

NWP SYNTHESIS PUBLICATION

Assessing climate risk and vulnerability

Pledge n.3 – “Provision of global public goods for adaptation”

Motivation and objectives of the pledges actions:

NWP Call for Action 1: “Promoting development and dissemination of methodologies and tools for impact and vulnerability assessments, such as rapid assessments and bottom-up approaches, including as they apply to sustainable development”

NWP Call for Action 4: “Promote the availability of information on the socio-economic aspects of climate change and improve the integration of socioeconomic information into impact and vulnerability assessments”

Expected outcomes

- Continued contribution to reducing the impact of climate-related disasters by using and sharing information that helps to predict where and when crises will occur, whom they will affect and what their magnitude will be.
- Maintained and updated information sources on global food security vulnerabilities, which reflect the changing conditions of a changing climate.

Context

Floods, hurricanes, mudslides, drought and other weather and climate-related events destroy crops, homes, and lives – increasing hunger among the world's poorest people. As such, developing and strengthening national and regional institutions, mechanisms and capacities contributes to building resilience to climate hazards. A crucial aspect in reducing vulnerability of climate-related risks - including food insecurity - is to make climate-related information available and accessible to decision-makers.

This is what WFP is doing by helping countries and regional institutions to deliver better climate and food security services such as vulnerability assessments, early warning systems, as well as crop and food security monitoring systems.

Using complex weather data in emergency preparedness, disaster risk reduction and vulnerability assessment to increase vulnerable countries and communities resilience to climate change, WFP assisted 15.7 million people affected by natural disasters in 2008.

Case studies

1. Strengthening national and regional disaster preparedness networks

SACTA

(Sistema de Alerta Temprana para Centro America – www.Sactaweb.org)

In one of the most disaster prone areas of the world, the occurrence of drought, hurricanes, floods, and other hazards profoundly affects the lives and livelihoods of millions of people, undermining their food security and development gains. WFP leads systems development in disaster early warning by providing a sophisticated web-based disaster monitoring and forecast tool called SATCA (from the Spanish acronym).



SACTA serves as a platform to provide early warning services and capacities and systems across Central America.

Information related to floods, hurricanes, volcanoes, tsunamis and earthquakes alerts, drought maps, produced by local, regional, global and regional institutions is collected and systematized in one platform, serving as a one-stop-shop for disaster preparedness and a single point of access for all stakeholders.

The system, which uses state of the art technology and provides precise, timely and real-time information regarding on-going and forecasted natural hazards, supports the works of existing regional emergency preparedness institutions and civil protection and promotes capacity development and enhanced South-South cooperation among partners in the Central America region.

During the last two years, WFP SATCA platform for Early Warning in Central America contributed to the rapid deployment of aid response to emergencies in Cuba, Haiti, Mexico, Nicaragua, Belize, among others and it is a valid example of a regional disaster risk reduction initiative in vulnerable countries, providing a platform to ensure better preparedness and response to recurrent natural shocks.

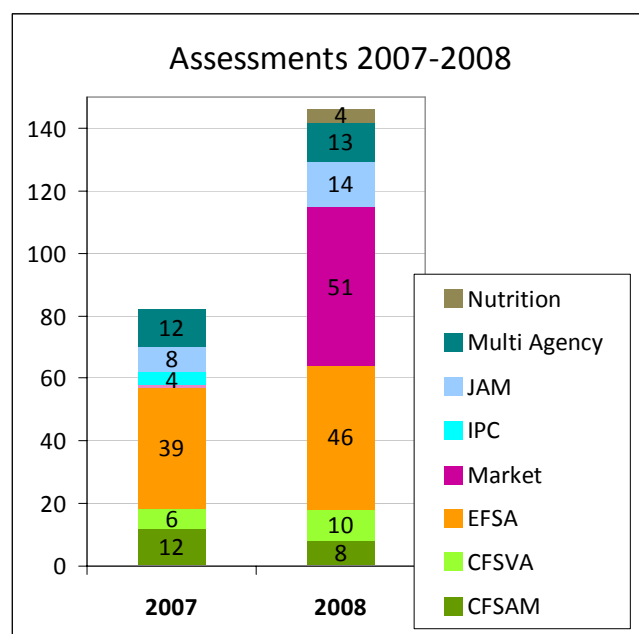
Next stage of SATCA developments includes incorporating information on food production and availability to produce forecasts of planting seasons and expected harvest outputs to enhance food security analysis in this region susceptible to climate change effects.

