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THE AGRHYMET PROGRAMME IN THE SAHEL

(Operational phase: 1983-1986)

(Submitted by the Secretary-General)

Summary and Purpose of Document

This document contains a description of standard activities at the national level in the eight countries of the Sahel during the 1983-1986 operational phase of the AGRHYMET Programme.

A technical planning meeting for the operation of the Programme (Niamey, March 1983) will examine and specify these activities which will then be included in a manual "Operational plan, 1983-1986".

ACTION PROPOSED

The Commission is asked to note the present arrangements for the future development of this programme.

Reference: CAC/WMO Report - Planning the Programme and defining the needs for the 1983-1986 operational phase: December 1982.

DISCUSSION

This year, the AGRHYMET Programme is entering an operational phase. Apart from the data, information, replies to miscellaneous enquiries, studies, etc. provided to users who have requested them, the national AGRHYMET unit will prepare and disseminate periodic and regular bulletins, such as:

(a) A daily bulletin for broadcast by radio

This bulletin, which is already being prepared by most of the countries, should include:

- an analysis of the regional meteorological situation (based on the analyses received from the AGRHYMET Centre at Niamey);
- a meteorological analysis within the country, relying on the national forecast centre (usually ASECNA);
- a list of the amount of precipitation during the past 24 hours at a certain number of selected meteorological stations or rainfall stations;
- a list of maximum and minimum shade temperatures on the preceding day, also for a certain number of representative stations (synoptic and agrometeorological stations);
- when appropriate, agrobiological information concerning the state of crops;
- a weather forecast for the next 24 hours (based on the forecasts issued by the national forecast centre);
- during the rainy season, it would be of interest to give, at the end of the bulletin, the various statistical probabilities of there being 10, 20 or 30 mm of rain in the ensuing 24/48 hours/five days;
- once a week, after the weekly analysis described below, this bulletin will be supplemented by more detailed information on the observed state of crops and advice on agricultural work during the coming week.

(b) A daily bulletin for the press containing the same information as the bulletin for broadcast by radio.

(c) Warnings or alert bulletins in the event of severe squalls, sandstorms, invasions by locusts or depredators, to be transmitted by radio or any available telecommunication facility to agricultural users concerned.

(d) A weekly bulletin of agricultural information

This weekly bulletin is an essential part of the work of a multi-discipline team (meteorologist, agronomist, hydrologist, communications and media specialist). The bulletin will be prepared on the basis of a briefing by this operational team, which meets on a certain day of the week and works on the data prepared in the AGRHYMET unit of the National Centre. This concerted effort should enable a certain number of decisions to be made concerning agricultural work being undertaken, and be put into effect by a bulletin in plain language, disseminated by radio, the press, and the telecommunication networks of the ministries concerned, to reach farmers.

(e) A 10-day agrometeorological bulletin

This bulletin, which will be disseminated as widely as possible to responsible staff at the various levels of agriculture and rural development, will include the following:

- the amount of rainfall in mm and tenths during the past 10-day period at the main synoptic, agrometeorological and climatological stations and at a selection of rainfall stations;
- the average maximum and minimum shade temperatures in degrees and tenths during the past 10-day period, at the same stations;
- the average grass minimum temperatures in degrees and tenths during the past 10-day period at the same stations;
- the average vapour pressure in mb;
- the average potential evapotranspiration in mm and tenths;
- the actual evapotranspiration (for certain crops to be defined) in mm and tenths;
- the average daily duration of sunshine in hours and tenths;
- the average daily global radiation in joule/cm²;
- the potential water balance (potential evapotranspiration) in mm and tenths;
- the saturation deficit in mb and tenths;
- the soil water storage, when appropriate;
- the probability of the water deficit being made good during the next 10-day period;
- hydrological data for hydrological watch stations.

(It should be mentioned that this document should include general information on each of the specific major crops, which will be defined from documents submitted by Mr. Franquin). It will be appropriate to supplement this document, in the form of a table, with comments and a preview of what can be expected for the next decade as regards weather and the development of crops, and hence the agricultural works to be recommended.

