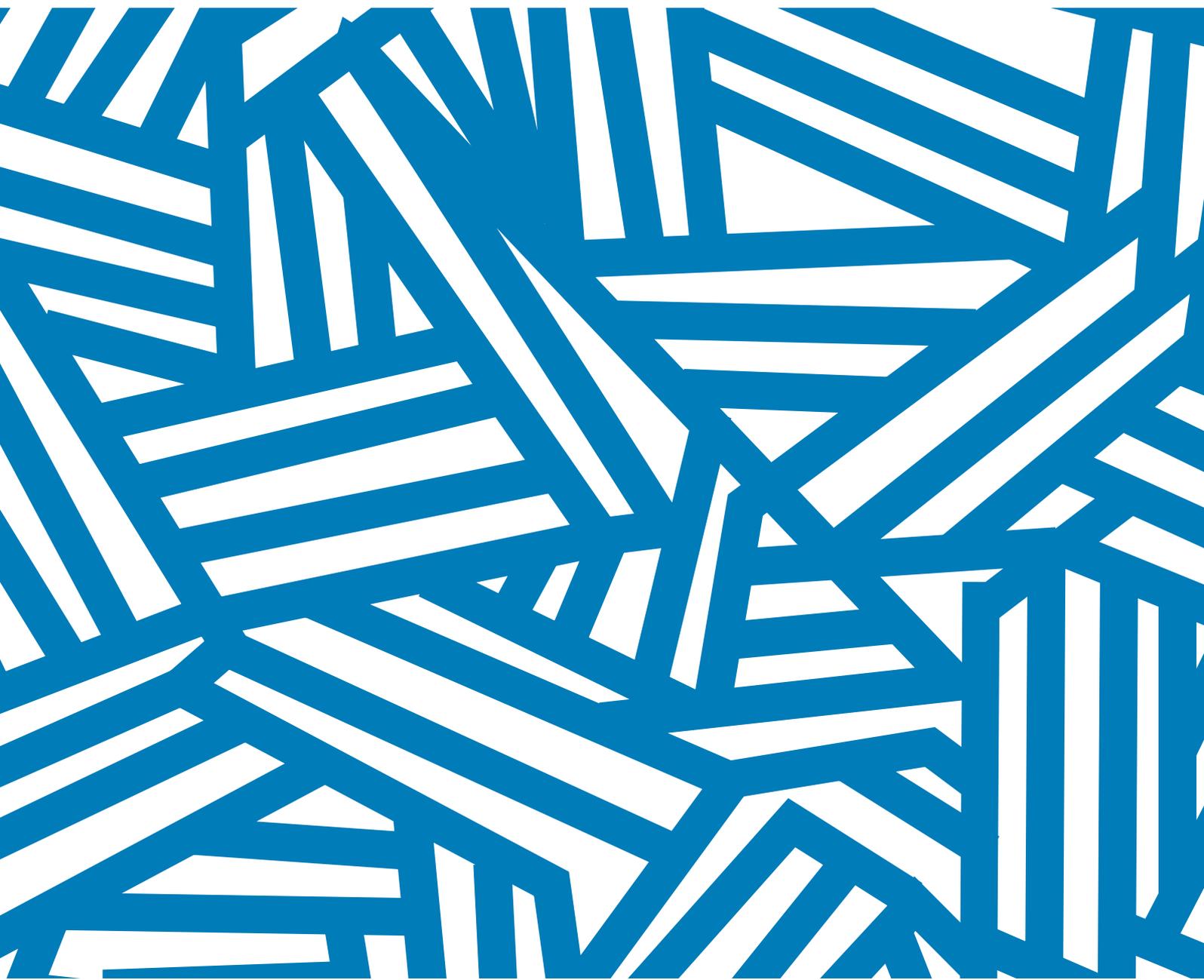


# Agriculture and Disaster Risk

A contribution by the United Nations to the consultation leading to  
the Third UN World Conference on Disaster Risk Reduction



This brief has been prepared building on the findings of the paper prepared by FAO to contribute to the objectives of the Global Assessment Report 2015 (GAR15). The analysis and findings of the study focused on the process and current stage of mainstreaming disaster risk reduction (DRR) into formal planning processes in 30 developing countries highly vulnerable to natural disasters.

