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PROJET ENERGIE RENOUVELABLE
ISERST VITA

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REPUBLIQUE DE DJIBOUTI

AID / ISERST / VITA

ENERGY INITIATIVES PROJECT

Contract n° 603 - 0013 - C - 00 - 2001 - 00

EIGHTH PROJECT QUARTERLY REPORT

July - September 1984

October 18, 1984

Submitted to : AID/Djibouti

Submitted by : Steve Hirsch, VITA Chief of Party, Djibouti

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Summary of Important Eighth Quarter Events

The eighth project quarter marks the end [illegible] of the Energy Initiatives Project which concentrated on the [illegible] of the project's personnel infrastructure, information base and the construction of the Renewable Energy Building.

It is planned that the second half of the project will begin with an evaluation by USAID of project activities to date and the establishment of a program for the next two years of the project. This program will build on the base that has been established during the past two years and lead to measures that will have a demonstrable impact on the energy situation in Djibouti. Until the AID Mid Project Evaluation is completed, it is anticipated that the project will continue to follow the activities plan agreed upon by ISERST, AID and VITA for the first two years of the project.

The eighth project quarter took place during the summer season when most activities slow down due to the hot weather and vacations. Considerable progress was made, however, in a number of areas especially regarding final preparation of the energy assessment report.

The past quarter was also marked by project personnel moving into new quarters in the Renewable Energy Building. While work still remains to be completed, the building appears to be performing as Designer/Architect Dan Dunham hoped it would, both in terms of energy conservation and comfort.

Also, interest was expressed by both the French Government and a private French businessman in collaborating technically and financially in future project activities.

Eighth Quarter Activities

1. Informational and Analytical Base

(a) Meteorological Data Collection

Meteorological data continue to be collected on from 7 sites by the ISERST/VITA staff using the Climatronics equipment. While minor problems continue to occur with the equipment, most of them have proved correctable on site. Nevertheless, it is now clear that periodic shipments of spare parts and equipment will be required from the Climatronics home office in Bohemia, New-York as long as the data collection activities continue.

(b) Apple IIe Computer

Repairs on the Apple computer are due to be completed early in October and it will be returned to Djibouti by air freight at that time. The repairwork has unfortunately required over three months for Apple to complete and , as a result, it appears questionable that a program of computer-related activities can be pursued in Djibouti without either a local repair capability or a back-up system.

Mme Turkia of ISERST was identified for the position of ISERST Computer Coordinator and it is anticipated that Engineer Judy Hirsch will begin working with her as soon as the computer is returned.

(c) Energy Assessment

COP Hirsch spent 3 weeks TDY at VITA, Rosslyn working with assessment consultants Peter Maxson, Jesse Ribot, Matt Milukas and Bill Ramsey to finalize the energy assessment report. Many members of VITA's full time regular staff were also mobilized for the effort and work frequently continued through the late evening hours and on weekends to complete the job rapidly.

Energy Service Director Oblik Carton remained in contact with the VITA/Rosslyn office by telephone from France during this time and was able to assist with advice and comments on a number of occasions.

Following the COP's return to Djibouti, he reviewed the draft assessment report with Oblik Carton and additional comments/suggestions for the assessment were telexed to VITA/Rosslyn.

Seventy copies of the French version, fifteen copies of the English version and one hundred summaries will arrive in Djibouti early next quarter for presentation to the GROD and distribution to interested services and individuals.

• Pilot Interventions/Prototype Research

(a) Ubock Solar Pump

A replacement KSB pump has arrived in Djibouti [illegible] and ISERST/VITA has received instructions from SEI to retain the broken pump for a possible refund.

Once cleared through customs, it is anticipated that this solar pump will continue to serve as a demonstration model in Djibouti for potential users who are either private small scale farmers or members of agricultural cooperatives. A demonstration of the installation and use of the pump is already scheduled for next quarter in As-Eyla.

(b) Aramadoule Windmill

Due to the drought, it had been observed by ISERST/VITA technicians that the Aramadoule well was frequently dry but that the windmill was not being turned off at those times. This raised the issue of ongoing supervision and maintenance of the windmill which Catholic Relief Services (CRS) had agreed to provide.

