برنامج الأغذية العالمي

Programme Alimentaire Mondial

World Food Programme

Programa Mundial de Alimentos

Executive Board
First Regular Session

Rome, 19–21 February 2007

OPERATIONAL REPORTS

Agenda item 10

*For information**

FINAL REPORT ON THE ETHIOPIA DROUGHT INSURANCE PILOT PROJECT

Duration of project	12 months (1 January 2006–31 December 2006)

Distribution: GENERAL
WFP/EB.1/2007/10
8 February 2007
ORIGINAL: ENGLISH

* In accordance with the Executive Board's decisions on governance, approved at the Annual and Third Regular Sessions, 2000, items for information should not be discussed unless a Board member specifically requests it, well in advance of the meeting, and the Chair accepts the request on the grounds that it is a proper use of the Board's time.

NOTE TO THE EXECUTIVE BOARD

This document is submitted to the Executive Board for information.

The Secretariat invites members of the Board who may have questions of a technical nature with regard to this document to contact the WFP staff focal points indicated below, preferably well in advance of the Board's meeting.

Regional Director, ODK:	Mr H. Arthur	tel.: 066513-2034
Director, OEDSP:	Mr R. Wilcox	tel.: 066513-2399

Should you have any questions regarding matters of dispatch of documentation for the Executive Board, please contact Ms C. Panlilio, Administrative Assistant, Conference Servicing Unit (tel.: 066513-2645).

DRAFT DECISION*

The Board takes note of "Final Report on the Ethiopia Drought Insurance Pilot Project". (WFP/EB.1/2007/10).

* This is a draft decision. For the final decision adopted by the Board, please refer to the Decisions and Recommendations document (document WFP/EB.1/2007/16) issued at the end of the session.

PROJECT OBJECTIVES AND OUTPUTS

Overall Objective

1. The pilot achieved its overall objective of demonstrating the feasibility of establishing contingency funding by transferring LDC weather risks to international risk markets. Such contractually guaranteed contingency funding contributes to a risk-management system that provides prompt assistance in times of drought before people resort to distress sales of assets, thereby protecting livelihoods, preventing more people from falling into destitution and enhancing resilience to future shocks.

2. The project demonstrated that it is possible to index drought risk, and that a drought-risk index[1] for Ethiopia can be objective enough to be transferred. It also facilitated price discovery for Ethiopian drought risk in international markets. Such price information can help the Government and donors to focus on the most cost-effective and cost-efficient means of dealing with weather risks by determining the optimal interaction of risk retention, means of risk transfer and mitigation. This pilot contributes to the ultimate goal of a comprehensive risk-management solution for Ethiopia. The developed index complements the current early-warning system. By monitoring such an index in real time, as in 2006, the Government and its partners can anticipate drought-related losses over an agricultural season and assess their financial and operational preparedness.

Outputs

3. The index was designed in 2004–2005 with technical partners; access to their data and expertise resulted in an index with 80 percent correlation with the number of food aid beneficiaries from 1994 to 2004. The index, which is an objective indicator of documented major droughts, enabled the project to quantify Ethiopia's drought risk in agricultural areas and set up financial protection to cover the extremes of the risk profile. Extension officers in the field report that the index accurately tracked rains and crops during the 2006 season; areas where the index and approach could be improved were noted.

4. To satisfy market concerns about the quality and integrity of data for risk transfer, capacity-building was needed for the National Meteorological Agency (NMA) to ensure that data were reported in real time. A designated independent provider of settlement data, MDA Federal, was also involved. Collaboration between lawyers Weil, Gotshal and Manges and in-house experts resulted in a specification of a derivative structure for tender in November 2005. Ethiopian weather risk was transferred to the international risk market at a price acceptable to all stakeholders arrived at through this competitive bidding.

[1] This is a formula describing the relationship between a measurable event – in this case rainfall – and a succeeding situation – reduced crop yield because of drought. It is based on the FAO Water Requirement Satisfaction Index (WRSI).

PROJECT STRATEGY

Implementation

5. The timetable for the project was as follows: (i) September 2004–October 2005: the index and the weather derivative contract were developed, with input from technical partners and collaboration between pro-bono lawyers Weil, Gotshal and Manges and in-house experts; (ii) November 2005: a tender for the weather derivative was launched with leading weather-market participants.

6. The project evaluated bids from six of nine companies invited to participate on the basis of credit rating and experience in the weather market, which facilitated price discovery. The WFP procurement committee identified the winning bid – from AXA Re – in consultation with participating donors and the Government. Pricing information was shared with the Government and stakeholders to encourage further consideration of managing risk and vulnerability in Ethiopia.

7. In December 2005, a contract was signed with AXA Re for the period 11 March - 31 October 2006; throughout this time the index was monitored and compared with actual events. By August 2006, the project and the Government's Food Security Coordination Bureau (FSCB) had established a project steering committee and designed an implementation rulebook to regulate transfers to beneficiaries in the case of an insurance payout.