## Key recommendations for the next framework on disaster risk reduction:

1. Prioritize critical sectors and themes for disaster risk reduction and management for which progress needs to be bold - e.g. productive sectors like agriculture and food and nutrition security - and include specific targets and indicators for each in order to monitor and report progress.
2. Promote capacity development along with clear institutional and financial commitment for DRR at all levels through sectoral line agencies.
3. Promote people-centred approaches in building resilience with sector-specific actions, including the transfer and dissemination of known and new risk reduction technologies and practices to the most vulnerable.
4. Improve linkages between humanitarian, development interventions and investments on risk management for agriculture, food security and nutrition, including reinforcing the systematic incorporation of DRR in post-disaster recovery, including across all sectors.
5. Address vulnerabilities beyond natural hazards, taking into account transboundary animal and plant pests and diseases as well as food safety events.
6. Provide better guidance to seek synergies between DRR and climate change adaptation (CCA) in sectoral policies, investment plans, and development programmes in order to reduce emerging risks associated to extreme climate events.

## Overview/rationale

Exposure to and losses resulting from natural disasters, in particular hydrological disasters, are increasing worldwide, affecting peoples' livelihoods and food security. Worldwide, there are currently 805 million undernourished people; about 13.5% percent of the population living in developing countries suffer from chronic hunger. Most of them live in rural areas and depend on agriculture, fisheries, forests and livestock for their livelihoods. Agriculture is one of the sectors most affected by natural hazards and disasters, which enhance vulnerabilities of resource-poor farmers/fishers/herders in particular and often, threaten their livelihood security. Over the past decade, natural disasters have caused an estimated USD 1.3 trillion in damages, causing the loss of life of 1.1 million and affecting another 2.7 billion people. For 2013, the Centre for Research on the Epidemiology of Disasters registered 334 natural disasters that affected 97 million people and caused over USD118 billion in economic damages. Nearly USD 2.5 billion of humanitarian funding has been invested for emergency response and recovery in the agriculture sector in countries affected by disasters between 2000-2014. Yet, the agriculture sector was among the most underfunded sectors of international humanitarian assistance. Only 41 % of identified demands were met; on average, the agriculture sector received 2.7% of total humanitarian funding in the same period.

Large shocks and extensive risks cause serious long-term damage to livelihoods and food security, often diminishing or reversing gains in poverty reduction, agricultural development and in the reduction of hunger. The loss data in table 1 shows that damage of various types of hazards on agriculture is massive and varies from case to case, depending where the hazard hits.

**Table 1: Examples of major disaster impacts on sector:**

	<b>Total damage &amp; loss</b> (USD million)	<b>Damage &amp; loss to agriculture</b> (USD million)	<b>% Agriculture damage &amp; loss of total</b>	<b>Agriculture value added<sup>1</sup></b> (% share of GDP)
<b>Brazil<sup>2</sup> 2013 drought</b>	10,000	4,300	43%	5%
<b>Philippines<sup>3</sup> Typhoons Haiyan, 2013 Pablo, 2012</b>	12,940 897.6	1,407 645	10.9% 71.8% <sup>4</sup>	12%
<b>Kenya 2011 drought</b>	12,100	10,251	84.7%	30%
<b>Thailand 2011 floods</b>	46,500	1,240	2.6%	12%
<b>Pakistan 2010 floods</b>	10,100 (5.8% of 2009/2010 GDP)	5,000	49.5%	24%
<b>Haiti 2010 earthquake</b>	7,800 (120% of 2009 GDP)	149	1.9%	--
<b>Senegal 2009 floods</b>	104	13	12.5%	17%
<b>Djibouti 2008 to 2011 drought</b>	209	70	33.6%	--

Source: www.gfdr.org (unless otherwise specified)

A generic trend is that damage and losses from mega disasters in agriculture are higher in countries where agriculture is among the most important economic sectors, contributing to as much as 30% of GDP and where agriculture provides a main source of employment. Both characteristics feature high in least developed countries (LDCs). On top of the recorded events, recurrent "silent disasters" (extensive disasters) – more frequent, smaller in size, often localized and not systematically recorded by governments - account for an additional estimated 50% of damages and losses. For example direct and indirect losses from the 2008–2011 droughts in Kenya accounted for approximately USD 12.1 billion, 84% of which were lost in agriculture, which are estimated to have caused a reduction of GDP of 2.8 % per year during that period. In general, for the agriculture sector, slow-on setting disasters caused by drought are particularly harmful.

Agriculture is challenged to move towards resilient food systems that are more efficient and productive, preserve the natural resource base and ecosystem services, while being able to withstand risks, shocks and long-term climate variability. This transition requires a major shift towards sector specific DRR measures, technologies and practices, as well as towards a more sustainable use and management of vital resources such as land, water, soil nutrients and genetic resources. Considerable changes in regional, national and local governance, legislation, policies and investments in the sector are needed to strengthen resilient agricultural production systems.