During subsequent discussions with the CRS Director, he indicated that CRS intended to minimize it's involvement in the Aramadoule nursury and could not continue to oversee the use of the windmill. CRS indicated that they had discussed the topic with the Agriculture Service Director, M. Awaleh, who indicated that his Ali-Sabieh field representative, Abdi Bouh Amir, would assume responsibility for the maintenance and oversight.

ISERST/VITA staff will followup on the maintenance of the windmill next quarter to assure that it is being carried out.

ISERST/VITA staff see the Aramadoule windmill as a test case to assess whether suitable arrangements can be made for the maintenance of wind/solar prototypes put in the field. This issue has been raised with both Génie Rural and the Agriculture Service, and it was agreed by both that it does not make sense to put renewable energy prototypes in the field unless the infrastructure for assuring proper maintenance/supervision is in place.

(c) Collaboration with the Agence Française pour la Maîtrise de l'Energie on Solar Pumping

The COP met with representatives of the AFME in Paris following his TDY at VITA headquarters. As a result of these discussions, the AFME has proposed a collaborative testing project with ISERST/VITA and Génie Rural involving a number of French solar pump systems. Of particular interest to the AFME is on-site solar pump testing using the ISERST/VITA infrastructure in Djibouti including personnel, the Renewable Energy Building and workshop facilities.

Following consultation with ISERST, USAID and Génie Rural, the COP has responded positively to the tentative AFME plan and has requested further details regarding the suggested objectives, scope of activities and [illegible] requirements.

3. Assessment and Dissemination of Research Results

(a) Oasis Wind Pump

Frequent readings were taken during the quarter by ISERST/VITA project technicians and pumping rates of the Oasis windmill located in Douda. Results of these analyses show that the windmill :

- is pumping an average of about 3 cubic meters of water per day ;
- is satisfying the local farmer's need for water and has replaced his use of a Bernard diesel pump ;
- is economically viable for farmers with similar size plots.

Technician Abdoulkarim Moussa Yacin has prepared a report on the windmill with the test results which will be distributed to Génie Rural, the Agriculture Service and other interested parties next quarter.

Since the ISERST/VITA test program has now been completed, it becomes the role of CIDR and the Service de l'Agriculture to ensure the maintenance and supervision of the windmill.

(b) Earth Brick Construction Demonstration in Balbala

As a result of successful tests carried out by Travaux Publics on stabilized earth bricks made with the Guilhon Barthelemy press belonging to M. Abaneh, it was decided that a demonstration of the use of this press and construction with stabilized earth bricks would be held in Balbala. The Balbala District Director was contacted, gave his authorization for the demonstration and assisted ISERST/VITA staff in selecting a suitable site near the Balbala market.

It is planned that the demonstration will be carried out during the ninth project quarter.

In light of the successful T.P. tests, Guilhon Barthelemy was contacted by ISERST/VITA and provided information on an improved brick press that can produce 120-150 bricks per hour (as oppposed to 80 bricks per hour with the existing press). A copy of the Guilhon Barthelemy literature was provided to M. Abaneh who is considering purchasing the improved press if demand for stabilized earth bricks exceeds the capabilities of his present machine.

To date, six stabilized earth brick buildings have been constructed in Djibouti and a seventh will be begun shortly.

4. Energy Conservation Practices

(a) ISERST Renewable Energy Building

Progress on the building continues at a disappointly slow rate as Touzet International continues to be unable to resolve it's administrative and financial problems.

Following failure of the roof water test required under the VITA/Touzet contract, it was decided that the south wing waterproofing and concrete finish would have to be completely removed and redone by Touzet. Simply removing the faulty structure was a major undertaking but was completed this quarter. It now appears questionable whether Touzet will be able to finance and/or complete the job or, in fact, whether Touzet will remain in business in Djibouti.

As a result, the VITA COP has asked for advice from ATD as to how best to deal with subcontractors who have either not been paid by Touzet for the work they have completed or are reluctant to complete further work since they anticipate Touzet will not be able to pay them.

In light of the possibility that certain subcontractors may try to remove material already installed in the building but not paid for by Touzet (as one has repeatedly threatened to do), ISERST Director Anis Abdallah, Administrative Director Tourki and the COP met with the Minister of Interior and obtained police protection for the building.

At the suggestion of AID/Djibouti, the [illegible] a local lawyer to advise him as to the legal procedure should VITA decide to break the contract with Touzet.

