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PROJET ENERGIE RENOUVELABLE 51489
ISERST VITA

REPUBLIQUE DE DJIBOUTI

Unité • Égalité • Paix

AID / ISERST / VITA

ENERGY INITIATIVES PROJECT

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

SIXTH PROJECT QUARTERLY REPORT

January - March 1984

Submitted to : AID/Djibouti

Submitted by : Steve Hirsch VITA Chief of Party, DJIBOUTI

April 5, 1984

Summary of Important Sixth Quarter Events

The highlights of the sixth project quarter were (a) the completion of phase one of the energy assessment, (b) a three week waste-oil consultancy by Tanzanian national Bashir Lalji, (c) the installation and startup of the Arco Lycee photovoltaic system.

Other notable sixth quarter events were :

- a one week consultancy by Togolese energy specialist Dr. Leopold Gninivi;
- a solar pump demonstration held in As Eyla and the subsequent purchase by UNHCR of two Arco pump sets from a local merchant;
- a visit by Tanzanian Small Industry Specialist Ali Sheriff;
- the initiation of a collaborative photovoltaic pumping project with Genie Rural;
- the completion of a two month volunteer consultancy by technician Steve McGoff;
- ISERST/AID authorization for McGoff to return to Djibouti for one year as a fulltime staff member;
- the hiring of a third ISERST project technician;
- a tour of the project waste oil operation by the Commissioner of the District of Obock;
- a one week visit by REDSO Building Advisor Bob Adams,
- President Aptidon indicated his plans to personally inaugurate the ISERST Renewable Energy Building on June 27, 1984, Djibouti National Independence Day;
- agreement by the Energy Service of the Ministry of Industry to coordinate phase II of the energy assessment;
- agreement by Travaux Publics to collaborate with ISERST on the low cost housing subproject;
- Technician Abdoukarim's departure for training at the Gainesville Alternative Energy Training Center.

During the past quarter priority attention was given to :

- (a) maintaining progress on the construction of the ISERST Renewable Energy Building;
- (b) the completion of phase I of the energy assessment and development of the terms of reference for phase II;
- (c) continuation of the Climatronics data collection and analysis program.

In addition, in order to maintain project momentum and to develop collaborative relationships with other GROD and private sector services, selected prototype activities were carried out when time and manpower were available. It is felt by the Chief of Party that both the establishment of a national energy data base and the continuation of specific prototype activities are necessary at this point if the project is to achieve a measureable impact in the near future and stimulate public interest/awareness.

Sixth Quarter Activities

1. Informational and Analytical Base

(a) Meteorological Data Collection

Meteorological data continues to be collected and analyzed from 7 sites by the ISERST/VITA staff using the Climatronics equipment. The time and staff resources required to maintain the equipment and gather and analyze the data are considerable. It is the feeling of both the COP and Counterpart Abdourahman that this activity should be studied closely during phase II of the assessment to decide how long it should be continued under the project.

(b) Apple IIe Computer

The ISERST project technicians and data analysts began to familiarize themselves with the Apple IIe and the programs that were sent with it by VITA/Rossllyn. Formats were developed for tabulation of the Climatronics meteorological data and office secretary Chantal Carpentier received instruction in its' use from Judy Hirsch for accounting purposes. ISERST also prepared a list of central office staff members who should receive training in use of the computer.

(c) Energy Assessment

Economist Peter Maxson arrived at the beginning of January to oversee the first phase of the energy assessment. Representatives from Electricite de Djibouti (E.D.D.), Etablissement Public des Hydrocarbures (E.P.H.), and an economist from the Ministry of Foreign Affairs were called together by ISERST/VITA and established an informal energy advisory committee to guide and provide information for the assessment. The committee met on three separate occasions during phase one and formed the basis of what could become a permanent GROD advisory group on energy matters.

