



Food and Agriculture  
Organization of the  
United Nations

**Preliminary findings**

# Agriculture-related investments in disaster risk reduction and management

Global and regional trends between 2004 and 2016





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Global and regional trends between 2004 and 2016

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# Foreword

The increased frequency and severity of natural hazards and disasters, largely caused by climate change, has serious negative impacts on the agriculture sectors, threatening peoples' lives and livelihoods as well as national economies.

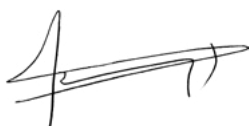
To tackle this challenge, it is important to invest in disaster risk reduction measures that can both increase sustainable agricultural production and boost the resilience of current and future generations. Even in the absence of disasters, these investments can provide significant benefits, for example by encouraging households to protect existing assets and build new ones, as well as by promoting entrepreneurship and stimulating innovation.

At the global level, the international community made a commitment through the *Sendai Framework for Disaster Risk Reduction 2015–2030* to increase investments in prevention and preparedness. The guiding principle of this framework states that it is far more effective to invest before a disaster, rather than to focus on post-disaster measures.

Lack of data related to investments in disaster risk reduction for the agriculture sectors makes it difficult to understand the current state of financial commitments in this area. Without accurate information we cannot effectively measure investment needs and progress made in addressing risks related to climate change and disasters.

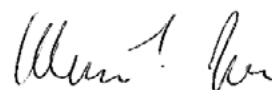
The purpose of this study, conducted by the Food and Agriculture Organization of the United Nations, is to address this knowledge gap and provide quantitative evidence of trends in agriculture-related investment to prevention and preparedness, reconstruction, relief and rehabilitation, as well as emergency response measures at global and regional levels.

We believe that the findings of this analysis will support investment planning in national governments, international financing institutions, the United Nations and resource partners.



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The assessment methodology was designed in collaboration with Muratbek Koshoev, CBC, Vanja Bozic, Resource Mobilization Division (PSR) and Giulia Galbiati, PSR. Jim Hancock, Investment Centre Division, provided further input. Raffaele Bertini, CBC, contributed to the statistical data analysis.







# Acronyms

<b>CRS</b>	Creditor Reporting System
<b>DAC</b>	Development Assistance Committee
<b>DRM</b>	Disaster risk management
<b>DRR</b>	Disaster risk reduction
<b>FAO</b>	Food and Agriculture Organization of the United Nations
<b>ODA</b>	Official development assistance
<b>OECD</b>	Organization for Economic Cooperation and Development







# Highlights

- Disaster prevention and preparedness measures are key to the sustainability of agricultural livelihoods, and can reduce the need for emergency response significantly. Nevertheless, this analysis shows that disaster risk reduction (DRR) and disaster risk management (DRM) in agriculture focus mainly on emergency response rather than preventive actions.
- Between 2004 and 2016, the total official development assistance (ODA) to developing countries and countries in transition amounted to USD 1.63 trillion, invested in different categories and sectors. Only 3 percent of the total ODA was directed to agriculture-related measures within DRR/DRM.<sup>1</sup>
- The analysis of investment trends for DRR/DRM indicates a long-term increase in ODA to prevention and preparedness (including flood prevention and control), across various sectors. However, this trend is not reflected in agriculture-related allocations, demonstrating a need to increase ODA allocations that concern prevention and preparedness measures in the agriculture sectors.
- Of the total agriculture-related ODA for DRR/DRM categories, 92 percent were allocated to emergency response, while 3 percent were allocated to prevention and preparedness (including flood prevention and control), and 5 percent to agriculture-related relief, recovery and rehabilitation measures.
- The observed trend is that agriculture-related prevention and preparedness (including flood prevention and control) allocations peaked during or after disaster events, which might indicate that investments are done reactively, triggered by a large-scale disaster, rather than in an anticipatory way.

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<sup>1</sup> In this assessment the joint acronym for disaster risk reduction (DRR) and disaster risk management (DRM) includes risk prevention, impact, mitigation, preparedness, response, recovery, reconstruction and rehabilitation.

# Introduction and rationale

The agriculture sectors<sup>2</sup> are highly exposed to natural hazards and disasters. The frequency and intensity of natural disasters pose significant threats to countries where a large share of the population is dependent on agricultural production for their livelihoods. The impacts of natural hazards and disasters can dramatically decrease the level of previously achieved development. An assessment by the Food and Agriculture Organization of the United Nations (FAO, 2018) showed that between 2006 and 2016, agriculture sectors in developing countries accounted for almost a quarter (23 percent) of all damages and losses caused by medium- and large-scale natural disasters.

