Climate Finance

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• 2017 Estimate ($510-530 billion): 12-16% increase from 2016
  ➢ Steady renewable energy investment
  ➢ Increase in electric vehicle investment
  ➢ Increase in investment from development banks

Source: CPI. 2018. Global Climate Finance: An Updated View 2018
• 58% of the total climate finance was invested in developing countries
• In 2015/2016, over 80% of climate finance was invested domestically.
• Among the international climate finance flows ($87 billion),
  ➢ OECD countries provided most of the international climate finance ($73 billion)
  ➢ A large portion of the international flows, or $56 billion, were invested in non-OECD countries.

Source: CPI. 2018. Global Climate Finance: An Updated View 2018
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<table>
<thead>
<tr>
<th>Sectors</th>
<th>2015</th>
<th>2016</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adaptation</td>
<td>22</td>
<td>22</td>
<td>22</td>
</tr>
<tr>
<td>(Other) Disaster Risk Management</td>
<td>3</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Agriculture, Forestry, Land-Use, and Natural Resource Management</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Coastal Protection</td>
<td>0.2</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Industry, Extractive Industries, Manufacturing &amp; Trade</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Infrastructure, Energy and Other Built Environment</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Other/Cross-Sector</td>
<td>2</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Policy and National Budget Support &amp; Capacity Building</td>
<td>0.2</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td>Water and Wastewater Management</td>
<td>11</td>
<td>11</td>
<td>11</td>
</tr>
<tr>
<td>Mitigation</td>
<td>445</td>
<td>427</td>
<td>436</td>
</tr>
<tr>
<td>Agriculture, Forestry, Land-Use, and Natural Resource Management</td>
<td>5</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Energy Efficiency</td>
<td>26</td>
<td>33</td>
<td>29</td>
</tr>
<tr>
<td>Low-Carbon Technologies</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Non-Energy GHG Reductions</td>
<td>0.1</td>
<td>0.1</td>
<td>0.1</td>
</tr>
<tr>
<td>Other/Cross-Sector</td>
<td>6</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Policy and National Budget Support &amp; Capacity Building</td>
<td>0.2</td>
<td>0.3</td>
<td>0.2</td>
</tr>
<tr>
<td>Renewable Energy Generation</td>
<td>321</td>
<td>269</td>
<td>295</td>
</tr>
<tr>
<td>Sustainable Transport</td>
<td>78</td>
<td>106</td>
<td>92</td>
</tr>
<tr>
<td>Transmission &amp; Distribution Systems</td>
<td>6</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Waste and Wastewater</td>
<td>1</td>
<td>0.7</td>
<td>0.8</td>
</tr>
<tr>
<td>Dual Benefits</td>
<td>5</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Total</td>
<td>472</td>
<td>455</td>
<td>463</td>
</tr>
</tbody>
</table>

Source: CPI. 2018. Global Climate Finance: An Updated View 2018
Public/ Domestic Sources

National climate fund landscape

- Fundraising
- Provide a mechanism for Managing partnerships
- Coordinated project
- Implementation structure
- Important source of knowledge and information management

Source: Blending Climate Finance through National Climate Fund, UNDP, 2015
Funds and International Climate Agreements

Multilateral Climate Finance

Scale and Thematic Focus (Multilateral Climate Finance)

Note: LDCF, Least Developed Countries Fund; SCCF, Special Climate Change Fund; AF, Adaptation Fund; GEF, Global Environment Facility; SREP, Scaling-Up Renewable Energy Program; FIP, Forest Investment Program; PPCR, Pilot Program for Climate Resilience; GCF, Green Climate Fund; CTF, Clean Technology Fund.

Source: WRI.

As of September 2019, there are 111 approved projects, and the approved project value of mitigation projects account for 42% of total approved project value. Most of approved mitigation projects are energy-related projects.

<table>
<thead>
<tr>
<th>Projects</th>
<th>Country</th>
<th>Investment (100M USD)</th>
<th>Sector</th>
</tr>
</thead>
<tbody>
<tr>
<td>Embedded Generation Investment Programme (EGIP)</td>
<td>South Africa</td>
<td>5.4</td>
<td>Energy Generation and Access (Solar, Wind)</td>
</tr>
<tr>
<td>Nigeria solar IPP support program</td>
<td>Nigeria</td>
<td>4.7</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Mali solar rural electrification project</td>
<td>Mali</td>
<td>0.4</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Energy Efficient Consumption Loan Programme</td>
<td>Mongolia</td>
<td>0.2</td>
<td>Energy Efficiency</td>
</tr>
<tr>
<td>Climate Investor One</td>
<td>11 Countries in Africa and Asia-Pacific</td>
<td>8.2</td>
<td>Energy Generation and Access (Solar, Wind, Hydro)</td>
</tr>
<tr>
<td>DRC Green Mini-Grid Program</td>
<td>Democratic Republic of the Congo</td>
<td>0.9</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Yeleen Rural Electrification Project in Burkina Faso</td>
<td>Burkina Faso</td>
<td>0.6</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Tonga Renewable Energy Project under the Pacific Islands Renewable Energy Investment Program</td>
<td>Tonga</td>
<td>0.5</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Line of Credit for Solar rooftop segment for Commercial, Industrial and Residential Housing sectors</td>
<td>India</td>
<td>2.5</td>
<td>Energy Generation and Access (Solar)</td>
</tr>
<tr>
<td>Scaling Up Energy Efficiency for Industrial Enterprises in Vietnam</td>
<td>Vietnam</td>
<td>5.0</td>
<td>Energy Efficiency</td>
</tr>
<tr>
<td>Promoting private sector investments in energy efficiency in the industrial sector in Paraguay</td>
<td>Paraguay</td>
<td>0.4</td>
<td>Energy Efficiency</td>
</tr>
</tbody>
</table>