Phase one of the assessment proceeded smoothly with a great deal of cooperation being demonstrated on the part of the GROD institutions involved. Terms of Reference were prepared for phase two and were submitted to AID/Djibouti and ISERST for approval.

The results of phase one were presented by Peter Maxson and Jesse Ribot to the energy advisory committee, ISERST Director Anis Abdallah,

AID Director Jon Lundgren and U.S. Ambassador Adams.

As AID expects to use the final results of the energy assessment in its' own midproject evaluation scheduled to takeplace this October, a timetable was prepared that would allow for the submission of the final assessment document to both AID and ISERST by that time.

As a result of a meeting between the Minister of Industry, Anis Abdallah and ISERST/VITA staff, it was decided that the newly created "Service d'Energie" within the Ministry of Industry would assume responsibility for the coordination of the in-country portion of phase two of the assessment. This represents a major step for the project in establishing an institutionalized approach to energy planning by the GROD. Continued ISERST/VITA support will be provided to the "Service d'Energie" in the hope that it will expand and improve its' energy coordination capabilities and eventually assume the responsibility of developing national energy policy.

(d) Consultancy by Dr. Leopold Gnininvi

At the suggestion of Djibouti AAO Jon Lundgren, the Director of the Solar Energy Laboratory, University of Benin, Togo, Dr. Leopold Gnininvi visited Djibouti for one week to :

- (1) become acquainted with the Djibouti Energy Initiatives Project;
- (2) explore possible collaborative activities between his laboratory in Togo and the ISERST/VITA project. The visit was helpful in that it gave the ISERST staff insight into the progress achieved and problems faced by another African solar energy center.

As a result of his visit and impressive grasp of R.E. technologies and issues, it had been hoped to have Dr. Gnininvi participate in phase II of the energy assessment as the R.E. specialist. Due to Dr. Gnininvi's limited availability and delays in the AID approval process of the phase II terms of reference, this was not possible.

2. Pilot Interventions/Prototype Research

(a) Lycee Photovoltaic System

The Lycee photovoltaic system arrived in Djibouti and was installed by ISERST/VITA staff. VV Technician Steve McGoff and Bill Schmidt supervised the work and trained a number of ISERST technicians in the installation procedure. The 420 watt system is now providing 12 V DC power to student work benches in the physics laboratory. Two additional solar modules, a solar fan and light were provided by ISERST/VITA as part of the installation for demonstration purposes.

(b) Obock Solar Pump

The 300 watt SEI Sunpump continues to function well in the Obock School Garden and was praised by President Aptidon during a recent visit to Obock.

Instead of purchasing a new SEI solar pump for the Obock School Garden, it has been decided to keep the existing pump in Obock and have ISERST/VITA use it when needed for testing and demonstration purposes elsewhere in the country. The Obock District Garage Mechanic was trained in the use and maintenance of the pump and has demonstrated he is fully capable of providing the necessary oversight.

(c) Waste Oil Heating

This technology was the main focus of prototype activity during the past quarter. Tanzanian VV Ali Sheriff paid a surprise visit to Djibouti at his own initiative (and cost) to review construction of the Djibouti waste oil stove built in collaboration with the Ministry of Commerce, Transport and Tourism and help plan future waste oil-related activities under the Energy Initiatives Project.

In light of the abundant supply of waste oil in Djibouti and the wide range of possible uses for low grade industrial heat at the artisan level, Sheriff concluded that the potential for the application of the waste oil heating technique in Djibouti was excellent.

During his visit he gave an explanation and demonstration of the technique to ISERST Director Anis Abdallah and the acting Director of the French Technical Assistance Organisation (FAC).

LE FOUR A L'HUILE DE VIDANGE

A Ambouli, une équipe de trois jeunes, dont une femme de l'ISERST avec l'aide de Ali Sheriff, volontaire de VITA depuis de nombreuses années, ont mis sur pied un four d'une technicité artisanale. Il s'agit d'un four à l'huile de vidange.



