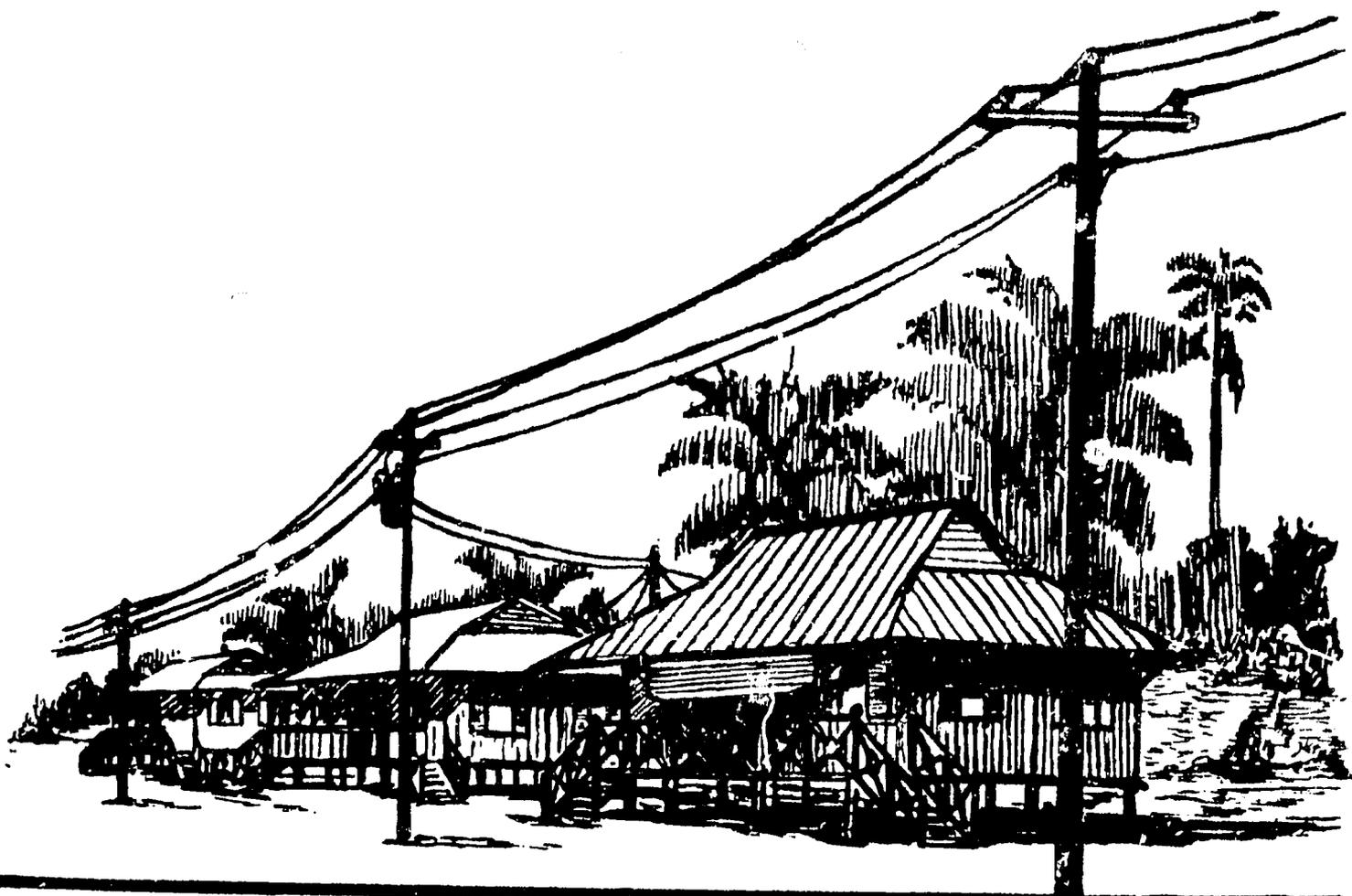


# VIETNAM

## RURAL ELECTRIC COOPERATIVE TEAM REPORT

SEPTEMBER-OCTOBER

# 1967



**AGENCY FOR INTERNATIONAL DEVELOPMENT**

**NATIONAL RURAL ELECTRIC COOP. ASSOCIATION  
PIO/T 430-295-3-60163**



EMBASSY  
OF THE  
UNITED STATES OF AMERICA

U.S. AID MISSION TO VIETNAM

October 31, 1967

To : Mr. Donald G. MacDonald, Director USAID/Vietnam  
Mr. John W. Robison, Chief USAID-ADENG

