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The geographical distribution of climate finance for agriculture

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Main findings

- From 2010 to 2012, climate finance in the agricultural sector shifted dramatically to increase public funds for adaptation (USD 155 to 314 million) and decrease private funds for climate change mitigation (USD 289 to 48 million), primarily due to declining carbon prices in 2010 and 2011 and countries' commitments to fast-start finance under the UNFCCC
- Emerging economies such as China, South Africa, Brazil, Uzbekistan and Mexico were the main beneficiaries from carbon-market finance for mitigation, while Sub-Saharan Africa was the main beneficiary when finance shifted to adaptation.
- The bulk of mitigation finance in 2010-2012 from carbon markets went to reducing N₂O emissions from fertilizer production, followed by using agricultural residues as a biomass energy source, or as a source of biogas and reduced tillage projects.
- Ethiopia was the single largest recipient of dedicated adaptation finance (USD 25 million in 2010, 2011 and 2012).
- A broader approach to climate finance that supports sustainable intensification, more resilient agricultural practices and low emissions development over the long-run would support more stable and evenly distributed investment.

Climate Focus
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1 Introduction

Investments in improved agricultural practices will be essential to address the intertwined challenges of climate change mitigation, adaptation and food security. Private and public finance can play an important role in creating incentives for the reduction of emissions from the agricultural sector and increased resilience to climate change. The level and distribution of climate finance among countries will affect agricultural development opportunities and social justice among countries.

The years 2010 to 2012 were pivotal years for climate finance because of a drop in carbon prices and developed country commitments to new “fast-start” finance for adaptation and mitigation established under the 2009 Copenhagen Accord. The purpose of this brief is to analyze the deployment of agricultural climate finance by geographic area over this formative period of 2010-2012 to gain an early understanding of the sources of funds and how they are being distributed.

Under the 2009 Copenhagen Accord, developed countries agreed to provide USD 30 billion “fast start finance” during 2010-2012, with balanced allocation between adaptation and mitigation, prioritizing the most vulnerable and least developed countries. A recent report of the World Resources Institute (WRI)¹ concluded that between 2010 and 2012, USD 35 billion of fast start finance was pledged, exceeding the original commitment.

The majority of fast start finance to date has been destined for mitigation in industry and energy sectors.

Of the USD 35 billion fast start finance disbursed, agriculture accounted for USD 0.75 billion, equivalent to 2.1 %. This is modest given the contribution of agriculture to global greenhouse gas (GHG) emissions, estimated at around 14 to 24 %. To put these figures into perspective, official development assistance (ODA) for agriculture was estimated at USD 6.4 billion in 2011², and the level of total accumulated investment by farmers worldwide, as measured by the value of agricultural capital stock, at USD 5 trillion in 2007.³

Fast start climate finance from multilateral and bilateral sources for agriculture reached a mere USD 186 million in 2010 and USD 181 million in 2011. Funds almost doubled to USD 334 million in 2012, reflecting a scaling up of adaptation finance. Japan, Switzerland, the United Kingdom (U.K.), the United States (U.S.) and Norway were the largest bilateral contributors of private and public

¹ ODI, WRI, IGES, OCN (2013): Mobilising International Climate Finance: Lessons from the Fast-Start Finance Period

² OECD (2013): Creditor Reporting System. Accessed May 2013. <http://stats.oecd.org/Index.aspx?QueryId=33364>

³ FAO (2012): The State of Food and Agriculture 2012 - Investing in Agriculture for a better Future. Rome: Food and Agriculture Organization of the United Nations. <http://www.fao.org/docrep/017/i3028e/i3028e.pdf>



agricultural climate finance in 2011 and maintained their leading positions in 2012. Carbon finance from the Kyoto Protocols project-based offset mechanisms (the Clean Development Mechanisms, CDM, and Joint Implementation, JI) made the biggest chunks in dedicated climate finance going to agricultural projects. This source of finance was negatively affected by the overall decline in carbon market volume in 2011, reducing total contributions from an estimated USD 470 million in 2011 to USD 380 million in 2012.

Table 1 summarizes the results of the analysis, distinguishing the financing sources, mitigation and adaptation finance in the years 2010, 2011 and 2012.

Table 1: Agriculture climate finance in 2010, 2011 and 2012 (in USD million)⁴

Financing Source	Mitigation				Adaptation			
	2010	2011	2012	Total	2010	2011	2012	Total
Bilateral funds & Fast Start Finance	31	38	20	88	155	143	314	613
CDM & JI	298	264	36	598				
Voluntary carbon market	10	25	12	47				
	338	326	68	733				

2 Methodology

‘Agriculture-related projects’ used in the analysis cover projects specifically named ‘agricultural’ with a broad range of activities related to manure, biomass or biogas energy from agriculture residues, composting, irrigation, food security, small-scale farming, palm oil (solid) waste, bagasse power, biodiesel, agroforestry, food processing, methane avoidance from livestock, waste water treatment (from agriculture or food production), energy efficiency in agriculture and N₂O avoidance from fertilizer production.

Private sector carbon finance is a good indicator for localizing cost-efficient and accessible emission reductions that can be measured and verified with a level of accuracy that allows the use of resulting emission reductions as offset credits. The analysis of public climate finance for agriculture is more

⁴ Own analysis, Annex 1 provides an overview of the sources used.



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complicated. The allocation of public finance is less transparent and investments often seek to achieve various purposes. Most donors mingle ODA and climate finance and it is hard to identify which portion of finance goes to agricultural mitigation and adaptation. There is a risk of double-reporting and hence double-counting. Consequently, numbers can only serve to describe broad trends.

The climate finance sources assessed include:

- Compliance carbon markets: the Clean Development Mechanism (CDM), Joint Implementation (JI), data sources: project database of the UNFCCC and the UNEP Risø pipeline data, including the project pipeline for CDM Programmes of Activities.⁵
- Voluntary carbon markets: Verified Carbon Standard (VCS), Climate Action Reserve, Plan Vivo, Gold Standard (only Verified Emission Reduction (VER) issuance), Carbon Farming Initiative, ISO 14064 – 2, American Carbon Registry, Carbon Fix, Climate, Community & Biodiversity Standards (CCB)
- Climate funds: including pipelines of development banks, bilateral development agencies, and special funds and programs. Annex 1 provides an overview of the sources of information consulted.