Index Coverage

8. The pilot targeted households identified as transiently food-insecure included an estimated 5 million people. The index covered an area in which 17 million people live in 278 *woredas* (administrative districts). A small financial hedge was established by contract that would provide a maximum payout of US$7.1 million covering 62,000 households or 310,000 beneficiaries during the 2006 agricultural season.

Sustainability and Capacity development

9. The project team worked with government and local partners to build capacity for weather-based insurance and contingency planning to preserve livelihoods. In particular, it strengthened the NMA reporting network, which benefits all those involved in food security. By demonstrating the feasibility of insurance, the project started to integrate the concept of risk management into the plans of the Government and development partners, and showed that it could be sustained at the country and development-community levels and in private-sector international risk markets. The World Bank adopted the project concept to develop a contingent grant based on an improved index, which would be used to scale up the Ethiopian safety net in case of acute livelihood stress for 2008–2010.

10. The successful market placement and subsequent operational soundness of the pilot is a testament to the quality of the data and reporting network of the NMA, which, with assistance from the project team, met and exceeded the standards required by international risk markets.

Resource Inputs from Donors, Government and Partners

11. Approximately half of the funds appealed for were received. To meet objectives, the project traded risk coverage – by spending less on premiums – for capacity-building at the NMA to ensure that the pilot was feasible and that it met international market standards for quality of weather data. The Government assisted the NMA bilaterally, and it was prepared to absorb some of the costs of transferring assistance to beneficiaries in the event of a payout.

Partnerships

12. A team at WFP Headquarters, assisted by the World Bank's Commodity Risk Management Group, monitored the index as the agricultural season progressed. It supported a national staff member in the vulnerability analysis and mapping (VAM) unit in the country office to monitor the index in relation to actual events and build consensus with the NMA, the Disaster Preparedness and Prevention Agency, the Food Security Coordination Bureau, the Ministry of Agriculture and Rural Development, the World Bank, the Famine Early-Warning System Network (FEWS-NET) and the Food and Agriculture Organization of the United Nations (FAO).

13. Because the derivative contract was based on an index derived from NMA data, a strong partnership between the NMA, the project team and the independent company chosen to verify the data was critical in ensuring that the project met international standards. This was achieved through dialogue with partners and capacity-building.

Integration into Ethiopia's Food Strategy

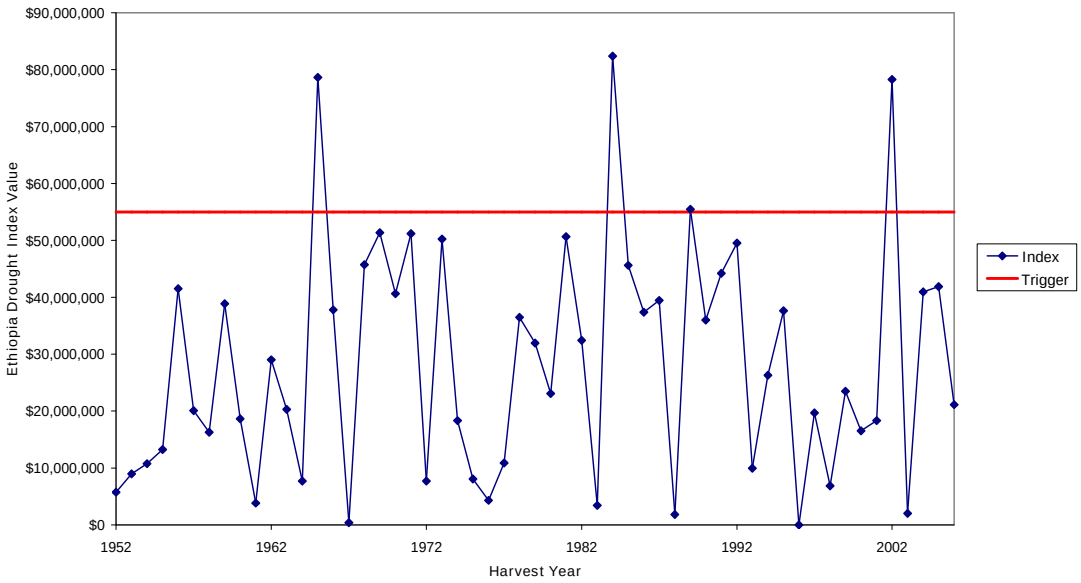
14. This project supported the Government's humanitarian policy, which seeks to shift from a reactive mode to a risk-management approach. The Government's Food Security Programme focuses on development and graduation from food insecurity by coupling food-security measures with a safety net for chronically food-insecure people. For this reason, the Government placed this project with the FSCB, which manages the Food Security Programme including the safety net. Once contingency funding had been established through the weather derivative, WFP and FSCB established a steering committee to lead the project and designed an Implementation Rulebook to regulate transfers to beneficiaries in case of an insurance payout. The implementation rulebook, which is based on the Safety Net Project manual, shows how funds would flow from insurer to beneficiaries in a payout scenario; it also contains beneficiary targeting and selection guidelines, definitions of institutional roles and responsibilities, and guidelines on financial reporting and auditing to ensure transparent financial management.

