Tracking Adaptation Finance: Advancing Methods to Capture Finance Flows in the Landscape

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Descriptors

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	Global Commission on Adaptation Background Paper: A snapshot of global adaptation investment and tracking methods
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About CPI

With deep expertise in finance and policy, CPI is an analysis and advisory organization that works to improve the most important energy and land use practices around the world. Our mission is to help governments, businesses, and financial institutions drive economic growth while addressing climate change. CPI has six offices around the world in Brazil, Kenya, India, Indonesia, the United Kingdom, and the United States.

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1.1   Summary

High-quality adaptation finance tracking identifies gaps and barriers in financing adaptation and resilience solutions globally, drives leaders and stakeholders to invest in adaptation or support increases in finance flows, and supports government agencies in developing policy guidance. Despite the critical importance of adaptation finance tracking, significant data and reporting challenges limit CPI's ability to capture global adaptation finance flows in the Global Landscape of Climate Finance (the Landscape). Adaptation investment is difficult to track due to challenges associated with context dependency, the uncertain causality of investments made, a lack of impact metrics, and confidentiality and reporting requirements. The Landscape currently does not track any private sector adaptation finance and tracking of public domestic adaptation finance is limited.

In this brief, we set out potential methods to fill data gaps in adaptation tracking in the Landscape and propose methods to measure progress. The technical approaches we propose to identify flows in imperfect datasets are intended as a starting point for future iterations of adaptation finance tracking and can serve to identify information that should be tracked and reported by local governments and companies. Ideally, applying the proposed framework will improve our understanding of adaptation finance and feed into larger tracking efforts.

Through our analysis, we find that:

1. Investment flows that are specific to adaptation and resilience must be understood in the context of the total investment that receives a resilience benefit from the incremental adaptation investment. Adaptation and resilience-focused flows should be measured against total investment by sector to understand progress made to achieve resilience against a benchmark.

2. Technical approaches, such as keyword searches and investment matching against national adaptation goals and geographic climate risk, can help identify adaptation flows in datasets that do not label them as such. These approaches are not sufficient for adaptation finance tracking alone, but can enable manual review of a shorter list of investments.

1.2   Introduction

There is a pressing need for nations, local and regional governments, and private sector organizations to adapt to climate change due to the growing scale and frequency of acute extreme weather events and chronic climate-related impacts. Economic losses from climate-related disasters are rising. Recently, 139 companies responding to a climate change questionnaire reported more than USD 200 billion in potential physical impact from climate change.[1] Those companies identified the three most common drivers of climate-related risk as increased severity of extreme weather events (such as

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1   139 companies received an "A" rating for their response to CDP's Climate Change questionnaire in 2018. An "A" rating indicates a high level of quality in a company's overall response and lends credibility to its assessment of the potential physical impact of climate-related risks. Companies identified physical impacts associated with climate change in response to question 2.3a in CDP's 2018 Climate Change questionnaire.

Figure 1: Three Use Cases for Adaptation Finance Tracking

Public Policy

Inform governments and foundations that look at adaptation as a public good.

Big Picture Flows

Help private and public sector actors understand whether investment is sufficient.

Investment Opportunities

Broaden understanding of trends of investment in adaptation technologies and the market.

cyclones and floods), changes in precipitation patterns, extreme variability in weather patterns, and rising mean temperatures.

Building economic and social systems that are resilient to these changes requires significant investment. Based on available data sources, the required global adaptation finance need is projected to be USD 180 billion annually from 2020-2030 (GCA, 2019) and USD 50 billion annually from Non-Annex I countries[2] to achieve their nationally determined contributions (UNEP, 2018). This cost increases with higher emissions scenarios in which the global average temperature might rise more than 2 degrees above pre-industrial levels by 2100.

High-quality adaptation finance tracking can hold public and private actors accountable to build resilience for stakeholders, can support government agencies in carrying out their mandates with the best information available, and can identify gaps and barriers in financing adaptation and resilience solutions at a geographic or sectoral scale (UNEP 2017) (see Figure 1).

1.3   Challenges to Adaptation and Resilience Tracking

The following barriers present key challenges for adaptation tracking efforts in the Landscape[3]:

1. **Context dependency and outcome uncertainty for adaptation financial flows:** Unlike mitigation finance, where it is possible to identify activities that will reduce greenhouse gas emissions regardless of context, adaptation finance is largely context dependent. Whether an investment has adaptation and resilience outcomes depends on specific regional or local vulnerabilities (MDB IDFC, 2018).[4]

    In tracking adaptation finance, it can be difficult to define and tag the expected outcomes of a financial flow. Impact metrics are critically needed to fully account for flows of adaptation finance because the

outcomes of the investment are so variable.[5] For example, an investment in drought-resistant crops in a region with high drought vulnerability would have significantly different impact than the same investment in a low vulnerability region.

