

PARTICIPANT UPDATE

1984

A report to the Office of Energy
Bureau for Science and Technology
U.S. Agency for International Development
Washington, D.C.

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In August 1984, a questionnaire was sent out to all 286 former TAET program participants. A total of 86 completed forms were returned.

The questionnaire contained 9 questions. The first two asked for name, address, and telex and telephone number. The remaining 7 questions were as follows:

3. Which elements of the training program did you find most useful?
4. How did you use the knowledge that you gained from the program?
5. Have you been responsible for any renewable energy project activities since attending the program?
6. Have you been involved in training activities--providing information to people in your office on a formal or informal basis?
7. If a short training program was to be conducted in your country or region, would you be willing or able to assist in the coordination or presentation of the program?
8. What organization were you working for when you attended the program, and what was your position?
9. What organization do you now work for and what is your position?

The individual responses to these questions are listed in the pages which follow. However, it is interesting to examine the collective statistics; for example, the responses to question number 3: "which elements of the training program did you find most useful?" are shown below in order of diminishing usefulness, at least in the opinion of the respondents.

Subject/element	No. of positive responses	Percentage of group
Solar thermal systems	64	74
Solar radiation measurement	57	66
Economic analysis	53	62
Photovoltaics	52	60
Biogas technology	51	59
Project planning	46	53
Solar crop drying	44	51
Gasification	43	50
Energy conservation	40	47
Refrigeration, air-conditioning	38	44
Hydropower	37	43
Wind pumping systems	36	42
Wind resource measurement	34	40
Wind electric systems	27	31
Solar cookers	23	27
Stirling engines	21	24
Improved stoves	20	23
Charcoal production	18	21
Geothermal energy	18	21
Fuel alcohol	16	19
Direct combustion	9	10

In answer to question 5: "Have you been responsible for any renewable energy project activities since attending the program?" over 86 percent of the group replied in the affirmative.

The participants were then asked (question 6) if they had been involved in any training activities providing information to their colleagues on a formal or informal basis. 78 percent of the respondents replied that they had been involved in some kind of training activity.

In answer to question 7: "If a short training program was to be conducted in your country or region, would you be willing or able to assist in the coordination or presentation of the program?" Very nearly all of the respondents indicated that they would be willing and able to help with the organization of a training program; only 2 respondents indicated that they would not be able to offer assistance.

The responses to the questionnaire are arranged alphabetically by country. The names of the respondents, and the page number of the summary of their replies are listed below.

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A complete listing of all 286 TAET participants who attended the program between 1980 and 1984 is included as an appendix.

NAME: Milton G. Pringle
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Telex/cable: TLX 12090 TELCO AK

3. Biogas technology
Solar thermal systems
- Wind resource measurement
Wind-electric systems
Refrigeration, A/C
Economic analysis

Other elements of interest were gasification, geothermal energy, photovoltaics & project planning.

4. I have not been involved in any alternative energy projects since returning home. There seemingly is not the interest.
5. No. With the lack of public interest, I have tried to get some hotels interested in solar hot water heaters, but they are not interested.
6. No.
7. Yes.
Wind, solar, photovoltaics and biogas productions are the areas of alternative energy that I think has potential for development in Antigua. I would be interested to be involved in any training activity in these areas.
8. Antigua Public Utilities Authority, a tripartite utility with responsibility for electricity, telephone and water.
My position then was Outside Plant Engineer - Telephone.
9. Antigua Public Utilities Authority.
Outside Plant Engineer.

NAME: Mohammed Naimul Haque
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Institute of Fuel Research and Development
B.C.S.I.R. Dhaka-5, Bangladesh

Telephone: 506335

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|-----------------------------|----------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind-pumping systems |
| Improved stoves | Hydropower |
| Energy conservation | Economic analysis |
| Fuel alcohol production | Project planning |
| Solar cookers | Project planning |
| Solar crop drying | |
| Solar radiation measurement | |
- 1) Hydrocarbon from plants.
 - 2) Hydrogen from water using Solar Energy.
4. In my Institute I have been working on new and renewable energy technologies since 1979. The TAET program has equipped me with more knowledge on different alternative energy project activities, and I am very much benefited academically especially in the research work.
5. Yes, since attending the TAET program I have been responsible for the following renewable energy project activities:
1. Gasification of crop residues for running engine.
 2. Use of biogas in engine for irrigation purpose.
 3. Production of biogas in engine small scale by using locally available earthen pots for lighting in the rural areas.
 4. Hydrogen production by photochemical methods using Solar Energy.
 5. Hydrocarbon extracton from plants.
6. Yes.
In my Institute we have co-ordinated several training programs on Solar Cooker, Biogas Plant, Improved Mud Stoves, Improved Kerosine Kupee (Village Lamp) etc. I am directly engaged in the program as a technical expert. I have visited several times to rural areas as an expert to help in constructing biogas plants.
7. Yes.
It would be highly appreciated if a short training course was to be conducted in our country or region, and I should be able to assist in the co-ordination or presentation of the program.
8. When I attended the TAET program I was working in the Institute of Fuel Research & Development, BCSIR, Dhaka, and I was a Research Officer (Scientist) in this Institute.
9. Still I am working in the same Institute.

