

4920233005314

4920233 (18)

PD-AAD-501-61

MONTHLY REPORT NO. 14

8p.

June 2, 1972

To : Government of the Philippines  
Thru : USAID/Manila  
From : Project Engineer, BuRec, Water Resources  
Development Project, USAID/Manila  
SUBJECT : Monthly Report, May 1972, in Accordance  
with PIO/T 492-233-2-90095, Amendment No. 1,  
dated March 24, 1971.

MAGAT RIVER PROJECT FEASIBILITY STUDY

Progress slowed down slightly from the scheduled rate causing a small additional amount of overall slippage. The attached progress chart shows overall achievement to date at a little over 50% while the scheduled achievement should be nearly 56%.

The weather deteriorated somewhat with intermittent rains occurring nearly everyday. This caused some slow-down in the land classification activity due to more difficult accessibility to some areas. This should not have any effect on the overall project at this time.

The economics activity slipped somewhat due to the requirement of additional time to edit the Farm Management Survey returns over what was estimated originally. This slippage is delaying the determination of agricultural benefits which in turn is slowing down the reservoir operations study to determine optimum size of reservoir. However, this delay is not too serious provided it does not become prolonged.

Field engineering is somewhat behind, causing a slight lag in office engineering activities. The engineering forces are maintaining about the right rate of progress, but the lag is due mostly to a late start several months ago in getting to full field strength. This will not be serious if progress can be made before the onset of the heavy rainfall in the search for suitable construction materials.

The delay in the geologic investigations, especially core drilling by contract forces, and field mapping are the activities causing the most concern at present. It has been necessary to delay a request for the BuRec design engineering consultants to arrive in the country past the original schedule of mid-July. It is desirable to have all geologic data necessary to determine foundation adequacy on hand and reviewed by the BuRec geology advisor prior to sending out the designers. Attempts are being made to complete this activity as soon as possible.

The operation and maintenance and feasibility report activities show a speed-up which, if maintained, will put them on schedule in the near future. These activities fell behind due to late starts, but are not significant to the over-all progress effort at this time.

Administration. There were no unusual problems during the month with activities proceeding in a normal manner. The three jeeps purchased by USAID grant funds for field work on the project arrived at the port of Manila on May 8. Necessary customs clearance was being handled by USAID personnel.

Office Engineering. A quantity estimate of dam embankment at alternate Dam Axis-III on an advance copy of topographic map, scale 1:3,000 (prepared by Certeza, Inc.) was completed. Preliminary layout and quantity estimates were completed for one 13-meter diameter diversion tunnel. A profile along the centerline of Axis III was plotted showing the center concrete section and end earth embankment sections.

Planimetering and computation of area-capacity-elevation curves of Alternate III based on the Certeza map, scale 1:5,000, was in progress.

Final checking of Certeza map, scale 1:5,000, for coordinates, contour intervals, location and notations of picture points, triangulation points, legends and printing errors was completed.

Field Engineering. Field survey crews continued canal location surveys completing about 8 kilometers along the South High Line, about 9.3 kilometers along the South Low Line and relocating about 18 kilometers of the low line. About 12.6 kilometers of profile levelling was accomplished along Siffu Project Lateral F - 2, which is being studied for possible extension to serve new land East of the present Siffu Project Area.

Profile levelling and cross-sectioning of 6.4 kilometers along the Magat River between the storage damsite and existing diversion dam was completed for tailwater studies, and 18.6 kilometers of Balawbaw Creek and 3 kilometers of Paddad Creek was completed for drainage studies.

Damsite triangulation control surveys including vertical and horizontal ties to the Certeza control net were continued.

The BuRec Field Engineering Advisor visited the project area for 2 weeks.

Geology. The government drill crews built an access road from hole DH-13 to DH-14, set up equipment and completed drilling DH-14 to total depth of 152 feet. They also transferred and set up equipment at DH-15, an additional site added to the program to gain more information regarding a fault discovered at DH-8.

The contractor crews were shut down for most of the month due to faulty packer equipment which prevented them from performing necessary water pressure tests. About 82 feet of drilling was accomplished before these crews were forced to discontinue operations.

Attempts are being made to recall the National Power Corporation geologist to the Magat Project Area to assist the Bureau of Public Works geologist, presently assigned there, so that all the geology workload can be expedited.

Operation and Maintenance. A write-up was prepared describing the present Siffu River Irrigation System structures and areas served along with its present operation procedure and staffing pattern. Also, data were collected regarding rehabilitation costs and O and M funds provided for the period 1964-71.

Areas served and crop yields for both the Siffu and Magat River Irrigation Systems for the period 1966-71 were tabulated. Also, information on the "tungro" rice disease in the Magat Project Area was collected.

A study of communal irrigation within the project area is underway.

Power. Growth rates for use in forecasts of power demands and energy requirements were developed from records of existing electric plants in the Cagayan Valley and from experiences of the National Power Corporation (NPC) in areas similar to the Cagayan Valley.

Two load forecasts were made using different schedules of connection to the proposed Northern Luzon Grid and different growth rates. Transmission of NPC power to the region from Central Luzon is expected to begin in 1976.

Preparation of the final tabulations of 1971 power market data for inclusion in the appendix report was completed.

Hydrology. Three sets of stream discharge measurements were made and water samples collected for chemical and sediment analyses at each of the following stations: Magat River @ Oscariz, Magat River @ Baretbet, Ibulao River @ Hapid and Lamut River @ Lamut. Daily gage heights of the water surface were compiled for the first three stations. Several additional water samples were collected from the Magat and Cagayan Rivers for biological and chemical analyses as related to the environmental impact studies.

The cableway across the Magat River below the MRIS diversion dam was completed with the installation of rollers and headplates and stringing of the cable.