2. **Uncertain causality links and lack of standards:** The complexity of linkages between adaptation and resilience outcomes and development impacts, combined with the diversity of accounting standards for measuring those outcomes lead to a host of technical challenges (UNFCCC, 2018). Adaptation finance tracking also does not always capture activities that generate climate resilience but that cost little or have negative costs, including relocation and siting decisions and regulatory action (MDB IDFC, 2019).

3. **Confidentiality and reporting requirements:** Data confidentiality limits the tracking of private sector flows (UNFCCC SCF 2018), and a lack of reporting requirements limits domestic public sector investment tracking. Some private reporting is encouraged through optional via CDP, Sustainability Accounting Standards Board (SASB), and Global Reporting Initiative (GRI) responses, but this reporting is not regulated and, thus, companies are not incentivized to report as rigorously as in regulatory financial filings.

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2   Non-Annex I countries refer to parties to the United Nations Framework Convention on Climate Change (UNFCCC) not listed in Annex I of the Convention, which are mainly developing countries.

3   Additional analysis of challenges in tracking adaptation and resilience tracking is available in the Climate Bonds Initiative September 2019 report: "Climate Resilience Principles to Inform Sector Criteria for the Climate Bonds Standard & Certification Scheme."

4   MDB IDFC (2018). Lessons Learned from three years of implementing the MDB IDFC Common Principles for Climate Change Adaptation Finance Tracking.

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5   The IDFC-MDB community released a preliminary document on climate resilience metrics in September 2019: "A Framework for Climate Resilience Metrics in Financing Operations". This framework, discussed in more detail in the Annex, aims to assess adaptation financing activity contributions to climate resilience and to guide use of climate resilience metrics by various financial institutions. This framework holds significant potential to improve inputs for climate adaptation tracking in the Landscape in the future as financial institutions take up guidance within the framework.

2.   A Framework for Adaptation Finance Tracking

In order to implement the technical approaches to data collection proposed in Section 3, the language used to describe adaptation and resilience projects, investments, and measurements of progress must be aligned. In our review of existing adaptation and resilience efforts, we find that the language used for accounting and tracking of flows is not standardized. In tracking data in the OECD Creditor Reporting System, for example, respondents provided information on adaptation and resilience projects in different formats. Some respondents provided only investment information on the adaptation and resilience activities of a project, while others reported financing flows to the entire project (OECD, 2019).

The categories we suggest in this brief are informed by analysis from the MDBs, the International Development Finance Club (IDFC), Climate Bonds Initiative (CBI), and the EU Technical Expert Group on Sustainable Finance. Those entities have conducted significant analysis on asset- and system-focused resilience, which informs our work and is discussed in more detail in the Annex. Broadly, those entities identify:

– asset-focused resilience as the resilience of investments, projects, and economic activities to climate change;

– system-focused resilience as resilience via investments or delivery of climate resilience benefits to the broader system.