NAME: M.M. Golam Hossain
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Telex/cable: CONSEARCH

- | | |
|-----------------------------|----------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind-pumping systems |
| Charcoal Production | Refrigeration, A/C |
| Improved stoves | Hydropower |
| Energy conservation | Economic analysis |
| Fuel alcohol production | Project planning |
| Solar thermal systems | |
| Solar cookers | |
| Solar crop drying | |
| Solar radiation measurement | |

Liquid Fuel/Hydrocarbons/Petroleum from Plants.

4. In my Institute I have been working on New & Renewable Energy Technologies since 1979. The TAET program has equipped me with more scientific knowledge on different Renewable Energy Project activities and I was very much benefited academically in the research work.
5. Yes, since attending the TAET program I have been responsible for the following Renewable Energy Project Activities:
 - 1) Biogas from animal wastes
 - 2) Construction of biogas plant in the Rural Area
 - 3) Design & Quality control of Solar Cooker
 - 4) Biomass production
 - 5) Photochemical production of Hydrogen
 - 6) Liquid Fuels/Hydrocarbons/Petroleum from Plants
6. Yes.
In my Institute I have been co-ordinating in Training Programs on Biogas, Solar Cooker, Improved Mud Stoves, Kerosine Kupee (Kerosine Lamp) etc. I have been working as a technical expert in this training program.
7. Yes.
It will be highly appreciated if a short training course was to be conducted in my country or region, and I should be able to assist in the co-ordination or presentation of the program.
8. When I attended the TAET program I was working in the Institute of Fuel Research & Development, BCSIR, Dhaka, and I was a Research Officer (Scientist) of this Institute.
9. Still I am working in the same Institute.

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Residence 601555

Telex/cable: BANGLATOM

- | | |
|-----------------------------|--------------------|
| 3. Improved stoves | Photovoltaics |
| Solar thermal systems | Stirling engines |
| Solar crop drying | Refrigeration, A/C |
| Solar radiation measurement | Economic analysis |
| | Project planning |

As a part of training courses, the conducted tours to different alternative energy technology establishments of U.S.A. have been very useful to me. I had a good opportunity to see, for the first time, many alternative energy devices working in the field.

4. Immediately on return from this training, I served as Secretary, Organizing Committee for the 1st National Seminar on Energy for Development held in May, 1981 at Dhaka. I also prepared a renewable energy programme for Bangladesh Atomic Energy Commission. The programme has been accepted by the authorities and implementation of the same is under way.

I have initiated R & D work on "Intermittent ammonia water absorption unit" which has been fabricated locally. The 1st unit did not work as ammonia was found to leak out of the unit. The 2nd unit is being fabricated now.

5. I have been Member of National Technical Committee for New & Renewable Energy Project for Bangladesh. This Committee was responsible for preparing a scheme for "Integrated Development and Promotion of Rural and Renewable Energy Resources & Technologies in Bangladesh". The project has been approved by the Ministry and the Planning Commission and the same is being implemented through the World Bank/Netherlands aid. Bangladesh Atomic Energy Commission has been selected as the Executing Agency of this project and I am being considered to be appointed Project director of this project. I have been also member of the following two Committees:
- (a) Coordinating Committee for Bangladesh Energy Planning Project financed by Asian Development Bank;
 - (b) National Sub-Committee for Utilisation of Photovoltaic Cell under National Committee for Science & Technology.

6. Yes.
I have given seminar talks in different occasions within Bangladesh Atomic Energy Commission and lectures to the trainees of BAEC employees - Scientists and Engineers.

7. Yes.
I shall be glad to coordinate and provide other logistic supports if a programme is arranged for a short training on alternative energy technologies within Bangladesh or in this region.
8. Project Director, Atomic Energy Research Establishment, Savar, Dhaka, Bangladesh Atomic Energy Commission.
9. Head, Nuclear Power & Energy Division, Bangladesh Atomic Energy Commission.

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|-----------------------------|----------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind-pumping systems |
| Improved stoves | Refrigeration, A/C |
| Direct combustion | Hydropower |
| Energy conservation | Economic analysis |
| Fuel alcohol production | Project planning |
| Solar cookers | |
| Solar radiation measurement | |

Liquid Fuels/Hydrocarbons/Petroleum from Plants.