De loin cela rappelle vaguement par sa forme pyramidale, un vestige de la prestigieuse civilisation aztèque de l'Amérique centrale. De plus près, on se demande toujours l'utilité et la fonction de cette œuvre architecturale. La fumée qui s'en dégage incite à penser à une cheminée mais l'on ne sait toujours pas davantage à quoi cette... bizarre pourrait bien correspondre. Les créateurs de la chose, fiers de leur œuvre se pressent heureusement de satisfaire votre interrogatoire. C'est effectivement un témoin d'une certaine civilisation. C'est un four... à l'huile de vidange. Nous voilà propulsés à l'ère de la lutte pour l'énergie. Ce four est unique en son genre, c'est l'aboutissement d'une longue expérimentation menée par Ali Sheriff et Baskir Lalji, deux ressortissants tanzaniens. Cette invention constitue un défi à un des plus grands problèmes de l'humanité aujourd'hui : l'économie d'énergie. Il s'inscrit dans le cadre des multiples expériences menées un peu partout dans le monde pour trouver une solution durable à cette question de l'énergie.

La République de Djibouti, comme la plupart des pays du tiers monde en sont les premiers intéressés. Sidérés par le gaspillage et la pollution que constitue le rejet de l'huile de vidange usée, nos créateurs se sont interrogés sur le contenu calorifique de ce liquide noir. Et quelle ne fut leur surprise, après quelques expériences, de constater la haute teneur calorifique de l'huile de vidange. En faisant tomber quatre gouttes d'huile de vidange plus une goutte d'eau sur une plaque de métal chauffée, on provoque un dégagement de chaleur (vapeur et flammes) tel que l'on peut même cuire des... briques. Vous construirez un four autour de ce simple matériel avec une cheminée pour la fumée, une couverture pour l'appel d'air vous avez un four à huile de vidange.

L'autre innovation, est l'utilisation de la terre et du sable, produits locaux pour fabriquer des briques de grande résistance. Ces briques sont non seulement plus esthétiques que les briques en ciment mais aussi plus isolantes. Elles conservent beaucoup

mieux fraîcheur et chaleur. Une vaste case et une maison témoin ont été construites sur place pour tester la fiabilité des briques. Cela change des maisons carrées peintes à la chaux si fréquentes à Djibouti et c'est plus résistant. (Voir "La Nation" n° 5 du 3/2/83).

Ainsi cette expérience menée à Djibouti par l'ISERST en collaboration avec les volontaires de VITA dont fait partie Ali Sheriff, est intéressante à plus d'un titre. Elle est doublement écologique d'abord - par la réutilisation d'huile de vidange négligemment jetée qui pollue l'environnement. Par la limitation de consommation de bois qu'elle implique, ce qui est important dans un pays désertique où les arbres acquièrent une valeur souvent inconnue et constituent un bouclier contre la désertification galopante. Cette expérience, est encore écologique car elle produit des briques à base de terre, ce qui réduit le coût de fabrication et correspond mieux esthétiquement, fonctionnellement au paysage, et climat djiboutiens.

La performance du four à l'huile de vidange, est telle que l'on peut même y fabriquer du verre en utilisant du sable. Il peut encore servir à d'autres fonctions comme la cuisine (méchoui), la cuisson du pain, la poterie, etc. Cette polyvalence du four, facilite son introduction dans le pays et son extension chez la population.



A cette expérience, a participé une femme, la première de Djibouti, peut-être sensibilisée par l'importance de l'acquisition de connaissances techniques pour sortir le pays du sous-développement. Un bon exemple à suivre, un compliment de plus à cette expérience qui est originale à plus d'un titre.

Pour tous ceux qui sont intrigués, intéressés, concernés par cette expérience, la section Energies renouvelables de l'ISERST et le service de la Publication VITA sont prêts à les informer, les conseiller sur tous les problèmes concernant ce projet. N'hésitez pas à aller les voir ou pour leur écrire.

