has however not been done under IFI financing yet, as the WB/ADB procurement system makes it difficult to do both the design and supply/installation of equipment or construction of works.

5 Task 4: Results of interviews with companies

5.1 Research questions and organization of the interviews

Task 4 addresses the boundary conditions and obstacles Dutch companies experience when preparing for participation in externally aided projects. The interviews were used to gain insight in the experience of the companies on a number of topics, which are listed below:

1. How well are companies acquainted with the basic principles of bank financing and do they have access to **project related information** of World Bank /ADB funded projects?
2. What **obstacles** do companies experience when doing business with the World Bank or ADB in the project initiation, preparation and implementation phase of World Bank and ADB operations?
3. Apart from financing, what can companies do more to position themselves better for World Bank / ADB funded projects on Climate Adaptation?

The interviews were conducted between December 1, 2021, and February 28, 2022. In general, there was full cooperation and all companies who participated, participated actively and openly. The findings from the interviews are reflected in the below chapters in a generalized manner without specifying the company name as many companies requested discreteness in using the information provided in the interviews. This helped in keeping the interviews in a very open spirit, benefitting greatly to the recommendations made in this document.

5.2 Obstacles companies face when doing business with the World Bank or ADB

The obstacles companies mention are diverse, depending on the company's unique profile but overall fit in a pattern that is recognized by most companies who participated in the interviews.

1. **Too small to follow all developments.** An obstacle for most smaller companies is the scale at which information is available and efforts needed to build relationships. These companies often have no leading role and no permanent in-country presence, hence making it difficult to have eyes and ears where needed. Larger companies are better organized and have separate tender teams providing tender information at regular intervals.
2. **Lacking opportunities for promoting innovations.** Smaller companies have more difficulty in promoting their expertise. Most smaller companies who participated in the interviews mention that they can only participate in World Bank/ADB projects as sub-consultant or sub-contractor to a larger firm. As a small company they experience less possibilities to promote their technologies and innovations compared to the company who leads the consortium – and who are often generalists and may not have eye for specific details that are relevant for niche-market players. These firms see a role for RVO in helping them to promote their expertise / technologies through implementation of local pilots that can be scaled up under a WB/ADB lending operation if proven successful.
3. **Unequal opportunities for participating in project preparation activities.** It is generally accepted that the WB/ADB projects have a much higher financial capacity than Partners for Water funded projects. The Partners for Water funding of RVO is considered an effective way of supporting the design of World Bank / ADB projects and provides Dutch expertise in most cases. Whether or not companies get a chance to participate in project preparation activities largely depend on the agreement between the IFI and RVO /

Embassy on the scope of the Dutch support and opportunities it provides for niche-market players to participate. Larger consultancy firms are often well prepared to win such a project preparation tender, bringing in smaller firms as sub-consultants for their specialized expertise or if requested explicitly in the Terms of reference.

4. **Companies expressed concern of being excluded from further participation in a World Bank or ADB project if already active in the project preparation stage.** The World Bank procurement regulations do not necessarily exclude companies from participating in the bidding process, provided they have not been involved in preparing the ToR and deliverables from the project preparation phase are being made public.

The interviews have revealed that mostly consultancy-oriented firms (large or small) are active in the preparation phase of IFI funded projects. Companies that operate in a specific niche market (back-end IT technology developers, equipment suppliers etc.) have low chances to participate in project preparation tenders and rely on tenders issued during the project implementation phase. The difference here is that these companies have no chance of informing the design of the project program which significantly reduces their chances of success in winning the tender.

Bringing in Dutch expertise in the early stage of project preparation process increases chances that specific Dutch expertise finds a way in the scope description of project activities. It is however important that the firm, or consortium of firms, that participates in the project preparation process, actively promotes innovations and key-expertise of other Dutch firms that do not participate yet. For example, an equipment supplier would normally have no role in the project preparation process. Hence it prevents the company from actively influencing/informing the scope of activities and preparation of bidding documents of main project activities, of which for example the purchase high-tech equipment. The Bidding Documents may then be prepared by a team that lack an eye for innovations or technical solutions.

The ADB recognizes that their current project preparation process and procurement process does not always yield the best results when it comes to accessing highly specialized technical innovations under the project. Through their collaboration with the Dutch Embassy, participation in e-marketplaces and Tech Forums they feel they can close that gap, requiring attention and personal commitment from the Project Officer in charge.

6 Task 5: Recommendations emerging from the market study

The primary responsibility for engaging with the IFIs lies with the company through their informal network and in-country presence. Some companies invest in active networking to keep engaged and informed while others take a more passive stance and wait for an invitation to participate. The difference lies amongst others in the company size (portfolio size and ability to cover financial risks), business profile and key expertise as well as in-country presence. The interviews with companies and World Bank & ADB revealed a few options that companies have to strengthen their visibility and exposure and become better informed about market opportunities.

This chapter lists the most important recommendations to companies as emerged from the interviews with companies, embassies and the IFIs completed with personal recommendations.

6.1 Recommendations to improve the visibility of companies in promoting their products/services

To improve the visibility of companies in promoting their technical solutions and innovations, the following recommendations can be made:

1. **Support in Study Tours.** Many projects include a knowledge exchange component, which - in pre-Corona times - often was in the form of a study tour. Dutch companies can offer their support in organizing a study tour or facilitating a one-day session to a relevant pilot location. For topics with a typical Dutch label (e.g., Room for the River, Building with Nature, river training and storm surge barriers) project specific study tours can visit the Netherlands or visit project locations in neighboring countries where Dutch expertise was piloted. World Bank/ADB TTLs/POs and technical experts often have a strong influence on the composition of Study Tours, but direct communication with Implementing Agencies is a possibility as well, especially in case of warm relationships between the Company and the PIU. Programmatic Study Tours to The Netherlands are often organized in collaboration with RVO -TIO.
2. **Attend and participate actively in NWP country meetings and RVO sector workshops / e-market place.** These meetings are low profile and provide general understanding of most recent developments in the country of interest. Participating in these sessions help with networking.
3. **Present at World Bank Brown Bag Lunches or ADB Tech Forum**. The ADB nowadays organizes regular virtual seminars to allow companies to promote and share innovative technologies, good practices, case studies, and practical solutions on special topics. The seminar is not only attended by ADB Sector Officers but also by Implementing Agencies. An example of this is the Healthy Oceans Tech and Finance Forum[12]. The exchange of information and knowledge shared in this forum helped ADB to strengthen their programs in the East Asia & Pacific region aiming at protecting and enhancing the health and resilience of ocean ecosystems and coastal communities. Participating in the Tech Forum provides an opportunity for companies

[12] Link: https://www.adb.org/news/events/healthy-oceans-technology-finance-forum-innovative-solutions-asia-pacific

to promote their innovations which may indirectly help in informing the scope of ADB project activities.

There is no direct World Bank equivalent to the ADB tech forum. The World Bank offers companies the opportunity to present innovative solutions, technologies or case-study findings in a so-called “Brown Bag Lunch” at the headquarter in Washington DC or country offices. The focus of the BBL is on knowledge exchange, commercial activities are not appreciated. Brown Bag Lunches are often organized in coordination with one of the Global Leads (Water Resources Management - Eileen Burk, Irrigation - Pieter Waalewijn) or other lead specialists for other sectors.

6.2 Strategic recommendations to companies to position themselves better for World Bank / ADB funded projects on Climate Adaptation.

Not all companies have equal chances of participating in World Bank and ADB tenders. Apart from the options companies have to promote their services and knowledge products (see 6.1), the following strategic recommendations are available to companies to position themselves better:

1. **Become a Climate Adaptation knowledge hub**:

World Bank and ADB often work with low-capacity clients. The support of the Bank is two-fold; firstly, for providing investment funding for the implementation of infrastructure, purchase of goods and provision of services, secondly to build the client’s capacity in project implementation, provide technical assistance and strengthen the client’s institutional capacity. Both service levels require external input, which often means input from international firms or manufacturers. TTLs/POs mention the ‘Dutch Water Expertise” as a comparative advantage of Dutch companies and often receive the same positive feedback from their clients towards the application of Dutch expertise in projects.

