Impact of Disasters on Agriculture and Food Security

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The importance of monitoring why these studies?

• A clear understanding of disaster impact on the sector is crucial for effective DRR policy, investment and resilience.

• Fill knowledge gaps: the impact of disasters on agriculture remains poorly documented and under-analyzed.

• Lack of evidence in building economic cases for DRR investment in agriculture.

• Constraints in directing financial resources to the agriculture sector.

• FAO seeks to continue providing updated and systematic data and analysis.
FAO 2015 report found that:

- Only 4.2 percent of total official development assistance was spent on agriculture between 2003 and 2012;
- Between 2003 and 2013, roughly USD 121 billion was spent on humanitarian assistance for all types of disasters and crises;
- About 3.4 percent was directed to the agriculture sector, averaging about USD 374 million annually;
- The economic impact of disasters on agriculture is not well documented and analysed (lack of data and methodologies).
Impact of Disasters and Crises on Agriculture and Food Security – SP5 Report 2017

Highlights of the 2017 Report

- A clear understating of disaster impact on the sector is crucial for effective DRR policy, investment and resilience;
- 2017 Report contributes to bridging persistent knowledge gaps & presents the FAO D&L Methodology;
- An improved assessment of damage and loss from natural hazards in crops and livestock: a hefty share for agriculture and its subsectors;
- A scope beyond natural hazards: food chain crises & conflict and protracted crises (Syria chapter);
- A holistic view of agriculture: first look into forestry, fisheries & aquaculture.
The Analysis:

- includes both large as well as medium- to smaller-scale disasters;
- macroeconomic analysis based on trend analysis of crop and livestock production yields (FAOSTAT and EM DAT CRED);
- relative share of agriculture in damage and loss analysis - based on a review of 74 Post Disaster Need Assessments (PDNAs) conducted in 53 developing countries from 2006 – 2016.
Key Messages

- Steady trends of increasing economic impact & damages
- Annual economic loss from *climate and weather-related events* has been growing disproportionately
Figure 1. Damage and loss in agriculture as share of total damage and loss in all sectors (2006-2016)

Disaster **damage** in agriculture, share of total: 16%

Disaster **loss** in agriculture, share of total: 31%

Disaster **damage and loss** in agriculture, share of total: 23%

Source: PDNA Analysis
Impact of Disasters and Crises on Agriculture and Food Security – SP5 Report 2017

Key Messages

Figure 2. Damage and loss in agriculture as share of total damage and loss in all sectors (2006-2016), by type of hazard

- Storm: 23%
- Earthquake: 4%
- Flood: 17%
- Tsunami: 11%
- Drought: 83%
- Volcanic Eruption: 30%

Source: PDNA Analysis
Total production loss, 2005-2015 (in USD billion)

- Asia: $48 B
- Latin America & Caribbean: $22 B
- Africa: $26 B

Source: FAOSTAT
Impact of Disasters and Crises on Agriculture and Food Security – SP5 Report

Figure 2. Production loss due to natural disasters as percentage of potential production, by region, 2005-2015

Source: FAOSTAT
Impact of Disasters and Crises on Agriculture and Food Security – SP5 Report

Key Messages

Figure 3. Total production loss per disaster type, 2005-2015

- Earthquakes/landslides/mass movements: 1%
- Drought: 11%
- Extreme temperature: 30%
- Floods: 20%
- Crop pests/animal disease/infestations: 10%
- Storms: 20%
- Wildfires: 8%

Figure 4. Production loss by region and per disaster, 2005-2015 (in USD billion)

- Africa: $50B
- Latin America & Caribbean: $20B
- Asia: $40B


Source: FAOSTAT
Figure 9. Production loss by commodity group, 2005–2015 (in USD billion)

USD billion:
- Asia

Legend:
- Cereals
- Vegetables
- Fruits & nuts
- Oilseeds
- Roots & tubers
- Coffee, tea, cocoa & spice crops
- Legumes
- Livestock