We have adapted these concepts to the context of tracking adaptation finance in the Landscape through a proposal for three distinct categories to increase alignment and improve progress measurement:
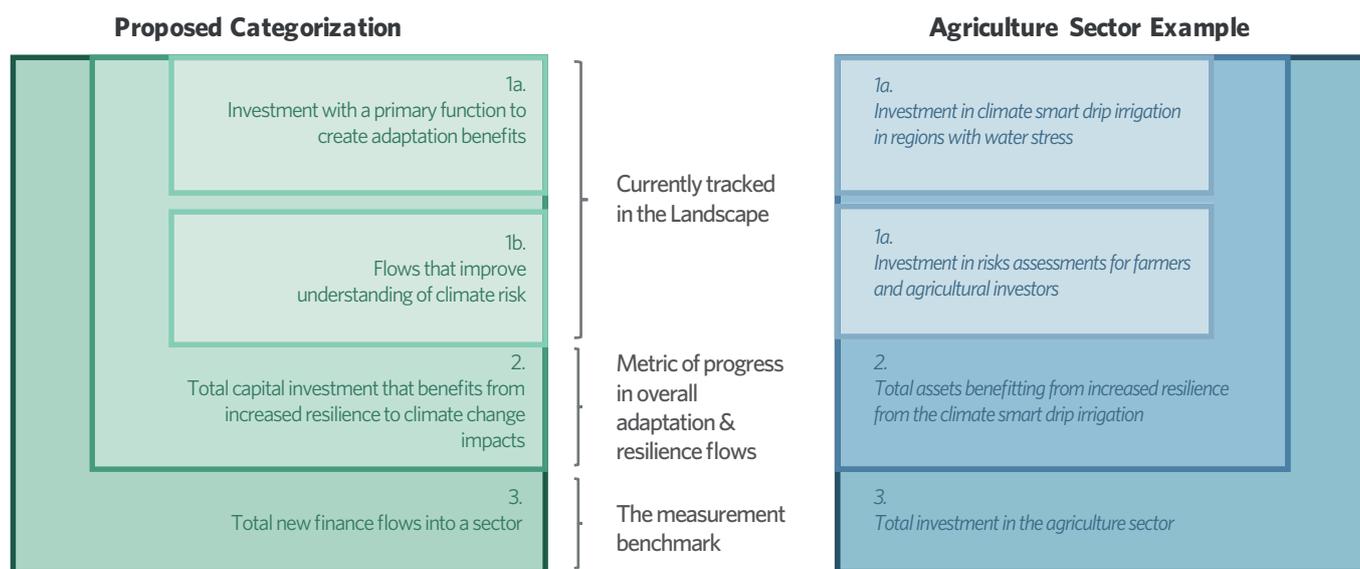
- **Category 1 (asset-focused):** Direct investment in adaptation and resilience outcomes:

  » **Category 1a:** Investment that has a primary function of **creating adaptation and resilience benefits.** For example, construction of a sea-level rise flood protection barrier or a water-efficient irrigation system.

  » **Category 1b:** Investment that **improves climate risk understanding** through assessments, trainings, climate scenario analysis, and business continuity plans. Investment in these activities should be counted in Category 1a if it is made as part of a project that creates adaptation and

resilience benefits, such as a flood risk map that informs the construction of a flood mitigation system.

- **Category 2 (system-focused):** Investment in **assets that receive the benefits of the primary investment.** For example, investment in a new public transport system that was built with a drainage system that is resilient to increased flooding.

- **Category 3 (sectoral benchmark):** Investment in an overall sector as a **benchmark to measure success.** For example, total investment in public transport globally. Successful adaptation and resilience can then be measured by the progress of mainstreaming adaptation and resilience into total new investments.

Figure 2 provides an overview of how the categories relate to one another. The left side of the figure illustrates the general framework with categories as described above. The right side outlines an example of an investment in climate resilient agriculture that is in line with the categories defined on the left.

Figure 2: Adaptation Finance Categorization.

Proposed Categorization

Agriculture Sector Example

1a.
Investment with a primary function to create adaptation benefits

1b.
Flows that improve understanding of climate risk

2.
Total capital investment that benefits from increased resilience to climate change impacts

3.
Total new finance flows into a sector

Currently tracked in the Landscape

Metric of progress in overall adaptation & resilience flows

The measurement benchmark

1a.
Investment in climate smart drip irrigation in regions with water stress

1a.
Investment in risks assessments for farmers and agricultural investors

2.
Total assets benefitting from increased resilience from the climate smart drip irrigation

3.
Total investment in the agriculture sector

CASE STUDY ON ADAPTATION FINANCE CATEGORIZATION

The San Francisco Public Utilities Commission (SFPUC) has identified a key risk associated with sea level rise. Sea level rise, caused by glacial melt and ocean expansion due to water temperature increase, can lead to saltwater intrusion into SFPUC assets and may increase the likelihood of coastal flooding during extreme precipitation and wind events. In order to mitigate the risks of sea level rise, alongside other environmental risks, the SFPUC became the first entity to issue a green bond certified under the Water Climate Bonds Standard with proceeds from the USD 240 million bond, to fund stormwater management and wastewater projects.

Under the adaptation finance categorization proposed, all proceeds of the USD 240 million bond that are used to address climate-related risks to SFPUC assets would fall under Category 1: investment with a primary function to create adaptation and resilience benefits. All further SFPUC investment in assets that meet a climate-resilient standard due to the bond would fall under Category 2. The total global investment in stormwater management and wastewater projects would represent Category 3, and the proportional resilience of the global stormwater and wastewater sector could be assessed by the proportion of total global investment (Category 3) that meets a climate-resilient standard (Category 2).

3.   Technical Approaches to Track Adaptation Flows

A limited number of organizations collect and provide information on adaptation finance flows. For the Landscape, we therefore utilize data from the OECD's Development Assistance Committee (DAC) database which covers international public finance flows, along with surveys that are sent directly to Development Finance Institutions (DFIs) and International Financial Institutions (IFIs).