To remain the ‘preferred partner’ in Water, Agriculture and Climate Adaptation projects it is important for the Dutch sector to keep developing and promote innovations. Proof of Concept is one of the key success formulas to demonstrate the feasibility of Dutch concepts as practical solution. More about Proof of Concept can be found in the item below.

2. **Proof of concept.**

The definition of Proof of concept is to determine the feasibility of an idea or practical solution or to verify that the idea will function as envisioned. Proof of Concept is an important approach in Climate Adaptation projects in which often new and innovative solutions are being piloted or already successfully piloted ideas from other countries are being replicated elsewhere. Proof of Concept can therefore be seen as the foundation for a government's decision to shift from conventional infrastructure to more climate resilient and climate adaptive solutions. Pilot projects are not well anchored in WB/ADB funded projects, in particular during project preparation, simply because project teams lack the time to await the results of a pilot and Implementing Agencies are often reluctant to spend funds on systems that lack proof of concept. Under the World Bank Myanmar, Ayeyarwady Integrated River Basin Management project (P148462) the Implementing Agency has piloted the construction of innovative river works designed by RHDHV, with the idea to scale up in subsequent phases of the project. Unfortunately, the 2021 military coup prevented implementation of any new pilot project

activities. Other examples of pilot projects with a strong Climate Adaptation character are the planting of mangroves in Indonesia (source: Ecoshape).

Companies can seek support from RVO in exploring opportunities for the implementation of a demonstration or pilot project as proof of concept, for instance through Partners for Water funding. It is believed that a successful pilot will further strengthen the credibility of the Netherlands as a forefront country in innovations on Climate Adaptation.

ADB and World Bank have expressed similar interests in implementation of pilot projects but acknowledge the challenges linked to the tight project preparation process. To make pilot projects interesting for Bank financing, pilot studies should cover all elements that determine the bankability of a concept including *technical performance, economic viability and social / environmental acceptance or sustainability.*

3. **Importance of strategic partnerships between The Netherlands, the development banks and the borrowing country.**

The success rate of Dutch companies participating in project preparation activities of World Bank and ADB funded project is often fostered by the existence of high-level partnerships between the Netherlands and the country. These partnerships, if established at the highest political level, open doors for Dutch companies to work on pre-feasibility studies or other strategic studies (Mekong Delta Plan, Bangladesh Delta Plan, Myanmar, Ayeyarwady Delta Strategy etc.). Such partnership requires not only high-level engagement but also availability of parallel funding (e.g., Partners for Water). Examples of strategic partnerships between the Netherlands and the receiving country are the *Netherlands – Vietnam partnership for the preparation of the Mekong Delta Plan*, the *Bangladesh Delta Plan 2100*, which was approved in 2018 or the Dutch support to the *Myanmar Ayeyarwady Delta Strategy*, completed in 2018. World Bank and ADB have picked up the implementation of investments identified under most of the Dutch supported activities.

Once funding has been secured, either through the loan or Trust Fund grant funding, the Bank's procurement regulations require ***an open competitive bidding process***, allowing all qualified firms to express interest to bid/submit proposal. Although strategic partnerships may help in labeling Dutch companies as "preferred partners" the selection of Dutch companies in the project implementation phase is no guarantee though, as was witnessed in the Myanmar AIRBM project where Dutch companies lost most of the tenders for various reasons despite their role in the preparation stage.

4. **Include a Market Consultation in the project preparation process**.

RVO can support active participation of niche market players by **requesting for a market consultation in the TOR of RVO managed projects** (e.g., through PvW funding). The interviews showcased that in particular smaller companies that are active in a niche market (e.g., developing high-end modeling applications, or producing specialized equipment) lack the prospect of participating in the preparation phase of WB/ADB funded project and hence lack the ability to influence the design of World Bank and ADB project activities. Unlike consultancy firms, who could participate in tenders as sub-consultant to one of the larger players, niche market players so far have no role in the project preparation phase since their end products are perceived only relevant in the implementation phase of projects. It is however broadly agreed that these companies provide more than just the equipment/high-tech software and can be valuable partners to the WB/ADB for realizing Climate Adaptation ambitions. Market

consultations shall not be exclusive to Dutch companies only but be open to international firms who embrace the “Dutch approach” or “Dutch solutions”.

Another way to improve the visibility of nice market firms is by demonstrating knowledge products at ADB “Tech e-market places” and World Bank “Brownbag sessions” (see 6.1).

5. **Aligning Dutch supported Technical Assistance projects with project preparation needs.**

The ADB, World Bank and Embassies of The Netherlands mentioned the need to better align Dutch supported technical assistance studies (e.g., pre-feasibility studies) with the needs of the development banks in the project preparation process. The interviews learned that too often there is a mismatch between TA output and project needs, between what is delivered by Dutch firms and what the Bank needs for project appraisal. More specifically this concerns a solid economic assessment and necessary Environmental and Social safeguards studies aligned to the Banks social and environmental procedures (ESF for the World Bank). Companies mention the limited funding by RVO as main constraint for full elaboration of their concepts and uptake of economic analysis and social and environmental studies as indicated by the Development Banks. This could be overcome by seeking Bank grant funding to complement Partners for Water (PvW) funding, or the stakeholder engagement process to be picked up by the client and paid from the loan (provided the project is already under preparation and budget for preparation is available), saving costs to the Consultancy assignment.

ADB/WB mentioned a risk if companies rely too much on Dutch grant funding as a way to eliminate international competitors and invite them to not refrain from participating in open tenders. Participating directly in World Bank / ADB funded activities help in getting good understanding of the scope and project needs of the project. Smaller Dutch companies should have the confidence they can compete internationally with their products or else seek strategic partnerships with larger firms (Dutch or international firms) to enhance chances of winning a tender.

6. Just-in-time support

Feedback received in interviews with World Bank/ADB TTL/POs learns that the slow decision-making process frustrates the effective use of Dutch knowledge in Dutch TA support to the World Bank/ADB project. World Bank expressed the desire to supervise Dutch experts directly without intervention of RVO. This may require a different arrangement between RVO and the Bank. An option that was discussed is to make use of secondments of Dutch experts to the Bank for targeted projects or introduce Just-in-Time (JIT) support for small emergency support needs. The DRR-missions can be considered as JIT. Alternatively, it was proposed to the Bank to consider introducing with the Client the option to include a Project Management & Technical Consultancy assignment (PMTC) under the loan, which functions in a similar manner but is paid and managed by the borrowing country directly.

Textbox 7: supporting role of the Embassy of the Netherlands and RVO-TIO team

The role of the Embassy of The Netherlands and RVO is perhaps the most discusses in the interviews under this Market study. It is generally recognized that RVO and the Embassy play an important role in providing a platform for Dutch companies in doing business with the IFIs, each within their own capacity.

In particularly smaller companies without in-country presence expressed the need for a stronger role of the Netherlands Embassy and RVO in helping companies to get a foot in the door at the IFIs and Implementing Agency. Companies across all levels (large and small) explained that they see the active supporting role of Embassies declining, which is often directly linked to the reduced availability of funding. Embassies as well as RVO confirmed their supporting role to Dutch companies and challenges them to seek support in a timely manner.

The role of the Embassy

The role of the Embassy was mentioned as most important, as the Embassy is closest to the day-to-day practices of the IFIs and embassy sector specialists generally hold good relationships with the TTL/PO or technical specialists at the Bank. Companies expect the Embassy to be up to date on project status and knowledge needs and business opportunities for Dutch companies. Some companies mentioned the desire to go back to the old system where Embassies have direct access to funds to support project preparation. Nowadays, subsidies such as Partners for Water (PvW) funds are managed externally. Embassies can coordinate with RVO on accessing PvW funding.

Companies would like the Embassy to support companies in opening doors to the IFIs and Implementing Agencies. The Embassy has its comparative advantage when it comes to receiving high-level attention. The IFIs see a similar role for the embassy as they prefer one focal point when it comes to contact with the Dutch sector for sharing of project specific information.