Subject : Bi-Monthly Report of Progress No 19  
Vietnam Rural Electrification Project  
Task Order No 46, AID-NRECA Contract

Reference : Prior Reports 1 through 18, NRECA  
Phase I, II and III Final Report  
Task Order No 40, AID-NRECA Contract

Gentlemen,

This report, No 19, covers the period September 1 through October 31, 1967.

Progress can be noted in the field design phase of the engineering work, and in the construction of the pole lines by the cooperatives crews.

Respectfully submitted,

Powers Luse, Chairman  
NRECA VIETNAM TEAM

H. L. Bush Jr.  
Chief Engineer  
NRECA VIETNAM TEAM

(VIETNAM RURAL

ELECTRIFICATION PROJECT

-----  
Task Order No 46  
AID/csd-225  
PIO/T 430-295-3-60163

Report of Progress  
Number 19  
Sept. - Oct.  
1967

Prepared by

Vietnam Rural Electric Cooperative Team  
National Rural Electric Cooperative  
Association

For

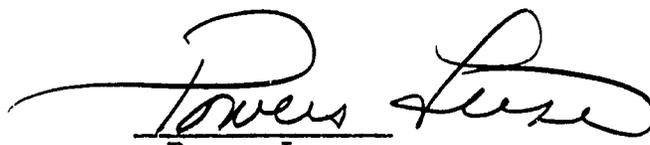
The Republic of Vietnam

And

The United States  
Department of State  
Agency For International Development

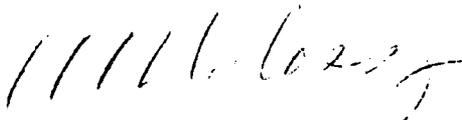
Submitted by:

  
H. L. Bush Jr.  
Chief Engineer

  
Powers Luse  
Team Chairman

USAID SUMMARY SHEET

This report well covers all aspects of the Rural Electric Coop Program in Vietnam. It is evident that the program is in motion and that progress is evident. The principle problem remains in completion of construction and initiation of successful, continuous operation, of the wood pole treatment plant at Phan Rang. Every effort is being made to target full operation by the end of June 1968.

  
Henry J. Antosz  
Actg. Chief, Electric Power Br.  
Office of Engineering

ENG:HJA:bt

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## SEPT.- OCT. SUMMARY

### SECTION I

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During this period the Lyon Associates Inc. began substantial office and field engineering at An-Giang. A field office was established, maps were prepared and field staking started. Final approval of the Army pole loan for this system was received but difficulties in transportation prevented the shipment of either poles or line material to Long-Xuyen during the period. The An-Giang Co-operative "reopened" their sign-up of shareholders and picked up over 800 new members during this period, most of them in the priority area in and around My-Thoi Village. The Engineering design for the power plant was reevaluated and changes were recommended by ENG/EPB with NRECA agreement. These changes included making provisions on the existing site for three additional generators and another control cab.

At Duc-Tu REC force account construction of the three phase pole line from the Dong-Nai substation to the south edge of Ho Nai Village was completed. This work was however severely hampered by the continual breakdown of the co-ops line construction equipment. The U.S. Army gave us much help on equipment repair and finally loaned us an auger & boom truck and army crew to set poles. Under the direction of the NRECA coordinator, a Vietnamese line crew of seven men was hired and trained. By periods end this crew was working very well.

At Tuyen-Duc construction of the substation and primary lines for Truong-Son Village was begun after two loads of Army poles were trucked up from the Duc-Tu REC stock to Truong-Son.

The USAID responsibility for the Pole Treating Plant was transferred to the Nha Trang Region II Engineering Division Office. A full time USAID engineer was assigned to the work of supervising the PTP construction. Region II ENG undertook to arrange for a fence around the site but at periods end had not got the fence started. Lindner, Cox and Hacker (the site contractor) went back to work, Lester returned from the U.S. in improved health and prospects seemed a little brighter for plant operation in early 1968.

