

Global Landscape of Climate Finance 2019 - Methodology

1. Definitions, data collection process and scope

The *Global Landscape of Climate Finance* series captures available data on primary financing supporting greenhouse gas emissions reductions and climate resilience activities. The *Landscape* consolidates data from a wide range of primary and secondary sources. It follows financial flows along their lifecycles, from the original source of financing, through financial intermediaries, their deployment in the form of financial instruments, and the recipients of finance, to how finance is ultimately used on the ground (see Buchner et al., 2011, 2012, 2013, 2014, 2015, 2017 and Oliver et al., 2018).

In order to combine data from various sources, CPI has adopted an operational definition of climate finance and a standardized accounting methodology in order to ensure data are comparable and consistent, and overlaps are avoided, to the fullest extent possible.

This document outlines the *Landscape* methodology as used in the 2019 report, in terms of definitions, principles, accounting scope, outstanding issues, assumptions, and data coverage.

Climate finance definition

The CPI working definition of climate finance is aligned with the recommended operational definition of the UNFCCC Standing Committee on Finance (see UNFCCC SCF, 2014, 2016, 2018), which states: "Climate finance aims at reducing emissions, and enhancing sinks of greenhouse gases and aims at reducing vulnerability of, and maintaining and increasing the resilience of, human and ecological systems to negative climate change impacts."

Our climate finance mapping exercise is limited to primary capital flows directed toward low-carbon and climate-resilient development interventions with direct or indirect greenhouse gas mitigation or adaptation benefits. These flows include support for capacity-building measures as well as for the development and implementation of policies. To determine what constitutes mitigation and adaptation finance provided by the public sector, we rely on the tracking methodologies and reporting followed by: i) the members of the OECD's Development Assistance Committee (DAC), data for which is publicly available through the Creditor Reporting System (CRS) database¹; ii) the group of Multilateral Development Banks (MDB) and members of the International Development Finance Club (IDFC) reporting on climate finance²; and iii) the group of Multilateral Climate Funds, as reported through the Climate Funds Update³. We acknowledge that there are emerging alternative standards, definitions and classifications including, among others, the EU taxonomy, Climate Resilient Principles for green bonds, and the recommendations of the Task Force on Climate-related Financial Disclosures. However, these standards are still under development and are therefore not currently reflected in the *Landscape*. As a result, we consider:

Mitigation finance as resources directed to activities:

- Contributing to reducing or avoiding GHG emissions, including gases regulated by the Montreal Protocol; or

¹ See OECD (2011, 2016 and 2018)

² See MDB (2015a, 2015b and 2019)

³ <https://climatefundsupdate.org/>

- Maintaining or enhancing GHG sinks and reservoirs.

Adaptation finance as resources directed to activities aimed at reducing the vulnerability of human or natural systems to the impacts of climate change and climate-related risks, by maintaining or increasing adaptive capacity and resilience. Throughout the report we use the words 'climate resilience finance' and 'adaptation finance' interchangeably but acknowledge that differences exist between the two.

Dual benefits finance as resources directed to activities contributing to both "climate change mitigation" and "climate change adaptation" and meeting the respective criteria for each category. An afforestation project preventing slope erosion is an example of a "dual benefit" project because it brings significant adaptation benefits, while also making a positive contribution to mitigation (Klein et al., 2007).

CPI analysts endeavor to identify eligible and ineligible climate finance flows through a set of general principles discussed further below. While we make every effort to ensure the consistency of the data reported in the *Landscape*, we do not audit or verify data providers' application of climate finance definitions, and we rely on the reporting provided.

Process of data collection and reporting

Following an extensive data scoping exercise, datasets are intensively cleaned and processed. Where financing flows are detailed at the project level, data are checked manually for the consistency of information about actors, geographies, instruments and sectors. Desk research complements the cleaning process where the datasets are incomplete.

To ensure consistency and comparability in our data between the private and public sectors, we set and observe the following general principles when collecting and reporting the data:

Avoid double counting

CPI's *Landscape* tracks only those transactions that represent new money targeting climate-specific outcomes. For instance, both private research and development (R&D) for new technologies and investment in manufacturing for low-GHG and climate-resilient development are excluded, because at the technology deployment stage such costs are capitalized and factored in the investment amounts of new projects that implement these technologies, increasing the risk of double counting if the initial investment were to be tracked separately. Similarly, revenue support mechanisms such as feed-in tariffs pay back investment costs, so including them would constitute double counting. Thus, we do not track policy-induced revenue support mechanisms or other public subsidies⁴ whose primary function is to pay back investment costs.⁵

There are significant overlaps between datasets such that the same flows are recorded several times. During the consolidation phase, CPI ranks sources of duplicate flows

⁴ Please note that public subsidies for EVs are included as an exception. For further details, please refer to "Electric Vehicles" under "Assumptions" section.