For the CDM, JI and the voluntary carbon markets, accessed data from through the data based of the UN Framework Convention on Climate Change (UNFCCC) and the UNEP Risø database.⁶ We applied the following assumptions:

1. The generation of carbon credits is constant during the project issuance periods covering the years 2010, 2011 and 2012 (if data on issuance spans multiple years). This assumption comes with significant insecurities. The lower price level in 2012 has also affected issuance volumes. Consequently, we may underestimate the impact of the price collapse on issuance volumes in 2012.
2. The price that project proponents received for carbon credits equals the annual averages for the respective market credit forward prices for the years that credits were generated, thereby assuming also that the value of credits from projects in the agricultural sector are equal to the average market price.
3. The time delay between the generation of carbon credits and the receipt of revenues from their sale is assumed to be zero.

⁵ The UNFCCC finance portal can be accessed at: <http://www3.unfccc.int/pls/apex/f?p=116:1:3980098282799813>

⁶ The UNEP Risø CDM and JI pipelines can be accessed at: <http://cdmpipeline.org/>



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Public climate finance is significantly less transparent and there is ample room for interpretation and hence error.

Reports on fast-start finance disbursements can be found at the UNFCCC Finance Portal (faststartfinance.net) and on national government websites. These sources provide limited information at project level, potentially leading to an underestimation of the contribution of this source of finance. Often agricultural projects are not singled out. For example, agricultural funds included in more general adaptation projects (e.g. "Adaptation in Country X") have not been included in our analysis. As a result, the actual fast start finance expenditures in agriculture may in fact be higher, perhaps as much as 30%. Even taking this into account, the conclusions on the low share of fast start finance that has benefitted agriculture remain valid.

An additional problem is that donor countries do not report enough detail on their fast start finance commitments, or only provide general figures rather than project-level information. This was the case for countries including France, the U.K. and Australia; however data for France and the U.K. can partly be accessed by using information provided by the European Union.

This analysis is based on the most recent data available for 2010, 2011 and 2012. The data from 2011 and 2010 help us to assess how the collapse of the carbon markets has impacted the geographical distribution of climate finance. The expectation is that the focus of agricultural climate finance may have moved away from the emerging economies like China, India, Mexico and Brazil. The study aimed to reveal whether the collapse of the carbon market prices only created a reduction in overall financing available, or if it also marked a shift of funding sources to other countries.

To avoid the double counting of financing flows, we adopted a project-level approach that allowed for detection of duplicate project titles in the database. For fast start finance donors, only bilateral provisions of project finance were included. Disbursements to multilateral funds were included in the project-level analysis of the multilateral funds themselves. Moreover, since project-level information was collected from both fast start finance countries (investing directly in projects) and from those via multilateral funds, the risk of overlooking projects was minimized. Where annual financing figures were not available, the amount disbursed or committed was equally distributed over the life of the project.



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3 Results

3.1 Finance mechanisms

Agriculture climate finance is provided through an array of mechanisms and entities that channel finance from donors to recipients in developing countries. In 2010 and 2011, the CDM was the largest provider of climate finance in agriculture (see figure 1). Public fast-start finance contributed nearly as much as the CDM. The Climate Action Reserve – the favored carbon offset registry for domestic U.S. carbon market projects – accounted for the majority of voluntary carbon finance, contributing about 0.7% of total climate finance in 2010, 3.5 % in 2011 and 2 % in 2012. The contribution of other voluntary carbon standards was negligible (on average 1.3 %). In 2012, fast start finance and multilateral funds took over from the CDM and JI as the dominant finance mechanism. Also the voluntary carbon markets suffered from both a decline in transaction volumes and a drop in credit prices.