Reservoir operation studies for several different dam heights were continued. Frequency studies of 1-day, 2-day -- -- 8-day rainfall at Ilagan, Isabela were completed for use in the drainage studies.

Social and Environmental. After some discussion with BuRec/Washington, USAID/Manila and the University of the Philippines' Institute of Planning it was agreed to have the visiting BuRec economic consultant now in the Philippines assist UPIP in starting the field data collection for the environmental impact studies. The economic consultant has a working knowledge of what is required for such studies. At a later date (September-October) an environmental specialist from BuRec will be requested to visit the Philippines to assist in analyzing data and writing of an environmental impact statement. UPIP technicians have begun field collection of data mostly as relating to the social aspects of the studies.

Drainage and Groundwater. Four sets of depth to water measurements were made at over 300 observation points throughout the project area. It has been recommended that frequency of these observations be reduced to twice-monthly.

Five permeability tests were conducted on dual and diversified crop lands. A total of nine infiltration tests were completed on these same type lands. Six deep percolation tests were made on all-year rice lands.

Investigations preparatory for drain cost determinations were initiated on selected pilot areas.

An inventory of groundwater wells in the Siffu River Irrigation System area was begun. It is expected that the cost of using groundwater for irrigation can be developed from this inventory after completion of interviews with the different operators.

Office work consisted of evaluating the ratio of 1-hour to 24-hour rainfall in the project area, compiling groundwater supply information from data gathered by the Economics' farm survey and computation of effective precipitation for crop use from daily rainfall records at Ilagan. Also, the preparation of diagrams of drainage schemes for preparation in the appendix report was begun.

The project drainage engineer and the BuRec advisor spent one week together reviewing field work in the project area.

Economics. Editing of the Farm Management Survey returns was continued. Processing and tabulation of edited returns covering presently irrigated areas of the Magat River service area was in progress. Additional economic publications and data were collected from several government agencies. Prices of commodities in the Cagayan Valley were compiled and analyzed utilizing data obtained from the Bureau of Agricultural Economics and future projections of these prices were then made.

The Chief, Economics and Land Resources Section, with the project economist accompanied the newly arrived BuRec economic advisor on a one-week tour of the project area. The BuRec advisor also interviewed various key personnel throughout USAID and different Philippine government agencies on matters related to economics.

Land Classification. The gross project study area, including new areas added after land classification was begun, was measured on the rectified aerial photographs. It now appears that the gross area totals at least 150,000 hectares rather than the earlier estimate of 120,000.

About 20,000 hectares were field classified during the month bringing the total so far classified to about 107,000 hectares. Four master pits were dug to a depth of 2 meters from which samples were taken, including several undisturbed samples for field capacity tests.

One land classifier assisted the field survey parties in plotting proposed canal lines onto aerial photographs. Another land classifier assisted the agro-economic team in plotting farm locations onto aerial photographs.

Planimetry of land classes was started during the last week of the month. Also, tracing of land classification data onto base maps for report presentation was begun.

The head of the Land Resources unit and the BuRec advisor spent two weeks in the project area.

The heating elements ordered from the USA for replacement in the water distillation apparatus in the field laboratory at Cabanatuan City arrived at the end of the month.

Reports. Due to the resignation of the reports writer assigned to the Magat Project, responsibility for coordination of report write-ups from the different sections has been assigned to a member of the Economics Unit.

Preparation of the draft describing plans and estimates was continued. A preliminary draft describing the historical setting of the power situation of the Cagayan Valley, present and future load requirements and proposed plans for transmission facilities within the area has been completed.

#### BALOG-BALOG PROJECT

Field classification crews completed work in Part II of the project area and returned to the office about the middle of the month. A little over 60 percent of the project area has been classified. The BuRec advisor spent one week in the field reviewing operations.

The BuRec drainage advisor spent two days in the project area with Bureau of Public Works personnel observing and appraising drainage problems. Subsequently, he met with key personnel of the Water Resources Division to outline a plan to make additional drainage investigations of the Balog-Balog Project.

#### BUREAU OF PUBLIC WORKS SOIL AND WATER LABORATORY

A report was submitted to the Project Manager, MRPFS, listing test results of all Magat River Project soil samples tested and also listing the chemicals used along with a request for replacement. The tests completed include particle size analysis, sand sieving analysis, settling volume, moisture retention at 1/3-bar and 15-bar tension, quick lime test, quick manganese test, soil reaction in water and in calcium chloride, electrical conductivity, iron, and total titratable acidity; also, a limited number of tests for bicarbonates, chlorides, and boron. In addition to the Magat River Project samples, work was started as testing Balog-Balog Project soil samples.

GENERAL

The BuRec hydrology advisor was officially appointed as Project Engineer effective May 14, 1972. The Project Engineer spent one week in the Magat Project area reviewing the various field activities.

The BuRec field engineer advisor, at the request of USAID, spent two days near Iloilo City inspecting a USAID supported small irrigation diversion dam which had been damaged during recent high stream flows. A memorandum summarizing his findings and recommendations was sent to USAID Provincial Development Division.

As a result of comments received from BuRec/Denver regarding the Report on Upper Pampanga River Project Land Classification, recently published by the Philippines government, USAID/Manila and the BuRec Project Engineer agreed to request the temporary services of a land classification and laboratory advisor from USBR to aid the Government of the Philippines in improving laboratory procedures, especially as they pertain to land classification.

The training film "Water Movement in Soils" was shown six times to a total estimated audience of 250 in the National Irrigation Administration, the Bureau of Soils and the Water Resources Division of the Bureau of Public Works.

*Wayne V. Halliday*  
WAYNE V. HALLIDAY  
Project Engineer, BuRec

NOTED:

  
JOSE R. DEL ROSARIO, JR.  
Project Manager