

NWP SYNTHESIS PUBLICATION

Reducing risks of extreme events and weather-related disasters

Pledge n.1 “Responding to climate-related emergencies”

NWP Call for Action 3: *“Promoting understanding of impacts of, and vulnerability to, climate change, current and future climate variability and extreme events, and the implications for sustainable development”*

- Improved preparedness and rapid and effective response to humanitarian emergencies, including those linked to extreme weather events, in order to save lives, protect and rebuild livelihoods, and increase resilience and adaptive capacity to climate change.

Context

The United Nations World Food Programme (WFP) is responsible for three-quarters of the emergency food assistance, with an operational presence in over 70 countries in the world.

Extreme weather has a direct impact on the work of WFP. Only in 2008, WFP launched 23 country relief operations for victims of drought, earthquakes, floods and storms, providing assistance to 1.1 million victims of the Cyclone Nargis in Myanmar, among other operations.

Half of WFP’s expenditures are a result of weather-related causes. Climate change will multiply the risks faced by vulnerable populations. Changes in weather patterns, such as increases in the frequency and severity of extreme weather events, could significantly impact food-insecure populations, and, in turn, drive emergency assistance operational costs.

Adapting to the challenge of climate change requires new approaches and tools, especially in the field of prevention and risk reduction, that can help meet the growing demand for emergency preparedness and response in a cost-efficient way. This includes Weather risk transfer tools. Index-based insurance for agriculture, for example, allows to transfer weather related disaster risk from vulnerable populations to public or private risk takers guaranteeing beneficiaries’ timely, objective, predictable and transparent disaster assistance. This saves lives and livelihoods and protects development gains, thus reducing the overall impact of future climate variability and extreme events.

At the same time, climate change increases the need for tools to assess vulnerabilities to extreme weather events and deteriorating climatic conditions. WFP’s Vulnerability Assessment and Mapping (VAM) helps define the specific current and future weather-related risks to livelihoods and food security, thus supporting the design of activities as well as allowing for contingency planning to be capable of effectively responding to possible future crises.

Case studies

Livelihood Early Assessment Protection (LEAP) – Livelihood stress and livelihood protection cost index

WFP and the World Bank, together with the Government of Ethiopia, have developed of a software called LEAP - Livelihoods, Early Assessment and Protection. Building

on crop models expertise of the FAO, the software allows users to monitor livelihood stress related to drought and flooding for populations dependent on rain-fed agriculture or forage for grid cells of 8 x 8 km in Ethiopia and estimates the financial magnitude of the livelihood-saving interventions needed in the event of a weather shock. LEAP conveys information in near real-time to ensure that the response to drought-related livelihood crises will be more timely and effective. The tool is being used to guide disbursements of up to \$ 180 millions to scale-up Ethiopia's Productive Safety Net Programme to deal with additional shock-affected beneficiaries. The initiative builds on WFP's 2006 drought insurance pilot project which showed that it is feasible to use market mechanisms to finance drought risk in Ethiopia and that it is possible to develop objective, timely and accurate indicators for triggering drought assistance.

Risk View

With the support of the Rockefeller Foundation, and hosted at WFP, a new project called Climate and Disaster Risk Solutions focuses on quantifying and monitoring weather risks for food security with a view to creating a sustainable Africa-wide natural disaster risk management system for efficient and timely emergency response. One of the principal products resulting from this new endeavor will be *RiskView*, a software platform that quantifies weather-related food security risk in operational cost terms. *RiskView* aims to translate real-time and historical weather data into current and potential food security needs.

Understanding the expected and variable costs of weather-related events that can occur in the coming season not only allows for better preparation in the short-term, but also opens up opportunities for the future. Understanding and quantifying current weather risk is a prerequisite for understanding the potential humanitarian and financial impact of climate change on food-insecure populations and where such impacts would be most acute. This information will help in guiding investment and policy decisions for the organization and the international community.

Conclusions

Emerging good practices and lessons learned

- These tools are important resources to discover and manage climate change related risks. The simulation of climate change impacts will then help to target interventions in the most vulnerable areas.
- Rainfall and water balance models are indicators to identify climate change impact on food production. This risk quantification in the food security context is useful to improve preparedness and response to humanitarian emergencies spurred by climate change.
- These tools are instrumental in advising policy makers and farmers. They provide relevant information to decision makers in order to prioritize climate change risk and increase investments. On the other hand, they help farmers to strengthen their ability to manage crops.
- An objective, timely and cost-effective response will contribute – in the medium and long-term - to livelihoods protection and adaptation to climate change.

Emerging opportunities, challenges and future needs

- Well-established platforms and capacities can be combined and deployed to address climate change adaptation risks and needs.
- Using climate change scenarios put forth by the Intergovernmental Panel on Climate Change (IPCC), *RiskView* inputs can be adjusted to reflect modeled changes in temperature and rainfall from as many climate models and emission scenarios as appropriate. Climate and Disaster Risk Solutions will work with leading institutions and scientists to use the available information in the most meaningful and sensible way to estimate the potential impact on the world's most vulnerable.