Source: GCF. “Projects+Programmes.”
Public source/ MDB

Total Reported MDB Climate Finance Commitments, 2011-2018 ($ Billion)

MDB Climate Finance & Net Climate Co-Finance in 2018 (in $ Billion)

MDBs Total Climate Finance in 2018
$43.1 Billion

* Co-finance: Financial resources invested by external parties alongside MDBs

Public source/ MDB

<table>
<thead>
<tr>
<th></th>
<th>MDB Climate Finance</th>
<th>MDB Net Co-financing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>320</td>
<td>399</td>
</tr>
<tr>
<td>Private</td>
<td>111</td>
<td>288</td>
</tr>
<tr>
<td>Mitigation</td>
<td>302</td>
<td>605</td>
</tr>
<tr>
<td>Adaptation</td>
<td>129</td>
<td>75</td>
</tr>
</tbody>
</table>

- Relatively large investment in public sector
- Among the total MDB climate finance, about 70% is for climate change mitigation finance
  - MDB Mitigation finance by sector: renewable energy (29%), Energy Efficiency (18%), Transport (18%)
  - MDB Mitigation finance by type of instrument: Investment Loan (71%), Policy-based financing (7%)

Public source/ MDB

By instrument in 2018

- Investment loan: US$ 30,516 million (71%)
- Policy-based financing: US$ 3,307 million (8%)
- Results-based financing: US$ 2,487 million (6%)
- Grant: US$ 2,259 million (5%)
- Guarantee: US$ 1,811 million (4%)
- Other instruments: US$ 1,042 million (2%)
- Line of credit: US$ 847 million (2%)
- Equity: US$ 832 million (2%)

Total: US$ 43,101 million

By region in 2018

- Sub-Saharan Africa: US$ 8,957 million (21%)
- Latin America and the Caribbean: US$ 8,770 million (20%)
- South Asia: US$ 6,958 million (16%)
- Non-EU Europe and Central Asia: US$ 5,128 million (12%)
- East Asia and the Pacific: US$ 5,062 million (12%)
- Middle East and North Africa: US$ 4,310 million (10%)
- EU-12: US$ 3,362 million (8%)
- Multi-regional: US$ 553 million (1.3%)

Total: US$ 43,101 million

IBRD and IDA made about 16 billion in climate-related investment in 2018.
A large amount of IBRD & IDA climate finance is invested in Africa and South Asia.


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Energy and extractives accounted the largest portion of climate change mitigation finance.

- In Africa: Energy and Electricity Access projects (Kenya, Nigeria)
- In South Asia: Energy Efficiency and Rural Renewable Energy projects (India, Bangladesh)

Source: ADB. “Climate Changing Financing at ADB (2018).”
Largely invested in East Asia and South Asia

By sector, ADB Mitigation finance invested over 1.5 billion USD in energy sector in 2018
  - Mostly Technical Assistance: Renewable Energy and Grid Connection

Source: ADB. “Climate Changing Financing at ADB (2018).”
In 2018, climate finance from Inter-American Development Bank had totaled about 5 billion USD.

- About 74% of the IDB climate finance is invested in Mitigation.

3 Inter-American Development Bank

IDB Climate Investment in 2018

Active Portfolio of IDB in Energy Sector

Sovereign Guarantee (44 Projects; 4.92 Billion USD)

- New Thermal Power Plants
- Energy Efficiency and Renewable Energy in End Use
- Low Energy
- Rural Electrification
- Energy Integration
- New Power Distribution & Transmission Projects
- Energy Sector Rehabilitation and Efficiency
- New Hydropower Projects
- Energy Institutional Strengthening and Capacity Building

Unit: Million USD

Non-Sovereign Guarantee (8 Projects; 123.50 Million USD)

- Energy Efficiency and Renewable Energy in End Use
- Low Energy

Source: IDB. “Energy.”
CTCN aims **to promote the development and transfer of climate technologies at the request of developing countries**