All Boards of Directors of the co-operatives met regularly except at Tuyen-Duc where the September meeting was missed. The boards all hired co-op managers during this period. Bookkeepers are also being trained.

The Project Agreement approved by USAID in May was signed by GVN and returned by them to USAID at the beginning of this period (Sept. 5th). However by periods end the USAID Program Office appeared to have doubts regarding their Project Agreement. Preparation of this document was started by USAID in January 1966.

THE CO-OPERATIVES

SECTION II  
-----

The Boards of Directors of the An-Giang and Duc-Tu Co-ops continued to show progress in almost every respect. However at Tuyen-Duc there was evidence of poor leadership both in the co-operative and on the part of the NRECA co-ordinator.

The following excerpt from the October 1967 Vietnamese/USAID Resource Development Report is included as evidence of the interest of the Governments of the Vietnam and the United States in provincial and rural electrification.

E X C E R P T F R O M

Oct. 1967 Vietnamese/USAID Resource Development Report

Section D. Electric Power  
-----

Outside the Saigon/Cholon area, in the central regions and in the south, electric service is high on the list of development priorities of the people, as evidenced by responses to our inquiries in the towns and villages of these regions. Programs are needed now for the provision of a modern, efficient, electric power supply, which will be capable of being expanded, as security returns and power requirements grow, to serve not only the communities in these regions which now have electric service, but also the neighboring communities, large and small, which are not receiving service. This would mean that, at as many as three locations in the south there would be modern steam-electric generating plants, with associated transmission and distribution systems which would greatly expand the limited number of people who presently have electric service. Such systems, when established, could bring service within a few years to at least a million people who do not now have it. Programs now under consideration will be reviewed by the Group in the light of these criteria.

# ENGINEERING

## SECTION III

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Permits for the aerial photographing of the Tuyen-Duc Project and Duc-Tu Project areas had not been issued by the Government of Vietnam at the end of this report period. The Minister in charge of security was deeply involved in the security measures required for the presidential election, and it is assumed that the permits will be issued early in November.

Further inspection and field checking of detail, 1:1000 scale, maps and the distribution and service line design indicate the practicability of this engineering approach.

A detailed criteria for design and construction standards was produced and many decisions made regarding the specific requirements of Vietnam and each of the distribution projects.

The aerial photography of An-Giang was completed, there being some areas not adequately covered on the original flight. Photographs were marked for boundaries of the service area and at the end of this report period the remaining basic maps were being completed.

Conferences were held with the An-Giang Province authorities to establish the boundary between the City of Long-Xuyen and the Cooperative.

The existing distribution system in the village of Thot-Not was inspected by NRECA personnel and Mr. Polasek of Lyon and Associates. It was the consensus that the Cooperative should build an entirely new distribution system rather than try to rehabilitate the old French system. The existing system has deteriorated since the French abandoned it approximately 7 years ago.

The request for 1,400 poles to be loaned by the U.S. Army to the An-Giang Cooperative was approved. Although CORDS originally was to arrange for transportation of these poles to Long-Xuyen, they have had much difficulty in obtaining cargo space. Commercial barges will now be provided under a contract to haul the poles and material. USAID/Logistics has been requested to carry on the negotiations and prepare the contract.

Pacific Architects and Engineers submitted final Plans and Specifications for the An-Giang Power Plant. After a thorough review of these design documents by USAID/ENG and NRECA's engineer they were returned to P.A. & E. for revision and simplification.

The Sea Bee unit in Long-Xuyen was contacted and agreed to provide equipment and labor to extend the power plant site fill area.

Training of a line crew continued at the Duc-Tu Cooperative along with the setting of poles from EOY's Dong-Nai Substation to the center of Ho-Nai village.

A conference with Electricity of Vietnam's Chief of Substations resulted in an agreement that EOY will remove the existing grounding resistor from the Dong-Nai Substation, thereby providing 15 KV, 4 wire, neutral grounded, Y connected, service to the cooperative. The substation was originally designed for this type of service however the grounding resistor was installed and the one unused feeder was to be operated as a delta system.