⁵ See Falconer and Stadelmann (2014) for further details on CPI's understanding and definition of key climate finance terms.

according to reliability and comprehensiveness, selecting only the highest quality entry for each overlapped transaction in order to avoid double counting.

Track primary investment

The *Landscape* captures total primary financial transactions and investment costs or, where tracked, components of activities that directly contribute to adaptation and/or mitigation, plus public framework and capacity development expenditures (e.g., development of national climate strategies). Secondary market transactions (e.g., re-selling of stakes or public trading on financial markets) are not tracked because they do not represent new investment targeting climate-specific outcomes, but rather money being exchanged for existing assets.

Exclude carbon emissions lock-in

Investments and expenditures captured in the *Landscape* do not capture investments that have a high risk of locking in significant future greenhouse gas emissions. Based on this principle, fossil fuel-based lower-carbon and energy-efficient generation transactions, such as financing for efficiency retrofits of coal-fired power plants, are excluded.

Maximize granularity

Wherever possible, CPI uses project level data to check and select flows. Project-level information is more likely to provide verifiable details on project characteristics, instruments, destinations of financing and financing structures. Where project-level data is not available or insufficiently complete for inclusion in the *Landscape*, aggregated data is used.

Include tangible financial commitments

The figures reported in the *Landscape* represent financial commitments made during the period being tracked. Depending on the context (e.g. a public commitment by a government, versus a private financing contract agreed between corporate actors), commitments may refer to firm obligations by means of Board decisions on investment programs, closure of financing contracts or similar actions. Such commitments are backed by the necessary funds to provide specified assistance/financing to a project, recipient country, or any other partner organization. Financial resources committed record the amount of expected transfer at the time the contract was closed, or the commitment otherwise established, irrespective of the time required for the completion of disbursement.

Although the focus on commitments rather than disbursements may affect the sequencing of flows over time – given that committed amounts are often disbursed over a number of years – disbursement information would provide a more accurate picture of the actual volume of financial resources devoted to addressing climate change in a given year. However, consistent data on disbursements is often lacking across various actors. Note that CPI's country-specific Landscapes (to date, covering Germany, Indonesia, and Cote

d'Ivoire) capture disbursement data, as it is more readily available through national budget and expenditure systems.

It is important to note that we only track commitments from the institutions financed through their own funds and exclude any external funds managed and/or implemented by the institutions. For further details, please see “3 National and multilateral climate funds” below.

Err toward conservativeness

In case of insufficient details, CPI takes a conservative approach and prefers to under-report rather than over-report climate finance. A case in point is energy efficiency investment from the private sector: Due to methodological differences regarding how energy efficiency components, often part of a larger project, are estimated from external sources (IEA, 2019), these investments were not included in the report. In addition, the *Landscape* excludes risk management instruments like guarantees and insurance, since actual disbursements from these instruments are contingent upon uncertain future events.

Scope of accounting

FINANCIAL INSTRUMENTS

The 2019 *Landscape* captures:

- **Grants:** Transfers made in cash, goods or services for which no repayment is required.
- **Project-level debt:** Debt relying on a project's cash flow for repayment.
 - *Low-cost debt* refers to loans extended at terms preferable to those prevailing on the market. We count the full amount of the loan, not the grant equivalent.
 - *Market-rate debt* refers to loans extended at regular market conditions.
- **Project-level equity:** Equity investment relying on the project's cash flow for repayment
- **Balance sheet financing:** Direct debt or equity investment by a company or financial institution⁶.

While we acknowledge the importance of risk management instruments and include them in our consolidated database, we exclude these instruments from the total climate finance figure as mentioned above. Guarantees are only exercised in particular circumstances, and there is a chance of there never being any financial outflow from the guarantor.⁷ We recognize, however, the importance of such instruments in enabling increased private climate flows, in particular to areas and sectors with low risk appetites for private investment, and discuss their use in the full 2019 *Landscape* report.

⁶ The share of climate finance allocated to different categories of financial instruments may not fully reflect reality, as our categorization is based on the quality of the data sources we can access.

⁷ We acknowledge that risk management instruments are accounted by other organizations producing, collecting, aggregating and publishing data on climate finance flows, including the group of MDBs jointly reporting on climate finance and the OECD.