As outlined in Section 1, technical approaches are needed to identify adaptation finance flows in datasets that are not definitively labeled, or that do not yet include information on investments with adaptation and

resilience certifications. To make the best use of existing adaptation finance data, we propose several technical approaches to expand tracking efforts to new datasets. This section explores technical approaches to identify adaptation and resilience investments in large datasets (Section 3.1). Initial findings from our assessment of private adaptation and resilience data are outlined in Section 3.2.

3.1　　Identifying Investments in Datasets

We propose four technical approaches to identify and assess adaptation finance flows in large datasets: (1) keyword searches, (2) sales data analysis, (3) policy matching, and (4) geographic matching. We tested these four approaches to adaptation finance tracking and found that each allows for the creation of a shortlist of projects that could be manually reviewed to identify adaptation flows.

Table 1 provides an overview of the approaches and associated findings. The approaches outlined in Table 1 are a starting point for understanding the types of adaptation and resilience activities that are occurring by sector and geography. These approaches could yield financial data in Categories 1 and 2 per the categorization described in Section 2. A high level of diligence is required to ensure that projects that contribute to maladaptation[6] are not counted as adaptation and resilience flows.

6　Maladaptation refers to outcomes that are counter to adaptation and resilience goals. For example, a poorly planned sea wall might protect one region of a city but cause water to flow elsewhere and inundate a vulnerable area outside the boundaries of protection.

Table 1: Technical Approaches to Identify Adaptation and Resilience Flows in Datasets

TYPE OF APPROACH	DESCRIPTION	EFFECTIVENESS
KEYWORD SEARCH	Adaptation and resilience flows are identified through sector-specific keywords that enable the creation of a shortlist of activities.	We tested this approach in relevant datasets (Climate Bonds Initiative, Sustainability Bonds Database, CDP Climate Change responses) and found that it can effectively generate shortlists of relevant projects. The approach can be applied to a wide range of datasets, but manual review of the shortlist is then needed to eliminate false positives and attain a deeper understanding of the activities.
SALES DATA ANALYSIS	Adaptation technologies are identified and sales are tracked over time to identify incremental increases in growth.	This approach would be limited to adaptation technologies that generate resilience outcomes in all or most contexts and could enable the private sector to identify market opportunities for investment in adaptation and resilience technologies and services. Technologies and services well suited to this approach could include geospatial imagery, cold chain equipment in emerging markets, seed treatments, soil treatments, precision agriculture tools, water harvesting systems, and smart water management software.
GEOGRAPHIC MATCHING	Adaptation and resilience flows are identified by matching assets with geographic climate risk data.	This approach matches non-adaptation or resilience categorized investments with geographic climate risk data. Climate risk is often highly local, so this approach will require that data providers have localized analysis to match assets and investment with appropriate risks. This approach can generate a shortlist of flows from a standard investment dataset that will require manual review.
POLICY MATCHING	Adaptation and resilience flows are identified by matching investments with National Adaptation Plan priorities or other adaptation policy documents.	This approach can test whether non-adaptation or resilience categorized investments are in line with the policy goals of a country or region. Adaptation and resilience needs are highly localized, so national-level information may not be effective in all cases. This approach can generate a shortlist of flows from a standard investment dataset then will require manual review to ensure alignment and avoidance of maladaptation.

Table 2. Illustrative Keyword List by Sector

SECTOR / FIELD OF ACTIVITY	PROJECT TYPE
WATER AND WASTEWATER MANAGEMENT	• Improvement of drinking water availability • Catchment management planning • Protection of water supply against extreme weather events • Improvement of surface and urban stormwater drainage • Water loss reduction • Hydro-meteorological monitoring • Rainwater harvesting • Waste-water treatment relocation • Desalination plants, etc.
AGRICULTURE, FORESTRY, LAND USE, AND NATURAL RESOURCE MANAGEMENT	• Soil and water conservation • Climate-smart agriculture • Agricultural insurance • Climate-resilient rural infrastructure • Growing of non-perennial crops • Wild brush clearing • Species diversification • Afforestation and reforestation • Mangrove conservation and replanting • Restoration of natural habitats • Pest control measures • Development of climate-resilient seeds • Regeneration or extension of natural forests • Sustainable aquaculture • Ecosystem-based adaptation • Integrated water resources management
INFRASTRUCTURE, ENERGY, AND OTHER BUILT ENVIRONMENT	• Green roofs and walls • Water retention gardens • Porous pavements, etc. • Reduce urban heat zones • Grid resilience • Back-up generation and storage, etc. • Increased cooling requirement • Urban flood protection • Climate-resilient urban infrastructure • Resilient shelters