Although all three embassies (Vietnam, Indonesia and Philippines) acknowledge their role in keeping warm relations with the IFIs, as well as providing services to companies, they also acknowledge that more intense collaboration with the IFIs is needed. Apart from direct support to the IFIs, the sector specialists at the Embassies have their own program with the government, which is often disconnected from lending operations. The embassy in Indonesia explained the enormous portfolio of the World Bank in Indonesia, being too large to be closely followed, in particular as the Embassy has its own bi-lateral programs with the government. The Embassy in Vietnam seems to have closest relations with both World Bank and ADB and the bi-lateral program of the Netherlands seem to be well aligned with the World Bank / ADB priorities. Access to PvW funding was mentioned by the IFIs as a catalyzer for more intense collaboration with the IFIs. With the new PvW-5 program starting soon, Embassies expect a shift in availability of funds and hence opportunities to reengage with the IFIs or revisit their approach when PvW funding becomes less inherent.

The role of RVO

RVO is seen as the repository of good understanding of where and how to access funds that can be used as seed-money for project initiation and piloting innovative concepts and production models. RVO's strength is considered their ability to hold good relationships with the IFIs at both global level and country level and facilitate meetings to promote Dutch businesses. Companies expect RVO to help them with getting a foot at the door with the IFIs at a project level and promote Dutch expertise in its entirety. Smaller companies who often have difficulty to play a leading role in RVO tenders and WB/ADB projects, expect RVO to put more effort in promoting niche market players (highly specialized, often smaller companies) in getting a role in the project preparation phase.

RVO-TIO reconfirmed their supporting role and reiterated the need for companies to reach out to RVO in a timely manner for any support to engage with the World Bank and ADB on business opportunities in climate adaptation.

Some miscellaneous ideas and recommendations:

7. A fundamental shift may be needed when scoping project preparation activities to provide more room for innovations. Some companies expressed the wish to step away from high-level master planning only but look at climate adaptation, water & agriculture services in a broader sense, also involving water technologies and climate resilient irrigation and cropping practices.

8. Procurement regulations are often seen as rigid and restrictive when adopting new approaches/solutions for project preparation and implementation. One example where the procurement regulations may restrict adoption of innovative solutions for Climate resilient systems/infrastructure is in the use of "technical specifications" as per World Bank (and ADB) standard procurement regulations. Better results may be yielded when shifting from "technical specifications" to "functional requirements" (Systems Engineering approach) that describes the requirements to the *performance* of the system / infrastructure rather than prescribing *what* is to be installed. The advantage of this procurement approach is that it provides suppliers/consultants the possibility to promote solutions that they think are more fit-for-purpose compared to off the shelf products and prevent that it becomes a box ticking exercise of what is considered necessary by whoever wrote the Bidding Documents. Again, this is something that cannot be implemented overnight and requires brave positioning of the TTL/PO and close collaboration with procurement specialists willing to support such a transition.

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A.1 Project information ADB pipeline of projects in Vietnam

ADB has substantially supported the water-DRM-food security nexus sectors in Vietnam. It has financed a series of sector modality rural infrastructure development projects in priority areas that have contributed to poverty reduction from improved access. It has also financed food quality and safety enhancement, low carbon agriculture support, reforestation, biodiversity corridor conservation, trade facilitation, and emergency rehabilitation to assist in the recovery from extreme climate events. At present, there are three ongoing loans amounting to $399 million focus on basic infrastructure development (rural roads, irrigation, markets and flood protection), water resources management, and irrigation efficiency improvement.

Textbox 8: Netherlands – Vietnam collaboration in preparing a new ADB lending operation on mangrove restoration[13].

The Government of the Netherlands through the Partners for Water Program collaborates with the Government of Vietnam and the Asian Development Bank (ADB) on project preparation for large-scale mangrove restoration for 5 provinces in the Mekong Delta. The Vietnamese Government has been running afforestation programs in an effort to protect and develop forests, while putting many regulations in place. RHDHV and Wetlands International have worked together to share their extensive expertise on best practices in mangrove restoration. As such, the team has assisted ADB with project preparation activities for mangrove restoration, to be implemented through ADB financing mechanisms. This project contributes to the Agricultural Transformation Program, following the MoU between Vietnam and The Netherland that was signed in 2019. As this project is in a very early stage of preparation, more specific project related information has not become available.

The following two projects with a clear Climate Adaptation profile are under preparation:

1. *Climate Adaptation through Irrigation Modernization Sector Project (52327-001)*
2. Climate Adaptive Integrated Flood Risk Management Project (53275-001)

Vietnam	***Climate Adaptation through Irrigation Modernization Sector Project (52327-001)***
Loan amount	US$ 20 million, US$15.5 million US$10.10 million US$ 19.00 million (Grant: 300.000 Climate Change fund)
Implementation Period	2022 - TBD
Description	The project integrates crop diversification with the adoption of climate-smart irrigated agricultural practices that require modernization of irrigation systems and on-farm water management to improve irrigation efficiency and crop water productivity. It includes the following three outputs: (i) irrigation management services strengthened, (ii) modern irrigation and drainage infrastructure developed, and (iii) efficient on-farm water management practices adopted. Specifically, the project will modernize eight irrigation subprojects in four provinces experiencing dwindling water resources but high vulnerability to the impacts of climate change: Binh Phuoc, Gia Lai, Kon Tum, and Quang Ngai. The modernized systems under the subprojects will enhance provincial capacity to manage climate variability, improve water productivity of agriculture, and increase incomes by supporting farmers in growing high-value crops: perennial crops such as coffee, pepper, and fruit trees as well as high value annuals such as vegetables. The irrigation and drainage system developed in CHR and SCR is largely for rice production and is not yet well suited to irrigate high value crops due to insufficient drainage capacity and

[13] https://www.mekongdeltaplan.com

	insensitive water management system. This is a fundamental issue for farmers in CHR and SCR who are aiming to meet the growing demand for safe and quality food products such as coffee, vegetable, pepper, and cashew nuts in both domestic and international markets. Further constraints in irrigation are (i) premature degradation of irrigation and drainage infrastructure because of inefficient operation and maintenance and asset management systems; (ii) poor water governance, largely because of weak enforcement of regulations on economic and workload burden among water users; and (iii) unreliable water resources for irrigation
Source	https://www.adb.org/projects/53275-001/main
ADB Project Officer	Stefania Dina

Vietnam	**Climate Adaptive Integrated Flood Risk Management Project (53275-001)**
Loan amount	US$ 275million
Implementation Period	2022 -tbd
Description	The project will support the government to achieve the outcome: **effective and sustainable flood risk management systems made operational and well maintained**. There are three outputs with an estimated investment of $275 million: (i) institutional and planning capacities for flood risk management improved; (ii) dike systems in Red-Thai Binh and Ma rivers rehabilitated and upgraded; and (iii) flood forecasting and early warning systems for Red-Thai Binh and Ma rivers modernized Climate-induced floods in the two deltas have particularly led to significant economic and social losses while flood protection infrastructures are insufficient and flood preparedness is low. There are mainly three problems to be resolved for strengthening flood risk management in two deltas: (i) weak coordination and planning capacities for flood risk management; (ii) insufficient flood protection infrastructures; and (iii) low flood preparedness.
source	https://www.adb.org/projects/53275-001/main
ADB Project Officer	Stefania Dina

Textbox 9: Nature-Based Solutions implemented under the Vietnam: Secondary Cities Development Project

The Vietnam: Secondary Cities Development Project ("Green Cities") has developed small-scale "green" and climate resilient infrastructure in the cities of Hue, Ha Giang, and Vinh Yen in Viet Nam to strengthen socioeconomic development in the three urban areas. The project was designed in support of the Green Cities Action Plans that have been developed for each city as part of the GrEEEn Cities Operational Framework for Integrated Urban Development in Southeast Asia**.** Climate change resilience is explicit in the subproject designs due to the strong sensitivities of the three cities to existing climate/weather extremes. Hue City and Thua Thien Hue province formulated a GrEEEN City Action Plan. After the Green Cities Action Plan, the government did all the detailed design to implement the GCAP. In their design, rivers and ponds would have concrete embankments as against riprap or natural edge rocks that can support viable habitat. These approaches were quite new to the local partners and in their concept, rural and untidy. The government's design was not green by ADB standards.