2. Implementing Vulnerability Analysis and Mapping (VAM) to address climate change and food security

An important tool that WFP uses to anticipate the risks posed by climate change, is Vulnerability Analysis and Mapping (VAM). It allows identifying the factors likely to undermine livelihoods, food production or supply systems that cause increased food insecurity – including unfavourable weather conditions; the groups of populations that may need assistance now or in the future and the types of assistance that may be required; and the situation indicators to be monitored. In 2008, the number of VAM assessments increased by 80 percent and WFP widened the net of assessment data, factoring in economic impact, food security issues, nutrition analyses and urban populations.

Climate variability and change are additional factors that are part of this analytical framework supporting national authorities. WFP has recently signed an MOU with the World Meteorological Organization (WMO). Its aim is to enhance vulnerability analysis and adaptation assessments in support to food security. It will also strengthen Early Warning and Preparedness systems and frameworks, in support of national, regional and global partners, among others.

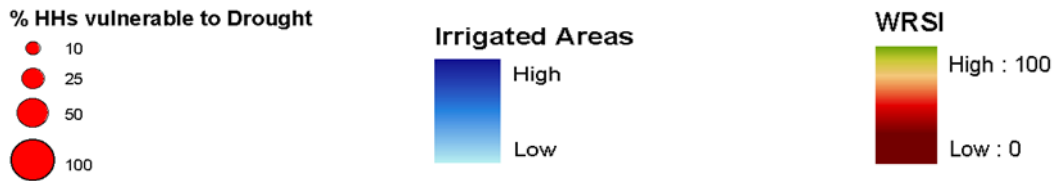
Enhanced analysis allows for better programme design and prioritization on the ground. This is the case of a joint WFP effort of Preparedness, Programme Design and Food Security Analysis, the multi-disciplinary approach combines analysis of historical trends of disasters, household food security information and livelihood patterns, seasonality and natural environments information in Madagascar, Haiti and Afghanistan. WFP is planning to develop other multi-disciplinary risk and vulnerability analysis in other countries of Africa and Asia.



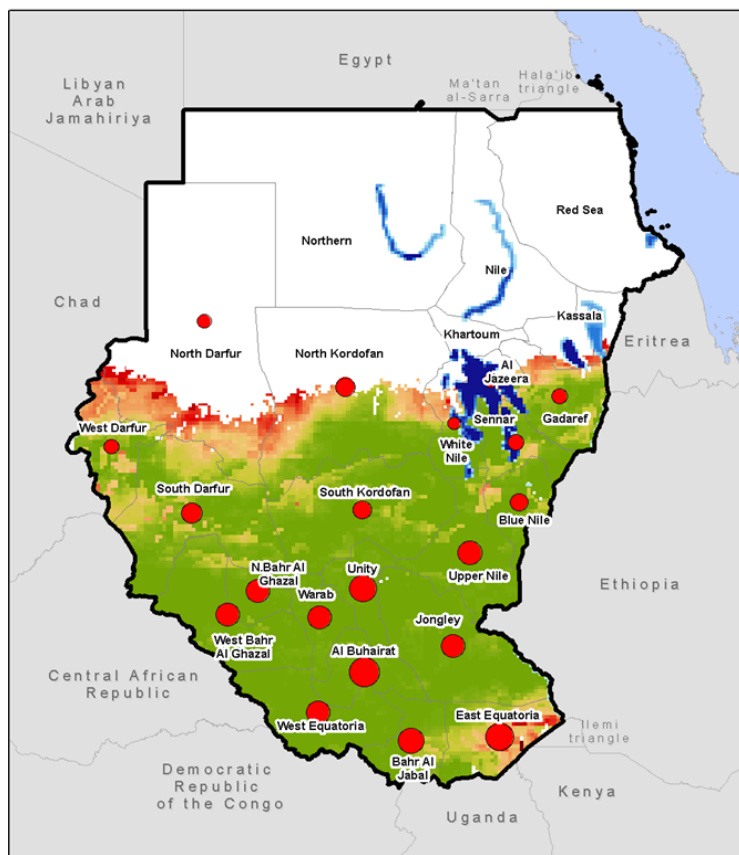
Example

The vulnerability of Sudan to drought

The map below highlights the impacts of drought on household production showing who are the most vulnerable.