Disaster prevention and preparedness measures are key to increase the resilience and sustainability of agricultural livelihoods, and help eradicate hunger, food insecurity and malnutrition. The investment to *ex-ante* prevention and preparedness activities across sectors has been prioritized at the global level under the *Sendai Framework for Disaster Risk Reduction 2015–2030*. The guiding principle of the Sendai Framework is that risk-informed investments prior to a disaster address the underlying disaster risk factors and are far more cost-effective than the primary reliance on post-disaster response and recovery. Even in the absence of a disaster event, investing in prevention and preparedness can yield significant benefits.

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<sup>2</sup> In this assessment agriculture sectors include food security and nutrition, agriculture, forestry, fisheries and livestock.



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The lack of reliable data on damages and losses, as well as on investments in DRR/DRM, especially sector-specific evidence, constitutes a major constraint for understanding the financial commitments in agriculture-related DRR/DRM interventions. The Organization for Cooperation and Development (OECD) Development Assistance Committee's Creditor Reporting System monitors investments allocated by the OECD Development Assistance Committee, European Union institutions, the International Monetary Fund, Regional Development Banks, UN Organizations, the World Bank, non-OECD member countries and key private resource partners.<sup>3</sup> The OECD database has four categories for DRR/DRM investments (emergency response; reconstruction, relief and rehabilitation; prevention and preparedness; and, flood prevention and control).<sup>4</sup> This is the only database which allows the tracking of disaggregated allocations for DRR/DRM. The logic of the database is such that the DRR/DRM categories do not correspond to, nor disaggregate by development sectors. This assessment, therefore, focused on disaggregating the available data and identifying the current state and trends in agriculture-relevant ODA allocations for DRR/DRM investment categories. The findings of ODA to prevention and preparedness and ODA to flood prevention and control are presented jointly since other hazard-specific sub-categories are not available in the database.<sup>5</sup>

This study addresses a critical knowledge gap and is a fundamental contribution to inform future planning and priority setting for agriculture-related resource allocations in/across pre-, during and post-emergency contexts. The methodological approach used for disaggregation of data is outlined in Annex 1. The geographical scope for preliminary result presentation followed the OECD regional classification presented in Annex 2.

The assessment results can provide strong advocacy for increasing investment to prevention and preparedness measures in agriculture. The regional level results can guide the identification of investment patterns and improve planning for DRR/DRM in agriculture.

The methodological approach can be further expanded to find a statistically sound presence or absence of relationships between ODA data and other DRR/DRM global datasets, as well as further explore investments disaggregating by agriculture sub-sectors and hazard-specific sub-categories.

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<sup>3</sup> Official development assistance flow type used for the assessment is gross commitments.

<sup>4</sup> The OECD coding system has been recently updated with new DRR/DRM relevant categories. This assessment is based on categories used for reporting before 2018.

<sup>5</sup> Two other investment categories were considered relevant (fire and rescue services, and meteorological services), however, since reporting to them is voluntary, these categories were not included in this assessment.



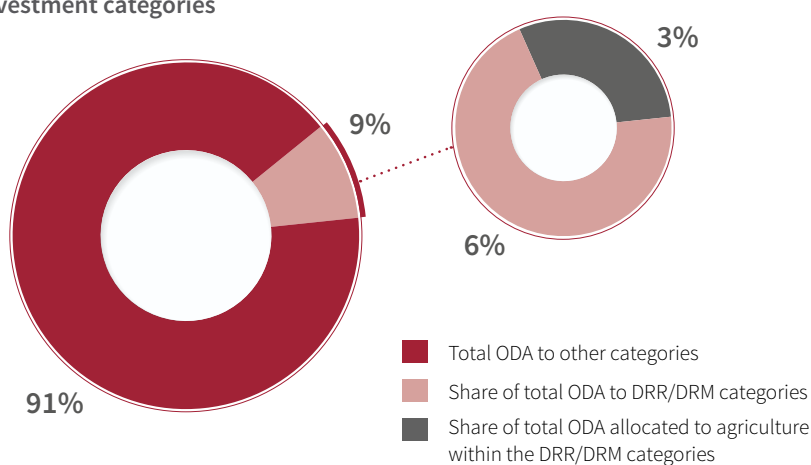
# Key findings

## Global

Globally, between 2004 and 2016, the total ODA allocations to developing countries and countries in transition was USD 1.63 trillion across various sectors. The share of allocations to DRR/DRM categories was 9 percent.