Penalty deductions to date total approximately $120,000 and a bank guarantee of about $16,000 would also be awarded to VITA if Touzet does not complete the work. It is estimated it will require between $60,000 and 70,000 to complete the building.

Despite the above problems, the ISERST/VITA staff moved into the completed north wing of the building and all utility services have been connected and are operating. Even having only the north wing of the building available has given the project a great deal more space in which to work and has already facilitated a number of project activities.

(b) ISERST/VITA Support to Djibouti Urban Development Project

As a result of the successful design of the ISERST Renewable Energy Building by VITA Architect Dan Dunham and the manuals prepared by Dunham and Architect Jarmul, ISERST/VITA will participate in the design of four prototype housing units under the World Bank sponsored Djibouti Urban Development Project.

Architect Dunham will collaborate with the French firm selected by the World Bank and the GROD to prepare the designs of the four prototypes and will meet with World Bank Architect Lahlou in Paris both before and after undertaking a two week trip to Djibouti in late October.

ISERST/VITA participation in this effort is particularly interesting in light of the fact that a total of 106 housing units will be built beginning in early 1985 under the W.B. project using the four prototypes. As a result, the principles described in both the Dunham and Jarmul manuals will be put into practice quickly and on a scale that could have noticeable impact on the comfort levels and energy consumption of a significant number of Djiboutians.

As a result of the above, construction of the prototype houses that was planned by ISERST/VITA has been put on hold and will be discussed with REDSO Construction Advisor Adams and the AID Evaluation Team next quarter.

c) Collaboration with Deval Company

The Deval Company was founded in 1931 in Marans, France and specializes in general electrical construction and automation. As a result of Deval's obtaining the automation contract for the Djibouti Milk Factory, contacts between Director Guy Deval and Anis Abdallah and discussions with the COP, M. Deval has proposed a collaborative effort between his company and ISERST/VITA to study various known space cooling methods as they might be applied to current and future housing in Djibouti. A major component of this effort would be to evaluate both the initial investments these cooling methods would require as well as the energy that could be conserved on an individual and national scale.

M. Deval has been accorded 1,000,000 FF (approx. $110,000) by the French Government which would be combined with ISERST/VITA/USAID resources for this project.

A detailed project proposal is being prepared by M. Deval which will be reviewed by ISERST, USAID and VITA Volunteers Dunham and Jarmul.

If additional financing is required, the French Technical Assistance Mission (FAC) in Djibouti has indicated a willingness to request support from the Agence Française pour la Maitrise de l'Energie (AFME).

5. Private Sector Initiatives

(a) UNHCR Solar Pumps

The two Arco solar pumps ordered by UNHCR through Sotraco arrived in Djibouti and were inspected by ISERST/VITA personnel. It was decided that one of the CSB 50 pump sets would be temporarily set up at the new Renewable Energy Building in order to give project technicians and others hands-on experience with the system. At present a demonstration/training session is scheduled for early next quarter to which will be invited technicians from UNHCR, Génie Rural, the Agriculture Service, and Sotraco. Following the demonstration, assistance will be provided to UNHCR by ISERST/VITA in installing the pump systems in Holl-Holl and As-Eyla.

(b) Solar Water Heater Assistance of Local Laundry

The COP arranged for a visit by the laundry owner to the residence of the US Ambassador which is equipped with the Total solar water heating system. The laundry owner was able to see the system in operation and, as a result, is preparing letters to a number of other solar water heating companies for additional system bids.

(c) M. Syad Mohamed to Use Waste Oil Heating Technique for Small Scale Industry

As a result of skills developed from a project-sponsored waste-oil training session in Arusha, Tanzania, M.Syad will receive a loan from the Caisse de Développement de Djibouti to start a small scale ceramics industry. The loan will be approximately $70,000 and will permit M. Syad to use the waste oil heating technique to manufacture ceramic floor tiles, decorative bricks and flower pots.

G. Policy and Planning Recommendations to Government/Miscellaneous

(a) USAID Evaluation of Energy Initiatives Project Postponed

Information was received from USAID/Djibouti that the project evaluation that had been scheduled to begin on October 20 would be postponed until at least mid November.

(b) Technician Farah Joseph Abdoulatif Departs ISERST

As a result of having been admitted to a technical school in France, Technician Farah Joseph Abdoulatif resigned from the project on September 20. It is planned that Joseph will be replaced early next quarter and that 1-2 more technicians will be hired by ISERST as the need for them develops.