The ADBs Vietnam: Secondary Green Cities Development Project (47274-003) is under implementation. More information can be found at the ADBs project portal. ADB project officer: Alexander Nash

A.2 Project information ADB pipeline of projects in Philippines

Philippines	***Mindanao Irrigation Development Project (53272-001)***
Loan amount	US$100 million
Implementation Period	2022 - tbd
Description	The Mindanao Irrigation Development Project will support the Government of the Philippines **to increase productivity and resilience of irrigated agriculture in Mindanao** by (i) strengthening irrigation planning, design, and management capacities; (ii) developing efficient and climate resilient irrigation systems; and (iii) adopting climate resilient irrigated farming practices. In the Philippines, agriculture is still the key driver of the economy especially in rural areas where poverty incidence remains highest. Mindanao, where the agriculture sector employs 40% of the labor force, is considered the food basket of the Philippines. Despite its vast natural resources and agriculture potential, Mindanao remains the poorest region of the Philippines with 23.7% of families in poverty. The Philippine Development Plan, 2017-2022 (PDP) recognizes that improving the agricultural productivity to uplift the agriculture sector is pivotal in reducing poverty and inequality, and in promoting more inclusive development. Rice is the country's most important food crop not only because it is a staple crop but also because most farmers and workers depend on it as their main source of livelihood. Rice sector productivity in the country lags behind its regional competitors, and inadequate irrigation is one of the long-standing challenges that continue to hamper productivity. Furthermore, limited diversification of crops has been preventing the agriculture sector from taking advantage of the growing markets for high-value crops (HVC). **Irrigation modernization** to provide timely, sufficient, and efficient agricultural water supply is crucial to optimize the level of rice production and diversify into HVCs, improve domestic food supply, and enhance resilience of the country's agriculture system against future hazards. The project will be implemented in 2 phases, of which the preparations for phase 1 are in an advanced stage. Project preparation for phase 2 of the Project is expected to start soon. There is no information on specific activities that fall under the project preparation. Companies can follow the ADBs procurement system to find when tenders are being floated.
Source	https://www.adb.org/projects/53272-002/main
ADB Project Officer	Junko Sagara

Philippines	***Integrated Flood Risk Management Project (51294-002)***
Loan amount Phase 1	US$ 200 million, US$100 million co-financing
Implementation Period Phase 1	2022-2029
Loan amount Phase 2	US$ 400 million, co-financing (TBD)
Implementation Period Phase 2	2024-2031
Description	The Integrated Flood Risk Management Sector Project will assist the government of the Republic of Philippines to reduce flood risks in six river basins (Apayao-Abulog and Abra in Luzon, Jalaur in Visayas, and Agus, Buayan-Malungon, and Tagum-Libuganon in Mindanao) by (i) improving flood risk management (FRM) planning through strengthening data acquisition and data management, and improving flood protection asset management; (ii) rehabilitating and constructing flood protection infrastructure; and (iii) raising community awareness, and preparing and implementing disaster (flood) risk reduction and management plans to reduce different groups'

	vulnerabilities. Infrastructure design will factor in changes in hazard patterns due to climate change, and combination of structural and non-structural measures including nature-based solutions are applied where suitable. The proposed structural measures and interventions were identified in the flood risk management master plans prepared under TA loan, L3589/3886-PHI-Infrastructure Preparation and Innovation Facility (IPIF). IPIF is supporting Department of Public Works and Highways in the preparation of feasibility studies and safeguards documents for the interventions to be financed by the proposed project. IPIF also finances detailed engineering design. More specifically, the IPIF will directly support output 2 of the ensuing project by financing the preparation of (i) six FRM master plans of six target river basins; (ii) feasibility studies; (iii) detailed engineering design of priority infrastructure; (iv) procurement; and (v) social and environmental safeguard assessments. The TRTA will (i) prepare design of the project, (ii) reviewing technical soundness of the FRM master plans, feasibility studies, detailed engineering design of priority infrastructure and due diligence conducted under the IPIF. The project envisions to implement measures that were designed according to the integrated river management approach "Room for the River" as well as application of "nature-based solutions" in flood risk management; and (iii) prepare a preliminary roadmap and investment program for FRM in the Philippines. The project will be implemented in 2 phases, of which the preparations for phase 1 are in an advanced stage. ADB is expecting Expressions of Interest for the preparation of River Basin Management Plans for 6 river basins. Dutch companies have already contacted ADB to express interest in participating in these projects.
Source	https://www.adb.org/projects/51294-002/main
ADB project officer	Junko Sagara

A.3 Project information ADB pipeline of projects in Indonesia

Although not actively involved in the ADBs projects in Indonesia, The Netherlands Embassy in Indonesia is in frequent contact with the ADB mr. Eric Quincieu (Natural Resources and Agriculture Division, SEER) and mr. Joris van Etten (Urban Division) on opportunities for the Netherlands in projects as mentioned in this chapter below. The Embassy is also engaged in the formulation of Technical Assistance studies under the Urban Climate Change Resilience Trust Fund or other Funds (Water Financing Partnership Facility to which the Netherlands contribute), for example in relation to projects on Land Subsidence and Building with Nature inspired applications and infrastructure.

In the agriculture space there is less direct engagement between The Embassy and the ADB although the embassy has expressed interest to strengthen ties with the development banks (both ABD and WB).

Indonesia	***Horticulture Development of Dryland Areas Project (54256-001)***
Loan amount	US$ 125
Implementation Period	2022-2026 (tbd)
Description	The project will help the Ministry of Agriculture to optimize underutilized agriculture dry land towards modern agriculture, increased farming profitability, and climate change resilience. The project will address the following key issues (i) limited value addition in agriculture; (ii) limited uptake of modern farming practices and innovations; (iii) unreliable irrigation and inadequate agricultural services; (iv) low added value of agriculture produces and limited access to market; and (v) underutilization of dry land. The project **will promote climate smart agriculture (CSA) and will explore options to bring high-level technology to stimulate use of information and communication technology platforms to provide farmers with greater access to information**. The project is aligned with President Widodo's policy direction, the National Medium-Term Development Plan (Rencana Pembangunan Jangka Menengah Nasional) 2020–2024 and aims to reduce poverty rate to 6.5%–7% by 2024 and promotes prosperous, fair, and sustainable development. The government has set targets to improve food security (availability, access, and quality of food consumption) and agriculture. The project aims to increase productivity and profitability of dryland farming that will improve household income and food security of families living in the project areas, including women. The project outcome is defined as "Climate resilience and profitability of dryland farming increased". Special focus is put on adoption of technologies to increase production of rice, which may be of special interest to Dutch companies. ADB is financing consulting services for the project preparation and due diligence through technical assistance supported by The Netherlands under the Water Financing Partnership Facility.
Source:	https://www.adb.org/projects/54256-001/main https://www.adb.org/projects/documents/ino-54256-001-ipsa
ADB Project Officer	Eric Quincieu

Indonesia	Flood Management and Coastal Protection in North Java (previously named: "Enhanced Water Security Investment Project")
Loan amount	US605 mln. in total of which US$55 mln counterpart funding
Implementation Period	2022 – 2026
Description	This project will finance construction of Detailed Engineering Designs and readiness works prepared under the "Accelerating Infrastructure Delivery through Better Engineering Services Project (ESP)[14]. The project promotes an integrated water resources management approach to Improve flood resilience and raw water supply (RWS) in the in the Pemali - Juana and Cimanuk Cisanggarung river basins in North Java. The project will also support the Ministry of Public Works and Housing in introducing Flood Forecasting and Early Warning System and river and RWS asset management, and institutional strengthening and capacity of river basin organizations in managing data. The project will promote river restoration approach and natural based solutions for river works. This will be complemented by flood warning systems. This will be done by introducing satellite-based technology to better manage floods and nature-based solution towards greener infrastructure. The project outcome is: Resilience to climate change for selected river basins enhanced. The project is aligned with the Water Operational Plan 2011-2020 and to the Climate Change Operational Framework 2017-2030. The project will help achieve sustainable development goals 6.4, 6.5 and 1 Hydraulic analysis and surveys are being prepared under the ESP. The ADB Team is providing technical support to ensure that ESP (i) is preparing technically sound and climate proof engineering designs; (ii) is introducing innovations, and (iii) social and environment safeguards, and economic and financial analysis are compliant with ADB standards.
relevant project outcomes by 2026	- Planning for water resources optimized - Water monitoring equipment installed as per rationalization plans - River basin wide hydrological and hydrodynamic models prepared and calibrated - Updated river basin plans with climate considerations endorsed by water councils - Asset management information system for river assets established - Knowledge and skills in climate resilient infrastructure design/planning of staff strengthened (capacity building) - River basin hydrology reports prepared - Raw water supply infrastructure and services improved - Water storage capacity is increased - Private public partnership scheme for water resources infrastructure established for 1 river basin - bulk water conveyance facilities built or upgraded and climate proofed - groundwater wells built or upgraded - Flood protection infrastructure rehabilitated or upgraded and climate proofed - coastal protection infrastructure rehabilitated or upgraded and climate proofed - stakeholders, of which xx% are women, have increased awareness of risk-informed and gender responsive emergency plans and procedures
Source:	https://www.adb.org/projects/51157-001/main https://www.adb.org/sites/default/files/project-documents/51157/51157-001-cp-en.pdf