Source: FAOSTAT
### Key Messages

**Figure 10. Average absolute and relative impact of disasters in SIDS and NON-SIDS countries (2006-2016)**

<table>
<thead>
<tr>
<th>Population affected</th>
<th>Damage and loss in agriculture</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SIDS</strong></td>
<td></td>
</tr>
<tr>
<td>440,000 people</td>
<td>50 million</td>
</tr>
<tr>
<td>18% of total population</td>
<td>19% of agriculture value added</td>
</tr>
<tr>
<td><strong>NON-SIDS</strong></td>
<td></td>
</tr>
<tr>
<td>2.2 million people</td>
<td>580 million</td>
</tr>
<tr>
<td>6% of total population</td>
<td>8% of agriculture value added</td>
</tr>
</tbody>
</table>

Source: FAOSTAT
Highlight 2: FAO’s Holistic Approach to Agriculture in the D&L Context

- Leveraging in-depth FAO expertise in each sector
- Bringing Forestry into the picture
- Bringing Fisheries and Aquaculture into the picture
- Knowledge gaps to be addressed – critical requirements for applying FAO’s methodology to fisheries and forestry
Highlight 3: Covering new ground – Food Chain Crises and Conflict

- **Transboundary animal diseases:**
  - PPR alone costs an estimated USD 1.45 to 2 billion each year
  - Wheat rust can cause up to 80% yield loss, putting worldwide wheat production at risk

  *FAO Report looks at RVF outbreaks and their impacts as well as the interplay between climatic events, natural hazards and disease outbreaks*

- **Conflict and Protracted Crises:**
  - Half a billion people live in 19 countries with protracted crises, mostly in Africa
  - Of the 815 million people suffering from chronic hunger, 489 million live in conflict areas
  - 30% : mean prevalence of undernourishment in protracted crisis in 2016

  *FAO report is measuring damage and loss in the agricultural sector in Syria: adapting a specific methodology for D&L assessment in conflict and using innovative methods of data collection*
Highlight 4: FAO’s Methodology for D&L Assessment

- Integrated into the Sendai and SDG monitoring framework
  - FAO – UNISDR cooperation

- Holistic representation of the ag-sector
  - Covers crops, livestock, fisheries, forestry and aquaculture

- Case study-based application:
  - Ethiopia drought, 2008-2011
  - Typhoon Haiyan in the Philippines, 2015

- Country pilots and trainings:
  - CD trainings in Latin America & Caribbean and Eastern Africa
  - Country pilots: Chile, Colombia, Dominica, Tanzania

Indicator C-2 Direct agricultural loss from disasters

\[ C_2 = C_{2C} + C_{2L} + C_{2FO} + C_{2A} + C_{2FI} + C_{2La} + C_{2Lb} \]

- C-2C: Direct crop loss
- C-2L: Direct livestock loss
- C-2FO: Direct forestry loss
- C-2A: Direct aquaculture loss
- C-2FI: Direct fisheries loss
- C-2La: Direct damage to agricultural assets
- C-2Lb: Direct damage to stored inputs and outputs
Main conclusions: Way Forward

• DRR/M must be systematically embedded into agriculture sectoral and sub-sectoral development plans and investments.

• Increased financial resources should be directed to the agriculture sectors.

• DRR/M strategies should be fully integrated into post-disaster recovery efforts in the sector.

• National governments and the international community should establish targets for financing DRR in the agriculture sector.
• Improving data and building knowledge on disaster impact on agriculture – including forestry, fisheries and aquaculture – is essential
  → Improvement of local-level data in national databases and information systems
  → Improvements of D&L data collection and analysis at country-level

• Giving voice to “silent” disasters
  → Localized disasters are often un-reported, yet have grave consequences for rural livelihoods

• Strengthening capacity, building partnerships
  → Improved mechanisms and resources for data collection, management and analysis
  → Supporting National Statistical Offices, National DRM Agencies and Bureaus of Agriculture
  → Enabling a coordinated and coherent application of FAO’s assessment methodology
  → Strengthening cross-institutional partnerships, responsibility sharing and information flow

• Streamlining damage and loss assessment efforts for better DRR policy, improved resilience and higher investment in agriculture
Thank you!