INDEX AND CONTRACT PERFORMANCE

15. In terms of crop production, 2006 was a good year in Ethiopia. The available information is limited in that assessments of crop supply and food access for 2006 are still not available. Nevertheless, lessons can be learned from the field-level verification of the index commissioned by the project.

16. Official production and yield statistics were not available at the time of going to press, but Central Statistical Authority (CSA) forecasts indicate a harvest 16 percent better than 2005.[2] The Ethiopia Drought Index (EDI) value for the 2006 season was US$21.1 million compared with US$41.9 million in 2005 and 30 percent better than the long-term average value (see Figure 1). The EDI value at the end of the contract period, 31 October 2006, was well below the US$55 million trigger level, indicating that a catastrophic drought of the magnitude of 2002 or 1984 did not occur in 2006. Therefore there was no payout from the weather derivative contract in 2006.

Figure 1. The Ethiopia Drought Index, 1952–2006



17. Rainfall was above average throughout the country in 2006. This resulted in three floods, but production was good overall. The EDI is not designed to capture flood or excessive rainfall, but it performed well and accurately reflected local water shortfalls where they occurred.

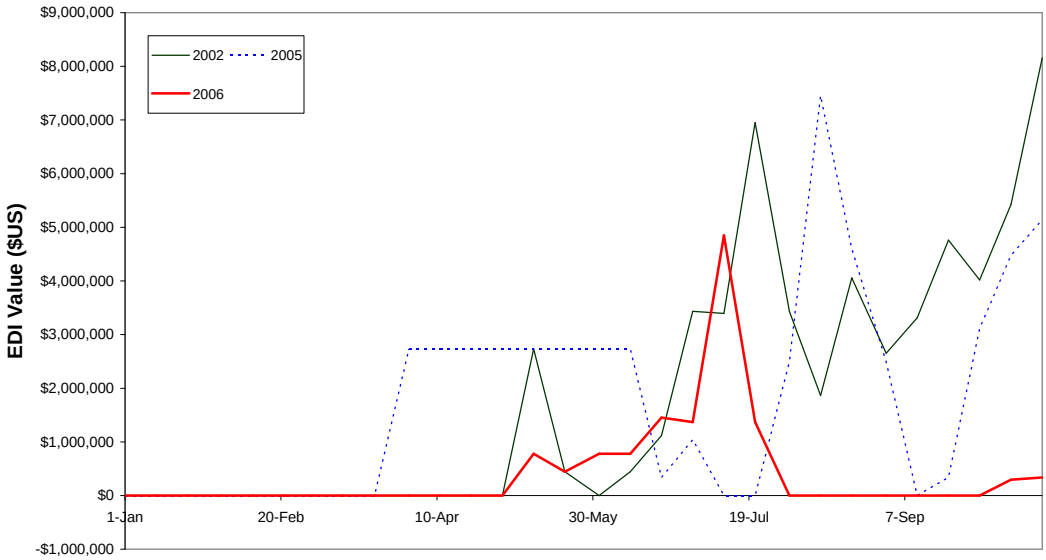
18. The EDI for the 2006 pilot was monitored during the 2006 agricultural season to check the accuracy of the rainfall index. The project team received daily rainfall updates from the NMA for each of the 26 stations. This allowed the value of the index to be updated so that it could be compared with the status of the staple crops in their areas. The fact that the season was good made it more complicated to verify the drought index. However, because the rainfall index is based on a crop/water balance model, comparison with Ministry of Agriculture and Rural Development field reports provided a rigorous check on its performance. Above all, such ground-truthing gave an opportunity to improve the pilot index for future applications.

[2] Personal communications from the Ministry of Agriculture and Rural Development and CSA Ethiopia.