Although allocations for agriculture-related measures within DRR/DRM investment categories accounted for only 3 percent of total ODA, it represents one-third of all DRR/DRM allocations, thus strongly emphasizing the importance of the agriculture sectors in DRR/DRM activities.

**Figure 1. Share of agriculture-related ODA allocations to DRR/DRM investment categories**



Further disaggregation of total DRR/DRM investment to agriculture shows that a majority of the investments were dedicated to emergency response (Figures 2 and 3), while only 3 percent went to prevention and preparedness (including flood prevention and control).

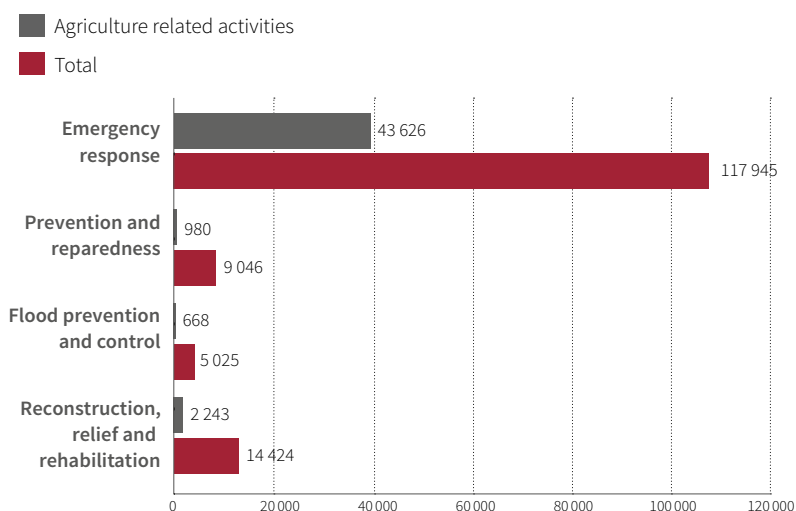
Between 2004 and 2016 there was a global increase in ODA to DRR/DRM relevant categories, driven mainly by an increase in allocations to emergency response.

Since 2004, agriculture-related ODA allocations to emergency response have been consistently high and have increased more than three-fold in the 13-year span. This trend demonstrates the importance given to agriculture during emergency response. A particularly strong increase was observed in 2015 and 2016, most likely triggered by El Niño, which hit agriculture in a disproportional way.

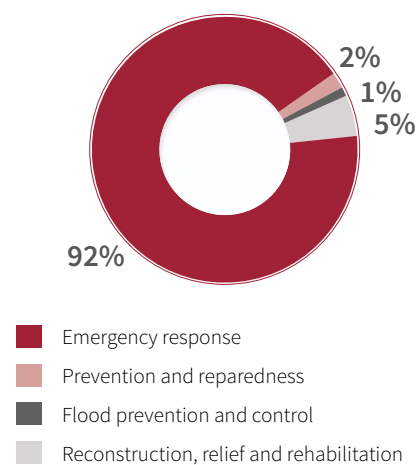
While the overall ODA to prevention and preparedness (including flood prevention and control) has increased between 2004 and 2016, there was not a significant increase in agriculture-related allocations within DRR/DRM activities.