To reduce underlying vulnerabilities and the exposure to current and future losses and damage caused by natural hazards and disasters, it is crucial to systematically mainstream DRR into the agricultural sector, in synergy with climate change adaptation and natural resources management

<sup>1</sup> <http://data.worldbank.org/indicator/> for the year 2012.

<sup>2</sup> Aon Benfields' Impact Forecasting, Global Catastrophe Recap Report, March 2014. Agricultural data refers to crop losses.

<sup>3</sup> Data on total damage and loss and data on damage and loss to agriculture is from FAO-Philippines Office.

<sup>4</sup> Pablo hit an agricultural area.

## **Scale of global expenditure in the agricultural sector (or typical % of national economic turnover) with, if possible, projection of potential loss to disaster and/or climate risk:**

- Global agriculture value added in % of GDP for 2011: 3.1 %
- Least developed countries' agriculture value added in % of GDP for 2012: 25.7%

## **Status of mainstreaming disaster risk in agriculture**

### ***(i) Progress in addressing disaster risk in agriculture, including:***

#### **Agriculture planning**

Initial progress has been achieved in addressing disaster risks in agricultural development planning. Continued efforts for more in-depth planning are necessary to support implementation of frameworks with clear defined vision, priority needs, and strategic measures that reduce risks within the agriculture sector of countries, informed by multiple key stakeholders, including civil society, the private sector and research institutions. Gender-specific approaches for DRR in agricultural planning remain weak and need to be strengthened in target setting, and implementation of action plans.

#### **Agriculture legislation/policies**

There is a need to ensure that legislation, policies and standards for the agriculture sector integrate DRR perspectives to inform sector planning and investment. Even though some countries adopt international standards - like Voluntary Guidelines on the Responsible Governance of Land Tenure, on Securing Sustainable Fisheries, on Fire Management or the Code of Conduct on the Distribution and Use of Pesticides – and some countries have laws for land use - overall the principles and practices outlined therein provide only limited direct guidance on systematic DRR. Enhanced risk and safety standards in all aspects of DRR are key to enhance sector responsibilities and accountabilities for DRR; of similar importance to reduce underlying vulnerabilities are equitable land use rights to achieve more sustainable land stewardship and investments to enhance resilience.

#### **Capacities for DRR in agriculture sector agencies**

The state of existing technical capacities and know-how for DRR within the agriculture sector varies considerably from one country to another. Often DRR-related activities are not labelled or earmarked as such, given that they have long been part of regular development activities in agriculture, such as breeding of hazard tolerant varieties and the monitoring and mitigation of plant pests and diseases. Enhanced technical capacities for DRR are needed within sectoral ministries to enable them to proactively address DRR planning and implementation from national to local levels, including sub-national mechanisms and actions that benefit local farming communities and promote resilient livelihoods.

#### **Understanding underlying risks and enhancing preparedness in agriculture**

Early warning and preparedness measures are the most common aspects of DRR adopted in the current agricultural development plans of many countries, underscoring their direct relevance to the sectors. There is a need however to further support sector specific applications of early warning systems and risk assessments with the aims to (a) further enhance timely access and understanding of messages at community and farm levels and (b) ensure that risk assessments and early warning systems inform and connect in a systemic way (rather than as stand-alone tools) all actions and interventions implemented along the five priority areas of the successor of the HFA.

#### **Post/disaster recovery assessment and planning**

DRR is not yet mainstreamed adequately into post-disaster recovery efforts in the agriculture sectors. Capacity development and investments for DRR are usually lacking in the fabric of building-back-better strategies that could ensure the sustainability of recovery investments through all sub-sectors.

#### **Annual budget allocation**

Disaster risk related budget allocations in most countries are done for DRM, rather than for DRR, and most of the resources used for emergency funds and response. Even in the rare cases where national funding is specifically allocated to DRR, it hardly ever reaches into the agriculture sector. Beyond stand-alone budget allocations for DRR – usually targeting national and local DRR-specific agencies - financial resources should be mainstreamed across ministries/departments, including at sub-national level.

### **Agriculture specific institutional mechanisms and set-up**

Progress in addressing DRR in agricultural development planning has in most countries not yet translated into enabling institutional structures within the sector. The existence of agriculture specific institutional mechanisms to coordinate within and across related sectors, drive policy formulation and planning for DRR in agriculture, and oversee implementation at all levels is still incipient and needs to be strengthened in the future to accelerate progress. It will require strong offices and/or focal points in the key ministries/departments, at all levels, with clearly defined and coordinated responsibilities vis-à-vis DRR. Partnerships including with research institutions, civil society and other relevant national actors will further enhance sector specific and system wide DRR planning, mainstreaming and delivery on the ground, and can optimize available resources.

