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Activity Details (ID 1725)

ACTIVITY OVERVIEW

Activity Title:	Ethiopia: Weather Risk Management Framework using Weather-Based Indices		
Amount Approved:	\$330,000.00	Status:	Active
Track:	2		
Actual Start Date:	08/20/2008	Original End Date:	
Revised End Date:		Actual End Date:	

Summary of activity and implementation strategy:

In January 2007, the World Bank approved a \$175 million grant to finance the second phase of the PSNP in Ethiopia - \$25 million of which is a contingent grant to be disbursed based on its principal trigger: a weather-based index that serves as an early, objective and accurate predictor of ex-post needs. By committing these contingent resources, the World Bank has taken the first step in managing a major risk threatening the success of the country's largest safety net programme and hence in taking the humanitarian reform process one step further. Government and development partners agree the index will need to be further developed, back-tested, and finalized through a broadly consultative process; and that ultimately the index will be housed within a Government institution. In this context, this project contributes to reforming the system of emergency relief in Ethiopia, shifting, to the extent possible, away from ex-post disaster relief to ex-ante risk management as the strategy for responding to emergencies with the overarching goal of protecting rural livelihoods and development gains. In Ethiopia crop yields are to a large extent predicted by the amount of available water compared to water requirement. One could argue that total rainfall during the season is therefore a good indicator. This has proven to be too crude an indicator. Drought and flooding within the same year can result in seemingly favourable total rainfall amount. It has been found that a simple Water Balance Model correlates better to yields. Relevant national and international agencies will be involved to investigate and verify the LEAP (Livelihoods, Early Assessment & Protection) index as a sound basis for triggering contingency financing and hence as an improvement to the system of early warning in Ethiopia, both in quality and impact. The LEAP index is intended to harmonize key components of a risk management framework designed to translate early warning information into early emergency response. (1) Early warning tool, or index, that tracks livelihood protection needs near real-time, is directly linked to contingency plans and serves as the decision-making basis for resource mobilization; these characteristics must be met for proper planning; (2) Localized budgeted contingency plans that set forth shelf projects or action plans for scaling up PSNP-related activities in response to increased vulnerability to food shortfalls, early asset depletion and other risks related to drought. The timeliness of preparing these plans is thus crucial if they are to be financed through the contingent financing facility; (3) Capacity building at the operational level prompted by early warning information and guided by contingency plans for effective plan implementation; (4) Ex-ante financing made contingent on predefined early warning indicator and intended to finance contingency plans for prompt, if not automatic, mobilization of human, financial and physical resources. The index when directly linked to contingency plans and associated contingency financing will allow planners to better organize resources by building capacity in areas where drought conditions are anticipated to develop. Seamless coordination of these four components is the key to effective natural disaster risk management.

Objective and Impact Assessment:

Objective 1. To enhance early warning systems for rural areas in both quality and impact through advanced technology and integration into comprehensive risk management framework. Output 1.1 Sub-national index design prepared with key Government and development partners providing reliable, objective, accurate and timely assessment of needs resulting from defined weather variations. Activities 1.1.1 Refine the 2008 Ethiopia Drought Index based on recommendations made by experts following field verification exercises. Output 1.2 LEAP software developed to operationalize index design (i.e. facilitate agro-meteorological data management and index calculation) and easily communicate early information to technical advisors and decision-makers. Activities 1.2.1 Assess quality of station and remote sensing weather data, local crop parameters and soil conditions 1.2.2 Establish standardized, sustainable and timely system of communicating remote sensing and National Meteorological Agency (NMA) station data for index calculation 1.2.3 Evaluate information on economic exposure per household and the number of households at risk to drought-related agricultural income/consumption shocks in a defined geographic boundary; [Hazard modeling] Model Ethiopia's predominant weather hazard (i.e. drought) by translating rainfall amount and distribution into crop and forage production on a grid-basis using LEAP methodology and software 1.2.4 [Vulnerability modeling] Model the likelihood that vulnerable households will fall into poverty as a result of defined production shortfalls 1.2.5 [Risk modeling] Relate defined weather variations to number of beneficiaries in need of assistance using the three specified vulnerability modeling techniques 1.2.6 Translate number of beneficiaries into cost of intervention for final indexing Output 1.3 LEAP index design and software tested and verified through documented back-testing, field verification and household surveys Activities 1.3.1 Beta-test LEAP results, incorporating feedback from various users, primarily NMA and Ministry of Agriculture and Rural Development (MoARD) 1.3.2 Evaluate index design through historical back-testing (documented statistics), actual yields from field surveys using traditional methods and comparison with livelihood -based impact analysis 1.3.3 Perform livelihood-based impact analysis using the Household Economy Approach for regions where livelihood profiles are available 1.3.4 Verify individual data inputs using historical back-testing field surveys and variable-level sensitivity analysis 1.3.5 Refine index design as needed