L'augmentation continue du prix de produits dérivés du pétrole et la raréfaction des sources d'approvisionnement posent de sérieux problèmes aux pays en voie de développement. Et ne leur laissent aucun répit dans leur recherche permanente de nouvelles technologies qui répondent mieux à leurs besoins et à leur environnement. L'installation de ce procédé de four à l'huile de vidange à Djibouti est une première dans le monde, après celle effectuée en Tanzanie. Espérons que les efforts ne tarissent pas dans la recherche de nouvelles sources d'énergie pour nous sortir de la dépendance.

It was decided with Sheriff that a followup consultancy by Tanzanian Stove Technician, Bashir Lalji, would take place in March and that two stoves would be built at that time to demonstrate the use of the waste-oil technique for brick production and institutional cooking.

Following Sheriff's departure, additional local sources of waste oil were identified as both the French army and Travaux Publics indicated they would be delighted if ISERST/VITA would help them dispose of this waste product.

Tanzanian Consultant Bashir Lalji came to Djibouti on March 4 for three weeks and supervised the construction of a 2 cubic meter waste oil stove for the firing of clay bricks and an institutional cook stove. Both stoves are working well and were built completely with locally available materials. Djiboutian technicians from both the public and private sectors were trained in the construction techniques required for both stoves. One of these Djiboutian trainees was a female ISERST/VITA employee now working on the analysis of the Climatronics data but who has expressed an interest in becoming a full time technician under the project (see "miscellaneous" section for details).

A large number of visitors were received at the waste-oil stove demonstration site and the local newspaper "La Nation" covered the event (see attachment).

The plan is now to continue to promote use of the waste oil heating technique for (1) the production of fired clay bricks for construction purposes, (2) institutional cooking.

A large clay deposit has been identified close to Djibouti town and soil tests are presently being carried out in collaboration with Travaux Publics and Syad Mohammed of the Ministry of Commerce, Transport and Tourisme. An economic analysis of the cost of fired clay bricks has been begun and will be finalized when additional information on brick making equipment becomes available.

Both Syad Mohammed and a Djiboutian entrepreneur are actively considering establishing a small brick factory based on the waste oil technique. Assistance will continue to be provided to them under the Project.

Compression tests on the fired clay bricks were carried out by Travaux Publics and the results averaged 64 kg/cm², which is generally considered acceptable for construction purposes (common cement blocks generally measure 25 - 30 kg/cm²). As a result of this as well as other tests performed by Travaux Publics, procedures have been initiated to obtain official acceptance of fired clay bricks as a construction material in Djibouti.

(d) Wind Pumping

An existing, but non-functioning Oasis windmill pump was dismantled and replacement parts ordered. The windmill belongs to the French NGO Centre International de Developpement et de Recherche (CIDR) which has requested ISERST/VITA help in repairing testing and possibly moving the windmill to an alternative site.

(e) Energy Efficient Low Cost Housing

Momentum has developed rapidly on this subproject during the past quarter as interest has been expressed by the Ministry of Industry as well as ISERST, USAID, FAC (French Office of Technical Assistance) and Travaux Publics.

A meeting was held this quarter at the request of Anis Abdallah that included representatives from the above organizations to formally initiate the subproject as well as assure the operational collaboration between ISERST and Travaux Publics.

Travaux Publics has formally designated a staff member to represent them and ISERST has recently received a new French technical assistant who will assess the suitability of indigeneous construction-related raw materials for exploitation either locally or for export. In light of ISERST/VITA's progress with fired clay bricks, it has been decided by ISERST that the technical assistants' first task will be to conduct an assessment of Djibouti's clay resources.

Engineer Judy Hirsch has completed an analysis of the social and space-allocation criteria to be used in designing improved, low cost, energy efficient Djiboutian housing. These criteria, as well as an estimate of anticipated construction costs, staff requirements and an implementation schedule will be submitted to T.P., and local planners for comments/suggestions which will be integrated into a final project

document. This will then be used by Architects Dunham and Jarmul to design 3-4 prototype dwellings.

