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REPORT ON MEETING TO DISCUSS RESOURCE  
SHARING IN PROMOTING USE OF RENEWABLE  
ENERGY IN THE CARIBBEAN

September 6 - 7, 1980

Prepared by Eric Lipsetts  
September 18, 1980

Host Institution : Caribbean Development Bank

Sponsor : VITA

Participants :	Rev. Andrew Hatch	Christian Action for Development in the Caribbean (CADEC)	Barbados
	Dr. Lawson Nurse	CADEC	Barbados
	Dr. Alfred Sangster	College of Arts, Science and Technology (CAST)	Jamaica
	Mr. Cary Harris	National Planning Organization (NPO)	Dominica
	Dr. Jeffrey Dellimore	Caribbean Development Bank, Technology & Energy Unit (CDB/TEU)	Barbados
	Ms. Ingrid Douglas	CDB/TEU	Barbados
	Ms. Carolyn Cozier	CDB/TEU	Barbados
	Mr. Edward Cumberbatch	Peace Corps (PC)	Barbados
	Mr. Michael Phillips	Caribbean Industrial Research Institute (CARIRI)	Trinidad & Tobago
	Mr. Conrad Sabga	Trinidad and Tobago Development Foundation	Trinidad & Tobago
	Mr. José Ramón Acosta	National Energy Commission (NEC)	Dominican Republic
	Dr. William Gross	VITA	U.S.A.
	Ms. Elizabeth Cecelski	VITA	U.S.A.
	Mr. Eric Lipsetts	VITA	U.S.A.

Meeting Purpose : To identify needed resources; to facilitate use of renewable energy (RE) by the Caribbean poor; to review and assess current resource sharing activities and to recommend concrete programs to facilitate resource sharing.

Meeting Topics :

1. RE activities in the Caribbean.
2. Resources needed to facilitate RE technology use.
3. Organizations supplying needed resources.
4. Potential problems in implementing resource sharing programs.
5. Programs to facilitate resource sharing.

Meeting Results :

A. Resources Needed

1. Manpower (i.e. persons trained in following areas):-
  - energy accounting
  - engineering
  - village level energy technologies
  - needs assessment/technology implementation
  - project planning
  - project management

2. Information
  - evaluated technology information
  - available technologies

Dissemination Mechanisms

- media broadcasts
- how to/hands-on seminars

3. Technical Capability
  - workshops
4. Financial and other resources
  - access to credit
  - small grants
  - hardware/equipment

B. Anticipated Programs

1. Stimulation/development of appropriate technology/renewable energy (AT/RE) groups (responsibility : CADEC, CDB/TEU).
2. Development of hands-on workshops (CDB/TEU, CADEC, CAST, with VITA assistance).
3. Directory development (CDB, with VITA assistance).
4. Media/Information dissemination programs (CDB/TEU, CADEC, with VITA assistance).
5. Evaluated data collection.
6. Skillsbank development (CDB/TEU, UNESCO, with VITA assistance).
7. Caribbean Coordination (CADEC, emerging Caribbean AT Center (CATC), VITA participation on CATC board).
8. Further meeting - September 1981 with possible 6 month interim meeting (CARICOM, CDB/TEU, CAST).

Specific Next Steps :

1. VITA to send CDB/TEU information on skillsbank development, including forms, and recruitment strategies; CDB to formulate position on skillsbank development (staff vs. consultant development), assemble directory as result of survey.
2. CADEC and CDB/TEU to meet to develop plans for radio spots. VITA could provide training and assistance if required.
3. CAST (Jamaica) to design hands-on seminar program for community decision makers, submit to CDB and VITA for possible funding.
4. CADEC AT Committee to discuss networking strategies, formulate plan for developing regional workgroup. VITA would provide funding for a mutually agreed plan from the Renewable Energy Program to support implementation of the network.
5. VITA to contact ATI to coordinate Caribbean/CATC program activities
6. National Energy Commission, Dominican Republic, to prepare two-week workshops on wind technology. VITA to assist in locating faculty.