and repeat above activities Output 1.4 Understanding of LEAP index development and application among major users and decision-makers in the development community Activities 1.4.1 Organize general workshop to explain index components, present findings of verification exercise (Output 1.3), discuss local institutionalization of technology and integration into risk management framework 1.4.2 Train technical users in LEAP software application, major components of the training including data preparation, processing and interpretation 1.4.3 Prepare and distribute LEAP documentation, including training manual 1.4.4 Facilitate meetings and periodic review of ongoing index development and application Output 1.5 Systems for sustainable management of the index established Activities 1.5.1 Support Project Steering Committee; 1.5.2 Establish systematic monitoring and evaluation of major index outputs in selected test woredas (i.e. monitor modeled crop yields against actuals throughout growing season) 1.5.3 Identify capacity building required for local institutionalization of LEAP index and software, including technical support for personnel and hardware upgrade 1.5.4 Support Government institution identified to manage weather indices. This institution will be recommended by the Project Steering Committee and approved by MoARD; Objective 2. To support integrated weather risk management framework through collaboration with concerned stakeholders. Output 2.1 Direct link between LEAP index and contingency financing established Activities 2.1.1 Examine and document how the LEAP index aligns with broader set of process and outcome indicators, Support another index-based weather insurance transaction on behalf of and as directed by the Government of Ethiopia Output 2.2 Contingency planning and capacity building (at federal level) supported and linked to LEAP index Activities 2.2.1 Establish link with FSCB contingency plans and other regional and woreda action plans mainly to ensure compatibility between transfer amount and cost as assumed in index calculation 2.2.2 Work closely with Risk Financing design team especially to support scenario building using LEAP index 2.2.3 Provide federal and regional training on index construction and monitoring of index performance and its implication.

Approach and schedule:

The World Food Programme will be the primary implementing entity with staff at headquarters in Rome and at the WFP Ethiopia country office in Addis Ababa managing the project. The headquarters team is made up of the members of the Policy, Planning and Strategy Division's Risk Reduction & Disaster Mitigation, reporting to the Director of Policy. The Country Office Team is led by the chief of the Vulnerability and Mapping (VAM), who reports to the Country Director. The core team also includes senior World Bank staff coordinating the PSNP and a senior Government official from the Disaster Prevention and Preparedness Agency. The team frequently briefs the head of the Food Security Coordination Bureau. Key consultants include Weather Risk Management Expert, Joanna Syroka (who also created the indices for risk transfers in India and Malawi among others) and agrometeorologist and software developer Peter Hoefsloot (who also developed FAO's AgroMet Shell). In line with the project approach, a number of other stakeholders will be involved in data collection, data processing, LEAP software development and application as well as ultimate early warning data dissemination: •National Meteorological Agency will play a key role in providing station data required for updating water balance calculations in near real-time. • Early Warning and Response Departments of the Ministry of Agriculture and Rural Development will also work closely with NMA in updating the model's crop parameters, monitoring data outputs and advising on potential upgrades. • Both the Early Warning and Response and Food Security Departments of the Ministry as well as Disaster Prevention and Preparedness Agency are expected to make use of these early warning outputs. As LEAP may be used to identify hot-spot areas and improve current assessment efforts, it can provide early indication of areas requiring PSNP scale-up and act as secondary data before DPPA led multi-agency food security and FAO/WFP Crop and Food Supply assessments are conducted. •Technical advisors expected to be involved in index finalization include Livelihood Integration Unit within DPPA and Save-the-Children UK for vulnerability baseline setting and risk modelling, Food and Agricultural Organization, especially under "Support to food security information systems" project, and Livestock Information Network Knowledge System for hazard modelling, Famine Early Warning System for remote sensing product improvement, specifically RFE, as well as Ethiopia Institute of Agricultural Research and International Food Policy Research Institute for index monitoring and verification. Stakeholder engagement is critical to establishing and sustaining the proposed comprehensive risk management system. It is necessary to build on the tremendous experience and institutional knowledge developed by Government and its partners. Within the scope of this Project relevant stakeholders will be informed about the LEAP index, including frank discussions regarding its capabilities and limitations. This will be done through formal and informal meetings, technical notes, training of government staff (May and November 2008), stakeholder workshops (January and October 2008) If deemed satisfactory to serve as one principal trigger for risk financing, then others involved in the wider risk management framework should consult with the Project team on a regular basis in order to promote optimal linkage across the identified risk management components. WFP staff and consultants will report on the project's technical progress to a Project Steering Committee to be headed by Ministry of Agriculture and Rural Development and comprised of representatives from NMA, Ethiopian Institute of Agricultural Research, Early Warning and Response and Food Security Departments of MoARD, AAU Regional Development, DPPA Early Warning and WFP VAM (with a secretariat function). The Committee will meet regularly in order to carry out the following key tasks: 1.Oversee project implementation to ensure timely and effective delivery of project outputs and activities; 2.Approve criteria for LEAP verification as suggested by Project team; 3.Identify linkages with other food security and early warning projects; 4.Collaborate closely with FSCB risk financing consultants, particularly the early warning specialist; 5.Make final recommendation regarding the tool's contribution to early warning and its feasibility in guiding risk financing instruments; present findings at November workshop; 6.Make final recommendation on eventual institutional home of LEAP index; 7Facilitate technology transfer to Government, specially MoARD.

Coordination Issues:

In 2006, WFP piloted the world's first insurance contract for humanitarian emergencies. Coverage was put in place that would have provided US\$7 million in contingency funding to WFP to provide assistance to Ethiopia in the case of