(f) Obock Commissioner Visit to ISERST/VITA

As the result of increasing collaboration between ISERST/VITA and the Obock District Commissioner, the Commissioner visited the waste oil prototype site in Djibouti town and discussed expanded activities in the Obock district with the COP.

During the visit :

(1) the Commissioner indicated he was extremely interested in the repair of the existing windmills in his district and would appreciate ISERST/VITA assisting him in this task. He agreed to provide lodging for ISERST/VITA technicians working on the windmills in the Obock district as well as the assistance of his Chief Mechanic who, once trained, would later oversee the maintenance and repair of the windmills.

(2) The Commissioner agreed that the Obock Chief Mechanic could participate in the construction of the prototype waste oil stoves built during the consultancy of Bashir Lalji in order to promote use of the waste oil technology in the Obock district.

(3) The COP agreed to provide a manual cinva ram press for use by the Obock Chief Mechanic to make the clay bricks required to build a waste oil stove.

3. Assessment and Dissemination of Research Results

(a) Solar Pump Assistance to Genie Rural

Specifications for eight solar pump installations were given to Genie Rural based on an analysis by the TriSolar Corporation of Bedford, Massachusetts.

Following discussions with ISERST Counterpart Abdourahman and AAO Jon Lundgren, the COP met with Genie Rural to discuss ISERST/VITA assistance in financing 2-3 of these pumps and in training Genie Rural staff members to install and maintain the pump equipment. Genie Rural was receptive to these ideas and is in the process of preparing an agreement between their Ministry and ISERST officially establishing collaboration between the two organizations and outlining the specific responsibilities of each.

During this meeting the COP stressed that the ISERST/VITA-financed pump installations would attempt to make use of equipment that has already proven itself elsewhere in Africa and would test/demonstrate pump sizes and capabilities that had the potential for widescale applicability in Djibouti. Although these installations would not be truly experimental, they would be equipped with measuring equipment to assess pump output vs. depth vs. solar intensity.

It is anticipated that both Genie Rural and ISERST/VITA will soon jointly choose the well sites best suited for the solar pumps. Three or four bids will then be obtained from companies with successful solar pump track records in Africa and a joint ISERST/Genie Rural decision made on the models to be purchased.

(b) It was agreed between the COP and the weekly Djibouti newspaper "La Nation" that La Nation would print a column at least once each month entitled "La Technologie a Djibouti" which would be based primarily on technologies and prototypes pursued under the Energy Initiatives Project. The first article on waste oil heating appeared this past month (see attached) and a second article on the design of the ISERST R.E. building is currently being prepared. It is anticipated that future articles will focus mainly on energy conservation techniques and serve as a means of heightening public awareness on the need for conservation.

4. Energy Conservation Practices

(a) The Renewable Energy Building is approximately two-thirds complete. Thermal insulation and waterproofing have been installed on the roof of the north wing and will be tested for leaks in mid April. Floor tiles have been put down and final painting has been begun in the north wing as well.

Wall insulation has been installed in the south wing and masonry refinements and floor tile work are presently underway.

Despite the above, the building is approximately 12-14 weeks behind schedule and is now expected to be completed in late May. The late penalty clause in the VITA/Touzet contract has been invoked and deductions of approximately \$25,000 have been made from the February and March payments to Touzet by VITA.

The quality of the finished work is, however, good and it is felt worthwhile to wait a few additional weeks so that the necessary structural and finish adjustments can be made.

REDSO Construction Advisor Bob Adams paid a week-long visit to Djibouti in early March and concurred with the approach both VITA and Architect Cazaban are using in regard to completing the building as well as a number of minor add-ons to the construction contract.

Installation of the photovoltaic system is scheduled to begin in mid May and VITA staffer Jon Hodgkin will come to Djibouti to oversee the work.