2. Defining private and public climate finance

The public versus private nature of financing is determined by the actors undertaking a given transaction.

We categorize private investors as:

- **Corporations**, which can have activities in the energy sector, in other sectors, or in both (e.g. a large water utility company installing both hydropower generation and water treatment facilities). This category merges project developers and corporate actors, two groups of investors kept distinct in *Landscapes* up until 2018. This distinction, while relevant in renewable markets, has limited application other sectors and has therefore been removed for simplicity and consistency across sectors.
- **Households**, i.e. family-level economic entities, which includes high-net-worth individuals and their intermediaries (e.g. family offices investing on their behalf);
- **Commercial financial institutions**, i.e. providers of private debt capital (and occasionally other instruments), including commercial and investment banks;
- **Institutional investors**, including insurance companies, asset management firms, pension funds, foundations, and endowments;
- **Private equity, venture capital and infrastructure funds.**

Due to data limitations as well as methodological and definitional issues, the 2019 *Landscape* treats partially or fully state-owned enterprises (SOEs) operating on a fully commercial basis as private entities. We acknowledge the sectoral ambiguity of SOEs as financial actors, and welcome efforts to harmonize definitions and clearly identify which SOE activities should be identified as public and private finance respectively.⁸ Private finance tracked in the 2019 *Landscape* is limited to investment in renewable energy, electric vehicles and infrastructure projects from IJGlobal and from a Climate Bonds Initiative bond dataset. Please refer to Section 3, “Mitigation and adaptation sectors and activities” for further details on the sectors.

⁸ Whether to allocate finance originating from SOEs operating under purely commercial terms as private or public finance is a matter that requires further consensus building (OECD, 2015).

PRIVATE CLIMATE FINANCE FLOWS

Private finance encompasses:

- **Large-scale renewable energy projects:** This year, we individually analyzed direct primary financing data from large-scale renewable energy projects⁹ based in 108 countries to identify their financing structure and the entities providing financing. These data are retrieved from the Bloomberg New Energy Finance (BNEF) renewable energy and asset finance databases (BNEF, 2019a).
- **Small-scale renewable energy investments,**¹⁰ accounting for 66 GW of new capacity installed in 2017 and 2018, obtained from BNEF market size generation capacity and finance databases (BNEF, 2019b).
- **Households, corporates, and governments' investments in solar water heating systems,** estimated based on cost data from REN21 (2015) and capacity additions data from IEA SHCP (2019).^{11,12}
- **Households' retail purchases of electric vehicles (EVs) and governments' investment in EV charging infrastructure,** estimated using IEA data on EV volumes and infrastructure investment, complemented by CPI research on EV prices.
- **Corporations and financial institutions' non-energy project investment:** IJ Global databases were used to gather information on primary financing for projects in water, waste, municipal infrastructure, and low-carbon transport. A Climate Bonds Initiative (CBI) dataset on post-issuance reporting by green bond issuers provided project-level data on corporate investment in non-energy projects and some loans by financial institutions.

PUBLIC CLIMATE FINANCE FLOWS¹³

The 2019 *Landscape* covers climate finance commitments from:

1. **Development Finance Institutions (DFIs).** We classify DFI flows in the following categories:
 - **Multilateral and regional,** where the institution has multiple shareholder countries and directs finance flows internationally
 - **Bilateral,** where a single country owns the institution and it directs finance flows internationally; and
 - **National,** where a single country owns the institution and finance is directed domestically.
2. **Government and their agencies.** These include:

⁹ We consider investments in wind, solar, biofuels, biomass & waste, geothermal, marine, and small hydro projects that reached financial closure in 2017 and 2018.

¹⁰ Namely, residential and commercial solar PV projects with capacity less than 1MW.

¹¹ We considered new installed capacity in 2015 and 2016 as reported in Weiss et al. (2017) and systems capital costs reported in REN21 (2015). For 2016, total estimated additions for 2016 from Weiss et al (2017) were broken down by the 2015 segment proportions. Estimates for 2015 and 2016 were \$15 billion and \$13 billion, lower than 2014's estimate of \$18 billion. To ensure our figures are conservative and to avoid double counting with asset finance projects tracked through the BNEF project-level data analysis, we assumed the lower bound of SHS capital costs.

¹² IEA's most recent Solar Heat Worldwide report (2019) states, "Since system costs [through 2018] have not changed significantly in the past three years, the costs presented [within the report] still provide a good indication" (p. 61). The REN21 cost estimates cited have not been updated since the 2015 edition of the Global Renewables Status Report.