## ACTIVITY PROFILES

### 1. CADEC (Presented by Andrew Hatch)

Christian Action for Development in the Caribbean (CADEC) began RE activities in 1972, with the establishment of a cooperative to disseminate solar water heaters. The cooperative eventually disintegrated through members' re-location; a commercial firm (Solar Dynamics) picked up the activities. Solar Dynamics is now a well established company, returning its first dividend to its investors after 5 years. Solar Dynamics is working on two major projects now, including a solar airconditioning contract with the Government of Barbados. (Only last year, CADEC and the CDB commissioned a study to determine in what subject area was the most interest: the report of the consultant showed that energy was of "intense interest" among those surveyed.)

In 1976, CADEC moved to respond to an expressed interest in appropriate technology (AT). Local "think tanks" or panels were formed on such topics as agriculture, wind energy, drip irrigation, and low cost housing development, and to guide integrated projects. CADEC worked with ITDG on the development of a low cost windmill; this design still has a number of problems. A local pottery project (Coral Island Potteries) is powered by wind energy. As a result of these panels' continuing work, CADEC has developed a proposal for a Caribbean AT Center, or Action Plan, to function as a coordinator for the acquisition of resources to support AT projects. Other groups are working with CADEC in the development of this concept, notably the Caribbean Development Bank, British Development Division, Barbados National Standards Institute, Barclays Bank, and the Ministry of Planning. CADEC is involved with two other RE Projects: (1) in Guyana, the use of low voltage electricity to support chicken raising (this project is not off the drawing board yet), and (2) use of solar energy for desalination in the Grenadines.

Rev. Hatch stressed the importance of the commercialization of technology and noted that radio and TV is used to assist in commercial enterprise development.

### 2. Caribbean Industrial Research Institute (CARIRI) (Reported by Michael Phillips)

CARIRI is an industrial research service institute in that it provides testing and technical assistance to Trinidad and Tobago industries. Trinidad and Tobago is awash in oil, therefore, building designers, government officials and others do not see the need for energy conservation at this time. CARIRI has many programs focused on hydrocarbon utilization; it is just beginning its activities in the RE field. CARIRI's primary interest now is in analyzing building design in order to plan for energy conservation in the future. CARIRI is working with contractors on a 1200 house project, to plan for the time when the houses will need to be more energy-efficient. A Sugar Cane Task Force has been established to investigate the feasibility of industrial alcohol production from sugar cane and has started a few investigations into crop drying. The University of the West Indies is also working in the solar crop drying field.

## ACTIVITY PROFILES (continued)

CARIRI will work with small industries in due course; its activities are now focused on large industries.

### 3. National Planning Organization (Dominica) (Reported by Cary Harris)

The main RE activities in Dominica focus on hydro power. Over 78% of the electricity generated comes from hydro sources. Recently diesel power generation is accounting for more electricity than hydro power, even though diesel is 3 times more expensive. This cost factor has encouraged a shift to greater utilization of hydro power.

There is still some 3-stone charcoal cooking. The government has sponsored some charcoal kilns utilizing wood waste. The cost of these kilns is approximately \$2,000, with the government picking up half of the cost. Experiments are also underway with bio-gas digestors and solar drying of copra. The government is working with CDB, ATI, and CADEC to help develop these programs.

### 4. U.S. Peace Corps/Barbados (Reported by Edward Cumberbatch)

Peace Corps is not intensively involved in RE projects; some volunteers in St. Lucia and Grenada are involved in charcoal production. Other PCV projects include retooling for reutilization of a windmill in Barbados and reforestation projects.

### 5. Caribbean Development Bank (CDB) (Reported by Jeffrey Dellimore)

The CDB's Technology and Energy Unit (TEU) is focused on dissemination of RE technology, and on service to the poor. It provides funding, technical information and technical assistance on resource management. Examples of the type and scale of projects that the TEU has sponsored include :

- 1) design and construction of a passive solar building - \$60,000
- 2) testing solar collectors/water heaters - \$16,000
- 3) banana defiber - \$200,000
- 4) solar drying of chili peppers - \$49,000
- 5) peat resource assessment - \$40,000
- 6) regional wind energy assessment - \$200,000

Projects submitted to the TEU come from banks, government and private individuals; 25% of the proposals received are from the private sector. The TEU, due to its limited staff, cannot fund small projects.

The TEU publishes a newsletter and sponsors workshops.