Djibouti President Aptidon has asked to inaugurate the building personally on June 27, Djibouti National Independence Day. Invitation formats have been prepared by the President's office and agreed to by USAID. It is anticipated that approximately 200 people will be invited for the occasion.

In preparation for the inauguration, Engineer Judy Hirsch has written a paper describing the technical characteristics of the building including a description and the costs of the energy saving features.

Furniture for the building has arrived and is presently being stored in the Djibouti port.

VITA Architect Dan Dunham has prepared a draft article describing the building that will be sent to a number of French technical/architectural journals.

As a means of promoting increased use of double-paned windows in buildings for energy conservation, the window/aluminum subcontractor on the IREB has agreed to install double pane windows in one room of the building free of charge. Since an identical room will exist with single pane windows directly adjacent to the experimental room, comparative temperature readings and power consumption measurements will be taken to assess the economic viability of double pane windows for Djibouti.

5. Private Sector Initiatives

(a) Fired Clay Brick Production Using Waste Oil

Businessman Abaneh Farah and Potter Syad Mahamoud continue to investigate the technical and economic potential for establishing a small scale brick factory using waste oil for firing the bricks. Their investigations were encouraged by the waste-oil consultancy of Bashir Lalji and the construction of a prototype brick kiln on the Ambouli land of Abaneh Farah. Equipment specifications and estimates have been requested from Europe and the US. An initial scale of operation would be approximately 500-2,500 bricks per day.

As a result of the local newspaper article describing the waste oil technique, a representative of the Commerce and Industry Bank of the Red Sea visited the waste oil site with the COP. Following the visit, the representative indicated that his bank would be interested in considering loans to local entrepreneurs to establish brick making facilities using the waste oil technique.

(b) UNHCR Purchases Two Solar Pumps in Djibouti

As a result of information provided to UNHCR/Djibouti by ISERST/VITA on solar pumping, UNHCR has purchased two Arco 560 watt solar pump sets for use in As Eylal and Hol Hol. The pumps were purchased from a local pump dealer, Sotraco, which has now become the outlet for Arco products in Djibouti.

6. Policy and Planning Recommendations to Government/Miscellaneous

(a) GRUD Promotion of Energy-Efficient, Locally Available Building Materials

As mentioned in section 2e, a general meeting of various government services was called by ISERST on March 27 to formally initiate the energy-efficient low cost housing subproject and link it to a major World Bank Urban Renewal Project. Largely as a result of the ISERST/VITA work in this field, a number of options were discussed for encouraging the use of indigenous, energy efficient building materials. Intragovernmental collaboration and encouragement of the private sector, primarily at the artisan level, emerged as recommended approaches. Government policy support, at least initially, to encourage the use of local building materials was also discussed.

(b) ISERST Photographic Exhibition

As part of a program to increase both government and individual awareness in Djibouti as to the role and activities of ISERST, a photographic exhibition describing ISERST's work will take place between April 18 and 24 at the Office of Tourism. The Energy Initiatives Project will play a prominent role in this exhibition as photographs of the Aramadoule windmill Climatronics units, the solar pump and the Dorale waste oil stove will be displayed and sold to the public.

(c) ISERST/VITA Female Technician Proposed by National Women's Union to Attend Energy Training Program in Turin, Italy

Since Djiboutian women who work outside the home occupy positions almost exclusively as secretaries or market vendors, the National Women's Union (U.N.F.) feels that an attempt should be made to change this stereotype. When the UNF received an invitation from UNDP to propose a woman to attend an energy training program in Turin, Italy, the UNF requested ISERST/VITA assistance in identifying an appropriate candidate. Meteorological Data Analyst Sabira Houmed Hassan has worked as a member of the ISERST/VITA team for the past 8 months and has participated in a number of Energy Initiatives field activities (see waste-oil stove article attached). Her candidacy to participate in the May-July 1984 training program was reviewed and accepted by the UNF and is now being reviewed by the Foreign Ministry.