(WRSI: Water Requirement Satisfaction Index)



3. Better preparedness for climate-related humanitarian emergencies

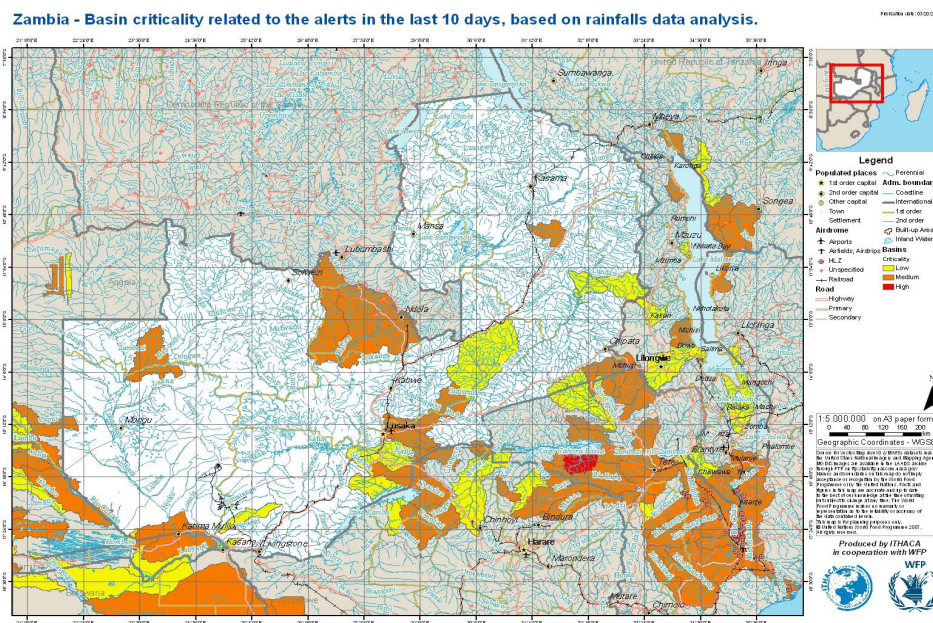
The tool Early Impact Analysis calculates the effects of heavy rainfall, recognizing potentially floodable areas in food insecure areas. In 2008, Early Impact Analysis successfully supported WFP's emergency coordination efforts in China (earthquake), Haiti, Madagascar (Cyclone Ivan), Mozambique, Myanmar (Cyclone Nargis), Zambia and others, and was invaluable in planning and prioritizing locations for needs assessments and logistics routes.

Impact forecast

The Zambia example

In the case of Zambia, Early Impact Analysis was used to combine historical and open-source data (from the United States National Imagery and Mapping Agency) to show the areas in which heavy rainfalls are occurring and which river basins will be affected. River basins are shown in different colours to indicate the level of criticality, according to the severity of the rainfall. The map, and others like it, are delivered through a dynamic website and are instantly retrievable.

This early warning system is designed to produce detailed analytical maps in a rapid and precise way. By using information alerts, a following map will be automatically produced and the overall situation will be visualised on a web application.



Conclusions:

Emerging good practices and lessons learned

- Timely production, dissemination and use of information about potential climatic risks through different communication technologies such as emails, sms and fax, increases awareness among relevant national institutions, targeted audiences and the general public about climate change risks and needs.
- The identification and monitoring of weather and climate-related hazards allows using the relevant weather information to manage disaster risk more efficiently both during preparedness and response.
- Vulnerability analysis is a central resource for targeting those who are most at risk of climate change impacts.
- Enhanced bottom-up analyses based on climate information, such as VAM, are instrumental to enhance Governments' capacities and to enable targeting of development and relief action.

Emerging opportunities, challenges and future needs

- Combining top-down climate projections with bottom-up vulnerability analysis contributes to reduce the uncertainty in which the world will have to envisage climate change adaptation activities.

- Smarter global public goods need to be made available and accessible to all stakeholders.