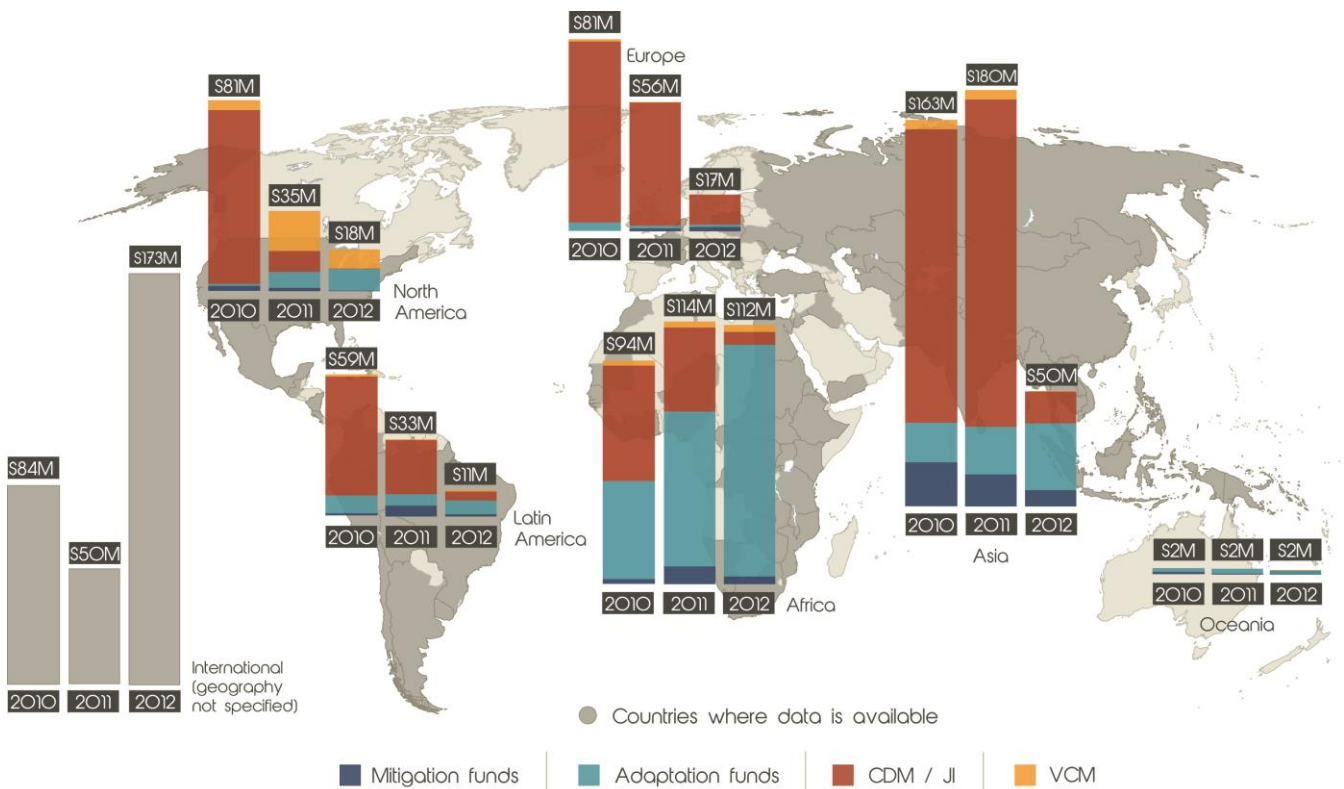


Figure 1: Agriculture climate finance mechanisms by continent in 2010, 2011 and 2012.



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In 2010 and 2011, most funding was allocated to support mitigation activities in agriculture, primarily in fertilizer management projects under the CDM. The CDM and JI only support mitigation and, therefore, the increased disbursement of funds under the fast start finance pledges on the one hand, and the demise of the CDM and JI on the other, led to relatively more funding for adaptation in 2012. The increased amounts of fast start finance made available in this year were mostly directed to funding adaptation projects in developing countries.

3.2 Sectors

Figure 2 depicts the distribution of finance between mitigation and adaptation (light grey) and among the different mitigation activities in the agriculture sector. The reduction of N₂O emissions is the largest mitigation activity. These types of projects were mainly developed in China, Brazil, South Africa, Uzbekistan (all through the CDM) and the U.S. (under the Climate Action Reserve). Other activities include reduced tillage and a variety of biomass and biogas projects. The remainder of the agricultural mitigation activities consists of different types of methane avoidance projects.



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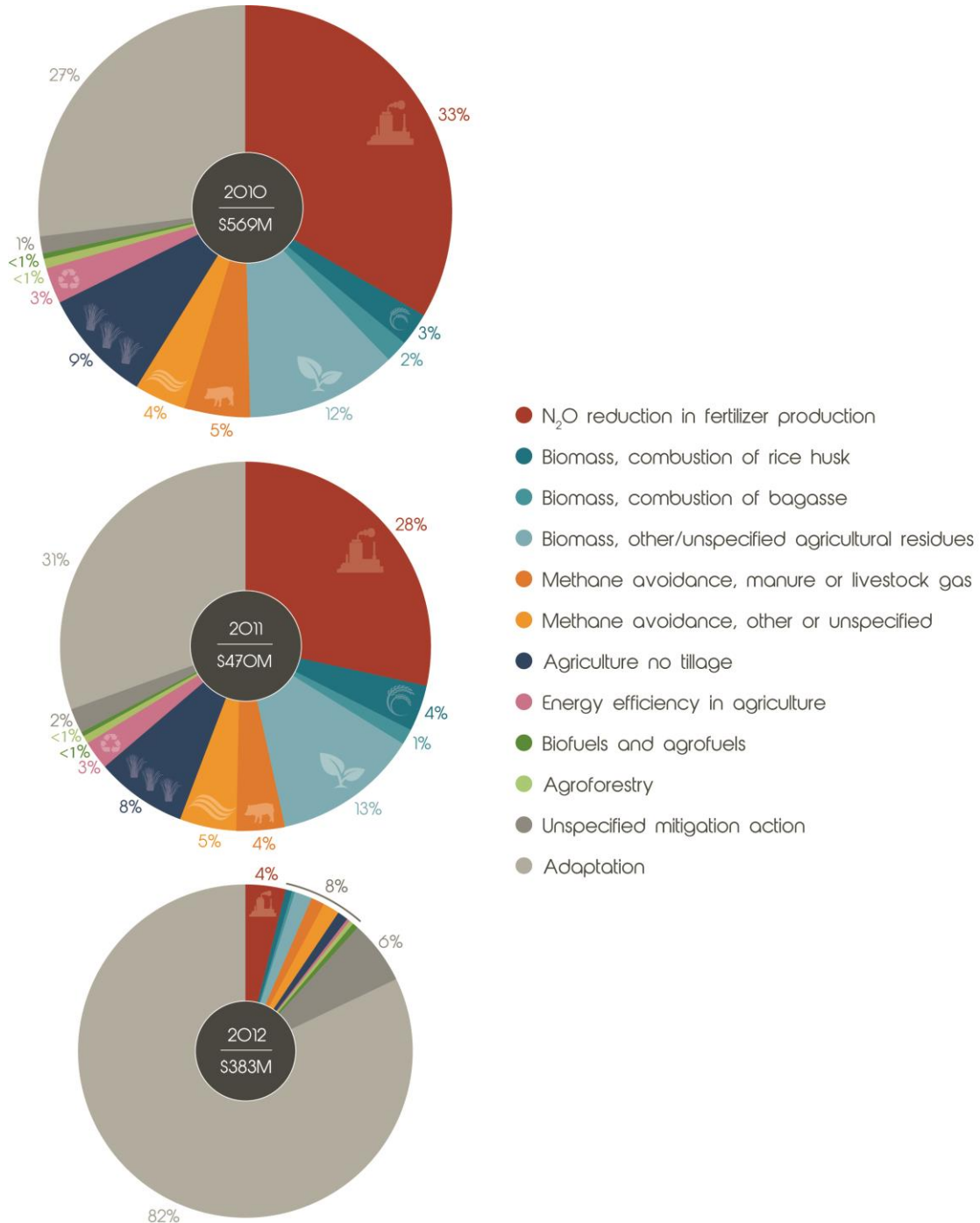


Figure 2: Adaptation finance and sectors of agriculture mitigation climate finance in 2010, 2011 and 2012.