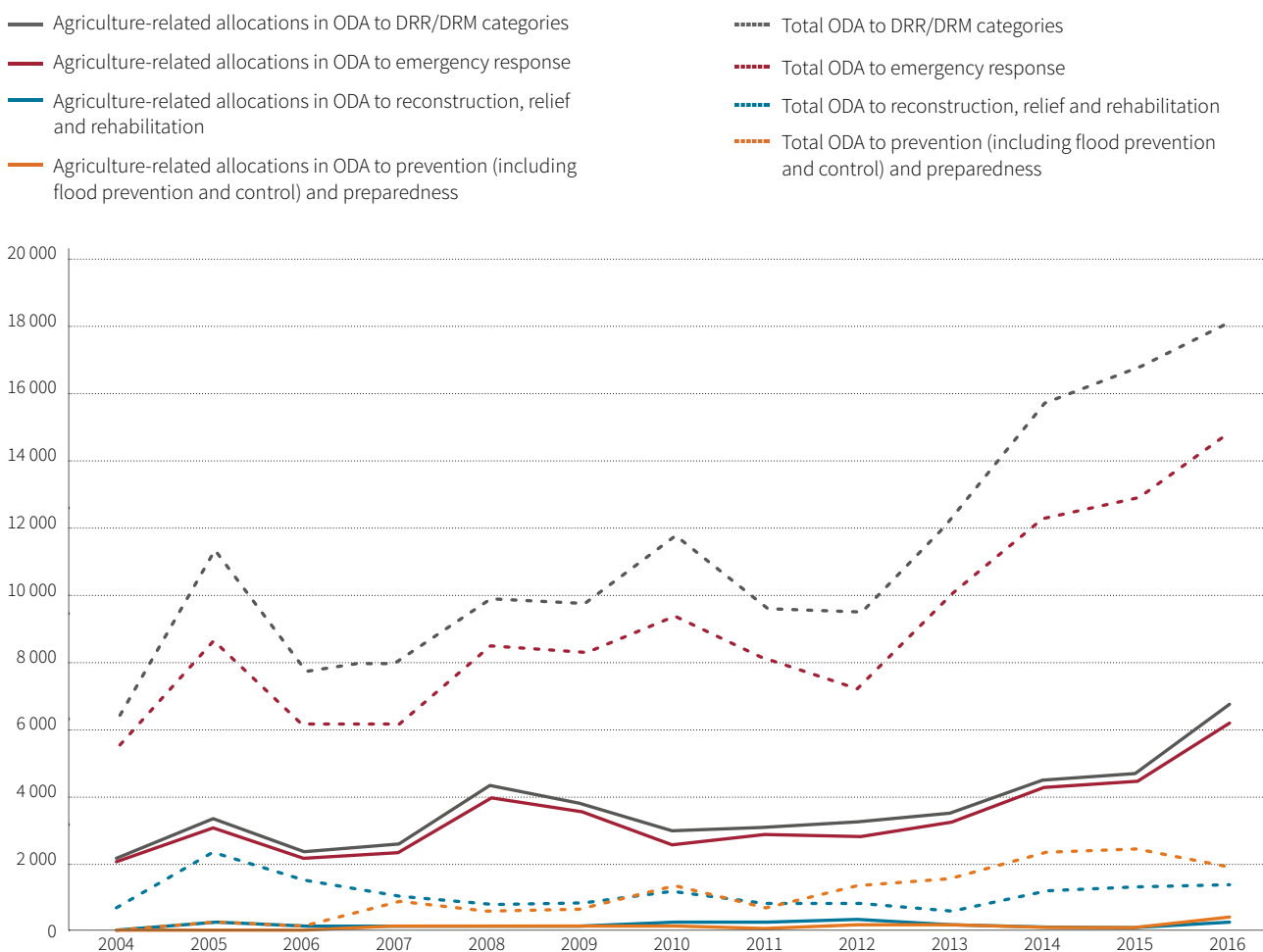
**Figure 2. Distribution of ODA to DRR/DRM investment categories (USD million)**



**Figure 3. Percentage distribution of agriculture-related ODA to DRR/DRM investment categories**



**Figure 4. Agriculture-related allocation in ODA to DRR/DRM investment categories globally between 2004 and 2016 (USD million)**





## Regional

When looking at region-specific ODA allocations to DRR/DRM categories, nearly half in Africa and 20 percent in Asia were directed to agriculture-related measures. In both regions, emergency response received a majority of the agriculture-related allocations.

In Africa, almost half (46 percent) of the ODA was dedicated to agriculture-related emergency response, while only 1 percent to prevention and preparedness (including flood prevention and control).

