

The Food Early Warning System Project in Somalia

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Summary

The article describes shortly the objectives of a Food Early Warning System (FEWS) project, as well as its organisation. The specific case of Somalia, where the project had to evolve in increasingly difficult situations, and the solutions used so as to preserve the output, are described.

Résumé

L'article décrit brièvement les objectifs d'un Système d'Alerte Précoce, ainsi que son organisation. Le cas spécifique de la Somalie, où le projet se déroulait dans des situations de plus en plus difficiles, et les solutions utilisées pour sauvegarder l'efficacité du projet, sont décrits.

1. Objective

The objective of a Food Early Warning System (FEWS) is to give timely information to the Government, the International Agencies and the major donors about the food supply situation in the country. This early warning information allows the Government to take timely remedial actions in case of foreseen food supply imbalances or in the case of natural catastrophes affecting the normal economical activities of the farming and nomad communities.

The ways to achieve this objective depend much from the types of information networks which are already functioning in the country. A FEWS Project can easily take advantage from existing networks (for example meteorological networks, agricultural monitoring networks...), from administrative documents (existence of an up-to-date land registry), and from the existence of previous surveys and studies.

In the case of Somalia, most of the information collection had to be started from scratch. Only a few meteorological stations were functioning, and the registry held by the Department of land use was useless. The only reliable bases found to set up the somali FEWS Project were the numerous national and regional studies and surveys carried out in the country these last ten years, as well as the existence of excellent topographical maps at 1/50000.

2. Country description

The climate of Somalia is typically tropical, with high temperatures throughout the year. The town of Lugh Ganana, situated near the Kenyan and Ethiopian borders, had long been considered as the warmest place on earth.

Rainfall is rather low, and all over the country evaporation rates largely exceed rainfall. The country has only two permanent rivers, the Juba and the Shebelli, both having their catchments areas in the Eastern Ethiopian Highlands.

Three main climatic zones can be distinguished :

- the South (South and West of the Shebelli river), which has a bimodal rainfall pattern, with the main rains («Gu») falling between April and June, and the secondary rains («Der») falling between October and December. Average

precipitations amount to 350-800 mm. It is in this region that most of the cropping takes places and that most of the population is settled.

- The Centre, which is semi-arid. Rainfall is low (50-350 mm) and very unpredictable. The region is chiefly nomadic.
- The North, with mountains and high plateaus where rainfall averages 400-1000 mm, with rains falling quite evenly between April and September.

Rainfall variability is high, as well spatially as annually. During the secondary «Der» season in particular, most rainfall originates from cumulo-nimbus cells of very variable extension. One area can get in one day large amounts of rain, whereas another area, located a few kilometers away, remains dry. Also rainfall variability on a year to year basis is high; translated into a coefficient of variance, variability reaches 35% in the southern main agricultural areas, and over 150% in the dry north-eastern areas.

Droughts periods occur recurrently. Drought cycles have been observed with return periods of 9-11 years. For instance 1973-74 was one of the major droughts the country ever experienced, 1983 was a rather minor drought, and 1992 is, by all available information, also a serious drought year

3. Project description

The somali FEWS Project, besides the management and the administration, is organised in three departments: agrometeorology, agriculture and agro-economy. It is supported by the FED (Fonds Européen de Développement) of the European Community Commission.

The agrometeorological department is responsible for the follow-up of the weather conditions. It manages an autonomous established network of 22 meteorological stations and a supportive network of 65 raingauge stations.

The agricultural service is responsible for the follow-up of the agricultural observers' network (which mainly overlaps the meteorological networks). It is also responsible for the determination of the seasonal cropped areas estimations and of

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This project, executed by the Belgian consultancy firm Transtec, has been considered as the most successful agricultural project in Somalia, and has served as model for the FAO Global Early Warning Service.

the crop yield assessments.

The agro-economical service is responsible for the monitoring of the prices, the imports and exports, and for the elaboration of the monthly food balance.

An important supporting service is the Computer Center, which has been doted with the adequate softwares to compute all the incoming data (mainly specialised databases, like CLICOM for the treatment of meteorological data, spreadsheets, and statistical softwares for the calculations of the water-balance crop indexes, besides the usual office softwares).

In 1988 another important supportive service is added: the Remote Sensing Center. The Mogadishu Center is equipped with a parabolic antenna for the direct reception of Meteorat imageries. Energy supply for the receiver and the computers is exclusively provided by solar power, a very recent technological advance.

4. Type of information

The type of information to be collected depends much from the aim for which it is to be used and from the capabilities of the observers. In Somalia, in-country, the scolarisation level of the people is extremely poor, and in some villages, it is even impossible to find somebody which can write and read in the Somali language.

The meteorological observers, located in the main towns, have received more advanced training in relation with the more complicated tasks they have to perform. Their main tasks consist to measure meteorological parameters (rainfall, humidity, sunshine duration, temperatures, wind speed and direction) and food commodity prices in retail shops on a daily basis, and to collect agricultural information (crop stage, crop condition, adverse effects) on a ten daily basis. Rainfall observers receive more basic training, their tasks consists in collecting rainfall data on a daily basis and agricultural and price information on a decadal basis. The use of very simple monitoring parameters is preferred in order to get at least reliable information.

In Mogadishu, retail prices information is collected daily, and imports information monthly.

5. Data transmission

Data transmission is one of the main bottlenecks of a FEWS programme. One can simply not rely on the postal services neither on the different radio networks (police, military, Ministry of Interior) which have been set up in the country. Telephone services are inexistent in Somalia except for Mogadishu.