- Energy efficiency, low-carbon and climate-resilient development
- CTCN provides technology solutions, capacity building and advice on policy, legal and regulatory framework

Source: UNIDO Homepage. “Climate Technology Centre and Network”
Climate Technology Centre and Network (CTCN)

Distribution of Technical Assistance Requests by Sector

- Energy Efficiency: 33%
- Sustainable Energy: 30%
- Waste Management: 10%
- Agriculture: 7%
- Industry: 6%
- Transport: 6%
- Cross-Sectional: 6%
- 1.4% Carbon Fixation and Abatement
- 1.4% Forestry

- Adaptation: 32%
- Water: 12%
- Infrastructure and Urban Planning: 16%
- Coastal Zones: 14%
- Agriculture and Forestry: 24%
- Cross-section: 18%

- Adaptation & Mitigation: 14%
- Public Health: 6%
- Early Warning & Disasters: 10%

Source: UNIDO Homepage. “Climate Technology Centre and Network”
ACP is a private equity fund that undertakes commercially-oriented private equity investments across a variety of environmentally supportive, low-carbon transactions throughout developing Asia, and dedicated to investing in renewable energy, clean technology, natural resource efficiency, water, agriculture, forestry and other climate-friendly companies and transactions that are structured to generate market-driven, risk-adjusted returns and have a positive environmental and social impact. JICA will contribute up to USD 94.3 million to the fund.
Basic structure of JCM

Japan’s JCM

**Japan**
- **Government**
  - Issuance of credits
  - Reports issuance of credits
  - Request issuance of credits
- **Project Participants**
  - Implementation & monitoring of projects
  - Submit PDD/monitoring report
  - Inform results of validation/verification
- **Third party entities**
  - Validation of projects
  - Verification of amount of GHG emission reductions or removals

**Partner Country**
- **Government**
  - Issuance of credits
  - Reports issuance of credits
  - Request issuance of credits
- **Project Participants**
  - Implementation & monitoring of projects
  - Submit PDD/monitoring report
  - Inform results of validation/verification

**Joint Committee (Secretariat)**
- Development/revision of the rules, guidelines and methodologies
- Registration of projects
- Discusses the implementation of JCM
- Conduct policy consultations

Source: Recent development of the Joint Crediting Mechanism, Gov’t of Japan, 2016
Japan’s JCM

Japan Fund for Joint Crediting Mechanism (JFJCM): ADB Trust Fund

Source: Recent development of the Joint Crediting Mechanism, Gov’t of Japan, 2018
The emergence of green bonds represents one of the most significant developments in the financing of low-carbon, climate resilient investment opportunities. Green bond issuance has grown rapidly in recent years: while there were practically no green bonds in 2009, $167.3 billion of labeled green bonds were issued in 2018.

Source: Climate Bonds Initiative. 2019. 2018 Green Bond Market Summary
Green and Climate Bonds

Source: Climate Bonds Initiative. 2019. 2018 Green Bond Market Summary
**Green and Climate Bonds**

**Green Bond Issuers**

(Developed/Emerging Markets)

### Top 10 issuers in 2018

<table>
<thead>
<tr>
<th>Developed markets</th>
<th>Emerging markets</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Fannie Mae (US)</td>
<td>Industrial Bank Co., Ltd (CN)</td>
</tr>
<tr>
<td>2. Republic of France (FR)</td>
<td>ICBC (CN)</td>
</tr>
<tr>
<td>3. Kingdom of Belgium (BE)</td>
<td>Bank of China (CN)</td>
</tr>
<tr>
<td>4. National Treasury</td>
<td>Republic of Indonesia (ID)</td>
</tr>
<tr>
<td>Management Agency (IE)</td>
<td></td>
</tr>
<tr>
<td>5. ING (NL)</td>
<td>Republic of Poland (PL)</td>
</tr>
<tr>
<td>6. Iberdrola (ES)</td>
<td>China Three Gorges Corp (CN)</td>
</tr>
<tr>
<td>7. Bank of America (US)</td>
<td>Beijing Infrastructure Investment (CN)</td>
</tr>
<tr>
<td>10. DNB Boligkreditt AS (NO)</td>
<td>State Bank of India (IN)</td>
</tr>
</tbody>
</table>

**Certified Climate Bonds by Region**

56% of the 2018 Certified Climate Bonds volume came from European issuers.

- **Certified Climate Bond**: Bond issuance under the Climate Bonds Standard and Sector Criteria. The use of proceeds complies with the objective of capping global warming at 2 degree.

Source: Climate Bonds Initiative. 2019. 2018 Green Bond Market Summary
China’s Climate Finance


Source: Bo, C. and Yao, W. 2015. China’s Low Carbon Finance and Investment Pathway
(Original Content: Kejun, J. 2014. China’s investment pathways to 2030)
China’s Climate Finance