### 6. Trinidad and Tobago Development Foundation (Reported by Conrad Sabga)

The Trinidad and Tobago Development Foundation is an organization that functions as a loan guarantor and intermediary between banks and community groups. The Foundation brings the community group and financial institution

together, and guarantees from its own funds any loan arrangements. The Foundation has no RE Projects at this time. The Development Foundation establishes a relationship between an existing business and one that is starting.

7. National Energy Commission (Dominican Republic) (Reported by Jose Ramon Acosta)

RE activities in the DR began in 1975, when INDOTEC, the Sugar Board, and the Institute of Agricultural Technology began experimental work with bio-gas digestors. The University of Santiago was involved in solar water heaters and cookers, the University of Santo Domingo, solar water heaters. (3 companies are now selling solar water heaters at \$150 each). Prior to 1979, there was much concern, but no government action.

In 1979, the National Energy Commission was formed. It was commissioned to perform RE R & D and conservation. The NEC is still defining its program, but has already identified 30 projects, is preparing a national energy plan and completed an inventory of hydropower resources. Projects identified include woodlot development on marginal land (12/80 scheduled implementation); energy generation with sugar, coffee, and rice waste; efficiency improvement in mills with excess energy used for electricity generation. The NEC has also commissioned a study to convert cement factories to coal. The NEC is also working with the universities to include construction of bio-gas digestors into curricula. AID has financed the development of a computerized information system, for use in statistics, data collection and evaluation of RE technologies (3/81 implementation date), as well as a project on solar drying of bagasse (pilot project to begin next year). Energy conservation is stressed through energy audits, seminars aimed at businessmen, and media (TV) usage.

8. College of Arts, Science, and Technology (CAST) (Reported by Dr. Alfred Sangster)

Activities in Jamaica are coordinated through the Energy Division of Mining and Energy (MME) (Director - Dr. Henry Lowe). The programs encompass the following activities: energy conservation (public education programs, energy affairs), energy accounting (survey of sector usages, sales analysis, end-use analysis), peat development (deposits under study), Hydro and mini-hydro, ocean thermal and geothermal, feasibility studies, solar crop drying, water heating, stills, and photovoltaic studies, oil and gas exploration, and biogas and mass activities. Other agencies involved in RE development include the Bureau of Standards, College of Arts, Science and Technology (establishing a Solar Energy Institute), Forestry Department, some commercial firms (solar water heating), some public sector agencies (such as Jamaica Public Service Company or Water Authority), the Scientific Research Council (to concentrate on bio-gas, charcoal, and mini-hydro projects; A demonstration bio-gas plant has been successfully established and the first mini-hydro plant (20 KW) brought on stream) the University of the West Indies (collector design and computer studies), and the Sugar Industrial Research Institute.

JAMAICA TRIP REPORT

Reported By : Eric Lipsetts

Purpose of Visit : To meet with Jerome Hulehan of USAID to discuss:-

- (1) possible ideas to amend/append USAID/Jamaica's energy project so that the poor might receive direct benefit and
- (2) possible relationships between USAID/Jamaica and VITA in general

Dates : 9 - 11 September 1980

Persons Contacted : VITA Requestors (see attached)

Jerome Hulehan	USAID/Jamaica
Hank Johnson	USAID/Jamaica
Bill Smith	USAID/Jamaica
Joe Travato	US Peace Corps Volunteer/ Jamaica
Alfred Sangster	CAST
Maureen Rowe	US Peace Corps/Jamaica

- Results of Visit :
- (1) VITA to submit brief concept paper to Hulehan on additional programs to directly impact on poor
  - (2) VITA to submit brief concept paper to Rowe (US Peace Corps) on project having a PCV trained to provide Renewable Energy technical assistance to a number of community projects
  - (3) VITA agreed to provide an instructor for the September '81 CAST-sponsored hands-on workshop for community leaders
  - (4) VITA agreed to help Dr. Dennis Minctt find a solar air conditions specialist.

Contact Summaries :

1. - USAID Personnel

Bill Gross and I had travelled to Jamaica at the request of Jerome Hulehan, USAID Capital Development officer in charge of a \$10.6 million Jamaica Energy program (\$200,000 start-up, \$10.4 million loan arrangement). Jerome was very sick with the flu and couldn't see us when we arrived. Hank Johnson, Acting Deputy Director of the mission met us and gave only a very general view of the mission's work. Johnson referred us to Bill Smith, who was working with Jerome on the Energy Project. Smith was equally pleasant and general. We called Jerome and briefly discussed a program combining (1) small grants/loan financing for initial RE technology capital costs, (2) hands-on seminars, and (3) publications focused on end-user operation and maintenance. Jerome said the ideas sounded good, to write them up in a brief letter, and he would respond to our letter.