#### **Implementation of DRR in agriculture** (agriculture's capacity to deliver at national and local levels)

While DRR is increasingly being integrated into agricultural planning, the implementation of proactive DRR measures through the agriculture sector is lagging behind and remains a gap, often due to lack of capacities (and financial resources for DRR). Implementation will require solid operational partnerships, the allocation of sector-specific responsibilities and funding for DRR and strengthened technical capacities to facilitate the planning and implementation of DRR processes and measures from national to local levels; including sub-national mechanisms and actions that benefit local farming communities and men and women equally. In this process the agriculture sector has a key responsibility in promoting, at a bigger scale than achieved at present, the replication of good practices and technologies for DRR and natural resource management to promote resilient livelihoods.

#### **(ii) Emerging trends**

A recent trend observed is the increasing integration of DRR and climate change adaptation linkages into sector planning instruments and institutional mechanisms (e.g. Nepal, Peru, Philippines), reflecting the increasing recognition of the complementarities and overlaps between climate change adaptation and DRR. This trend is also emerging in the institutional arrangements within ministries, where in some countries a technical unit or office is formally mandated to oversee either DRR or climate change adaptation or both (e.g. Bangladesh, Peru, and Pacific States).

Another emerging trend is the development of agriculture-specific plans for DRR/M that integrate a comprehensive set of strategic measures in the sector along the HFA priorities for action (e.g. Plans of Action for DRR/M in Nepal, Lao PDR, Bangladesh, Peru, Saint Lucia, Jamaica, Grenada, Saint Vincent and Grenadines, Commonwealth of Dominica, Guyana).

A third, more specific trend in the integration of DRR into the agriculture sectors is the growing recognition of the importance of national drought management policies for preparedness and early response. More countries are implementing such policies. Progress in many regions is under way facilitated also by the current joint capacity building campaign of FAO, WMO, CBD and UNCCD coming out from the 2013 High Level Meeting on National Drought Management Policies (<http://www.hmndp.org>).

## **Drivers for mainstreaming disaster risk into agriculture**

The main drivers for integrating DRR into the agriculture sector are 1) the presence of clear cross-sectoral national policies that make mainstreaming DRR into development sectors an explicit and strategic priority, 2) a good understanding of the nexus between disaster risk and sustainable agriculture development, and 3) the global agenda on climate change adaptation.

### **Challenges in mainstreaming disaster risk into agriculture**

- Lack of explicit guidance in the HFA on mainstreaming into sectors with clear targets
- Moving from concept to action in countries where sector-specific capacities, planning processes and financing are not in place or weak at the national, sub-national and local levels.
- Making the mainstreaming of DRR in agriculture a priority in countries with high levels of food insecurity and where agriculture is a key economic sector (% of GDP), and in those that are at risk of multiple and often cascading shocks, in particular where natural hazards happen in the context of protracted crises, violent conflict or post-crisis transition
- More than 95% of humanitarian finance is still spent on disaster response and less than 5% is spent on reduction of the risk of disasters. Little or no DRR funding going into sectors, and there is no earmarked funding for DRR in AG sector ministries.

### **Regional/international policy frameworks and initiatives within agriculture to be targeted (other than the HFA2)**

International: Post-2015 development agenda (SDGs), UNFCCC, UNCCD, CFS, Global Alliance for Climate-Smart Agriculture

Regional: AGIR, CAADP, ECOWAP, AADMER, Drought Resilience and Sustainable Livelihoods Programme (DRSLP) for the Horn of Africa, etc.

## Measuring disaster risk in agriculture

**Qualitative (Substantial, moderate or limited integration) description of level of references and integration of agriculture in HFA country report/HFA indicators/IPCC SREX/others:** The national HFA reports have not been adequately capturing the progress made in DRR within the agriculture sector. Reporting on the sector is limited, patchy and inconsistent. This is largely due to the design of the HFA monitor itself and particularly the formulation of questions within it that are broad and non-sector specific.

**Level of integration of disaster risk within agricultural national and global monitoring processes:** No evidence.

### Agriculture Target and Indicator options (as they would relate to the SDGs and the HFA2)

#### Risk Governance ( Priority for Action 1 in HFA)

- Disaster Risk Reduction is an integral part of national agriculture, food and nutrition related policies and plans and/or the national policy for disaster risk reduction and/or management has an explicit and comprehensive inclusion of agriculture, food, nutrition and/or related sectors.
- Existence of a well-functioning disaster risk reduction/management structure within agriculture, food and nutrition and related sectoral agencies.
- Adequate levels of human and financial resources allocated towards risk reduction for agriculture, food security and nutrition.