19. An example of the index tracking the season is given for Dire Dawa weather station (see Figure 2). The red line – the EDI for Dire Dawa – denotes the evolution of the 2006 agricultural season at the station: the higher the red line, the greater is the impact of water stress – lack of rainfall – on crops; the red line at zero indicates no water stress. Field reports from the areas surrounding the station were collected; the following information was reported for Gurgura *woreda*:[3]

> Dire Dawa is a *woreda* with a growing season in the *meher* (main rainfall season, June-September); the main crop is sorghum, which accounts for 95 percent of the annually cropped area. In 2006 10,586 ha were planted; despite water stress and floods, sorghum yields were 10 percent greater than in 2005.
>
> The rains started on time – the last week of March in low-lying areas, and the end of January in mid-altitude areas. In five peasant associations, however, the rains were two weeks late, starting in early April, and ended two weeks earlier than usual, in September. Dry spells of 10–15 days in May and July affected sorghum crops.
>
> The flooding in August 2006 caused the highest recorded losses of life and property in Dire Dawa town and the surrounding area. Annual and perennial crops on 250 ha – 2 percent of the planted area – were destroyed, 1,000 animals were killed and irrigation, soils and water-harvesting structures were destroyed.

Figure 2. Evolution of the EDI, Dire Dawa station, 2006



[3] At the end of the season, the project engaged local experts from the Ministry of Agriculture and Rural Development and the Ethiopian Agricultural Research Institute in Addis Ababa to review the design of the index and carry out their own ground-truthing by visiting up to ten weather stations. Their report is not yet available; these field reports are based on the first draft.

20. According to the EDI model for Dire Dawa, the rains started in late March; there were showers in late January. The dry spells in May and July are seen in Figure 2 as the index rises in mid-May, when sorghum crops were experiencing water stress, and again in July.

21. At the beginning of August the index falls to zero, indicating sufficient rainfall and recovery from the dry spells. The floods and excessive rainfall in August are not picked up: the model assumes that rainfall is desirable. Analysis of the data confirms that rainfall in August was 20 percent above the 30-year average in Dire Dawa; the river flooding resulted from excessive rainfall upstream in the Ethiopian highlands, not local rainfall.

22. The end of the rains in early September is also seen in Figure 2 as water stress rises slightly from mid-September. The data shows that the rains stopped two weeks earlier than the average in 2006. At the end of the season, the EDI for Dire Dawa was 11 percent higher than the 2005 value, which corresponds well with the 10 percent increase in sorghum yields observed from 2005 to 2006 by the Ministry of Agriculture and Rural Development.

Areas for Refinement and Improvement

23. Although the model accurately tracked water stress during the 2006 season, the pilot highlighted two areas where accuracy could be improved:

- **Crop-sowing periods.** Standard FEWS-NET sowing periods for long-cycle and short-cycle crops were used to calibrate the 2006 model throughout the country. In future, however, the periods should be aligned with farming practices in each area. The 2006 model assumed, for example, that *teff* (a cereal used to make bread and for forage) was sown earlier than was actually the case: in some areas, *teff* experienced water stress because the rains ended early, but in the EDI model the crop had already been harvested and was not shown to be affected.
- **Length of growing cycles.** Standard growing cycles from FEWS-NET and FAO were used throughout the country. But growing cycles actually vary according to altitude and local varieties: in some areas, for example, a 240-day variety of sorghum is grown, but the model assumed a standard 150-day variety. This led to discrepancies.

24. To address the shortfalls, the following actions are being carried out. Experts from the Ministry of Agriculture and Rural Development and the Ethiopia Agricultural Research Institute in Addis Ababa, who are reviewing the 2006 index, are compiling a database of information on sowing periods and the growing cycles of the main crops at the *woreda*-level in the 26 areas; they have recently finalized a zonal database of this information, which should be used in future pilots.

25. The project team feels that in view of the nature of the 2006 season it may be worthwhile to investigate the impacts of excessive rainfall on crop yields, even though there is no verified water-balance model to capture this; there are, however, unverified models that could be tested. The project index did not cover pastoralist areas because there were not enough usable weather stations; phase II of the project being designed with the the United Kingdom Department for International Development, United States Agency for International Development (USAID) and the World Bank will cover pastoralist areas as well.

LESSONS LEARNED

26. The Ethiopia drought insurance pilot project showed that:

(i) it is feasible to use market mechanisms to finance drought risk in Ethiopia;

(ii) it is possible to develop objective, timely and accurate indicators for triggering drought assistance; the index is updated every ten days, which improves the timeliness of information on weather-related needs as they evolve; and

(iii) ex-ante resources can give governments and donors the incentive to put contingency plans in place, allowing earlier response to shocks; in drafting the implementation rulebook, the Government upgraded its contingency planning; the guarantee of predictable and reliable contingency funding catalyzed institutional interest and commitment.

ACRONYMS USED IN THE DOCUMENT

CSA	Central Statistical Authority
EDI	Ethiopia Drought Index
FAO	Food and Agriculture Organization of the United Nations
FEWS-NET	Famine Early-Warning System Network
FSCB	Food Security Coordination Bureau
LDC	least-developed country
NMA	National Meteorological Agency
ODK	East and Central Africa Regional Bureau
OEDSP	Special Projects Branch
USAID	United States Agency for International Development
VAM	vulnerability analysis and mapping
WRSI	Water Requirement Satisfaction Index