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3.3 Recipient countries

There are almost 100 countries that have received agricultural climate finance during 2010-2012. Figures 3, 4 and 5 show the countries that have received during 2011 and 2012 at least USD 1 million of agricultural climate finance. The top recipients were China, Ukraine, India and Egypt in 2010, and China, India, Malaysia and Brazil in 2011. This was due to the relatively high prices of USD 13.9 for Certified Emissions Reductions (CERs) from the CDM and USD 12.1 for Emissions Reduction Units (ERUs) from JI (in 2011). In 2012, the average price of carbon credits plummeted to USD/CER 3.8 and USD/ERU 3.6, and consequently the agriculture climate finance flows provided through CDM and JI also dropped.

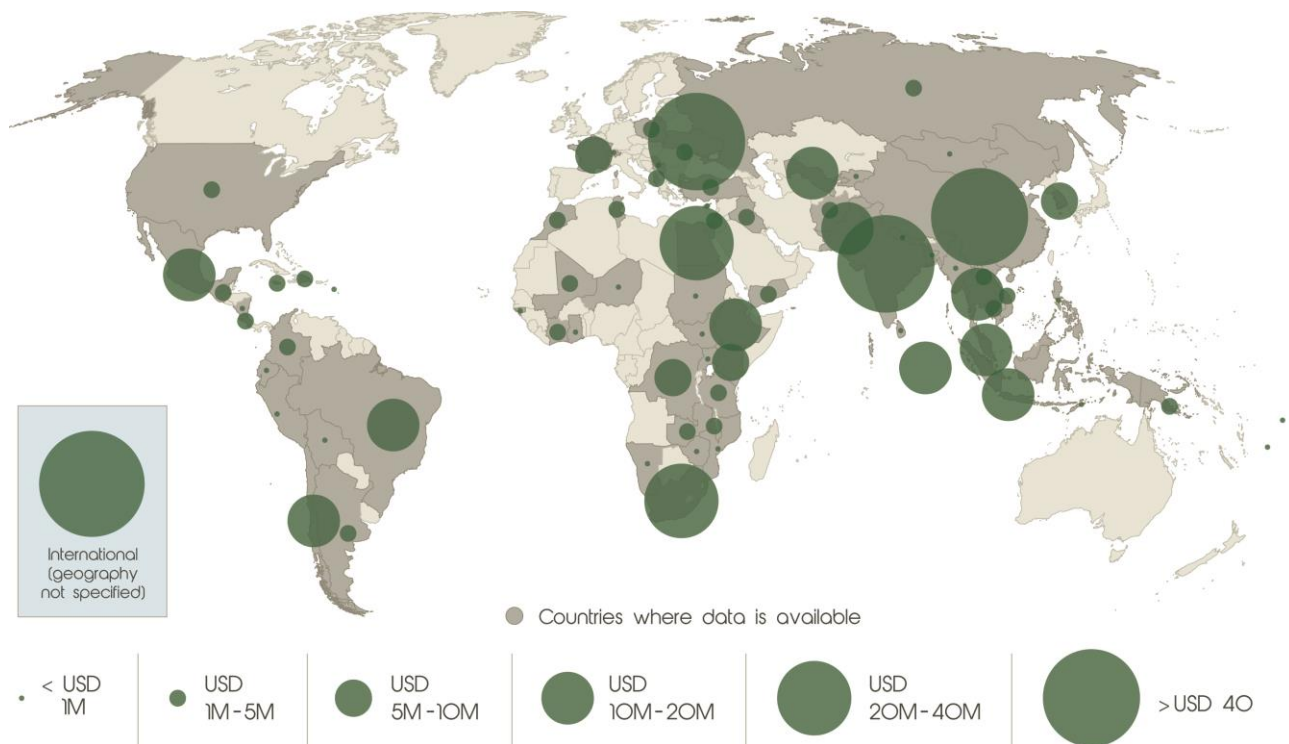


Figure 3: Recipient countries of agriculture climate finance in 2010.



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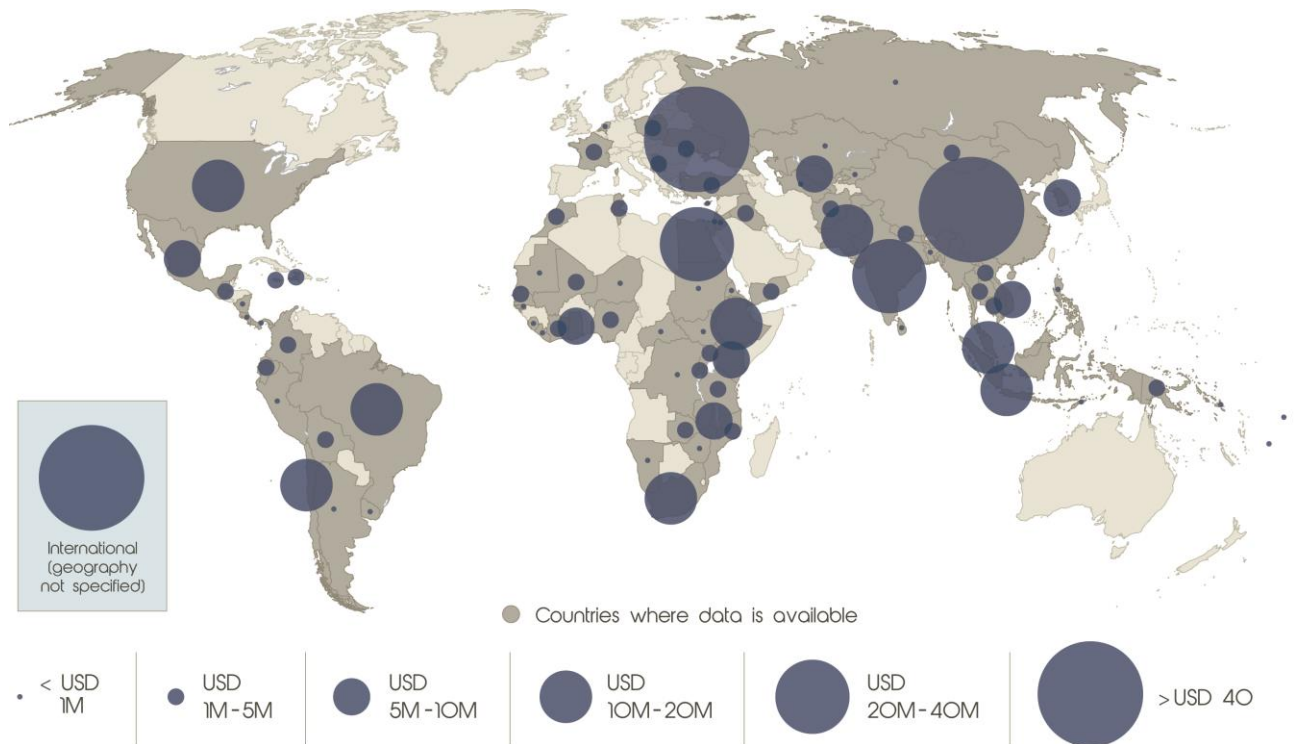