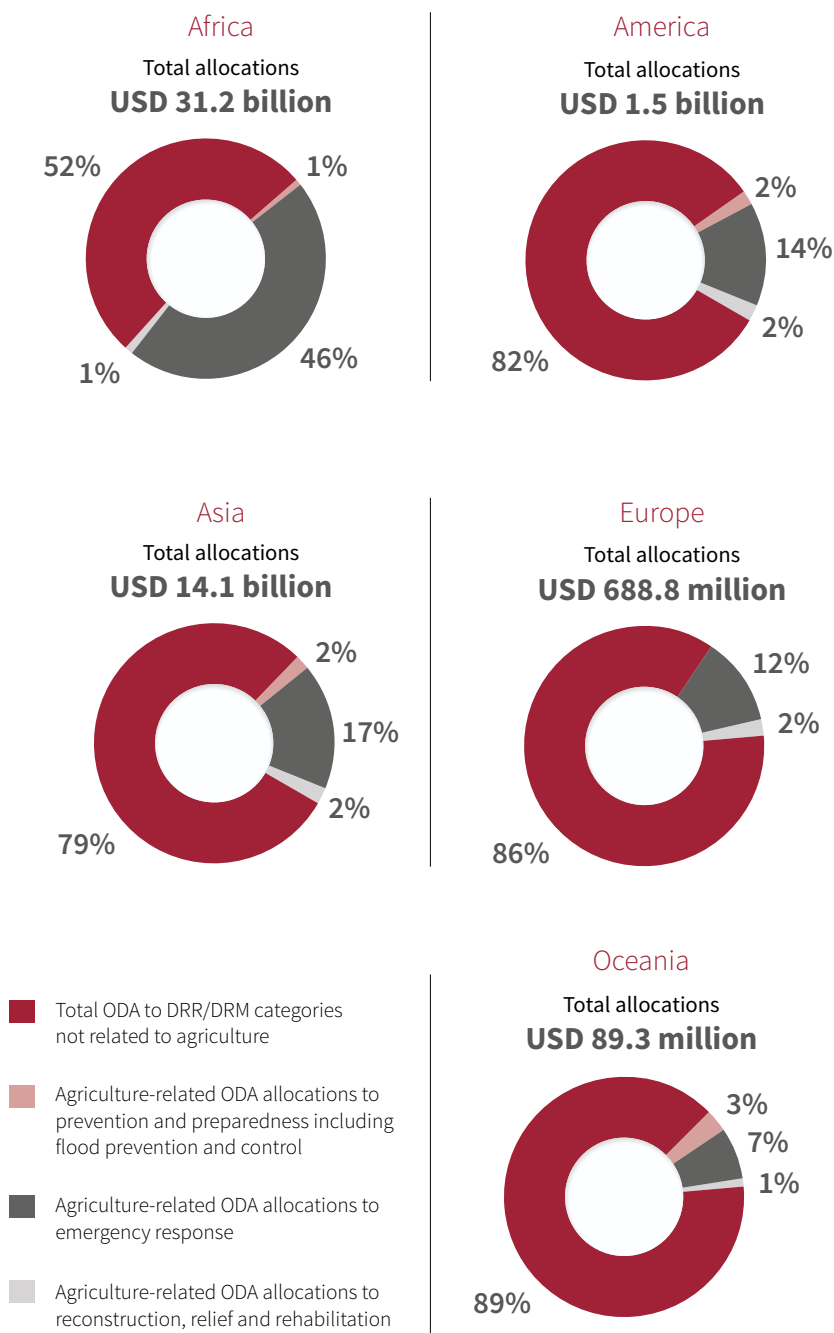
In the assessed period, Asia experienced higher production losses in the agriculture sector caused by natural disasters, compared to Africa (FAO, 2018). However, the share of allocations to agriculture-related ODA to emergency response in Asia was significantly lower than in Africa.

Additional analysis is recommended to better understand the reasons why the agriculture-related ODA to DRR/DRM in Africa is so much higher than in Asia, and why allocations are so strongly dominated by emergency response.

Even though in Oceania agriculture is an important source of livelihood and is highly vulnerable to natural disasters, it received only 11 percent of total ODA to DRR/DRM categories.



Figure 5. Share of agriculture-related allocations in ODA to DRR/DRM categories in Africa, America, Asia, Europe and Oceania



Since 2005, agriculture-related ODA allocations to emergency response within DRR/DRM investment categories have steadily increased in all regions.

The most significant increase was in agriculture-related ODA to emergency response in Asia, where it reached USD 11.4 billion in 2004–2016. The sharp increase in allocations to Asia could be correlated to major disasters that have occurred in the region, including Nias–Simeulue earthquake and tsunami affecting South East and South Asia in 2004–2005, the Pakistan floods in 2010 and the Thailand floods in 2011. The increase in allocations between 2014 and 2016 could be influenced by the El Niño events at the time, which prolonged dry weather, disproportionately affecting agricultural areas (FAO, 2014). El Niño events particularly affected the plantings and yield of the main season food crops in Cambodia, Democratic People's Republic of Korea, Lao People's Democratic Republic, the Philippines, Thailand, and Viet Nam (FAO, 2015).

There was a long-term increasing trend in total ODA to emergency response in Africa, out of which USD 30 billion was allocated to agriculture-relevant activities.