[14] For more information about his project visit the project website on https://www.adb.org/projects/49141-001/main

ADB Project Officer	Eric Quincieu, Water Resources Specialist, SEER (equincieu@adb.org)

Indonesia	**Asahan Irrigation Development in North Sumatra**
Loan amount	US$ 200mln
Implementation Period	2023-2029
Description	The project will finance construction of Detailed Engineering Designs and readiness works financed under the "Accelerating Infrastructure Delivery through Better Engineering Services Project" (ESP) for the Asahan irrigation system in North Sumatra. The project will promote efficient and integrated irrigation and agriculture system through a corporatized farming approach, linking farmers to market and developing agriculture value chain. Progress: The master plan is being finalized under ESP and the detailed engineering works are being carried out.
Source:	https://events.development.asia/system/files/materials/2021/08/202108-overview-indonesia-water-security-program.pdf https://www.adb.org/sites/default/files/linked-documents/43220-014-pid.pdf
ADB Team leader	Eric Quincieu, Water Resources Specialist, SEER (equincieu@adb.org)

A.4 Project information World Bank pipeline of projects in Vietnam

The World Bank portfolio on Climate Adaptation in Vietnam is potentially large, although many projects struggle to make a full shift to Climate Resilient infrastructure. For the preparation of new projects, the Bank teams draw lessons learned from experiences in completed projects such as the Mekong Climate Resilience and Sustainable Livelihood Project (link). The World Bank Environment, Natural Resources and Blue Economy Global Practice (ADB's SEER equivalent) is currently preparing a new US$ 300 million plus lending operation in de Mekong Delta (temporarily named: "Mekong Delta Climate Adaptation and Sustainability Project"). The project is still in its initiation phase and specific details are not available. The Bank team has emphasized on the need for grant funding from donors to allow for capacity building and project hand holding. The key topics under the project are: Climate Resilient Infrastructure, Agricultural Diversification and Value Chain Development. The Bank team expressed great appreciation to the active role of the Netherlands in the past years in supporting the Vietnam Government with Climate Adaptive management of the Mekong Delta and requested The Netherlands to continue providing support for this project.

Other relevant World Bank Climate Adaptation projects in Vietnam that are already in preparation are given below. More detailed information can be found in the Project Information Document (PID) on the respective project portals.

Vietnam	**Integrated Resilient Development Project (P174156)**
Loan amount	US$ 404 mln
Implementation Period	2022- tbc
Implementing agencies	Provincial Projects Management Unit of Khanh Hoa, Quang Nam, Phu Yen, Binh Dinh
Description	Vietnam is highly vulnerable to weather-related hazards such as typhoons, floods, and drought, which are expected to become more frequent and intense with climate change. Despite extensive investments in risk management, disasters cause annual asset losses of approximately one percent of GDP,[15] and people's well-being losses of around 2 percent of GDP.[16] The susceptibility of Vietnam's coastal areas to climate change and natural disasters places key economic assets and vulnerable populations at considerable risk. The proposed **Integrated Development Project** will support the vulnerable coastal provinces of Khanh Hoa, Quang Nam, Phu Yen, and Binh Dinh in increasing access to resilient infrastructure and strengthen disaster preparedness. In particular, the operation will support extensive structural and non-structural interventions that will "**increase climate resilience and strengthen disaster risk management**" of the project provinces. The project builds on the lessons and experiences of the Bank's previous and ongoing interventions in the urban resilience and disaster risk management sector in Vietnam and other countries, and will be guided by the following principles: (i) **leveraging accessible and affordable new technologies for better managing risk, with a focus on incorporating flood risk assessment in planning, strengthening operation and maintenanc**e, sharing of information across administrative units, and community participation; (ii) integrating remedial and preventive measures to increase connectivity and guide future urban development in low

[15] Vietnam Central Committee for Disaster Prevention and Control, 2017
[16] Resilient Shores: Safeguarding Vietnam's Coastal Development in the Face of Natural Hazards (Draft) (World Bank, 2020).

	risk areas, while improving the living conditions of the urban core; (iii) **harmonizing nature-based solutions with gray infrastructure design to increase adaptability and reduce the life cycle costs of operation and maintenance**; and (iv) **enhancing the quality of infrastructure with consideration of climate change and the needs of diverse populations, particularly women** The Embassy of the Netherlands in Vietnam is actively involved in the preparation process of the IRDP and together with RVO, supported the project with Technical Assistance under the Partners for Water program. Royal HaskoningDHV (and partners) was assigned contract to develop strategies for the development of flood management and navigation enhancement options for Trung Giang River / Tam Ky area. RHDHV assessed a range of options varying from conventional grey infrastructure solutions to more hybrid "green-grey" options, applicable to the local context and developed in partnership with local stakeholders and decision makers. More specifically for Trung Giang River it was recommended to further elaborate options for multi-functional water parks, jetties, and special attention to Nature-based-Solutions for riverbank protection. For Tam Ky (urban area) recommendations were to start a Feasibility Study to a flood by-pass and construction of dikes, reducing flood risk for Tam Ky. More information can be found in the documents provided below and available at RVO / Embassy.
Source:	https://projects.worldbank.org/en/projects-operations/document-detail/P174156?type=projects RHDHV, 2021. Strategic Advice to the Quang Nam Provincial People Committee on the Integrated Management and Technical Solutions for Truong Giang River Sub-catchment RHDHV, 2021 Integrated flood risk management options for Tam Ky area. (BH7738-RHD-ZZ-XX-RP-Z-0001).
WB Team leader	Huyen Thi Phuong Phan, Dzung Huy Nguyen, Mark Forni

Vietnam	**Vinh City Priority Infrastructure and Urban Resilience Development Project (P174157)**
Loan amount	US$ 129.60 mln
Implementation Period	2022-tbc
Implementing agencies	People's Committee of Nghe An Province
Description	Vinh City, the provincial capital of Nghe An Province, has been identified by the central government as an important growth center. Despite its ambitious development plans, Vinh City is struggling to keep up with the rising demand for basic urban infrastructure, both in the established urban centers and in urban expansion areas. To varying degrees, the sewage and sanitation systems are inadequate and untreated domestic wastewater is often discharged directly into rivers, causing water pollution and serious health risks to nearby populations. Solid waste management deficiencies and uncontrolled dumping also add to environmental pollution, clogged drains, and generally poor public health conditions. Roads, particularly in the older parts of the city, are too narrow and degraded to allow efficient transport operations as the city's population and household incomes continue to grow. To address this shortcoming, integrated infrastructure development is Vinh city's top priority. **To reduce flood risks, an urban resilience strategy of "*delay, store, and discharge*" will guide the selection of priority interventions.** Investments will be made in the combined sewer system and road infrastructure to *delay* the pluvial runoff from the tertiary/ secondary system to the primary drainage system through improved drainage and wastewater collection. Meanwhile, the excess storm water runoff from the city will be *stored* in an expanded flood basin within the city. Finally, investments will be made in the urban core to increase its

	discharge capacity by augmenting the existing flood protection system and drainage network to efficiently drain pluvial runoff to storage areas and pumping stations nearby the rivers and address fluvial and tidal flood risk from the rivers itself. Given unique spatial and terrain pattern in Vinh, this strategy will support the city addressing its flood risk in a manner that is environmentally friendly, with dependence on nature-based solutions, and does not cause negative impacts to areas outside of the protected city core. There is no procurement plan available yet, hence the status of tenders under preparation is not known.
Source:	https://projects.worldbank.org/en/projects-operations/project-detail/P174157
WB Team leader	Cung Hung Pham