The lack of aerial photographs of the Duc-Tu Cooperative area will delay progress of engineering and construction unless obtained in the near future.

Staking of a distribution system for the village of Truong-Son in Tuyen-Duc Province was started. Thirty Army loaned poles were trucked to this hamlet from Long-Binh, line material was air lifted from Saigon and it is anticipated that construction will be started in November.

Electricity of Vietnam has again agreed to install the step down transformer for the hamlet of Man Lime. The Board of Directors requested Ambassador Komer's assistance in obtaining a loan of 300 Army poles for larger scale construction at Tuyen-Duc.

Inspection of the Pole Treating Plant site improvement works revealed little progress being made and indicated the necessity of providing a resident engineer to oversee the construction. F.A. & E. was requested to make an interim "as built" study. This study indicated the contractor had some corrective work to be done as well as to complete portions of the work then unfinished.

A conference was held with USAID's Engineering and it was decided to give the supervision of construction to Region II Engineering under their direct supervision. Region II was also instructed to supervise the general operations of the Pole Treating Plant including letting a contract for the installation of a security fence, providing personnel to insure prompt and complete delivery to Phan-Rang of the waste incinerator, replacement parts, and the boiler from Cam Ranh Bay; as well as daily supervision of the site preparation contractor, Lindner, Cox and Hacker.

Lyon and Associates progress report No. 1 for the period ending Sept. 30th and report No 2 for the period ending Oct. 31st with Progress Charts for each of the Distribution Cooperatives are included as a portion of this engineering section.

Period 15 August 67 to 1 Oct. 67  
Our Reference No. 67S-753

Progress Report No. 1  
Rural Electrification Project  
Contract No. (None-letter contract)

**GENERAL:**

Initial planning work has been accomplished; a general approach to the project has been outlined, discussed with AID and NRECA officials, and their concurrence obtained. A critical path analysis, initially made in connection with the original proposal, has been brought up-to-date in view of the more detailed information now available. Manpower requirements have been reassessed.

The general approach to the project may be summarized as follows:

1. Take aerial photos of the areas concerned
2. NRECA established boundaries of service areas
3. From these photos, prepare maps to a scale of 1:1000 (1" = 83.3')
4. Lay out distribution on these maps
5. Field check layout, making required adjustments and identifying special loads.
6. Prepare working drawings from field checked layout
7. Prepare contract documents from working drawing
8. Stake lines from working drawings
9. Use staking streets to correct working drawings and bills of material
10. Use corrected working drawings for construction

Personnel arrived to date consist of Mr. E.J. Polasek, Project Engineer, Mr. K.G. An, Electrical Engineer, and local administrative personnel. However, the entire staff of Asia Mapping and of the Civil Department have been photographing and preparing maps. Mr. Grubbs, Electrical Engineer, is in Saigon, and will be transferred to Long-Xuyen as soon as the requirement exists. Four additional Third National Electrical Engineers have been assigned from other offices, and will arrive as soon as entrance formalities are completed.

The Project Engineer has visited both the An-Giang and Luc-Ta sites in the company of Mr. Hugh Bush, NRECA, for general familiarization and for test field checking of sample layouts. The field checked sample demonstrated the practicality of the general approach previously outlined.

**WORK PROGRESS:**

All aerial photos for the An Giang Cooperative have been completed, and ground control established. It is expected that photos will be taken of the Duc Tu area during the first week of October; however, the Tuyen Duc area cannot be photographed until the weather clears, probably early in December.

Maps have been prepared for approximately 20% of the An Giang area. The balance of the An Giang maps are scheduled for completion before the end of November.

Preliminary layout of distribution has been completed on about 75% of that portion of An Giang for which maps are complete.

Respectfully submitted,

Signed : E.J. Polasek

E. J. Polasek, Project Engineer

EJP/jlg

Period October 1, 1967 to November 1, 1967

Our Reference No. 678-860  
JN -758

Progress Report No. 2  
Rural Electrification Project  
Contract No. (None - letter contract)

General:

Progress to October 15 is as shown on the attached bar charts. Major progress has been in the An Giang Co-op area. The other areas have not been photographed to date.

Staffing of the Saigon office is essentially complete. Work continues on design criteria and standards, both of which are near completion.