Figure 4: Recipient countries of agriculture climate finance in 2011.

In 2012, a geographical shift occurred in the allocation of agriculture climate finance. Induced by the carbon markets crash and the increased disbursement of fast-start finance, traditional CDM host countries such as China and India lost their position as main recipients to make way for a number of African countries. Although Ukraine was still the second largest recipient of agriculture climate finance in 2012 due to a number of highly profitable JI no-tillage projects, Ethiopia moved to first place, receiving more than USD 25 million of agriculture climate finance dedicated to agricultural adaptation. African countries, such as Kenya and Ghana, were also successful in attracting adaptation finance. Project developers in the USA generated and sold carbon credits worth nearly USD 8 million in agriculture climate finance through its domestic voluntary markets.



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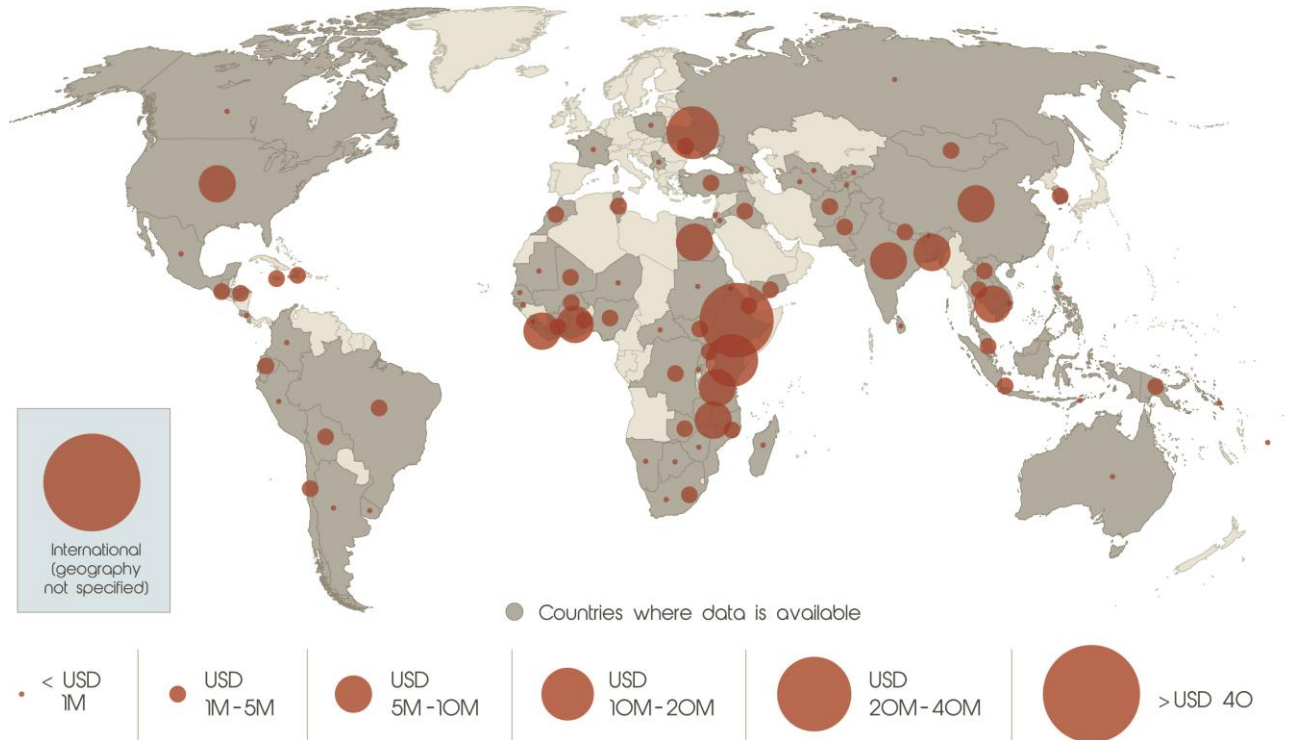


Figure 5: Recipient countries of agriculture climate finance in 2012.

3.4 Donor countries and institutions

Agriculture climate finance in this analysis originates from bilateral sources (through fast-start finance disbursed in national tenders or through national development organizations), multilateral institutions such as the Least Developed Country Fund and private sector payments through the CDM, JI and voluntary carbon markets. Figures 6, 7 and 8 show the largest donors for the years 2010, 2011 and 2012, respectively.

Our numbers include public and private sources of finance, in particular private payments from buyers of CDM and JI credits. In 2010 and 2011, these carbon finance sources constituted the majority of climate funding to the agricultural sector. The largest donor countries were Japan, the U.K. and Switzerland, home to large private sector buyers. Most CDM and JI buyers focus on specific project countries.