Vietnam	**Vinh Long City Urban Development and Enhanced Climate Resilience Project (P171700)**
Loan amount	US$ 126.9 (IDA) 19.50 (Netherlands)
Implementation Period	2020-2025
Implementing agencies	ODA PMU of Vinh Long Province
Description	**Vinh Long is strategically located along the economic corridor that connects HCMC to the MDR.** Vinh Long City, the capital of Vinh Long Province, is one of the 13 provinces in the MDR, with a population of around 150,000 and an annual GDP growth rate of about 10 percent. **Flooding and poor environmental sanitation are major impediments to Vinh Long's long-term development.** Located on the Tien River plain, the city has a low elevation of 1.6 m to 2.5m above mean sea level. Approximately 60 percent of the city is susceptible to flooding due to extreme rainfall and high water levels in the Mekong river. The project investments include a comprehensive set of structural and nonstructural interventions to improve access to infrastructure and reduce flood and environmental pollution risk in the urban core area of Vinh Long City, through developing flood control systems and nature-based solutions, wastewater collection and treatment, as well as key transport links. The Project has the following components: flood risk management and environmental sanitation; flood risk mitigation and urban drainage; wastewater collection and treatment; strategic corridors development; and resettlement area development. Investments will consist of a balance between gray and green infrastructure (or nature-based solutions). A Dutch grant in the amount of US$19.5 million will be provided to build a water treatment plant in Vinh Long City. Via Invest International the Netherlands grants USD 19.5 million (EUR 16.5 million) to a project totaling USD 202.2 million (EUR 170 million) in Vinh Long City to make the city more climate resilient and to protect its people against flood risks. The project is already effective and under implementation. The status of feasibility studies for said investments are unknown and no procurement plan is available yet.
Source:	https://projects.worldbank.org/en/projects-operations/project-detail/P171700 Netherlands and You NWP Country Update Vietnam
WB Team leader	Hoa Thi Hoang, Van Anh Thi Tran

Vietnam	**Vietnam: Binh Duong Water Environment Improvement Project (P173716)**
Loan amount	US$ 232 mln
Implementation	2022 -tbd

Period	
Implementing agencies	Binh Duong Provincial Management Board for Wastewater Projects
Description	Binh Duong Province has fostered strong and rapid development, with high rates of economic growth and urbanization. But the province faces adverse impacts associated with inadequate wastewater management, which is placing hard-earned human capital development gains at risk. Municipal wastewater pollution is a leading cause for water quality deterioration in the Dong Nai and Sai Gon Rivers, presenting a water security risk for downstream communities. Through investment in climate resilient infrastructure and institutional support activities, the project will build upon and leverage previous investments, to help reduce threats from inadequate wastewater management and contribute to the long-term sustainable development and inclusive growth of the Binh Duong province. Moreover, the project responds to key recommendations and policy priorities from sector analytics as highlighted in the 'Water Governance Report'[17], including the need to prioritize efforts to reducing water pollution, improve efficiency and create an enabling environment to leverage private sector participation
Source:	https://projects.worldbank.org/en/projects-operations/project-detail/P173716 https://www.worldbank.org/en/country/vietnam/publication/vietnam-toward-a-safe-clean-and-resilient-water-system
WB Team leader	David Malcolm Lord, Abedalrazq F. Khalil, Vinh Quang Nguyen

[17] The Bank's flagship 'Water Governance Report' Titled: Vietnam: Towards a Safe, Clean and Resilient Water System, World Bank, 2019 highlights seven key recommendations to address the challenges facing the water sector.

A.5 Project information World Bank pipeline of projects in Indonesia

Indonesia is highly vulnerable to climate change impacts, including extreme events such as floods and droughts, and long-term changes from sea level rise, shifts in rainfall patterns and increasing temperature. While rapid economic growth has led to a reduction in poverty in recent decades, with the poverty rate halving from 24% in 1999 to 9.78% in 2020, high population density in hazard prone areas, coupled with strong dependence on the country's natural resource base, make Indonesia vulnerable to the projected climate variability and climate change. These impacts of climate change will be felt across multiple sectors and regions as the impacts of climate change could cost between 2.5–7% of the country's GDP, with the poorest being disproportionally affected.[18]

The Netherlands Embassy is exploring the possibility to leverage Drive/Develop2Build funding through Invest International for projects mostly related to the World Bank portfolio. More specifics are not yet available.

A selection of projects that are in the preparation phase and that have a strong climate resilience / climate adaptation agenda are presented below.

Indonesia	**Indonesia: National Urban Flood Resilience Project (NUFReP) (P173671)**
Loan amount	US$550 (US$ 400 IBRD)
Implementation Period	2023- tbd
Description	**This project directly supports the Government's commitment to establish a national urban flood resilience program, the foundations of which are laid out in the National Medium-Term Development Plan 2020–24 (RPJMN).**[19] The newly adopted RPJMN acknowledges the high exposure of Indonesian cities to flood risk and calls for integrated urban flood risk management that includes green infrastructure, flood early warning systems, restoration and conservation of watershed areas (e.g., normalization and improvement of river capacities), mangrove conservation, coastal protection infrastructure, and pollution control in lakes and dams. The key objectives of the proposed national program are to strengthen the resilience of Indonesian cities to flooding through an integrated approach and to improve flood risk mitigation, investments, and governance in participating cities. This will be achieved through four key principles: (i) utilize a national programmatic approach to establish dedicated resilience-building funding, leverage good practices, and facilitate knowledge management among Indonesian cities; (ii) **promote technological and technical innovation to enhance implementation of localized flood resilience investments**; (iii) **strike a balance between structural and non-structural measures, including synergized investments in green infrastructure, urban public space improvements, and water-sensitive urban design**; and (iv) enhance local-level partnerships and community participation for longer-term sustainability and ownership

[18] https://climateknowledgeportal.worldbank.org/country/indonesia

[19] Technical recommendations for the national urban flood resilience program were supported through a technical assistance program under the Urban Floods, Disaster Risk Management, and Drainage Program (P156711) which was undertaken by Deltares. A baseline analysis of 30 Indonesian cities was conducted, and a conceptual framework design for the national program developed, meanwhile, urban flood resilience diagnostics laying out potential investment options in Bima, Manado, and Pontianak are being developed with financial support from the Global Facility for Disaster Reduction and Recovery (GFDRR).

	The Project Development Objective is to strengthen the resilience of participating cities to flooding through integrated flood risk management solutions and improved governance arrangements. This project will support up to seven additional cities under Component 1 and up to two additional cities under Component 2. The project components and proposed activities are outlined below. **Component 1: Flood risk analytics and investment planning.** Activities under this component involve: flood hazard mapping using high-resolution digital terrain models (DTMs, based on LiDAR technology or similar) and hydro-dynamic models, including probabilistic flood risk maps highlighting changes in land use, land subsidence, and the impacts of climate change (e.g., sea level rise). The project will support a participatory planning approach through citizen engagement activities including design workshops or "charrettes" that provide opportunities for communities to contribute meaningfully to the planning and design process. **Component 2: Support for flood resilience investments:** under this component climate resilient infrastructure will be financed and water-sensitive urban design[20] measures alongside traditional "grey" infrastructure. Under this component, up to five participating cities[21] will receive technical assistance and financing to implement agreed activities (structural and non-structural) per the city's flood resilience investment plan (developed under Component 1 or already established by the city), starting with critical activities that would achieve immediate targets in reducing flood risk impacts (i.e., "no-regrets" measures). **Component 3: Institutional strengthening and knowledge management**. This component will support: (i) the establishment and operationalization of a knowledge resource center for knowledge transfer and private sector engagement; (ii) technical training on innovative technical, governance, financing, and climate risk planning solutions; (iii) emergency management and business continuity planning for multi-hazard risks, including risks from non-natural hazards; and (iv) interagency coordination and institutional strengthening
Source:	https://projects.worldbank.org/en/projects-operations/project-detail/P173671
World Bank Team leader	Haris Eduardo Sanahuja, Jian Vun
Dutch Involvement	There is regular contact between the embassy and the Bank team, with the aim to help informing the project design and where possible to participate on topics such as Flood risk issues & resilience of targeted cities. Dutch expertise is considered highly acknowledged by the Indonesian counterpart as well as the Bank teams.