An Giang:

Preliminary design is complete for 147 km of line and services. Field check is proceeding. An office has been established, staffed, and equipped in Long-Xuyen.

Duc-Tu:

Various difficulties have prevented photography in **this area** to date, however the flight permit has been received now, and it is expected that photography will be accomplished in the next few days. Ground control is being done in advance of photography, and arrangements have been made to produce photographic enlargements in advance of mapping. These measures will save almost enough time to put Duc Tu back on schedule.

Duc Tu Area Engineer is scheduled to arrive Saigon on November 15, 1967.

Tuyen-Duc:

Work in this area has not begun to date.

Respectfully Submitted

Signed: E.J. Polasek

E. J. Polasek  
Project Engineer

EJP:cdc

ITEM	% OF TOTAL	% COMPLETE									SCHEDULED COMPLETION	
		10	20	30	40	50	60	70	80	90		
<b>1. PLAN &amp; SPECS</b>	<b>100</b>					A 300%						
1a. Photography	13											Sept 1 '67
1b. Base Maps	60											Nov. 15 '67
1c. Other Mapping	17											Nov. 15 '67
1d. Specs Documents	10											Feb. 1 '68
<b>2. DESIGN</b>	<b>100</b>											
2a. Preliminary	50											Nov. 20 '67
2b. Bill of Materials	10											Dec. 20 '67
2c. Field Check	30											Dec. 10 '67
2d. Working Drawings	10											Jan. 1 '67
<b>3. OTHER SERVICES</b>	<b>100</b>											
3a. Familiarization	10											Nov. 15 '67
3b. Travel & Mobilization	13											Nov. 1 '67
3c. Final Documents	18											Aug. 1 '68
3d. Final Inventory	9											July 1 '68
3e. As Built Drawings	9											Aug. 1 '68
3f. Other	41											July 15 '68
<b>4. STAKING</b>	<b>100</b>											Apr. 15 '68
<b>5. INSPECTION</b>	<b>100</b>											July 1 '68

Approved For Progress

*Hugh Bush*  
Hugh Bush Chief Engr. NRECA

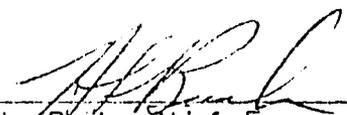
Oct 14 '67  
Date

**PROGRESS CHART**  
**LOT II TUYEN JUC**

**STATUS**  
OCT 15 '67

ITEM	% OF TOTAL	% COMPLETE									SCHEDULED COMPLETION	
		10	20	30	40	50	60	70	80	90		
<b>1. PLAN &amp; SPECS</b>	<b>100</b>	54%										
1a. Photography	13											Dec. 1 '67
1b. Base Maps	60											Jan. 15 '68
1c. Other, Mapping	17											Jan. 15 '68
1d. Specs, Documents	10											Apr. 1 '68
<b>2. SUBSTATIONS</b>	<b>100</b>											Jan. 1 '68
<b>3. DESIGN</b>	<b>100</b>											
3a. Preliminary	50											Jan. 20 '68
3b. Bill of Materials	10											Feb. '20 68
3c. Field Check	30											Feb. 10 '68
3d. Working Drawings	10											Mar. 1 '68
<b>4. OTHER SERVICES</b>	<b>100</b>											
4a. Familiarization	10											Jan. 15 '68
4b. Travel & Mobilization	13											Jan. 1 '68
4c. Final Documents	18											Oct. 1 '68
4d. Final Inventory	9											Sept. 1 '68
4e. As Built Drawings	9											Oct. 1 '68
4f. Other	41											Sept. 15 68
<b>5. STAKING</b>	<b>100</b>											June 15 '68
<b>6. INSPECTION</b>	<b>100</b>											Sept. 15 '68