For this reason, the project management decided to set up an independent data transmission network through the establishment of an autonomous radio transmission network, put under the auspices of the Ministry of Agriculture. These radios which were solar powered, in order to remain independent from the fluctuating electrical power and fuel supplies. Radio transmission stations have been installed at all meteorological stations as well as at some important rainfall stations. For the other stations, data are transmitted using printed cards. Rainfall, agricultural and prices data are codified and registered on the printed cards every 10 days and transmitted by mail or by hand to the Mogadishu Headquarters. This data transmission method is slow (1 month on average to

reach the capital) but quite reliable (very little gets lost).

Data is also collected during field missions, by copying it from the observers' registries.

6. Field sampling

Although the Ministry of Agriculture has a network of representatives all over the country, these regional and district coordinators are of little help for the project, since they maintain a purely administrative role and have no means to carry on any survey in the country.

The assessments of the planted areas and average crop yields are hence done on sample basis by a specialised team from the project's headquarters.

An agro-ecological zonation method has been used.

Firstly, on basis of all the available documentation gathered, all the agricultural areas of the country are subdivided in agro-ecological zones, this means zones which show uniformity in their main features: group of soils, type of crops cultivated, type of cultivation (irrigated versus rainfed and commercial versus traditional). One sample taken within such an agro-ecological zone is expected to be representative for the whole zone, and the results can be extrapolated to the whole zone.

This method has proved to be useful in a country where access roads to agricultural areas are very limited. The use of satellite imageries (NDVI imageries regularly received from the Nairobi Centre) also permit to complete the picture, especially for the far away regions of little agricultural importance which can not be visited by the field sampling team.

Cropped areas are estimated by the transect method: the types of crops and fallow areas are recorded in percentage along one or more transect roads crossing the agro-ecological zone. This permits to have a reasonable idea of the total cropped areas by zone, and through computation, by district and region. Supplementary information can also be obtained from the observers, most of them farmers, which are able to tell if cropped areas are reduced or extended as compared to the previous year.

Crop yields are measured in fields, by using the mini-plot method. Three small plots of about 16 m² are harvested in a field, which is seen as representative for the zone. This method is easy to use for cereals (maize and sorghum), but cannot be used for crops which are more tedious to harvest, such as cowpeas (continuous harvesting) or sesame (which need to be dried on the field before threshing). Final yield estimates are made considering the sampling results, the results of the water-balance index calculations, and the results of the field observations (in order to take into consideration possible gradients of yields). Also must be bared in mind the final use of the crops: Der season sorghum is often cultivated as green fodder crop and therefore doesn't produce any grain.

7. Output

The care given to the output is one of the main factors to the success of a FEWS project. Information has to be targeted and presented timely, in a structured manner. The presentation is as important as the contents, and unnecessary details have to be left out.

Different types of information outputs, with specific contents, have to be prepared and distributed.

Daily information about rainfall, max and min temperatures,

and food commodity prices in the main towns, without any further computation nor explanation, is distributed exclusively within the Ministry. This information will however serve as hard base for the data needed for the «10-daily Food Early Warning Bulletin».

This important publication, containing one page of text and three pages of tables, is considered to be the official early warning information provided by this service of the Ministry of Agriculture to all its users. This bulletin contains short information about the meteorological conditions, the river flows (Shebelli and Juba), the crops and rangelands conditions, and the prices. This bulletin is widely distributed among its target users in Mogadishu and abroad (FAO and IGADD Headquarters).

Monthly food balance reports give overview information about arrived and scheduled imports (exports of food commodities are negligible for Somalia, except for live animals), and the monthly food balance.

Detailed information about the cropping seasons are issued twice yearly, in the form of extensive reports. These include information on rainfall, river flows, crop production and yields, rangelands condition prices, imports, food balances...

Besides, sets of specialised reports are issued, such as annual rainfall reports (containing daily rainfall data for all stations), and bi-annual agricultural statistics reports.

A comprehension report has been produced in 1989 by the FEWS Department, Ministry of Agriculture, Mogadishu: «The Food Early Warning System» with possible copies at FAO and at IGADD.

8. Problems

Several problems can impede the proper implementation of such a programme. Information collection and transmission, in particular, are much depending from the prevailing security situation. The output can also, in some instances, be censored by the authorities.

In the specific case of Somalia, severe limitations to the proper implementation of the project started to appear as from 1988. The North of the country came under partial control of the rebel forces, impeding hencewise to carry on field surveys in this region, as well as transmission of the data. With the exception of Borama, a relatively peaceful enclave in the war zone, data about rainfall and vegetation condition had entirely to rely on satellite imageries. The Borama station could however be maintained, until its radio got stolen late 1989. Missions could be organised in these Northern zones, in order to assess the food situation, only with the help of the International Red Cross. During the years 1989-1990, insecurity slowly gained ground in the Central and later on in the Southern regions. Severe travel restrictions had to be imposed, which limited the extension of the field survey programme. Some rainfall stations were destroyed, as villages got attacked and pilfered by looting armed bands. The postal services were disrupted and radio stations had to close one after the other by decision of the military. Data transmission, although rapidly diminishing during the year 1990, was however still sufficient so as to have global ideas about what was happening in the country, and the network built up by the project was even used for more confidential information about security situations for strict EC use.

Due to the general deteriorating situation, discussions were on way to set up a secondary antenna of the FEWS project in Europe, using satellite imagery, regular data collecting facilities in Mogadishu and safe computerizing and printing facilities.

The sudden attack of Mogadishu by the rebel forces in December 1990, resulted in the complete destruction of the project center in the Ministry of Agriculture, and finally, in the abandon and closure of the project, which in such extreme situations, could not be anymore maintained.

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