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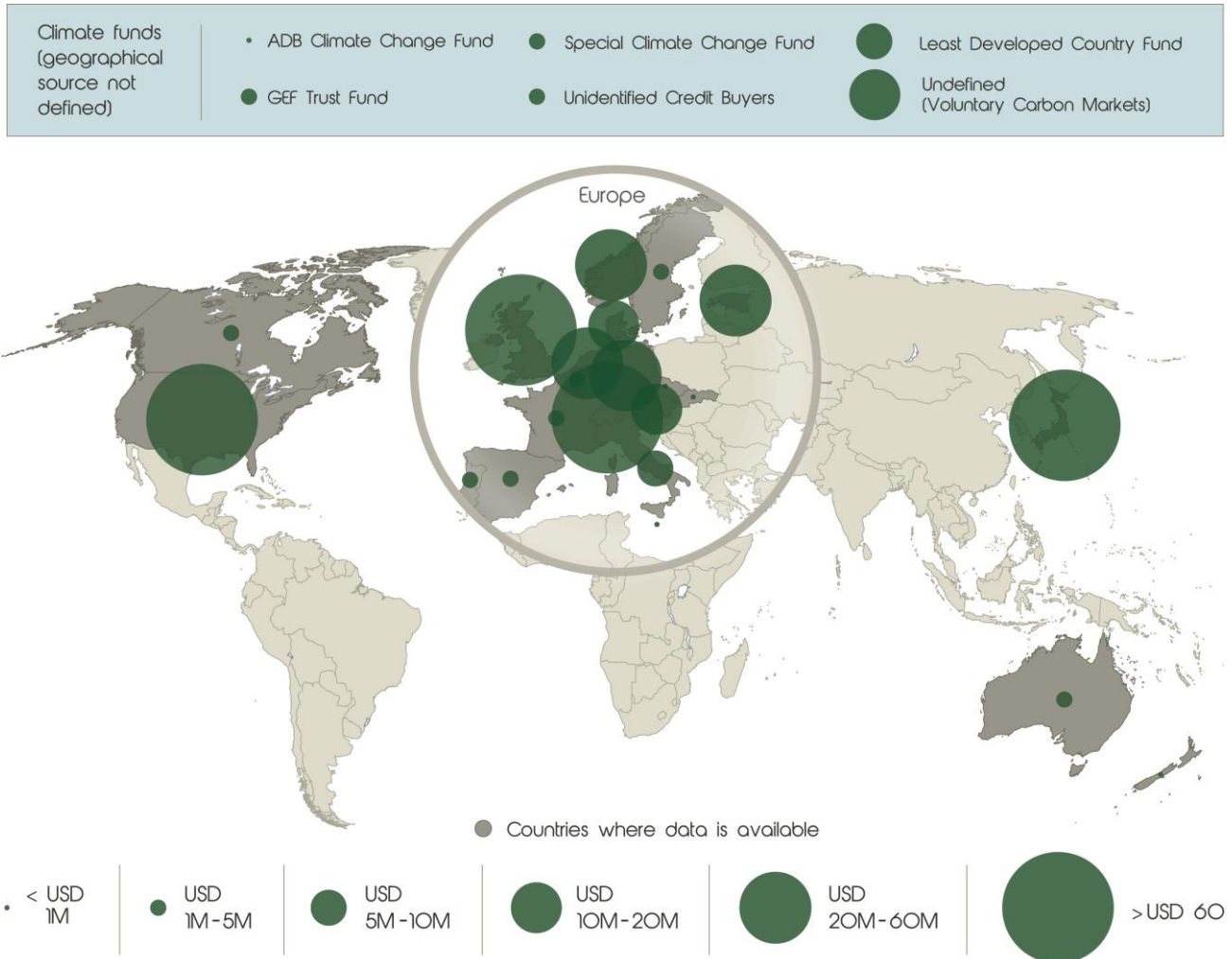


Figure 6: Agriculture climate finance contributions per donor country and institution in 2010.

The U.S. provides detailed project-level information on its fast start finance disbursements, which has influenced its ranking. This detailed reporting has allowed for more accurate identification of projects benefitting the agriculture sector. Most countries do not provide such detailed reports on their climate finance disbursement, and projects may have been overlooked.



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The amount of detail provided by countries on climate finance disbursement is limited. The Netherlands, for instance, only provides information on the finance activities of its Global Sustainable Biomass Fund for 2011. Data for 2012 is reflected in the country's overall agriculture climate finance figure for that year while data for 2010 could no longer be accessed when the web-site faststartfinance.net was closed down in December 2013. Some of the data is also based on arbitrary standards. For example, a private fund in Estonia acted as the buyer of JI credits from large no-tillage projects in Ukraine, automatically designating Estonia as the sixth largest donor in 2011.