Approved For Progress

  
Hugh Bush, Chief Engr., NRECA

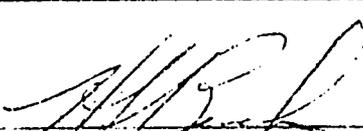
Oct. 24 '67  
Date

PROGRESS CHART  
LOT III DUC TU

STATUS  
OCT. 15 '67

ITEM	% OF TOTAL	% COMPLETE									SCHEDULED COMPLETION	
		10	20	30	40	50	60	70	80	90		
<u>PLANS &amp; SPECS</u>	<u>100</u>	ACTUAL 4%		SCHEDULED								
a. Photography	13	A(0)									NOTE: FLIGHT PERMIT DELAYED BY .GVN.	Oct. 1 '67
b. Base Maps	16	A(0)										Dec. 15 '67
c. Other Mapping	17	A(0)										Dec. 15 '67
d. Specs, Documents	10	S			A							Mar. 1 '68
<u>DESIGN</u>	<u>100</u>											
a. Preliminary	50											Dec. 20 '67
b. Bill of Materials	10											Jan. 20 '68
c. Field Check	30											Jan. 10 '68
d. Working Drawings	10											Feb. 1 '68
<u>OTHER SERVICES</u>	<u>100</u>	ACTUAL 4%		SCHEDULED								
a. Familiarization	10			A								Dec. 15 '67
b. Travel & Mobilization	13											Dec. 1 '67
c. Final Documents	18											Sept. 1 '68
d. Final Inventory	9											Aug. 1 '68
e. As Built Drawings	9											Sept. 15 '68
f. Other	41	A										Aug. 15 '68
<u>STAKING</u>	<u>100</u>											May 15 '68
<u>INSPECTION</u>	<u>100</u>											Aug. 15 '68

Approved For Progress

  
Hugh Bush, Chief Engr., NRECA

Oct 22 67  
Date

## CONSTRUCTION

### SECTION IV

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Construction of the Pole Treating Plant site improvement contract work progressed fairly well during the month of October. The Contractor, Lindner, Cox and Hacker returned to the job on Sept. 26th after a period of three weeks of having no laborers on the site.

Construction of the main plant building was well underway by October 31st. Repair and replacement of defective workmanship and material was underway. With the exception of the railroad spur, all site improvement work should be completed prior to December 31st.

Work on the erection and installation of the plant equipment progressed as rapidly as in country purchased replacement parts could be obtained. Major replacement parts and equipment from the U.S. are now scheduled for delivery to Cam Ranh during November and December. The waste incinerator arrived in Cam Ranh the last week of this report, but to date it has not been delivered to the plant site.

Construction of distribution lines on the An-Giang Distribution Cooperative will start as soon as the poles borrowed from the Army arrive at Long-Xuyen. Provision for storage of poles and materials has been made. Equipment for construction is being repaired. CORDS personnel are endeavoring to borrow line trucks, digging trucks and pole hauling trucks to expedite the construction.

A Vietnamese construction superintendent has been employed by the cooperative although he has been temporarily loaned to Lyon & Associates until poles, material and equipment arrive in Long-Xuyen.

Construction on the An-Giang Power Plant progressed slowly. Grounding conductor was purchased on the local market to replace that lost in shipment to Vietnam. The grounding wire trench was dug, ground rods driven and wire installed. Site clearing of coconut tree stumps was completed and arrangements were underway to complete the fill on the plant site.

Construction activity was greatest on the Duc-Tu Distribution Cooperative system. All of the poles were set on the Dong-Nai - Ho-Nai three phase feeder line and the Cooperative crew had started to string the conductor by the end of the period.

The training of the Vietnamese line crew men appears to be quite successful. Several of the cooperative construction employees should, we now

believe, become excellent linemen. Although the training of these men has taken considerable time, the construction was delayed primarily by the constant breakdown of the cooperative trucks obtained from Excess Property inventories. Fortunately the U.S. Army repair depot have made many major repairs on the vehicles including the installation of two new engines, four differentials, several sets of hydraulic breaks, air compressors, earth auger gears, boom truck legs, winch clutches, main clutches and many other major and minor repairs.

The complete overhaul of all Excess Property vehicles is mandatory if this equipment is to be used. It is apparent that this overhaul was not done prior to shipping to Vietnam. Although the outward appearance of these vehicles is quite good, the mechanical parts are often worn to such an extent that they fail rapidly. With the continuance of assistance by the Army Repair Depots it is anticipated that the cooperative force account construction can proceed until new equipment is obtained.