If Sabira does attend the Turin training session, upon her return to Djibouti she has agreed to manage the newly created technical section of the UNF.

(d) Counterpart Abdourahman to Attend Training Session at the Mali Solar Energy Laboratory

As a result of correspondence between Chief Project Technician Terry Hart of the AID-financed Mali Solar Energy Project and the ISERST/VITA COP, a one-month training program has been prepared by the Mali SEL staff for ISERST Counterpart Abdourahman beginning on April 15.

The custom-designed training program will consist of both theoretical and practical work related to :

- photovoltaic systems
- wind pumping
- portable woodstoves
- flatplate solar technologies
- manufacturing
- instrumentation and monitoring
- resource data acquisition and analysis

In addition, laboratory and workshop equipment needs for the new ISERST building will be reviewed and other collaborative training opportunities for both ISERST and Mali staff members will be discussed.

(e) Counterpart Abdourahman Proposed as Participant in UNDP Energy Training Program in Turin, Italy

In light of the lack of technically trained Djiboutians in almost all government and private sector services, the GROD attaches a high priority to the participation of Djiboutians in both in-country and overseas training programs. In addition to Sabira Houmed Hassan, ISERST has proposed that Counterpart Abdourahman also attend the Turin training program. Abdourahman's candidacy is also presently being considered by the Ministry of Foreign Affairs.

(f) Technician Abdoukarim Moussa Yacin Leaves for Gainesville, Fla. TAET Training Session

Project Technician Abdoukarim Moussa Yacin left Djibouti on February 2 to participate in the Gainesville, Florida TAET Training Program as well as in documentation and computer training programs prepared by VITA/Roslyn.

(g) Third Project Technician Hired by ISERST

Following a test given to 10 Djiboutian vocational school graduates, two were selected for one month trial employment. Of the two, one has been hired by ISERST. The new technician, Farah Joseph Abdoulatif, is 21 years old and completed 5 years of study at the Djibouti Lycee d'Enseignement Professionnel (LEP) with a specialization in electrical equipment.

(h) Counterpart Abdourahman Receives Djiboutian Drivers License

Having a drivers license has greatly increased Abdourahman's ability to support various field activities.

A champagne bottle was uncorked in the ISERST/VITA office in honor of the occasion.

(i) Technician Steve McGoff to Return to Djibouti for One Y.

As a result Steve McGoff's successful two month volunteer consultancy, both AID and ISERST have agreed to him coming back to Djibouti for one year as the Expatriate Project Technician. Steve will be arriving in early May to begin work on solar pumping, waste oil and cinva ram brick prototypes and administer the project on VITA's behalf during the COP's vacation.

(j) Space in the IREB to be Devoted to Geothermal Energy

Due to delays in the construction of the main ISERST building, ISERST Director Anis Abdallah has indicated that space in the IREB will be used by the ISERST geothermal group for one year beginning June, 1984. Three rooms in the south wing will be used by the ISERST geothermal staff as well as space provided for a secretary.

7. Problems and Issues

(a) Due to the loss of a diplomatic pouch sent from Nairobi to Djibouti, on February 29, the amendment to the USAID/VITA Project Contract has not yet been signed. This has created a problem in that authorization for VITA to partially finance the installation of utility services in the IREB is one of the amendment items. In light of President Aptidon's request to inaugurate the building on June 27, 1984, installation of the utilities, particularly grid electricity, has become urgent.

As a result of the above, after consulting with USAID/Djibouti and having received a written request from ISERST that VITA ensure that the building be completed by June 27 to honor the President's request, VITA has decided to go ahead with the installation of grid electricity without the missing contract amendment.