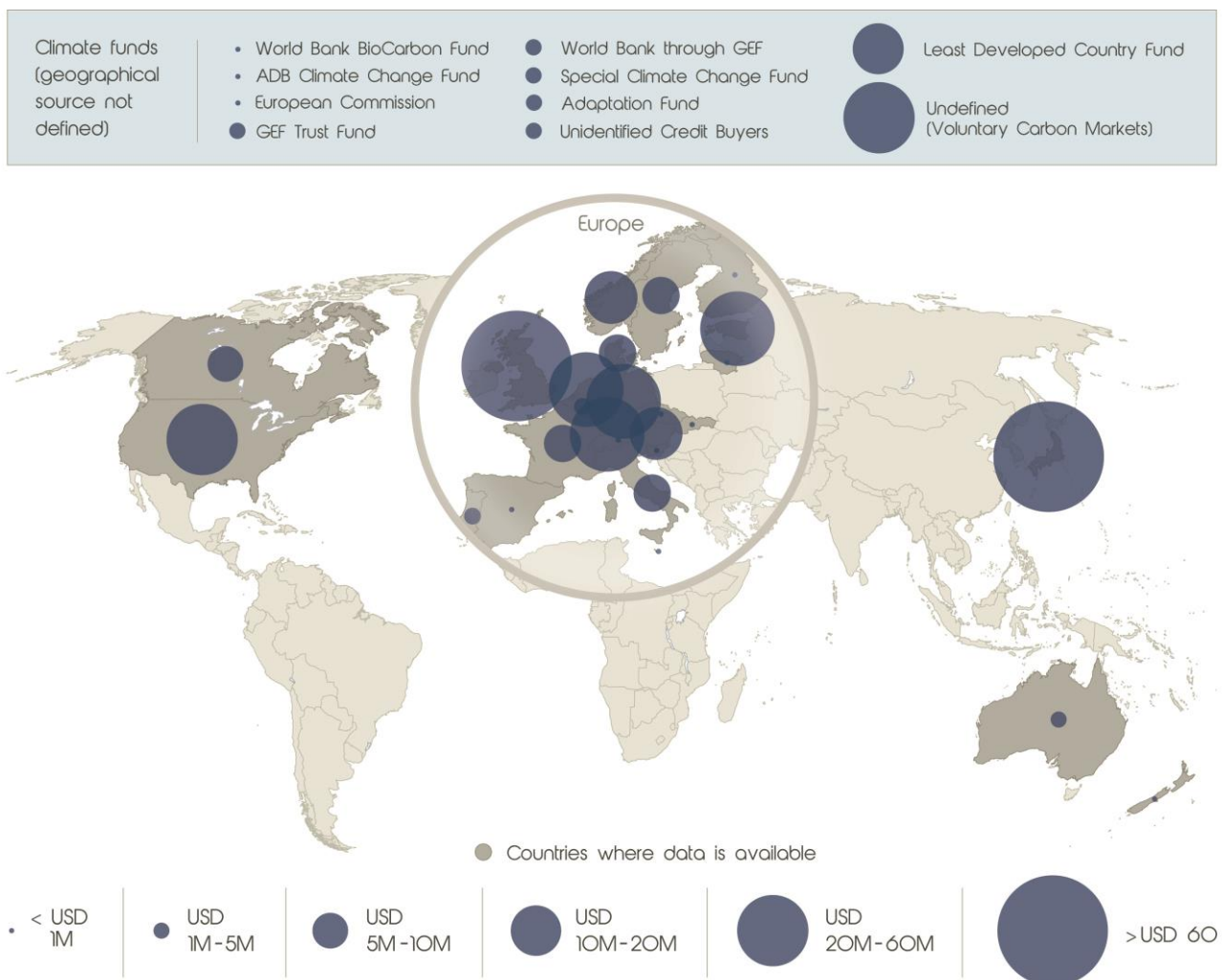


Figure 7: Agriculture climate finance contributions per donor country and institution in 2011.



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In 2012, the role of the CDM/JI and voluntary carbon markets declined and left a financing gap that was only partially filled by increased funding from multilateral and bilateral sources. The UK committed USD 125 million to the International Fund for Agriculture Development (IFAD) and, in doing so, instantly became the number one donor for agriculture. Other large donors are the U.S., Japan, Norway, Netherlands and Germany.

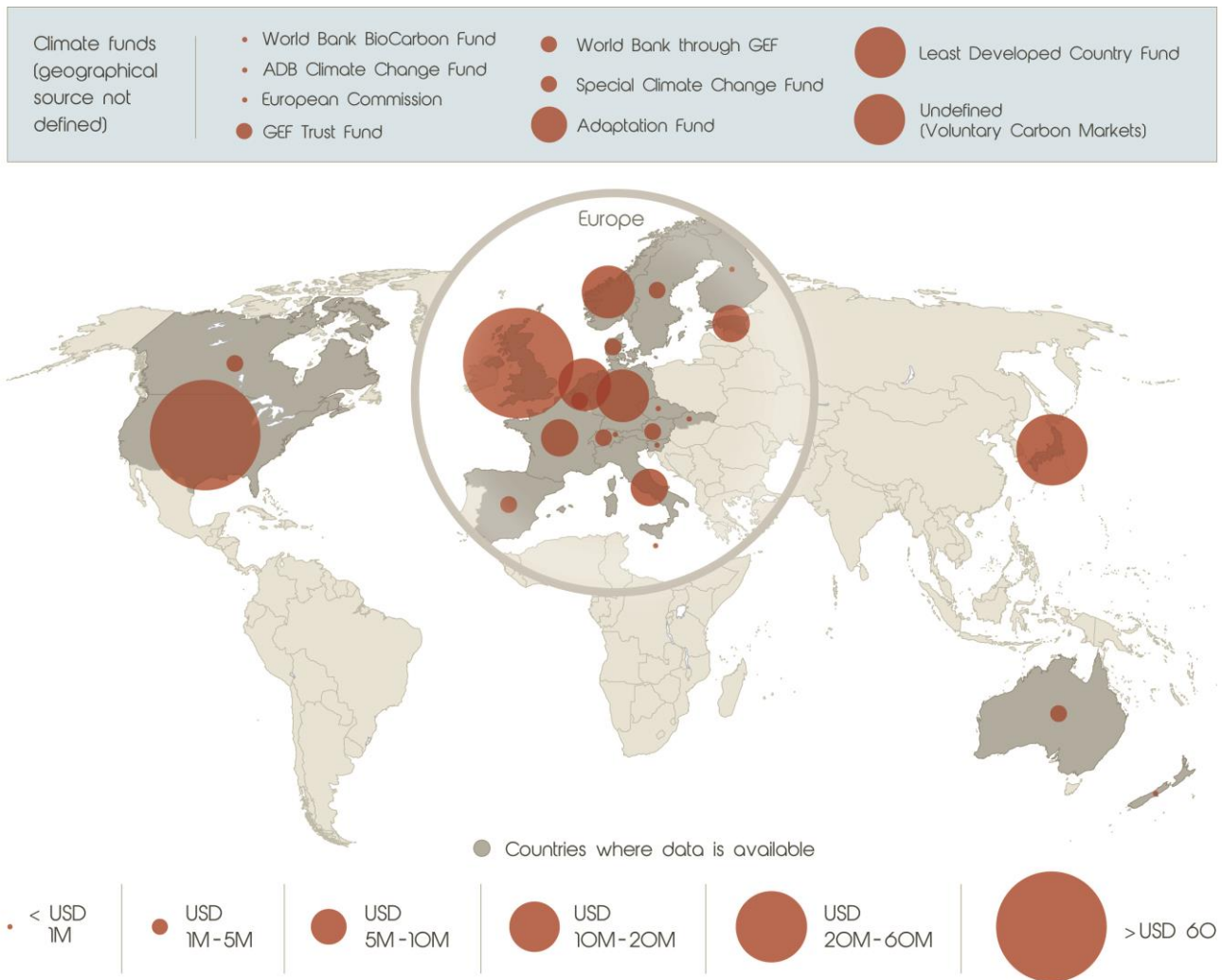


Figure 8: Agriculture climate finance contributions per donor country and institution in 2012.