(c) Photovoltaique Test/demonstration Kit Ordered

After using an educational photovoltaic test unit at the AFME office in Paris manufactured by the Enelec Company in Mornant, France, the COP ordered one of the kits for the Project upon his return to Djibouti. The kit, is designed for practical photovoltaic training in a classroom and/or laboratory and will be used to train local high school and vocational students as well as Project and other GROD personnel. The kit comes equipped with a set of technical exercises in French that are well suited to the Energy Initiatives Project.

(d) Cabinet Director and Minister of Education, Youth and Sports Visit Arco Solar, California.

As a result of contacts made by the Energy Initiatives Project, Cabinet Director Ismael Geddi and Minister of Education, Youth and Sports Mohamed Djama Elabe visited Arco solar in California during the course of a State Department Leaders Grant trip to the United States. It was reported that their visit went well and increased their awareness of future potential uses of solar energy in Djibouti.

7. Problems and Issues

(a) Completion of the ISERST Renewable Energy Building

Completion of the ISERST Renewable Energy Building continues to be the highest priority under the Project. Both AID/Djibouti and ISERST are assisting VITA on this issue but whether Touzet will remain in business long enough to complete the work is unclear at this time.

In light of the above, it is becoming increasingly likely that the most expeditious method of finishing the building may be for VITA to break the contract with Touzet and for AID to authorize VITA to sign a contract with a new general contractor for the remaining work. The possibility of VITA pursuing this course of action is presently being discussed with both ISERST and AID.

(b) USAID Evaluation of the Energy Initiatives Project

The USAID evaluation of the Energy Initiatives Project which had been scheduled to begin on October 20, 1984, has now been postponed until at least mid November. As a result, project personnel are continuing to work in technical areas defined in the original USAID/VITA contract and will continue to do so until the evaluation is completed and a new project plan is agreed upon by ISERST, USAID and VITA.

One of the particular areas it is hoped the evaluation will address is the ongoing role ISERST/VITA could play in the Djibouti Urban Development Project following Dan Dunham's visit to Paris and Djibouti

c) Lack of information from Other USAID-Sponsored Energy Projects in Africa

Aside from the informal information exchange established between the Djibouti Energy Initiatives Project and the Mali Renewable Energy Project (which resulted in the successful training of Djibouti Counterpart Abdourahman for one month in Bamako this past year), no information has been received from any other USAID sponsored energy project in Africa regarding their current or planned activities. VITA/Djibouti has sent copies of it's quarterly reports to Sudan, Botswana, Lesotho and Tunisia and no responses have been received to date.

As a result of the Djibouti-Mali training collaboration, it is felt that potentially important opportunities for exchange of information and experience are being missed by this lack of communication. The COP would appreciate suggestions either from other U.S. contractors or USAID as to how this problem can be overcome.

8. Projections for the Nineth Project Quarter

- Complete the IREB either with Touzet or another general contractor;
- Receive and present the completed Energy Assessment Report to the GROD;
- Participate in the USAID Midproject Evaluation;
- Work with Consultant Architect Dan Dunham on the housing component of the Djibouti Urban Development Project;
- Demonstrate the UNHCR solar pump at the IREB for representatives of Génie Rural, the Agriculture Service, Sotraco and UNHCR;
- Provide assistance to UNHCR for the installation of their solar pump in As-Eyla;
- Demonstrate the production and use of stabilized earth bricks in Balbala;
- Prepare a study of the potential uses for low grade industrial heat using waste oil ;
- Repair the Aramadoule flowmeter and monitor use of the well;
- Distribute test results on the Oasis Windmill located in Douda;
- Have the Apple IIe computer returned to Djibouti and integrated into ongoing project activities;
- A candidate to replace the COP Steve Hirsch will be selected and will arrive in country.

Copies : VITA/Rosslyn
USAID/Djibouti
USAID/Khartoum
USAID/Mogadishu
USAID/Gabarone
USAID/ Maseru

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July 16, 1984

To: Jon Lundgren, USAID/Djibouti

From: Steve Hirsch, ISERST/VITA

Subject: Seventh Quarterly Project Report

Attached please find two copies of the Energy Initiatives Seventh Quarter Project Report. If you have any questions or comments, please don't hesitate to contact me.

cc: VITA/Rosslyn