¹³ In alignment with the OECD (2013), finance qualifies as public if carried out by central, state or local governments and their agencies at their own risk and responsibility.

- Bilateral climate-related development finance reported to the OECD-DAC Creditor Reporting System (OECD, 2019) to track Official Development Assistance (ODA) and Other Official Flows (OOF) in 2017.¹⁴
- Domestic financing through public budgets carried out by central, state or local governments and their agencies.

3. National and multilateral climate funds.

- We include commitments from DFIs' own resource only and exclude the following: external resources that DFIs manage on behalf of third parties; governments' contributions to DFIs or Climate Funds; bilateral Climate Funds' commitments; DFIs' contributions to projects reported in BNEF (2019a) to avoid double counting.

DATA SOURCES

Table 1: Data sources

Category	Flow	Source of data	Data granularity
Private	Private finance	BNEF (2019a)	Project-level (large-scale renewable energy projects)
		BNEF (2019b)	Aggregated (small-scale solar)
		Climate Bonds Initiative (2019)	Project-level
		IEA (2019)	Aggregated
		IEA SHCO (2019)	Aggregated (solar water heater capacity additions)
		IJGlobal (2019)	Project-level
		REN21 (2015)	Aggregated (solar water heater country and regional capital costs)
Public	Development Finance Institutions (DFIs) *	Surveys**	Project-level or aggregated (depending on reporting institution)
		BNEF*** (2019a)	Project-level (large-scale renewable energy projects)
		OECD (2019)	Project-level
		Annual reports/websites	Project-level
	Climate Funds	Climate Funds Update via ODI/HBF (2019)	Project-level
		OECD (2019)	Project-level
	Governments and their agencies	OECD (2019)	Project-level
		BNEF (2019a)	
		Climate Bonds Initiative (2019)	
			IEA (2019)

Note:

(*): See sections 3 and 4 for further details.

(**) This year's report includes primary survey data from 36 DFIs.

¹⁴ Our estimate captures the portion of bilateral climate-related development finance reported in the OECD's DAC Creditor Reporting System (CRS) qualifying as Official Development Assistance (ODA) or Other Official Flows (OOF) in 2017. The lower bound of our figures includes finance marked as having 'climate change mitigation' or 'adaptation' as its 'principal' objective. The upper bound includes activities with a 'significant' climate change objective. In the case of activities marked both as mitigation and adaptation, we attributed related financing to the use marked as 'principal'. Due to lack of data for 2018, we assumed that bilateral climate finance commitments were the same amount as in 2017.

(***) Additional data not provided in the surveys or OECD reporting

ASSUMPTIONS

In certain instances in which complete investment information is unavailable, assumptions are made to fill gaps. These assumptions are in line with the principles outlined earlier in this document and are regularly updated to reflect changing market conditions at the most granular level possible.

Climate Bonds

The 2019 *Landscape* uses a dataset of green bond issuances from CBI. While the finance raised through green bond issuance itself is excluded due to double-counting issues, primary investment in climate projects is sometimes disclosed in post-issuance reporting. First, we screen issuance data for double-counting with other data sources. From the remaining dataset, we check post-issuance documentation for project-level data. To be included in the *Landscape's* finance totals, information must be available on the value of investment, the date of financing, the (climate-related) nature of the project, the instrument used, and the recipient of finance (unless the instrument is balance sheet financing tracked by the issuer). We assume that projects with completion dates after the date of issuance receive primary financing unless otherwise specified. Where this information is not available, flows are excluded to avoid capturing refinancing and other non-primary transactions. Since green bond impact reporting often takes place at the end of a calendar year, and where more than one year of documentation is available, we include the year-on-year difference in the total finance allocated to projects under construction.

Electric vehicles

Through collaboration with the IEA, the 2019 *Landscape* includes data on EV consumption and investment from 2015 to 2018. This dataset was constructed through desk research to identify country-level retail prices of all commercially available models of battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs), combined with annual sales data by country. The base price paid by the consumer is then recalculated, adjusting for any governmental incentives or taxes. However, unlike general subsidies, public incentives for EV purchases are included in the *Landscape* because public finance does not flow to the vendor (as with most revenue support schemes) but instead contributes directly to consumption of low-carbon transport.