## 2. - Peace Corps Summaries

Joe Travato - US Peace Corps Volunteer attached to Dr. Henry Lowe's Office of Energy, Ministry of Mining and Energy (MME)

I met Joe at a conference in Kingston sponsored by SERI on September 10, 1980 (see Bill Gross's memo of September 17, 1980 for more conference details). We talked about his activities at the MME, which he said were non-specific. He was working on a program to develop solar stills, and assisting in the Ministry's efforts to promote bio-gas digester and energy conservation.

Joe said that he saw as a project with good potential the assignment of a PCV to provide technical assistance to community RE technology projects. In Joe's words "sort of a roving hands-on consultant" (in later discussions between Bill and Alfred Sangster, Sangster suggested that we not use "roving" in the program description, but rather "community technical assistance officer"). He pointed out that such a job would be a new concept for Peace Corps/Jamaica, in that a volunteer would be providing services to a number of communities, rather than function in the traditional P.C. manner of living and working in a local community. He was enthusiastic about such a position, and thought officials at the MME would react positively. He mentioned that Maureen Rowe, Associate Peace Corps Director, had similar thoughts and might develop the idea.

Maureen Rowe - Associate Peace Corps Director/Education

I went to speak with Maureen after my meeting with Joe. She was receptive to the idea of a "community technical assistance program", saying that she had been meaning to get something along these lines underway within the next year. We agreed that I would write her a letter outlining the concept, copy it to Drs. Sangster and Lowe, and she would meet with them to see if they were interested in such a program.

She said she thought such a program could be operational in about one year.

### Action Taken :

1. No specific actions were taken, other than indicating a potential positive response to Sangster's proposal for a hands-on seminar. However, the initial discussions with Hulehan (USAID) and Rowe (P.C.) might bring VITA into two very promising programs. I will draft these letters and circulate them for comment.

### Lessons Learned :

1. As the visit was so short, it is hard to specify "lessons learned". It was somewhat a bitter experience to find so few results from our requestors, but it seems that information alone does not lead to project development. Other resources, such as identified at the Barbados meeting, manpower, expertise, on-site assistance, are needed if project development is to occur.

Information Useful for Future Trips :

1. Jerome Hulehan, USAID, and Alfred Sangster, CADT, are excellent contacts. Both are extremely knowledgeable about Jamaican affairs and are anxious to work with VITA. Travellers to Jamaica should definitely cultivate these relationships.
2. The Mayfair Hotel is delightful/ VITA people should be sure to get a full plate the first time around on "Buffer night" as seconds are not allowed.
3. Kingston is beginning to look a little scary, with some vicious wall graffiti and side streets blocked by burned vehicles or logs. I understand that some PCV's were accidentally caught in a spontaneous demonstration. VITA staff should be careful, especially at night.

Requestor Follow-Up.

<u>VITA Requestor</u>	<u>Subject</u>	<u>Results/Comments</u>
1. Caribbean Food & Nutrition Institute, Jamaica	Requested Liklik Buk	Never received.
2. Small Business Agency, Jamaica	Banana tree trunk application	Good material; not used as government is involved in project
	Gypsum into chipboard	Information never received.
3. Peace Corps/Jamaica	Leadership building Gas driven well drill pubs.	Program Officer is not aware of the use of the info., the project has not yet been implemented
4. Barbados Rediffusion Newsroom, Barbados	Candles	Person worked on project, had trouble getting paraffin, moved. Good info., couldn't get person interested; no project
	Chalk stick making	
5. Meals for Millions, Barbados	Tanning of goat hides; Vinegar from Pineapple skins and bananas Tamarind for soap	Great info and service; unable to interest local people; no project Four soap making efforts resulted 2 entrepreneurs producing 10,000, 15,000 bars/week. Two community groups struggling.
6. McClure & McClure Jamaica	Solar drying of bananas; Blocks & Bricks; Methane Gas	Great info and service; unable to interest local people; no project