Indonesia	**Agriculture Value Chain Development Project (ICARE) (P173487)**
Loan amount	US$100 mln
Implementation Period	2022-2027
Description	Indonesian Agency for Agricultural Research and Development ("IAARD") of the Indonesian Ministry of Agriculture is currently developing an Integrated Corporation of Agricultural Resources, Development, and Empowerment program, hereinafter, the document will use the term "ICARE". ICARE focuses on high value commodities to anticipate increasing import numbers, while increasing agricultural sector added value and promoting export. ICARE Program will be effective for five years, commencing in 2022 and ending in 2027.

[20] World Bank, *Strengthening the Disaster Resilience of Indonesian Cities.*
[21] Including Bima, Manado, and Pontianak. During preparation, up two other cities will be identified by the government for support under this proposed project.

	Through ICARE Program, the Government of Indonesia is developing an innovative, integrative, and collaborative agricultural research and development system to achieve food security and to increase the added value of agricultural products. The Program promotes a sustainable, inclusive, and diversified agricultural production and development system in selected program areas. The Program hopes to improve the capacity of human resources and infrastructures/facilities, the productivity and efficiency on the utilization of input, the efficiency in the farming business, the availability of new advanced varieties, the availability of supporting innovative technology, the adoption of technology by the users, the added value of agricultural products, and the income of farmers. Furthermore, the Program also aims to increase publications from research result, while providing massive services and access to agricultural information technology. Ultimately, the Program aims to produce a sustainable production system, and to improve corporation and innovation based agricultural areas
Source:	https://projects.worldbank.org/en/projects-operations/document-detail/P173487?type=projects
World Bank Team leader	Jan Joost Nijhoff, Vikas Choudhary

Indonesia	**Indonesia Mangroves for Coastal Resilience Project (P178009)**
Loan amount	US$400 mln
Implementation Period	2022-tbc
Description	**Coastal communities in Indonesia are increasingly vulnerable to climate change and natural disasters.** Sea level is projected to rise by up to 29 centimeters by 2030 and threatens 42 million Indonesians who live less than 10 meters above sea level. Sea level rise combined with other climate change effects on oceans are expected to result in salinization, flooding, and erosion, jeopardizing coastal livelihoods through an impact on health, freshwater supply, agriculture, fisheries, and other services **Indonesia's mangroves offer protection against coastal flooding, making them effective nature-based solutions for adaptation.** Indonesia's mangroves furthermore protect thousands of kilometers of coastline against coastal flooding and erosion and have the potential to continue delivering these protection benefits under sea level rise. The coastal flood protection benefits for coastal communities and infrastructure in Indonesia are valued at US$56 million annually.[22]. **The Mangroves for Coastal Resilience project (M4CR) finances active rehabilitation of 75,000 hectares of degraded mangrove area**[23] and promote conservation within mangrove forest landscapes covering 400,000 hectares. The project provides opportunities for Dutch companies at different levels, building on the experiences gained under the Water as Leverage program in Indonesia (Semarang/Demak) as well as similar experiences with mangrove rehabilitation and mangrove-shrimp farming production models in the Vietnam, Mekong Delta. There are also opportunities for Dutch companies specialized in development and application of technologies for effective monitoring (site identification) using remote sensing data sets.
Source:	https://projects.worldbank.org/en/projects-operations/project-detail/P178009 https://www.ecoshape.org/nl/pilots/mangroveherstel-indonesie/
World Bank Team leader	Andre Rodrigues de Aquino

[22] Menendez et al. 2020.

[23] Rehabilitation is used here as umbrella term and includes mangrove forest enhancement.

A.6 Project Information World Bank projects on Climate Adaptation in India (Assam) and Bangladesh

Apart from project opportunities in Vietnam, Indonesia and the Philippines, RVO has expressed interest in developments regarding projects on Climate Adaptation in India and Bangladesh. Two of the most prestigious World Bank projects under preparation with a strong Climate Adaptation profile and providing a good fit with Dutch river engineering and water management expertise, are the Jamuna River Economic Corridor Program in Bangladesh and the Assam Integrated River Basin Management Project in India. Both projects are designed according to a Multi-Phased Programmatic Approach (MPA) providing funding for the coming 10 years or more.

India: Assam Integrated River Basin Management Project (P174593)

Background

1. The Northeast of India – covering the States of Sikkim and the seven 'sisters' of Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland and Tripura– is one of the least developed parts of the country. Progress has been made in a few of the Northeastern States (such as Mizoram), but overall growth rates over the past years have remained low, poverty incidence (especially in Assam) is high, the natural capital on which growth depends is being depleted at alarming rates, and the region is routinely subjected to devastating floods and other hazards, such as high rates of erosion.

2. Transforming the Northeast into a vibrant center of economic activity both nationally and regionally will require more prudent management of its natural resources, which are the basis of the region's wealth and the acceleration of growth. Despite the potential, the Northeast has not been able to manage in the destructive forces of water resources – including recurring floods and massive rates of erosion – or make productive use of this tremendous asset. The State of Assam is strategically important as the largest and most populous State in the Northeast and holds great potential for development through improved water resources management. However, Assam is one of the States hardest hit by erosion and flood hazards. Climate change is expected to exacerbate current hazards and lead to more frequent floods and accelerated soil erosion. A progressive and systematic approach is needed to address the key water-related risks and opportunities in Assam.

3. The Assam Integrated River Basin Management Program (AIRBMP), responds to the Government of Assam's (GoA) request to support improved water resources management for economic growth and prosperity, including addressing flood and river erosion risks. The program focuses on building the requisite institutional capacity, filling critical knowledge gaps, and implementing integrated solutions to tackle the current challenges for climate resilient growth and improved livelihoods. The expected funding is US$ 500 million following a Multiphase Programmatic Approach (MPA). The MPA would consist of three overlapping phases or projects over a total of ten years. The program aims to squarely address the "Water-DRM Nexus" through a set of synergistic activities including the use of nature-based solutions and non-structural approaches. The first phase of the program (referred to as "the project" from here on) has a lending envelope of US$ 120 million.

4. The Project Development Objective (PDO) of the first phase is: *To strengthen institutional capacity for integrated water resources planning and management, and to enhance preparedness for flood and river erosion risks in Assam.*The project aims at: i) reducing flood and river erosion risks in the Assam parts of the Beki and Buridehing sub-basins; ii) enhance

the resilience of local communities to flood and river erosion in selected locations; and iii) prepare integrated water resource management plans in the Beki, Buridehing, and Jiadhal sub-basins to support future investments in subsequent program phases. Following is a description of Phase 1 activities.

Project Organization

5. The three Implementing Agencies (IAs) under AIRBMP are FREMAA, WRD, and ASDMA. FREMAA will be the nodal coordinating agency while WRD and ASDMA will be the executing agencies for the program. A Project Management Unit (PMU) has been established in FREMAA to support the implementation of the program. The PMU will be headed by Chief Executive Officer (CEO), FREMAA. The PIU in WRD will be headed by the Chief Engineer. The PIU in ASDMA will be headed by the CEO, ASDMA

Project activities

6. AIRBMP Project activities help Assam sustainably develop its abundant water resources and use a portfolio of structural and non-structural measures, including nature-based solutions, to reduce flood and river erosion risks. A selection of project activities relevant for Dutch companies to participate in, is listed below:

i. *Preparation of an Assam-Brahmaputra "State of the Basin Report*" which will provide the foundation for the Assam Brahmaputra Basin Strategic Plan in Phase 2 of the MPA; The State-of the-Basin Report is supported by a series of specialized studies to fill in critical knowledge gaps within an integrated water resources framework, such as sediment and river morphology, fisheries and wetlands, groundwater, water uses, etc.;

ii. *No-Regret Investments in Assam part of the Beki and Buridehing Sub-Basins and Emergency Works:* This includes anti-erosion works along critical riverbank stretches and rehabilitation of existing levees to ensure structural integrity and enhance climate resilience. In Buridehing, this includes 18.55 kms of anti-erosion works and 20.10 kms of levee strengthening. In Beki, this includes 13.67 kms of anti-erosion works and 4.0 kms of levee strengthening.