(OTHER) DISASTER RISK MANAGEMENT	• Early warning systems • Weather monitoring and forecasting • Strengthened data distributions systems • Climate monitoring and data • Relocation • Vector-borne disease treatment • Respiratory conditions treatment
COASTAL PROTECTION	• Coastal natural buffer zones • Slope management • Dykes and dams for coastal protection • Wetland protection
INDUSTRY, EXTRACTIVE INDUSTRIES, MANUFACTURING & TRADE	• Supply chain resilience • Business continuity planning • Climate-related physical risk assessment • Climate-related transition risk assessment
POLICY AND NATIONAL BUDGET SUPPORT & CAPACITY BUILDING	• Climate resilience research and development • Resilience technical assistance • Adaptation awareness campaign
OTHERS / CROSS-SECTORAL	• Non-life insurance • Research and development in natural science and engineering • Climate risk insurance at country level • Climate risk insurance at individual level
WATER SUPPLY AND SANITATION	• Improvement of drinking water availability • Catchment management planning • Protection of water supply against extreme weather events • Improvement of surface and urban stormwater drainage • Water loss reduction • Hydro-meteorological monitoring • Rainwater harvesting • Waste-water treatment relocation • Desalination plants, etc.

Pursuant to the keyword search approach, a review of data from several organizations allowed us to create an initial keyword list. Inputs for this keyword search were: MDB IDFC resilience metrics framework analysis, CBI's Climate Resilience Principles report, the EU TEG Taxonomy Technical Report, CBI Labelled Bonds data, OECD adaptation and resilience projects, and CDP data. We assessed recurring project descriptions to identify adaptation and resilience activities by sector (see Table 2).

Alongside the keyword search approach, **tracking sales data** for adaptation and resilience technologies and services can support identification of incremental increases in growth of sales over time. Tracking sales data for specific adaptation and resilience technologies is informed by the approach we take in the Landscape when tracking private investment in electric vehicles. To apply the approach to adaptation finance tracking, we would track sales of selected adaptation technologies and aim to identify the incremental increase in growth of sales over time.

The sales data tracking approach would be helpful in identifying which technologies are used for resilience outcomes across regions and would allow for pricing trend tracking. This could also enable the private sector to identify market opportunities for investment in adaptation and resilience technologies and services, ultimately increasing their availability. Technologies and services well suited to this approach could include geospatial imagery, cold chain equipment in emerging markets, seed treatments, soil treatments, precision agriculture tools, water harvesting systems, and smart water management software and hardware. If possible, sales data could be analyzed on a regional and sub-regional level to correlate spatial climate risk to an increase in technology sales.

Assessing adaptation and resilience policies and **geographic climate risk analysis** in combination with investments data (using policy and geographic matching approaches) can be an effective tool to verify whether investments are in line with the adaptation and resilience strategy of a country. In this approach, adaptation and resilience flows are identified by matching investments data lacking a description that would highlight potential adaptation and resilience uses to national policy positions or data on geographic climate vulnerability.

National policy positions could be collected through analysis of National Adaptation Plan priorities or individual country or sub-national policy agendas. The geographic climate vulnerability data could include the Notre Dame Global Adaptation Initiative Country Index, the International Institute for Sustainable Development's assessment of adaptation action, the U.S. Climate Resilience Toolkit, Germanwatch's Global Climate Risk Index, and HSBC's assessment of climate risks.

Both matching approaches can be applied to a wide range of datasets, but there is still a need to manually review data to ensure projects are adaptation and resilience focused, rather than broader projects that take place in a vulnerable sector or region. A weakness of the policy matching approach is that it misses adaptation and resilience investments that happen in sectors that are not explicitly outlined by policymakers. Box 2 provides an example of the policy matching approach where we matched IJGlobal Investments to the NDC Adaptation Sectors.

MATCHING IJGLOBAL INVESTMENTS TO NDC ADAPTATION SECTORS

By matching countries' Nationally Determined Contributions (NDC) in adaptation with IJGlobal data, we can tentatively determine whether the financial flow matches with an adaptation and resilience need. The NDC information reflects all countries' most up to date sectoral targets and serves to identify an investment that could be counted as resilience focused while the IJGlobal data is a set of financing flows with information that could be included in the Landscape.