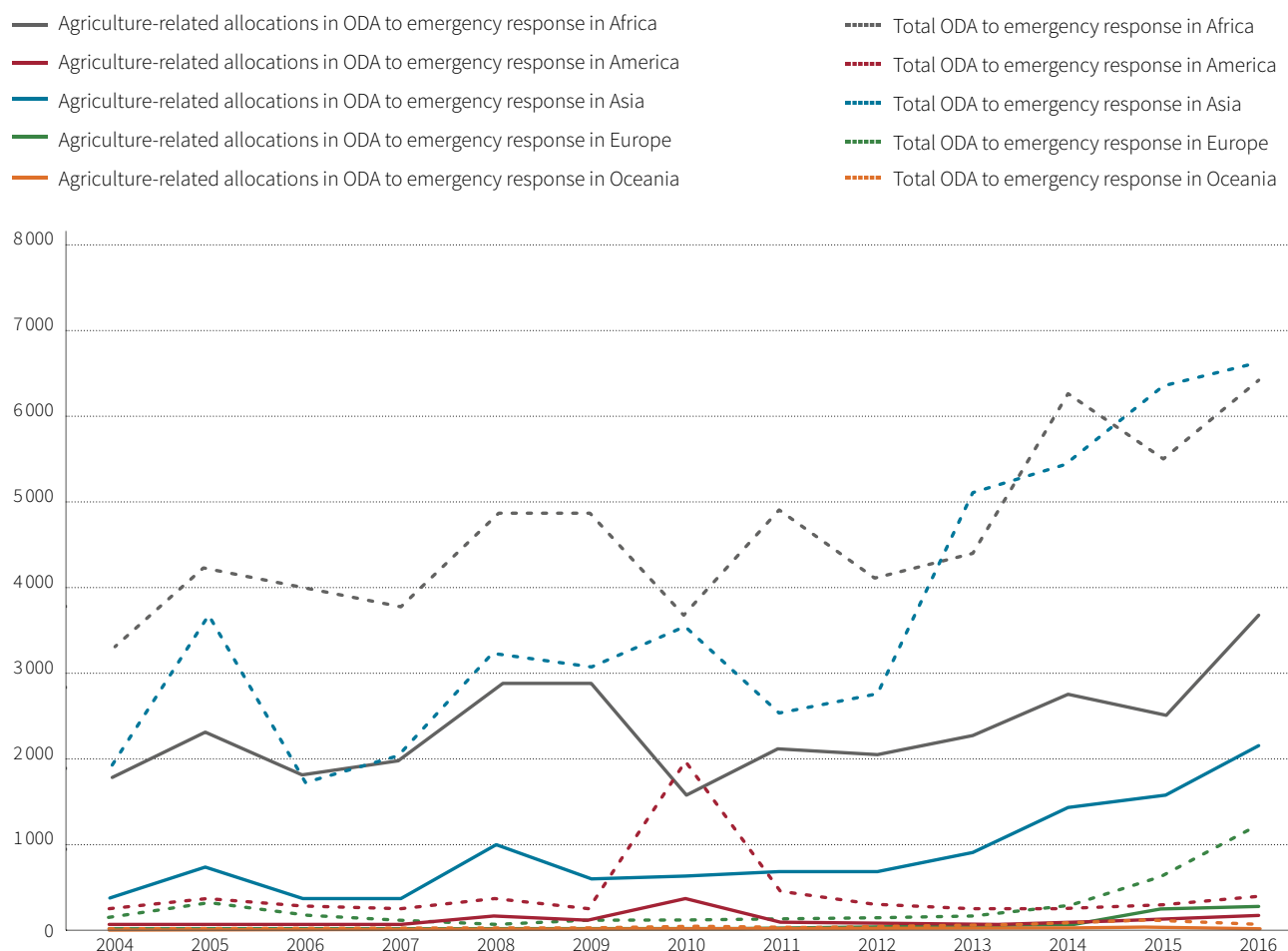
In Oceania there were no significant trends in ODA allocations to emergency response measures related to agriculture. The obvious increase in Europe since 2014 might be due to the severe floods affecting South Eastern Europe, while the drastic peak in 2010 in America could be related to the impacts of severe flooding in Colombia and earthquake in Haiti.

In the 13-year span, the allocations to agriculture-related ODA to reconstruction, relief and rehabilitation in Asia reached USD 1.6 billion, which was higher than all of the other regions put together.