#### Risk Knowledge (Priority for Action 2 and 3 in HFA):

- Systems are in place to collect, monitor and share data on key hazards and vulnerabilities for risks affecting agriculture, food and nutrition.
- Loss and damage data are systematically collected for the agriculture sector, not only in generic terms.
- Early warning systems are in place for all major risks affecting agriculture, food and nutrition with outreach to communities.

#### Preventing New Risk ( Priority for Action 4 in HFA):

- Prevention and mitigation measures are applied to reduce risks for agriculture, food and nutrition at all administrative levels (e.g. sustainable land management techniques and drought management measures to restore and rehabilitate desertified, degraded and drought-prone areas and prevent future degradation/desertification).
- Sector development policies, planning instruments and public investments have DRR mainstreamed and tools are available to risk proof new development investments.

#### Reducing Existing Risk (Priority for Action 5 in HFA):

- Multi-hazard disaster preparedness and/or contingency plans for agriculture, food and nutrition are in place and effective for DRR at all administrative levels and/or the national contingency plan has an explicit and comprehensive inclusion of agriculture, food, nutrition and/or related sectors.
- Disaster risk reduction measures for agriculture, food and nutrition are integrated into emergency response, post disaster recovery and transition-development planning and interventions.

#### Strengthening Resilience:

- Agriculture, food and nutrition related social and economic support and services provided to communities at risk to reduce their vulnerabilities.

## List of agencies contributing and description of institutional commitment

In FAO, disaster risk reduction and management for resilience is a corporate priority. It is expressed in FAO's Strategic Framework 2010-19, and further elaborated through its renewed results-based management via its Strategic Objective 5 "Increase the resilience of livelihoods to threats and crises" affecting agriculture, food and nutrition (one objective among its five new strategic objectives).

The UNCCD as the key intergovernmental normative platform for land and soil provides a global framework to support the development and implementation of national and regional policies, programmes and measures to prevent, control and reverse desertification/land degradation and mitigate the effects of drought. As such, the reduction and forward-looking management of disaster risk for resilience is part of its reason of being. UNCCD promotes land-based techniques and mechanisms for the mitigation of, and adaptation to climate change and climate-aggravated disaster risks, with a particular focus on the slow-onset disaster of drought and the slow-moving process of land degradation. Addressing challenges to the food, energy, water nexus from the "land and soil" leverage point – to improve ecosystems and livelihoods wherever land is desertifying or degrading –, the UNCCD is spearheading efforts to achieve land degradation neutrality through a post-2015 land and soil policy.

### Key documents/source of additional information

- FAO. 2014. Mainstreaming Disaster Risk Reduction in Agriculture: An Assessment of Progress made against the Hyogo Framework for Action. Input Paper prepared for the Global Assessment Report on Disaster Risk Reduction 2015.
- FAO. 2013. Resilient Livelihoods: Disaster Risk Reduction for Food and Nutrition Security. Rome, Italy.
- FAO. 2013. Climate-Smart Agriculture Sourcebook. Rome, Italy.
- UNCCD. 2014. Land-based Adaptation and Resilience. Powered by Nature. Bonn, Germany.
- UNCCD. 2014. Land Degradation Neutrality. Resilience at Local, National and Regional Levels. Bonn, Germany.
- UNCCD. 2014. Civil Society. Stewards of the Land. Bonn, Germany.

**About the UN Plan of Action on Disaster Risk Reduction for Resilience:** The UN Plan of Action, endorsed by the UN Secretary-General and the Executives Heads of UN Specialized Agencies, Funds and Programmes, includes a commitment for the UN system to work together to ensure disaster risk reduction is a key component of the post-2015 development agenda supported by a post-2015 framework for disaster risk reduction (HFA2). The UN Plan of Action improves system-wide coordinated actions and coherence, as well as increased effectiveness and collaboration in the support to Member States on disaster risk reduction.

**UN High Level Programmes Committee Senior Managers Group on Disaster Risk Reduction for Resilience (HLCP/SMG):** Members of the HLCP/SMG that oversees the implementation of the UN plan of Action are FAO, IAEA, IFAD, IFRC, ILO, IMO, IOM, ITU, UNAIDS, UNCCD, UNDP, UNEP, UNESCO, UNFPA, UNHABITAT, UNHCHR, UNICEF, UNISDR, UNOCHA, UNOPS, UNOOSA, UNWOMEN, UNWTO, UPU, WFP, WHO and the World Bank.