iii. *Integrated Water and Flood Management Planning in Selected Sub-Basins:* This sub-component will prepare comprehensive integrated plans for the Assam parts of the Beki, Buridehing, and Jiadhal sub-basins that include both gray and green infrastructure and incorporate non-structural solutions to reduce flood and river erosion risk, as well as opportunities to sustainably develop water resources. Activities for each sub-basin include: i) developing the overall plan; ii) preparing new or updated detailed project reports (DPRs); and iii) environmental and social impact assessments (ESIA), environmental and social management plans (ESMP) and resettlement actions plans (RAP) for the proposed investments in each sub-basin. Some of these investments are expected to be financed under Phase 2 of AIRBMP.

iv. *Flood Forecasting in Selected Sub-Basins:* This sub-component will assist WRD, in collaboration with the Northeastern Space Applications Centre (NESAC) and the Assam Water Research and Management Institute (AWRMI) which is under WRD, to develop a state-of-the art flood forecasting system in the Beki, Buridehing and Jiadhal sub-basins. WRD will work closely with ASDMA to ensure seamless integration of flood forecasts into ASDMA's early warning and dissemination (EWDS) that is being upgraded under Component 3. The flood forecasting system will be extended to other tributaries under Phase 2 and to the Brahmaputra mainstream under Phase 3 of AIRBMP.

v. *Baseline Information and Levee Asset Management:* This sub-component will support the collection of baseline hydrological, topographical, and geotechnical information from cross-section surveys, LIDAR mapping, and expansion of hydrological and meteorological monitoring stations in the Beki, Buridehing, and Jiadhal sub-basins. This information will support the planning and flood forecasting activities in these sub-basins. Assam has over 4,000 kms of river levees, many of them in poor and unsafe condition. This sub-component will also set up WRD's levee asset management system and will enhance monitoring, maintenance, and upgrading of levees using modern methods and involving local communities.

vi. *Early Warning and Dissemination System (US$4 million):* This will support the development of an integrated public alert and dissemination system at multiple levels within Assam. A state-of-the-art Assam Emergency Operations Center (EOC) will be supported for integrated incident command and operations. A geo-spatial disaster management laboratory will be established to better understand various hazards. Communication and IT systems will be enhanced for first responders and to improve early warning dissemination to affected populations. This sub-activity will also support towards development of Community Based Flood Early Warning System (CBFLEWS).

Knowledge Needs

7. The project aims at leveraging global best practices in Integrated Water Resources Management, River Engineering & Infrastructure Monitoring & Asset Management, Flood Forecasting & Flood Early-Warning Systems, across all project activities. Transitioning from traditional hard river engineering practices to t

8. The Project is currently under preparation and is scheduled for Board approval in July 2022. A first series of tenders are being floated, amongst others the construction of the first batch of river works in the Beki and Buridehing sub-basins (NCB) and the Project Management and Technical Consultancy contract (QCBS). Terms of References for other consultancies, amongst others; the Flood Forecasting Consultancy and the Integrated Water & Flood Management Consultancies are under preparation. More information can be found on: https://projects.worldbank.org/en/projects-operations/project-detail/P174593

Bangladesh: Jamuna River Economic Development Program

1. Bangladesh is situated among the floodplains of three major international rivers—Padma-Ganges, Jamuna-Brahmaputra, and Meghna—and 230 smaller rivers and has access to the sea. Given the dominance of rivers in the country's geography, good river management practices go a long way in maximizing overall productivity of a river system and minimizing climate change exacerbated disaster risks, both of which translate into economic growth. Further, coordinated multisectoral river interventions can optimize rivers to yield more jobs, trade, navigational opportunities, reduced greenhouse gas (GHG) emissions in transport and enhanced carbon sinks, food, and power, all the while sustaining environmental integrity and protecting land, industries, and livelihoods from riverbank erosion and floods.

2. *The Bangladesh Delta Plan 2100 (BDP2100) is expected to stimulate economic growth through a paradigm shift in river management.* Adopted in October 2018, the BDP2100 is the Government of Bangladesh's (GoB) long-term water-centric, climate change-focused integrated plan and is now the country's key development agenda.[1] With the vision of 'achieving a safe, climate-resilient, and prosperous delta', the BDP2100 sets out US$38 billion worth of physical and institutional investments, which are projected to incrementally increase economic growth by 2 percent per year.[2] To aid in the BDP2100's implementation, the GoB created the Delta Wing under the Planning Commission that is mandated to coordinate, facilitate, and monitor BDP2100 progress. In addition, the Delta Governance Council (DGC) was formed in July 2020 as an inter-ministerial forum chaired by the Prime Minister to provide strategic directions and make important policy decisions.

3. The proposed Jamuna River Economic Corridor Development Program (the Jamuna Project) is the first major investment to be prepared for IFI/WB financing under the BDP2100. The proposed Program would help build overall confidence in the BDP2100's relevance and establish implementation momentum. Thus, it will provide critical support to Bangladesh's long-term economic development prospects toward fulfilling the potential of major rivers in Bangladesh.

4. The Project Development Objectives (PDOs) are to enhance resilience of Jamuna River's riverbanks to flooding and erosion; (b) improve navigability of the Jamuna River; and (c) strengthen sector institutional capacity. Components under the project are:

Project costings and implementing agencies (IA) by component (US$, millions)

Component	**Phase 1**	**IA**
1. Riverbank protection and river training	70	MoWR/BWDB
2. Navigation channel development	70	MoS/BIWTA
3. Financial protection of communities	10	MoWR/BWDB
Total	**150**	

[1] The BDP2100 was prepared with the support of the Dutch Government and the World Bank Group, pursuant to a tripartite memorandum of understanding signed on June 16, 2015.
[2] Annual economic growth is expected at 8 percent with the BDP2100, compared to 6 percent without it. These projections are before COVID-19, underlining that realizing the economic potential of the BDP2100 is ever more pivotal for the country given the dire economic fallout from COVID-19.

(a) **Component 1: Riverbank protection and river training.** This component will invest in river training structures that will help preserve the shoreline by absorbing the energy of incoming water and control the river flow to reduce the risk of riverbank erosion and flooding. Innovative river training structures will be piloted as well, which are expected to be effective both in protecting riverbanks from floods and erosion and managing navigation channels. Dredging for river training will be also conducted.

(b) **Component 2: Navigation channel development.** This component will create navigation channels that are 50–100 m in width and 2.5–3.0 m in draft, allowing for heavy cargo vessels sailing both ways day and night for much of the year. Investments will be made on all three elements of dynamic navigation

(c) **Component 3: Financial protection of communities.** Disaster risk financing solutions for farmers with clear triggers and pre-identified disbursement channels will be developed and implemented through a potential partial grant from the GRiF.

(d) **Component 4: Institution strengthening and project management.** This component will finance (i) gaps in policy and planning frameworks; (ii) activities that are identified in the IAs' capacity needs assessments during preparation of each phase; and (iii) the program management activities, including fiduciary, E&S, monitoring and evaluation (M&E), and consultancy

Knowledge Development and Room for Innovations

A phased implementation may be sought for the Program through a Series of Projects (SOP), starting with a small agile Phase 1 to lay the foundation. Given that there are many unknowns in the morphology of the Jamuna River, it is critical to test new technologies and innovations to evaluate their suitability, effectiveness, and any unintended consequence. The phasing approach will allow exploring and piloting in Phase 1, learning from which could be applied and scaled up in the following phase(s), especially for performance-based dredging contracts, innovative river training and IWT structures, and Level D+ RIS.

Supporting development of regional Inland Water Transport (IWT) is one of the Jamuna outcomes

The Project would reinforce ongoing regional efforts to enhance transboundary water management in South Asia, especially with India. Recognizing that inland waterways for South Asia could be a driver of economic growth and poverty reduction, some riparian countries are actively exploring and implementing ambitious plans for Inland Water Transport. Among them, the Bangladesh-India Protocol Routes hold particular importance in linking the northeastern India to the Bay of Bengal through Bangladesh to promote trade and economic growth, and improved navigation of Jamuna River being one of their main arteries will pave the way to the efficient transit system saving millions in transit costs. The proposed Phase 1 may aim to draft a Bilateral IWT Agreement between India and Bangladesh.

More information[24] about the project can be found at:
https://projects.worldbank.org/en/projects-operations/project-detail/P172499

[24] The project documents at the project portal are no longer up to date and will be updated on due course.

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