4 Policy conclusions

There is little transparency and consistent reporting on climate finance, which limits our ability to compare and draw conclusions from our analysis. While some countries provided clear and detailed lists with project-level information, others limited their reporting to overall climate finance numbers. Some countries differentiate between adaptation and mitigation finance, others do not. Some clearly label new and additional finance, others mingle climate finance and ODA.

A common reporting format similar to national GHG emissions formats would enhance transparency. Enhanced transparency would make it easier to verify whether financial commitments have been met. It would also allow donor and recipient countries to allocate climate finance more complementary and hence strategically.

The allocation of agriculture climate finance from 2010 to 2012 was spread across 98 countries. While in 2010 and 2011 CDM host countries such as China, Ukraine, India, Egypt and Brazil benefitted from robust prices for carbon credits, 2012 saw a shift of finance directed to East-African nations, which received mostly public agriculture adaptation climate finance.

More concretely, our analysis provided evidence of the following:

- The decline in carbon markets depressed the availability of climate finance for the agricultural sector – from an already low starting point. Changes in the rules, such as the limitation of eligibility of CERs for compliance in the EU emission trading system to credits generated by projects in least developed countries, shifted the emphasis from middle income to poorer developing countries. The overall reduction of available carbon finance, which by its nature exclusively targets mitigation, also moved the emphasis from mitigation to adaptation.
- Mitigation finance is biased towards sectors or emission sources where quantification and monitoring of the mitigation benefits is relatively easy and where the economic and political risks are lower. This results in a bias towards energy and industrial sectors and emerging economies like China or Brazil, with an industrial base and a lower country risk.
- With the exception of N₂O emissions from fertilizer production and some intensive livestock operations, most individual emissions sources in agriculture are relatively small and dispersed. This puts the agricultural sector at a disadvantage when accessing carbon markets.



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- Adaptation finance on the other hand is easier to allocate to agriculture and land use than to industry and energy. Any activity that supports the sustainability of an agricultural system while increasing yields, increases resilience and can be counted towards adaptation.

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Annex 1: Overview of funds analysed and sources used

The following national and multinational funds were examined in search for projects in the agricultural sector.

- Adaptation Fund, established under the Kyoto Protocol, project data base accessible at: https://www.adaptation-fund.org/funded_projects/interactive
- ADB Climate Change Fund (CCF), addresses climate change through technical assistance and grant components of investment projects, accessible at: <http://www.adb.org/site/funds/funds/climate-change-fund>.
- African Development Bank (ADB), has a dedicated sector “climate change” in the project database at: <http://www.afdb.org/en/projects-and-operations/project-portfolio/>
- BioCarbon Fund, project information accessed at: <https://wbcarbonfinance.org/Router.cfm?Page=BioCF&ItemID=9708&FID=9708>.
- Climate and Development Knowledge Network, a research programme with project details available at <http://cdkn.org/projects/>. No specific agriculture projects identified.
- Climate Investment Funds (CIF) has four programmes to pilot low-emissions and climate resilient development, project data accessed at: <https://www.climateinvestmentfunds.org/cif/>. No projects in the agricultural sector were identified.
- ClimDev-Africa Special Fund (CDSF), programme information accessed at <http://climatefinanceoptions.org/cfo/node/174> but no information was found on project level.
- Environmental Transformation Fund (ETF), which mainly invested in other funds like the SCCF. Therefore no projects were included in the analysis in which the ETF invested directly.
- GEF Global Environment Facility Trust Fund, projects were included with funding from the GEF trust fund and with focal area “climate change”, accessible at: http://www.thegef.org/gef/gef_projects_funding.
- International Fund for Agricultural Development (IFAD) - Adaptation for Smallholder Agriculture Programme (ASAP), programme information accessed at: <http://www.ifad.org/climate/asap/>.
- International Climate Initiative, project database has been accessed at: <http://www.international-climate-initiative.com/en/>
- Least Developed Country Fund (LDCF), projects with funding from the LDCF and with focal area “climate change”, accessible at: http://www.thegef.org/gef/gef_projects_funding.
- Nordic Environment Finance Corporation (NEFCO), has a series of carbon finance and funds which are listed at: http://www.nefco.org/financing/financing_instruments. NEFCO made a project database available upon request.



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- Special Climate Change Fund (SCCF), was established under the UNFCCC in 2001. Projects with funding from the SCCF and with focal area “climate change” are accessible at: http://www.thegef.org/gef/gef_projects_funding.
- World Bank, projects were included with theme “climate change” in the project database, accessed at: <http://www.worldbank.org/projects>

This information was complemented and cross-checked with national reports from developed countries on their fast start finance disbursements, including:

- The web-site <http://www.faststartfinance.net/> has been used as source for information per donor country. Significant amounts were invested in other funds in this list, like the SCCF. For some countries the web-site reported on direct investments into projects or programmes, these were included in the analysis. This web-site was available only till December 2013.
- An overview of the Fast Start finance commitments from the EU, available at: http://ec.europa.eu/clima/policies/finance/international/faststart/index_en.htm
- The fast-start finance module in the finance portal of the UNFCCC, available at: <http://www3.unfccc.int/pls/apex/f?p=116:1:3965825171180362>

In addition, several national governments and development agencies were approached to provide more granular, project-level information their climate finance disbursements. Project details allowed the identification of mitigation and adaptation activities as well as the cross-checking between different sources of information and thereby minimise double-counting.