Gearing Ratios

Gearing ratios describe the ratio of a project's long-term debt to the total capital invested. Where a project-specific gearing ratio is provided, it is used directly to calculate debt and/or equity values for the relevant project. Where no gearing ratio is provided, we apply gearing ratio assumptions to estimate debt and equity financing for renewable energy

projects in which one of the debt, equity, or total value figures is known, in order to calculate the other two unknown fields. In these cases, a 70/30 gearing ratio is assumed, except for wind power projects in China, where an 80/20 gearing is assumed based on the higher debt-to-equity ratios observed in historical transactions. This assumption is unchanged from the *2017 Landscape*, except in the case of tax equity transactions in the US market (See “Tax Equity” section below).

Multipliers

This edition of the *Landscape* consolidates and updates technology- and geography-specific investment cost multipliers used in previous editions. Multipliers are used in cases where financing information is not available to estimate total investment costs based on the size of the project in MW. Country-level multipliers from the REN21 Global Status Report (REN21, 2019) are used where possible. Where country-level multipliers are not available, REN21 regional multipliers are used. Where neither is available, regional multipliers from IRENA's Renewable Power Generation Costs report series (IRENA, 2019) are used. Otherwise, the REN21 transregional multiplier is used.

Small-scale solar

While in previous years small-scale solar finance was categorized geographically by sub-region and/or continent, the new dataset places all finance within three broader regional categories: Americas, Europe/Middle East/Africa, and Asia/Pacific. Most country-specific information in the dataset includes both capacity additions and finance for small-scale solar. Chile is the only country in the dataset with figures for capacity additions but no information on finance; as such, to avoid implying unreasonably high unit costs, Chile's small-scale solar finance totals have been calculated by multiplying capacity additions by the regional average unit cost, with the resulting country-level total subtracted from the 'Rest of Americas' regional total.

Solar water heaters

When calculating country-level investment costs for solar water heaters, cost estimates for countries lacking specific costs are derived by averaging available values for other countries in the same region. Where regions have no country-level estimates available, the global average is used. Some exceptions have been made to this rule where appropriate. For example, the European average cost for large domestic hot water applications does not include France, given that it is an outlier relative to other countries' cost ranges, and does not comprise a significant portion of the European solar water heating market.

Tax equity

In the *2019 Landscape*, we use updated assumptions on tax equity financing for US renewable energy projects, generally assuming a higher level of debt and a lower level of sponsor equity as a proportion of total project value than in previous versions of the *Landscape*. These assumptions were formed based on representative gearing ratios for

solar PV financing provided by NREL, as well as informal discussions with multiple US renewable energy developers (Feldman and Schwabe, 2018). Generally, for projects using all three of tax equity, sponsor equity, and debt, the gearing ratio applied was 42% tax equity, 42% debt, and 16% sponsor equity. Other cases applied slightly different assumptions, varying based on data availability and project structure; however, the overall practice was to assume slightly higher debt as a share of overall project value than in previous *Landscapes*, in order to more accurately account for debt that continued to be associated with renewables projects even after undergoing tax equity refinancing and/or other ownership restructurings that commonly occur in US-market renewables projects.

RECIPIENTS

The 2019 *Landscape* also tracks the recipients of flows, namely the first entities receiving money from the source or intermediary of climate finance.

- For publicly sourced finance, we use information provided by donors in the OECD-DAC CRS database, reporting from DFIs, or details available in Climate Funds data sets.¹⁵
- For privately sourced finance, given the lack of detailed data available, we classify recipients of finance as public or private based on the classification of the project's equity provider(s) tracked in BNEF (2019a).¹⁶
- For unknown sources, recipients are assumed to be private.

3. Mitigation and adaptation sectors and activities

This section describes the sectoral breakdown used to classify mitigation and adaptation flows and provides examples of the kinds of projects that may be covered by the selected categories.

Sector classifications are based on those used for *Landscape* published in 2015 and onwards, which are in turn based on the MDB definitions (2015a, 2015b and 2019). We applied this classification as consistently as possible when compiling this report. Finance qualifying as Official Development Assistance and tracked in the OECD's DAC Creditor Reporting System can be marked as having mitigation or adaptation as its 'principal' objective or having a 'significant' climate change objective (OECD DAC, 2018). MDBs, meanwhile, identify components of projects that can count either fully or partially towards adaptation finance, but each bank's individual processes determine which proportions to count as mitigation or as adaptation so that the actual financing will not be double-counted (MDBs).

We allocated finance to 'dual benefits' if it was specifically labeled as such by the surveyed DFI or by the databases used for retrieving Climate Funds' commitments, or if either the DFIs or aforementioned databases labelled it as having adaptation and mitigation both as 'principal' or 'significant' benefits. Current methodologies include categorizing dual-benefit projects as either mitigation or adaptation based on which

¹⁵ For Climate Funds, when information on the recipient was not available, we considered the public vs. private nature of the implementing entity.