(f) A monthly climatological bulletin which will cover the elements of the 10 day reports. A model should be prepared for use in each of the countries.

(g) End of season bulletin

It may be useful to prepare - and this is already being done in some countries - a bulletin summarizing and commenting on the course of the agricultural season, at the end of the rainy season.

(h) An annual monograph

The following are among the types of information requested by users:

- Water balance: method of calculation, influence on operations to be undertaken by farmers, statistics, information for daily operations, frequency studies to determine the profitability of the various crops in different locations, influence on the soil-water-plant relationship, water balance of forest soils, daily information on the water balance of natural pasture-land;
- Agrometeorological information, available for farmers for a consolidated effort, relating to the principal crop parasites (smuts, cantharis, heliothis....), the agrometeorological threshold at which attacks by parasites are set off and which influences the severity of attacks;
- Measurements of wind: the potential of wind-power, forecasts of speed, direction and speed to rationalize the setting up of fire-break corridors;
- Rainfall measurements: statistical series of measurements, frequency analysis by period and by region, planning governmental action in the field of livestock breeding;
- The time of start of seasons, sowing dates, the parameters which exceed (or fall below) acceptable thresholds, possibilities for the diversification of crops, post-harvest action, particularly as regards temperature and humidity, warnings of bush fires;
- Meteorological effects on the growth of forests and on the phenomenon of fructification of the Cola tree;
- Irrigation of rice régime, temperature régime, humidity and wind for irrigated out-of-season rice;
- Potential production of pasture-lands, information enabling sowing to be undertaken on pasture-lands, meteorological information to improve the health of livestock;
- Agrometeorological information relating to the construction of small dams, information on the movement and development of fish.

This specific list for each country should be added to by the delegates. As an example, in the case of Mali, action to be given priority, may be summarized as follows:

- (a) determining optimum sowing periods;
- (b) determining the water requirements of the main crops;
- (c) study of droughts during the rainy season;
- (d) estimating the profitability of crops;
- (e) meteorology and grain storage;
- (f) period of climatic situations favouring pathogenic agents;
- (g) conditions relating to the treatment of pathogenic agents;
- (h) water requirements for irrigated crops;
- (i) exceptional date for the start of flooding;
- (j) distribution of solar radiation;
- (k) analysis of wind direction and speed;
- (l) frequency analysis of unusual "climatological" conditions;
- (m) frequency analysis of spells of N dry days at different times during the season;
- (n) application of models to show the vulnerability of agricultural production systems to various climatological variables.

All the above have been included in a proposed plan of work in agrometeorology, prepared for Mali (see table).

These activities will be discussed in a technical version of the AGRHYMET Programme, to be held in the AGRHYMET Centre, Niamey, from 9 to 16 March, the purpose of which will be to prepare a 1983 - 1986 operations plan.

PROPOSED AGROMETEOROLOGICAL PLAN OF WORK

ACTIVITIES	1983	1984	1985	1986
(1) Determining optimum periods for sowing and other agrometeorological operations (water balance, rainfall frequency analysis)	Region Mopti	Region to be determined at operational discussion CNRA	Region to be determined at operational discussion CNRA	Region to be determined at operational discussion CNRA
(2) Agrometeorological situation of crop yields	Limited test in pilot area	Limited test in pilot area according to results	Limited test in pilot area according to results	Regional extension according to results
(3) Developing systems for the dissemination of information agromet. - Farmers	Test in pilot area of limited area according to results	Additional test in pilot area over limited area in a region	Extension towards area users on regional scale	
(4) Protection of plants - advice on conditions for development of parasites	Providing information on threshold		Regional application	
- advice for their treatment	Application in pilot area	Application in pilot area	Application in pilot area according to results	
(5) Study on drought during rainy season	With observations at synoptic stations	Climatological stations	Other stations ?	
(6) Determining water requirements of main crops	Millet sorghum	Maize, Groundnuts	Rice with rainfall irrigated rice	
(7) Gradual incorporation of rural authorities and farmers into the circuits for the collection, dissemination and use of information	Question to be discussed at revision of CNRA	Implementation according to results		