An initial assessment of IJGlobal data from 2008 to 2018 found USD 12.7 billion in financing flows that align with an NDC. For example, a drinking water supply project in Hyderabad in 2015 aligns with India's Wastewater Treatment NDC. In another case, corporate finance towards the Agua Prieta Wastewater Treatment Plan in Mexico aligns with Mexico's Wastewater Treatment NDC to guarantee urban and industrial waste water treatment and ensure quantity and good quality of water in human settlements larger than 500,000.

Figure 3: Use of Proceeds by Sector and Issuer[8]
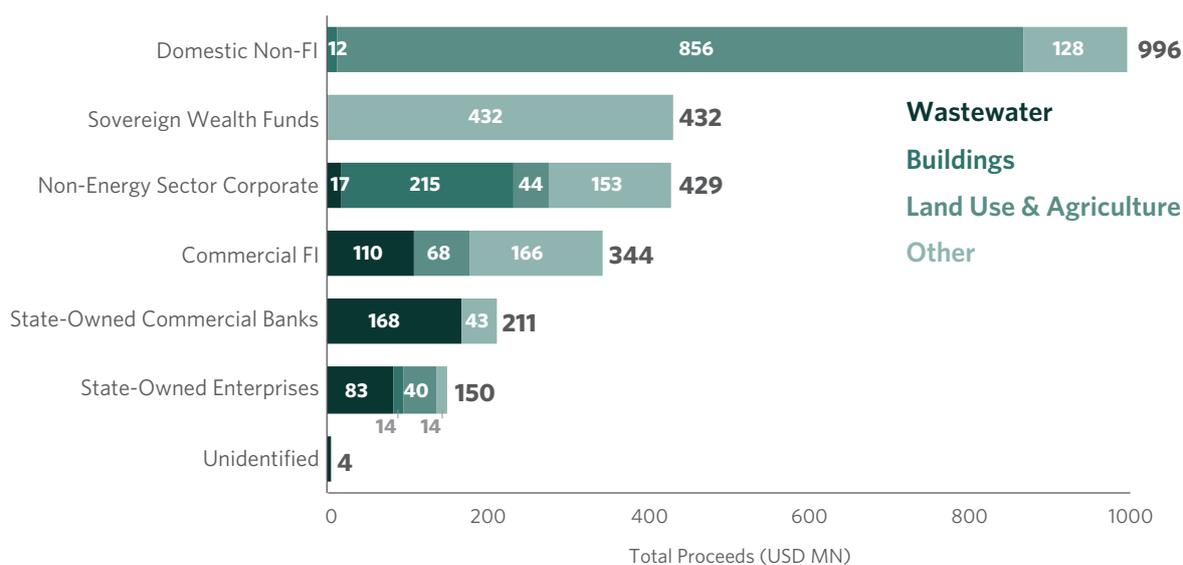
3.2   Initial Findings from an Assessment of Private Finance Data

Several datasets provide adaptation finance information not yet included in the Landscape. Two of the most advanced are Climate Bonds Initiative (CBI) labeled bonds data and CDP Climate Change Questionnaire response data. CDP and CBI datasets are promising potential additions to the Landscape and to other tracking efforts and would add much needed insight on private and public domestic sector finance, though further scoping work is necessary prior to inclusion in the Landscape.

3.2.1   CLIMATE BONDS INITIATIVE

Since 2015, CBI has tracked the use of proceeds data for bonds.[7] They have tracked USD 2.6 billion of bonds issued, which allocate some proceeds to adaptation and resilience. Within these bonds, USD 1 billion was allocated to land use and agriculture, USD 380 million to wastewater, and USD 240 million to infrastructure, while the remainder was allocated to other or unspecified sectors. While the information in the use of proceeds do not allow for an assessment of the portion of funds that would be allocated to Category 1 within our framework, we would be able to track the USD 2.6 billion towards Category 2.

The Landscape tracks adaptation finance from governments, their agencies, and development financial institutions at the project level, so some of the bond issuances tracked in the New Issuer data may already be counted in the Landscape. The bonds reported in the private sector (non-energy sector corporate and commercial financial institutions) are not at risk of double counting because we do not currently track any private adaptation finance. We found that the three most common issuer types of adaptation and resilience bonds tracked by CBI were domestic non-financial institutions, sovereign wealth funds, and non-energy sector corporate actors.

Alongside existing data tracking from CBI, the Climate Resilience Principles offer significant opportunity for additional tracking in the future as issuers adopt the principles in issuing climate resilience bonds. As a potential sign of progress in the field, the European Bank for Reconstruction and Development (EBRD) issued its inaugural climate resilience bond at USD 700 million. The proceeds from the five-year bond will finance climate resilience projects focused on climate resilient infrastructure, business and commercial operations, and agriculture and ecological systems. When financial institutions issue bonds in accordance with Climate Resilience Principles, or other finance flows in alignment with associated efforts including from the EU and MDBs and IDFC, that finance can be tracked in the Landscape.