¹⁶ We acknowledge that data limitations as well as methodological and definitional issues can lead to misclassifications of recipients, which are not provided or not consistently tracked across sources of climate finance data. Our methodology attempts to standardize recipient classifications to the greatest extent possible given the aforementioned limitations.

category is more relevant, assigning tracked finance equally to mitigation and adaptation, assigning entirely to adaptation, or simplifying reporting (MDBs, 2019).

Sectoral breakdown of mitigation finance with examples of projects

RENEWABLE ENERGY GENERATION

Electricity or heat production from:

- Biomass and biogas power if a project's GHG emissions reductions are demonstrated compared with technically and economically viable alternatives
- Solar including PV, CSP, and solar heating systems (e.g. solar water heaters)
- Geothermal
- Hydropower if a project's GHG emission reductions are demonstrated compared with technically and economically viable alternatives¹⁷
- Wind, including onshore and offshore
- Other technologies such as biofuels (including bioethanol) and ocean renewable energies (e.g., wave, tidal, ocean currents, salt gradient, etc.)

ENERGY EFFICIENCY (DEMAND SIDE) IN INDUSTRY AND BUILDING

Demand-side energy efficiency in buildings and industry, with substantial demonstrated GHG emissions reductions compared with a technically and economically viable alternative.

Industry:

- Industrial energy-efficiency improvements through the installation of more efficient equipment, changes in processes, reduction of heat/ hot water losses, and/or increased waste heat recovery

Existing buildings:

- Energy-efficiency improvements in lighting, appliances and equipment, including more efficient use of hot water
- Substitution of existing heating/cooling systems in buildings with cogeneration plants that generate electricity in addition to providing heating/cooling
- District heating systems
- Waste heat recovery improvements
- Retrofit of existing buildings: architectural or building changes that enable reduced energy consumption

Greenfield:

- Use of highly efficient architectural designs or building techniques that enable reduced energy consumption for heating and air conditioning, exceeding available standards and complying with high energy efficiency certification or rating schemes

This category excludes efficiency improvements to fossil fuel-fired power plants.

TRANSMISSION AND DISTRIBUTION SYSTEMS

- New electricity transmission systems or new systems (e.g., new information and communication technologies, storage facilities, etc.) to facilitate the integration of renewable energy sources into the grid
- Transmission energy efficiency improvements (e.g. retrofit of transmission lines, distribution systems, or substations to substantially reduce energy use or losses)

NON-ENERGY GHG REDUCTIONS

¹⁷ For public finance, we include commitments to both small and large-scale hydropower (>50 MW); for private finance only to small-scale hydropower given that we cannot verify if such projects do achieve net GHG emissions reductions.

Industrial process emissions:

- Reduction of GHG emissions resulting from industrial process improvements and cleaner production (e.g., cement, chemical, etc.)

Air conditioning and refrigeration:

- Retrofitting of existing industrial, commercial, and residential infrastructure to switch to cooling agents with lower global warming potential

Fugitive emissions:

- Reduction of gas flaring or methane fugitive emissions in the oil and gas industry, coal mine methane capture and storage, etc.
- Carbon capture and storage (CCS) projects

LOW-CARBON TRANSPORT

This category includes transport projects where a modal shift away from road and air is deemed to result in demonstrated GHG emissions reductions compared with a technically and economically viable alternative.

Urban transport modal change:

- Non-motorized transport (bicycles and pedestrian mobility)
- Urban mass transit

Urban development:

- Integration of transport and urban development planning (dense development, mixed-use zoning, walkable communities, transit connectivity, etc.), leading to a reduction in the use of private passenger cars
- Transport demand management measures to reduce GHG emissions

Inter-urban transport modal change (excluding projects for new or upgraded highway; or new airports even when net GHG emissions reductions can be demonstrated):

- Railway transport resulting in a modal shift for freight and/or passengers
- Waterways transport resulting in a modal shift for freight and/or passengers
- Vehicle energy-efficiency fleet retrofit

Retrofit or replacement of existing vehicles, rail, or boat fleet, achieving a substantial increase in energy efficiency (including the use of lower-carbon fuels, electric or hydrogen technologies, etc.).

AGRICULTURE, FORESTRY, LAND USE AND NATURAL RESOURCE MANAGEMENT

This category includes only projects where sector knowledge indicates likely GHG emissions reductions compared with a technically and economically viable alternative.