(b) A delay in the completion of the IREB has required that VITA invoke the late penalty clause included in the VITA/Touzet construction contract. Penalty deductions have already been made from payments to Touzet, totalling approximately \$25,000. REDSO Construction Advisor Bob Adams has indicated that the primary purpose of the penalty clause is to cover additional costs incurred by the client due to not having the building by the agreed-upon date. Since only minimal additional costs have been incurred due to the delay and it now appears that the penalty deductions may amount to possibly \$50-60,000, consideration should be given by ISERST, AID and VITA as to how this situation should be handled.

(c) The question of the roles of both ISERST and VITA in the upcoming AID mid-project evaluation has been raised. AAO Jon Lundgren will be discussing this issue with VITA/Roslyn during his April TDY in Washington D.C. and it is suggested that this be discussed with ISERST as well upon Jon Lundgren's return.

(d) In light of the high priority ISERST attaches to the training of Djiboutians in energy-related matters, Director Anis Abdallah has suggested that VITA provide a third technician under the Energy Initiatives Project who would plan, organize and implement in-country training programs on a full time basis in the new Renewable Energy Building. It is envisioned that trainees would come from other GROD services (i.e. Genie Rural, T.P., District Technicians, etc.) in addition to ISERST as well as possibly, in the future, from neighboring African countries.

8. Projections for the Seventh Project Quarter

- Complete and inaugurate IREB. Move offices to IREB;
- Install IREB photovoltaic equipment;
- Complete phase II of energy assessment;
- Send out design criteria for low cost, energy efficient housing prototypes for review;
- Continue discussions with Genie Rural re. solar pump collaboration;
- Hire fourth ISERST technician;
- Counterpart Abdourahman departure for training in Bamako, Mali;
- Meteorologie technician Sabira Houmed departure for training in Turin, Italy;
- Rent and furnish house for expatriate technician McGoff;
- Repair Oasis windmill and begin tests/evaluation;
- Receive and sign AID/VITA contract amendment;
- Continue testing of fired clay bricks using waste oil.

Copies : VITA

USAID/Mali

USAID/Khartoun

USAID/Somalia

LYCÉE DE DJIBOUTI

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Le Proviseur,

N° 228/YB/1b

à

Monsieur STEVE HIRSCH

Société I.S.E.R.S.T.

DJIBOUTI

OBJET : Installation solaire au Lycée de Djibouti

Cher Monsieur,

Je vous accuse réception de votre lettre du 29 courant, ainsi que du chèque qui y était joint.

Je tiens à vous réitérer tous mes sincères remerciements pour votre précieuse assistance dans cette installation solaire, la première à Djibouti.

Je vous prie de croire, Cher Monsieur, à l'assurance de mes sentiments les meilleurs.

Le Proviseur,



Y. BERNARD

MINISTRE DES TRAVAUX PUBLICS-U.L.
DIRECTION DES TRAVAUX PUBLICS
DIVISION ETUDES
SUBDIVISION LABORATOIRE

REPUBLIQUE DE DJIBOUTI
UNITE - EGALITE - PAIX

DJIBOUTI, le 27 FEV. 19

VITA/ISERS'
BP 486
DJIBOUTI

Réf. : N°106/84/LABO/JR/DI
Dps. : 84-019/MC -008
Aff. : Matériaux locaux
Obj. : Tests de résistance

Messieurs,

Veillez trouver ci-après les résultats des essais de résistance en compression réalisés sur les échantillons de briques de terre cuite que vous nous avez livrés récemment.

Les tests ont été effectués à la vitesse de 0,5 MPa/s/ cm² de section et suivant la tranche et non à plat (sens dans lequel, la résistance serait supérieure d'environ 20% aux valeurs obtenues suivant la face 15 x 10 cm²). Résultats en MPa :

- 01. 6,4 02. 6,6 03. 7,0 04. 6,2 05. 6,8 06. 7,2
- 07. 5,2 08. 4,3 09. 3,3 10. 11. 6,5 12. 5,0

Veillez agréer, Messieurs, l'expression de nos sentiments distingués.

Le Chef du Laboratoire, p

ABDI IBRAHIM ABSIEH