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7   CBI New Issuers data
8   Climate Bonds Initiative. 2019. "New Issuers". Available at: https://www.climatebonds.net/bond-library

3.2.2   CDP

In 2018, 139 companies received an "A" rating for their response to CDP's Climate Change questionnaire. These 139 A-list companies identified USD 13.9 billion in costs associated with managing physical climate-related risks in 2018 (CDP question 2.3a).[9] This value does not reflect the companies' annual investment in climate change, as CDP respondents have significant leeway to report anticipated costs over a timeframe of their choosing, which makes it difficult to track the flows they report to a specific year. The reporting does represent a first step in identifying the scale of investment by private sector leaders in climate change, and, as companies continue to report climate-related risks and mitigation strategies, their ability to track and report on adaptation finance will improve. Companies' CDP responses also provide an opportunity to collect adaptation and resilience technology sales data that could inform a co-efficient approach to tracking Category 1 investment.

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9   Nearly 7,000 companies responded to the CDP Climate Change questionnaire in 2018. Question 2.3a in the 2018 Climate Change questionnaire is: "Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business." Part 13 of Question 2.3a is "Cost of management". CPI counts all reported costs of management for risks reported as "Physical" to 2.3a.

4.   Insights and Next Steps

4.1   Our Findings and Recommendations

In order to shift the global economy towards greater resiliency to climate change, a first step is to understand where we are now and where we need to go. Significant work is needed to advance the tracking of adaptation finance towards this goal. We explored different approaches to track adaptation finance, and found the following:

It is important to track both asset- and system-level adaptation finance. Existing approaches to tracking adaptation finance – by identifying specific cost components of projects – are difficult to apply to private sector and domestic public sector investment data. Estimating investment into climate resilient assets and services enables us to capture a larger portion of activity by the private sector and provides a broader framework to measure progress towards an end goal that all investment is climate-resilient.

Tracking and communicating adaptation and resilience investment continues to be highly relevant as it allows a more in-depth understanding of what types of approaches are used to achieve outcomes. Investors and corporations can leverage this data to make decisions on the most cost-effective adaptation and resilience approaches and build a business case in the sector.

Identifying adaptation and resilience projects in databases via keyword searches and sector and geographic matching can be highly effective to create a short-list of adaptation and resilience projects. While data on adaptation finance will likely become more readily available in the future, there is a need to identify ongoing activities. Additional manual review will provide the required in-depth understanding of adaptation and resilience that we need to build in the near-term to improve policy and business efforts.

There is no automated approach that would allow for the measurement of the adaptive capacity quality of a project without having a standardized system that can be applied. Efforts including the World Bank Resilience Rating System, the EU Sustainable Finance Taxonomy, CBI's Climate Resilience Principles, FORTIFIED standards, and LEED RELi will add significant value. Those systems will build understanding of the adaptation and resilience investment's quality and

clarify the application of climate scenarios to projects. Until those efforts reach scale, we will focus on tracking specific types of projects, activities, technologies, and services.

4.2   Proposal for Future Tracking

To expand adaptation and resilience tracking to the private sector and to public domestic finance flows, there is a need to:

Organize a group of experts to define a list of relevant services and technologies for key adaptation sectors. The EU Sustainable Finance adaptation taxonomy provides significant insight into pure-play adaptation technologies and services and informed the keyword search-specific sector-level activity list in Section 3.

Integrate adaptation and resilience into national planning and evaluation systems and incorporate national actors at the margins of climate action into tracking initiatives to improve domestic public-sector tracking. To generate buy-in from decision-makers, integrating adaptation within existing national planning and evaluation systems would help streamline workflow, standardize formats for reporting, and incentivize greater action on adaptation and resilience. Furthermore, systematically incorporating national development banks and other national actors at the margins of climate action could improve capture of domestic "South-South" cooperation towards adaptation and resilience.

Train sector-level experts on climate adaptation concepts and terminology so that they can be comfortable reporting and tracking activities that build resilience. When sector specialists within financial institutions have a better understanding of climate vulnerability, resilience building, and climate adaptation finance, it will improve documentation efforts.

Track sales data for key technologies via industry reports and apply the analysis to resilience investments to define Category 1 cost of adaptation. There is an opportunity to work with stakeholders to define a list of technologies and services for which pricing and sales data could be collected to either estimate adaptation cost within a project, or to track increased sales over time as a proxy for adaptation and resilience uptake.