The setting of poles on this line (Duc-Tu) was expedited by the loan of two Army trucks and equipment operators. Although this equipment and manpower was made available to the cooperative for a month period, they could be used at that time for only one week. It is anticipated that the remaining time for our use of this Army crew will be used when Lyon and Associates have started staking the remainder of the lines.

Construction on the Tuyen-Duc Distribution system was limited to preparation for future construction of the distribution system in the hamlet of Truong-Son. Tools were purchased on the local market. The Army installed a new engine in the cooperative earth auger truck. Thirty poles were trucked from the Long-Binh Army depot to the hamlet of Truong-Son. Difficulty was encountered when batteries on both vehicles were stolen on several occasions.

Electricity of Vietnam had not installed the step-down transformer to connect the distribution system in Man Line, at the end of this report period.

## P R O C U R E M E N T

### SECTION V

Logistical problems of procurement were of continuing concern. Numerous tracer action forms were submitted to USAID/Logistics and transmitted to appropriate US Army Logistical Commands. No material has been recovered as a result of these tracers. Several missing items have been located during this period by other USAID Division activity as well as through efforts of NRECA personnel.

Materials ordered early in 1966 continue to arrive. The order for polyphase meters was placed late in October by GVN's Central Purchasing Authority.

The 750 KVA, 4160 to 6600 KV transformer for the Long Xuyen Plant is scheduled for shipment late in December of this year.

The waste incinerator and some replacement equipment for the Pole Treating Plant was shipped from the US during the month of October.

The order for equipment to replace items stolen from the Pole Treating Plant site had not been placed by USAID at the end of this period and the lack of this material will delay the start of treating operations.

Arrangements for the movement of material, vehicles and borrowed Army poles from Saigon to Long Xuyen were in progress during the entire period of the report. However it was not until the end of October that action was taken to rent commercial barges to handle the pole move. It is anticipated that the poles will be in Long Xuyen by the end of November.

Twenty five poles were trucked to the Tuyen Duc Project. This although necessary was quite expensive and other means of transportation of poles to Tuyen Duc should be employed in the future. VC activity along the Saigon-Dalat road as well as the deplorable condition of the highway demands a high freight tariff and it is difficult to obtain competitive bidding for this type of freighthauling.

P E R S O N N E L

SECTION VI  
-----

Following is the personnel situation at periods end:

	<u>An-Giang</u> <u>REC</u>	<u>Duc-Tu</u> <u>REC</u>	<u>Tuyen-Duc</u> <u>REC</u>	<u>Saigon</u> <u>NRECA</u>	<u>Phan-Rang</u> <u>PTP</u>
NRECA Supervisor	-	-	-	Luse (1)	Lester
" Engineer	-	-	-	Bush	Smith
" Co-ordinator	Moody (2)	Sansing	Ross (3)	-	-
" Line Supt.	-	Martin (4)	-	-	-

Co-operative Employees

Co-op Manager	Chuan	Resigned	Ngoc-A	-	-
" Bookkeeper	Suoi	Trong	Ngoc	-	-
" Line Supt.	Diem	None	None	-	-
" Line Crew Members	26	7	1	-	-

(1) Luse leaves Dec. 15, 1967 - Termination of Tour

(2) Moody " Dec. 26, 1967 - " "

(3) Ross " Jan. 4, 1968 - " "

(4) Martin " Dec. 20, 1967 - Home leave.

## ENVIRONMENTAL CONDITIONS

### SECTION VII

-----

Weather conditions were good in the areas of the Duc Tu Cooperative Distribution Project and the Pole Treating Plant during the entire period of this report.

Very high tide conditions created flooding in the An Giang Area and delayed work on the Power Plant and also the final membership sign up along the Bassac and Long Xuyen Rivers.

Weather conditions at the end of this report were deteriorating in the highlands area of the Tuyen Duc Cooperative Distribution Project. Low hanging clouds in this region will probably delay aerial photography by Lyon & Associates until mid-December.

Viet Cong activity is increasing in all Project Areas - Army intelligence discovered a plot to mortar the An Giang Generating Units as well as the Communications Tower at Long Xuyen. Massive Air strikes apparently discouraged this action. More reactivity has been noted in the Tuyen Duc Area and the tempo has been stepped up around Long Binh and Bien Hoa adjacent to the Duc Tu Cooperative.