extreme drought that year. The premium for the contract was paid by USAID and Denmark. The contract was based on rainfall and was transacted with an international reinsurer, AXA Re. The pilot project 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. The index was updated every ten days, which improved the timeliness of information on weather-related needs as they evolve. Reports from Ministry of Agriculture extension officers confirmed agricultural outcomes as predicted by the index. Successful capacity building at Ethiopia's National Meteorological Agency also contributed to weather data being reported to regional WMO centres for the first time in 4 years which is critical for early warning systems throughout East Africa. WFP and the World Meteorological Organization (WMO) are cooperating on upgrading national weather services to serve weather markets and WFP's Weather Risk Transfer projects. Development of risk transfer markets would be done through identification of data requirements, identification of countries where data is available or where a data rescue programmes could be put in place. WMO and WFP are also cooperating on the identification of humanitarian community's requirements for met, hydro and climate information and provision of customized products through Weather Information Systems. During 2007, with the active support of the World Bank, USAID and DFID, WFP refined and upgraded the drought index and developed a livelihood risk management framework made up of four components, i) capacity building for federal government agencies and regional governments, ii) an early warning system including funding triggers based on the new LEAP (Livelihoods – Early Assessment – Protection) index supported by the LEAP software, iii) contingency planning and iv) contingent financing. The LEAP tool produces good indicators of yield shortfalls and livelihood stress and the government of Ethiopia therefore intends to use it for early warning and crop stress monitoring during 2008, while the World Bank will use the index to help determine regional allocations of a US\$25 million contingent grant to livelihood-stressed beneficiaries. The framework is designed to protect 5 million livelihoods and would scale up the existing productive safety net programme (PSNP) to reach new transiently food insecure beneficiaries. The PSNP already reaches around 8 million chronically food insecure people, thus a total of 13 million people would benefit from livelihood protection that allows them to graduate from food insecurity into sustainable livelihoods. The contingency financing facility would comprise of a coordinated combination of financial instruments that cover different portions of risk in such a way that minimizes the cost of running such a facility. The project would coordinate with other UN agencies on risk transfer opportunities. The weather index would facilitate disbursement of facility funds in sequential order. Only when all funds have been exhausted would a flash appeal be launched. The DPPA in collaboration with USAID is currently conducting a household economy-based food security and livelihoods analysis with the aim of covering most parts of the country with baseline data to understand household economy or livelihood situations and ultimately enhance the existing early warning system. The project has been coordinating with this team on baseline data. The Livestock Early Warning System sub-project in the USAID Global Livestock CRSP, now part of the LINKS project, aims to develop a decision-support system that provides information in a timely manner to allow pastoralists as well as national and international agencies to respond to emerging drought conditions earlier. The system helps decision-makers devise sound mitigation strategies and policies that improve the livelihood of pastoralists and sustain the natural resource capacity of associated grazing lands. The Livestock Information Network and Knowledge System (LINKS) launched in 2004 provides regular livestock prices and volume information for most of the major livestock markets across Ethiopia, Kenya and Tanzania through interviews with traders during the peak of a market day. Average prices according to animal kind, breed, class and grade is calculated along with total livestock volume by animal kind. Additionally, it produces dekadal forage production and forage deviation images in near real-time. This information is uploaded directly into the LEAP software to aid users in decision making and for early warning purposes. Part of the project will assess the whether the LEWS index or rangeland WRSI would be the best indicator of pastoralist risk for the index. The index uses WRSI crop model developed by FAO and the local knowledge of the Government of Ethiopia to index agricultural drought risk and the LEAP software is based on the AgroMet shel developed by FAO. The International Research Institute for Climate and Society at The Earth Institute at Columbia University used the LEAP software to examine the relationship between insufficient rainfall and yield reduction on teff and maize as a starting point for talks micro-insurance with rural farmers. The LEAP software and index and contingency planning and financing concepts are also being used for the macro-economic modeling of shocks/variability and climate change by DFID as part of a study they are undertaking to explore the implications of climate change for existing risk management strategies, especially in terms of strengthening mechanisms dealing with current climate variability. The Government has supported this weather risk management project since work began on the Weather Insurance pilot of 2006 that demonstrated the feasibility of weather based insurance for Ethiopian drought risk. The Ministry of Agriculture and Rural Development, Food Security Coordination Bureau, Disaster Prevention and Preparedness Agency, Ethiopian Institute of Agricultural Research and National Meteorological Agency have worked with the World Food Programme to develop a livelihood risk management framework for Ethiopia with the active support of the World Bank and UK Department for International Development and the United States Agency for International Development.

Government authority endorsing this proposal:

First Name	Ato Adissu	Last Name	Legesse
Position	Deputy Prime Minister & Minister of Agriculture & Rural Development	Ministry/Agency	Ministry of Agriculture & Rural Development
Country	Ethiopia	Telephone	
Fax		Email	Mattewos.Hunde@wfp.org

COUNTRIES & REGIONS SUPPORTED

Country(s):	Ethiopia
Region:	Africa

BANK PROJECTS SUPPORTED

No projects found...!

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IMPLEMENTATION RESULTS & GOOD PRACTICES**REPORTING PERIOD (01/01/09 - 06/30/09)****Primary Nature**

- Disaster Preparedness and Sustainable Recovery

Expected Outcomes

- Early warnings reach and serve people at the community level
- Financial reserves and contingency mechanisms are in place to support effective response and recovery when required.

Result Indicators

- The development and strengthening of institutions, mechanisms and capacities to build resilience to hazards
- The systematic incorporation of risk reduction into the imp. of emer. preparedness, response and recovery programs

Output Indicators

- Organizational development
- Professional Training
- Risk assessment
- Risk transfer mechanism