Agriculture:

- Agriculture projects that do not deplete and/or improve existing carbon pools (reduction in fertilizer use, rangeland management, collection and use of bagasse, rice husks, or other agricultural waste, low tillage techniques that increase carbon contents of soil, etc.)
- Rehabilitation of degraded lands
- Reduction in energy use in traction (e.g., efficient tillage), irrigation, and other agricultural processes
- Livestock projects that reduce GHG emissions (e.g., manure management with biodigesters producing biogas for heating or cooking)

Afforestation & reforestation (other land-use):

- Afforestation on non-forested land
- Reforestation on previously forested land

- Sustainable forest management and conservation of forests
- Enhancement of carbon stocks
- Reducing emissions from deforestation and degradation

WASTE AND WASTEWATER

This category includes mitigation-relevant projects with demonstrated GHG emissions reductions compared with a technically and economically viable alternative.

- Waste management that reduces methane emissions (e.g., shifting from open dumps and lagoons to municipal / industrial waste (water) treatment, including switching to composting, waste incineration, landfill gas capture and flaring/power production, etc.)
- Waste recycling measures with a demonstrated net mitigation benefit

LOW-CARBON TECHNOLOGIES

- Projects producing components, equipment, or infrastructure dedicated for the renewable and energy efficiency sectors.

OTHERS / CROSS-SECTORAL

This category can include, for instance:

- Other eligible activities that cannot be classified in the above categories, for example, cross-sector activities such as credit lines earmarked for mitigation activities or other financial services (if not included in the categories above)
- Dedicated budget support to national or local authorities for implementation of climate change mitigation policies
- Other awareness-raising and technical assistance activities

Sectoral breakdown of adaptation finance, with examples of possible adaptation activities

WATER AND WASTEWATER MANAGEMENT

Demand side management activities reducing water consumption or increasing water use efficiency and supply side management activities enabling, e.g., the expansion of supplies, reducing water losses, or improving cooperation on shared water resources.

Project-specific examples include:

- Improvement in catchment management planning and regulation of abstraction to address negative climate change impacts on water supply;
- Installation of domestic rainwater harvesting equipment and water storage where water supply is negatively affected by climate change, including the provision of microfinance for their purchase;
- Rehabilitation of water distribution networks and building pipelines to improve water resources management, to address changes in water flows/quality caused by climate change, etc.;
- Changes in design of sanitation and storm-water management systems in response to extreme weather events arising from climate change.

AGRICULTURE, FORESTRY, LAND USE , AND NATURAL RESOURCE MANAGEMENT

- Provision of information on crop diversification options to farmers
- Increased production of fodder crops to supplement rangeland diet affected by climate change;
- Improved management of slopes and basins to avoid/reduce the impacts caused by increased soil erosion;
- Identification of protected areas and establishment of migration corridors to maintain or increase climate resilience of ecosystems;

- Adoption of sustainable aquaculture techniques to address changes in fish stocks resulting from climate change impacts and supplement local fish supplies, etc.

INFRASTRUCTURE, ENERGY AND OTHER BUILT ENVIRONMENT

Adaptation components in projects to improve the climate resilience of existing infrastructure e.g., transport infrastructure, energy infrastructure, riverine infrastructure (including built flood protection) and human settlements (e.g., housing – if not part of a wider disaster risk management strategy).

Building resilience into infrastructure such as protection systems for dams to reduce vulnerability to extremes caused by climatic changes.

(OTHER) DISASTER RISK MANAGEMENT

- Early warning / emergency response systems to adapt to increased occurrence of extreme events by improving disaster prevention, preparedness and management and reducing potentially related loss and damage;
- Construction or improvement of drainage systems to adapt to an increase in the frequency or severity of floods;
- Monitoring of disease outbreaks and development of a national response plan (to adapt to changing patterns of diseases that are caused by changing climatic conditions).

COASTAL PROTECTION

- Building of improved or new dykes to protect infrastructure and to enhance the climate resilience to increased storms and coastal flooding, and sea level rise;
- Mangrove planting to build natural barriers to adapt to increased coastal erosion and to limit salt water intrusion into soils caused by sea level rise;
- Additional or improvements in coastal and riverine infrastructures (including built flood protection infrastructure) in response to increased flood risks.

INDUSTRY, EXTRACTIVE INDUSTRIES, MANUFACTURING & TRADE

- Manufacturing (e.g., design of climate-resilient equipment);
- Increased cooling requirement in food processing distribution & retail resulting from more extreme heat events (e.g., increased water-efficiency in processing);
- Climate resilience investments or programs in extractive industries (oil, gas, mining, etc.).