**Figure 6. Agriculture-related allocations in ODA to emergency response by region between 2004 and 2016 (USD million)**

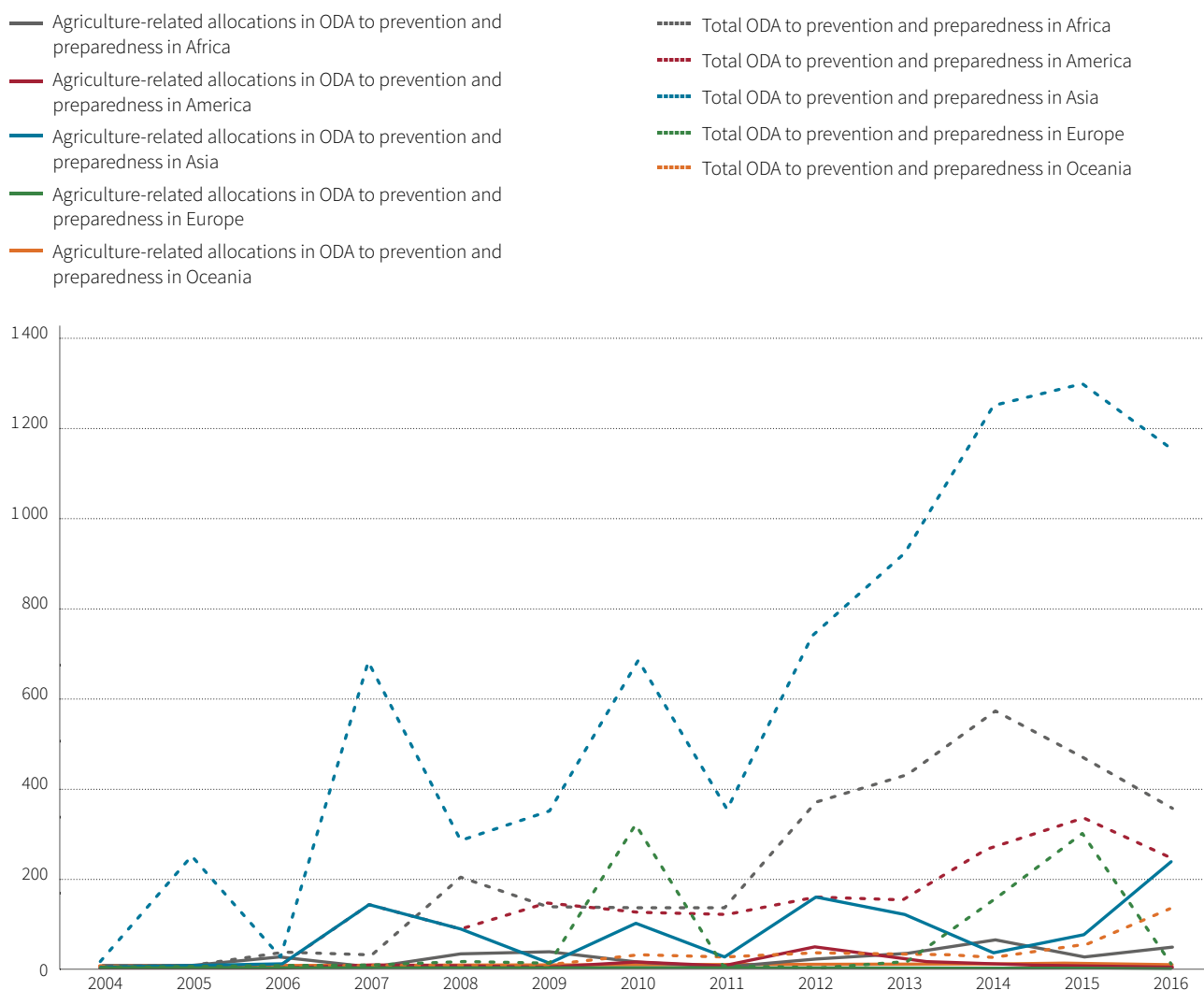


Since 2004, there has been a steady increase in total ODA to prevention and preparedness (including flood prevention and control) within DRR/DRM investment categories. However, this increasing trend was not significantly reflected in agriculture-related allocations in all of the regions.

Between 2004 and 2016, in Africa and Asia<sup>6</sup> there was a significant increasing trend in total ODA to prevention and preparedness, which might be a result of the global commitment made at the World Conference on Disaster Risk Reduction in January 2005, when 168 countries adopted the *Hyogo Framework for Action 2005–2015*. The Hyogo Framework was the first global voluntary agreement to increase the commitment to invest in DRR.

<sup>6</sup> If excluding the 2005 allocations in Asia.

**Figure 7. Agriculture-related allocations in ODA to prevention (including flood prevention and control) and preparedness by region between 2004 and 2016 (USD million)**



ODA allocations to agriculture-related prevention and preparedness are the highest in Asia compared to other regions. Between 2004 and 2016, the total allocation was USD 1.07 billion, out of which about half focused on prevention and preparedness (including flood prevention and control) measures related to agriculture. In addition to floods, this might be due to investments in anticipatory measures for cyclones and typhoons (ODI, 2013).<sup>7</sup>

The observed trend in Asia, Africa and America is that agriculture-related ODA allocations to prevention and preparedness peaks during or after a disaster event, which confirms that investments are mainly done reactively, triggered by a large-scale disaster, rather than in an anticipatory way.