Work with key data providers to improve data availability. The findings from the previous exercise should be fed back to data providers to help them define the type of data that needs to be collected for every asset and investment. CBI and CDP could be excellent initial partners to address data gaps. For example, if future CDP Climate Change questionnaires were to ask respondents to report on investment in specific adaptation and resilience projects, including a dollar amount, that data would be very valuable for use in the Landscape and broader adaptation and resilience tracking efforts. Beyond CBI and CDP, the Landscape team could work with other financial data providers and resilience rating institutions.

5.   Conclusion

CPI remains committed to improving the understanding and transparency of the global climate finance landscape by continuing a work program in these areas. By shedding light on the intersection between public policy, finance, and private investment, this work aims to help decision makers optimize the use of their resources in support of a low-carbon, climate-resilient global economy.

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Annex. Survey of Efforts to Improve Adaptation Finance Tracking

Among the institutions and organizations that aim to improve adaptation finance tracking and assessment are the IDFC-MDB community, the World Bank, the European Union, and Climate Bonds Initiative. These entities are simultaneously working on systems, principles, and standards towards improving understanding of, and increasing finance flows into, adaptation and resilience financing activities. Their efforts include:

- **The IDFC-MDB community** has developed a set of Common Principles for Climate Change Adaptation Finance Tracking and has released a Framework for Climate Resilience Metrics in Financing Operations. The Common Principles focus on context setting and demonstrating a link between risks and financed activities (MDB IDFC, 2018). The climate resilience metrics framework aims to build capacity to assess the extent to which adaptation financing activities contribute to climate resilience and to guide development and use of specific climate resilience metrics and indicators by different types of financial institutions (MDB IDFC, 2019).

- **The World Bank Resilience Rating System** aims to rate investments in adaptation and resilience to reflect their correlation with future climate scenarios. Work on the Resilience Rating System is ongoing in order to determine how the rating will be applied across sectors. Under the system, projects will receive a score on a 5-point scale (R-C-B-A-A+) dependent upon the breadth and depth of the climate information incorporated into design and how that information is reflected in design, operations, and risk analysis. This analysis holds potential to be incorporated into the Landscape as a measure of the volume of finance flowing to resilience outcomes by level of quality if broadly applied to adaptation financing activities.

- **The European High-Level Technical Expert Group (TEG) on Sustainable Finance** has released a Taxonomy Technical Report that aims to improve climate risk disclosure and increase sustainable investments (EU TEG, 2019 and HLEG, 2018). The report presents a framework for evaluating activity-level contribution to climate adaptation and outlines criteria to do no significant harm to other environmental objectives. The report offers a two-step process

for identification of climate adaptation activities as well as three guiding adaptation principles to inform evaluation of activities.

- **The Climate Bonds Initiative (CBI) Adaptation and Resilience Expert Group** developed a framework for assessing resilience investments (CBI, 2019). CBI's Climate Resilience Principles aim to provide guidance on the range and type of climate resilience investments, how to define, assess, and reduce physical climate risks to inform evaluation of those investments, and how to demonstrate expected resilience benefits. The Climate Resilience Principles provides a sample list of activities and investments with high climate resilience relevance and highlight six key principles that all resilience investments must adhere to. These principles will inform the development of sector-specific resilience criteria.

Various organizations are simultaneously leading efforts to label assets according to resilience standards, including the Insurance Institute for Business & Home Safety (IBHS) FORTIFIED Home standard, U.S. Green Building Council (USGBC) RELi rating system, the Institute for Sustainable Infrastructure Envision Rating System, and the Global Infrastructure Basel Foundation SuRe Standard. Each of these standards would improve analysis of the resilience of infrastructure to climate change impacts including storm events, flooding, and heat waves and could enable greater adaptation finance tracking in the Landscape. These standards are not yet applied to investments data in a way that allows for effective adaptation finance tracking.

Alongside the certification and methodology efforts that will impact both private and public tracking, the voluntary risk assessment and management disclosure approaches recommended by the Taskforce on Climate-related Financial Disclosures (TCFD) are a significant step in improving the tracking of private adaptation finance. The approaches recommended by the TCFD have spurred developments in reporting requirements of CDP and led to the introduction of Article 173 in France,[10] and are also intended to increase climate risk reporting in SEC 10-K forms in the United States and in global financial filings.

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10   Article 173 passed in August 2015 and requires publicly traded companies, banks and credit providers, asset managers, and institutional investors in France to report on climate-related physical and transition risk impacts to their activities and assets.