POLICY AND NATIONAL BUDGET SUPPORT & CAPACITY BUILDING

Dedicated budget support to national or local authorities for implementation of climate change adaptation policies; and other technical assistance activities, including awareness raising and capacity building (if not included elsewhere).

OTHERS / CROSS-SECTORAL

This category can include, for instance:

- Other eligible activities that cannot be classified in the above categories for example, cross-sector activities such as financial services like incorporation of climate risk assessment in ministerial investment appraisal processes (if not included in the categories above);
- Health systems' adaptation to changes in disease vectors or other climate change health impacts (e.g., development of a national response plan for diseases outbreaks).

4. Geographies and countries

This section describes the regional breakdown adopted in the 2019 *Landscape* to represent the destinations of climate finance flows (see table below). Flows are classified as 'transregional' when resources are channeled to more than one region.

Countries classification by region

Region	Country
Middle East & North Africa	Non-Annex I Parties under the UNFCCC: Algeria, Bahrain, Egypt, Islamic Republic of Iran, Iraq, Jordan, Kuwait, Lebanon, Libya, Morocco, Oman, Palestine*, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, United Arab Emirates, Yemen *Not listed as party to the UNFCCC: West Bank & Gaza
Sub-Saharan Africa	Non-Annex I Parties: Angola, Benin, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, Central African Republic, Chad, Comoros, Republic of Congo, Dem. Rep. of Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Eritrea, Ethiopia, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Mozambique, Mayotte*, Namibia, Niger, Nigeria, Reunion*, Rwanda, São Tomé & Príncipe, Senegal, Seychelles, Sierra Leone, Somalia, South Africa, South Sudan, Sudan, Swaziland, Tanzania, Togo, Uganda, Zambia, Zimbabwe Overseas regions/ territories belonging to Annex I Parties: Mayotte, Réunion, Saint Helena
South Asia	Non-Annex I Parties: Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, Sri Lanka
East Asia & Pacific	Non-Annex I Parties: Brunei, Cambodia, China, Cook Islands, Fiji, Indonesia, Kiribati, Korea DPR, Lao PDR, Malaysia, Marshall Islands, Fed. States Micronesia, Mongolia, Myanmar, Nauru, Niue, Palau, Papua New Guinea, Philippines, Samoa, Singapore, Solomon Islands, Thailand, Timor-Leste, Tonga, Tuvalu, Vanuatu, Vietnam Overseas regions/ territories belonging to Annex I Parties: American Samoa, Guam Not listed as party to the UNFCCC: Taiwan
Central Asia & Eastern Europe	Annex I Parties: Belarus, Bulgaria, Croatia, Cyprus, Lithuania, Romania, Russian Federation, Ukraine Non-Annex I Parties: Albania, Armenia, Azerbaijan, Bosnia & Herzegovina, Georgia, Kazakhstan, Kyrgyz Republic, FYR Macedonia, Moldova, Montenegro, Serbia, Tajikistan, Turkmenistan, Uzbekistan Not listed as party to the UNFCCC: Kosovo
Latin America & Caribbean	Non-Annex I Parties: Antigua & Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Nicaragua, Panama, Paraguay, Peru, St. Kitts and Nevis, St. Lucia, St. Vincent & Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela Overseas regions/ territories/ constituent countries related to Annex I Parties: Anguilla, Aruba, Bonaire, Sint Eustatius and Saba, Cayman Islands, Curaçao,

	Falkland Islands, French Guiana, Guadeloupe, Martinique, Montserrat, Puerto Rico, St. Barthélemy, Saint Martin, Turks and Caicos Islands, Virgin Islands, West Indies
OECD	<p>Western Europe</p> <p>Annex I Parties: Andorra, Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Liechtenstein, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom</p> <p>Non-Annex I Parties: San Marino</p>
	<p>Americas</p> <p>Annex I Parties: Canada, United States of America</p> <p>Non-Annex I Parties: Chile, Mexico</p>
	<p>Japan</p> <p>Korea</p> <p>Israel</p> <p>Annex I Parties: Japan</p> <p>Non-Annex I Parties: Korea, Israel</p>
	<p>Other Oceania</p> <p>Annex I Parties: Australia, New Zealand</p> <p>Overseas regions/ territories/ constituent countries related to Annex I Parties: British Indian Ocean Territory, Christmas Island, Cocos (Keeling) Islands, French Polynesia, French Southern Territories, New Caledonia, Norfolk Island, Northern Mariana Islands, Pitcairn, Tokelau,</p>

Note: Listing of Annex I/ Non-Annex I Parties to the Convention based on [UNFCCC](#) (2019).

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