<sup>7</sup> It is important to consider that the ODA to flood prevention and control might not include all of the investment in irrigation, drainage and other water management projects in the region, which could be reported under other development initiatives.



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# Annex 1

Workflow for disaggregation of agriculture-related DRR/DRM allocations in the OECD Creditor Reporting System



## Total ODA allocations in 2004–2016

Creditor Reporting System includes various investment categories, among which four DRR/DRM were identified

ODA to emergency response



ODA to reconstruction, relief and rehabilitation

The inherited logic of the Creditor Reporting System is that the above DRR/DRM investment categories include projects in different sectors (e.g. education, health and agriculture)

ODA to prevention and preparedness



ODA to flood prevention and control

The assessment focused on disaggregating data and identifying ODA allocations relevant to agriculture within DRR/DRM investment categories. It was done by applying keyword searches on project titles, and long and short descriptions of the project activities (in English, Spanish and French). Selection of the keywords was revised and verified by the word frequency analysis in different datasets. In total, this assessment includes 325 micro-databases with reported ODA.

Agriculture-relevant ODA to emergency response

Agriculture-relevant ODA to reconstruction, relief and rehabilitation

Agriculture-relevant ODA to prevention and preparedness

Agriculture-relevant ODA to flood prevention and control



# Annex 2

## OECD country classification by region

Region	Countries
<b>Africa</b>	Algeria; Egypt; Libya; Morocco; Tunisia; Angola; Benin; Botswana; Burkina Faso; Burundi; Cabo Verde; Cameroon; Central African Republic; Chad; Comoros; Congo; Côte d'Ivoire; Democratic Republic of the Congo; Djibouti; Equatorial Guinea; Eritrea; Eswatini; Ethiopia; Gabon; Gambia; Ghana; Guinea; Guinea-Bissau; Kenya; Lesotho; Liberia; Madagascar; Malawi; Mali; Mauritania; Mauritius; Mayotte; Mozambique; Namibia; Niger; Nigeria; Rwanda; Saint Helena; Sao Tome and Principe; Senegal; Seychelles; Sierra Leone; Somalia; South Sudan; Sudan; United Republic of Tanzania; Togo; Uganda; Zambia; Zimbabwe
<b>America</b>	Anguilla; Antigua and Barbuda; Aruba; Bahamas; Barbados; Belize; Bermuda; British Virgin Islands; Cayman Islands; Costa Rica; Cuba; Dominica; Dominican Republic; El Salvador; Grenada; Guatemala; Haiti; Honduras; Jamaica; Mexico; Montserrat; Netherlands Antilles; Nicaragua; Panama; Saint Kitts and Nevis; Saint Lucia; Saint Vincent and the Grenadines; Trinidad and Tobago; Turks and Caicos Islands; Argentina; Bolivia; Brazil; Chile; Colombia; Ecuador; Guyana; Paraguay; Peru; Suriname; Uruguay; Venezuela (Bolivarian Republic of)
<b>Asia</b>	Brunei Darussalam; Cambodia; China; Democratic People's Republic of Korea; China, Hong Kong SAR; Indonesia; Republic of Korea; Lao People's Democratic Republic; China, Macao SAR; Malaysia; Mongolia; Philippines; Singapore; Taiwan Province of China; Thailand; Timor-Leste; Viet Nam; Afghanistan; Armenia; Azerbaijan; Bangladesh; Bhutan; Georgia; India; Kazakhstan; Kyrgyzstan; Maldives; Myanmar; Nepal; Pakistan; Sri Lanka; Tajikistan; Turkmenistan; Uzbekistan; Bahrain; Iran (Islamic Republic of); Iraq; Israel; Jordan; Kuwait; Lebanon; Oman; Qatar; Saudi Arabia; Syrian Arab Republic; United Arab Emirates; West Bank and Gaza Strip; Yemen
<b>Europe</b>	Albania; Belarus; Bosnia and Herzegovina; Croatia; Cyprus; North Macedonia; Gibraltar; Kosovo; Malta; Republic of Moldova; Montenegro; Serbia; Slovenia; Turkey; Ukraine
<b>Oceania</b>	Cook Islands; Fiji; French Polynesia; Kiribati; Marshall Islands; Micronesia; Nauru; New Caledonia; Niue; Northern Mariana Islands; Palau; Papua New Guinea; Samoa; Solomon Islands; Tokelau; Tonga; Tuvalu; Vanuatu; Wallis and Futuna islands









# Saving livelihoods saves lives

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