4. In our Institute I have been working on new & renewable energy technologies since 1980. The TAET program has equipped me with more scientific knowledge on different renewable energy project activities, and I am very much benefited academically especially in the research work.
5. Yes, since attending the TAET program I have been responsible for the following renewable energy project activities:
- I. Preparation of Photovoltaic Cells
 - II. Production of Fuel Alcohol from Natural Gas
 - III. Design & Quality Control of Solar Cooker
 - IV. Construction of Biogas Plant in the Rural Areas
 - V. Corrosion Protection of Metallic gas-holder for Biogas Plant
 - VI. Photochemical production of Hydrogen
 - VII. Liquid Fuels/Hydrocarbons/Petroleum from Plants.
6. Yes.
In our Institute we have co-ordinated several training programs on Solar Cooker, Biogas Plant, Improved Mud Stoves, Kerosine Kupee (Village Lamp) etc. I am directly engaged in the program as a technical expert.
7. Yes.
It would be highly appreciated if a short training course was to be conducted in our country or region, and I should be able to assist in the co-ordination or presentation of the program.
8. When I attended the TAET program I was working in the Institute of Fuel Research & Development, BCSIR, Dhaka, and I was a Research Officer (Scientist) of this Institute.
9. Still I am working in the same Institute.

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3. Biogas technology
Gasification
Improved stoves
Energy conservation
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Solar crop drying
Solar radiation measurement
Photovoltaics
Wind-pumping systems
Refrigeration, A/C
Economic analysis
Project planning
4. TAET Program had broaden my ideas through class, conversation with TAET staff & participants. Papers and books collected in that period increased my knowledge. After returning I took new projects & worked with confidence.
5.
 1. Design of different models of biogas plant
 2. Construction of biogas plant in rural areas
 3. Construction & operation of box type solar cookers
6. Yes.
Formally I am involved as an instructor in the training program on biogas conducted by our Institute. Informally I have to provide information on the products produced by our Institute e.g. solar cookers, mud stoves, kerosine kupee, biogas burners etc.
7. Yes.
If a short training program was to be conducted in my country, I think it will be possible for me to assist if and only if the training centre is in Dhaka or near Dhaka. In any case, training program in our country is highly appreciateable.
8. During the training period I was working in the Institute of Fuel Research & Development, B.C.S.I.R., Dhaka, as an Research Officer (Technologist).
9. I am still working in the same organisation and in the same position.

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Biogas technology	Photovoltaics
Gasification	Wind resource measurement
Energy conservation	Wind-electric systems
Solar thermal systems	Wind-pumping systems
Solar crop drying	Stirling engines
Solar radiation measurement	

The workshop sessions and visits to see working models served me well mainly because I am involved in the technology selection, adaptation and demonstration phases of our project cycle.

4.
 - 1) To evaluate contractors' bids.
 - 2) To design resource assessment programs, demonstration projects and alternative/renewable components in projects which utilise conventional energy sources/technologies.
 - 3) Using the theoretical knowledge gained to experiment with new ideas.
5. Too many to mention, but mainly:
 - 1) Designing solar evaporation ponds for NaCl from seawater (St. Kitts).
 - 2) Solar desalination for fresh water using seawater and feeding brine to salinas for NaCl production (Anguilla).
 - 3) Peat resource assessment and development (Belize).
 - 4) Designing, constructing and operating 40 to 2,500 lbs. capacity solar dryers and solar/agri waste fired dryer for agricultural drying (Guyana).
 - 5) Erecting test facility and developing solar water heater's (domestic) performance and installation standards for Barbados CARICOM.
 - 6) Energy auditing and conservation programs (many).
 - 7) Regional Biogas Extension Program 10 m³-200 m³ digesters.
 - 8) Evaluating 2 x 100 m³ Red Mud Plastic Biodigesters.
 - 9) Study of chicken litter, bagasse, pig manure, cow manure and mixes of these for suitability as feed stocks for biodigestion.
 - 10) Design reverse osmosis systems for fresh water production from seawater and brackish water.
 - 11) Design of a continuously operating no-maintenance solar still (5 year period) for distilled water from tap water for laboratory use.
 - 12) Trying without success to quash a U.S. \$300,000 cookstove/charcoal project which just duplicates similar successful and well documented projects in other parts of the world (USAID/VITA funded).
 - 13) Photovoltaic powered water pump for irrigation in Antigua.
6. Yes.

I would generally organise training workshops at the National/Regional (Caribbean) levels to transfer knowledge and experiences gained during the demonstration/field testing phase of any project activities; and thru our Technical Information Services answer technical questions and give advise to users of this free service.

7. Yes.
But I would have to be released by my current employees. We are now suffering from the economic expression facing mankind and have been laying off staff. Most of my activities have to relate to near term projects with positive returns (mainly earnings).
8. Caribbean Development Bank, Senior Technical Assistant, Projects Department.
9. Same.

NAME: Jorge Doria-Medina
ADDRESS: Casilla 10023
La Paz, Bolivia

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3. Biogas technology
Energy conservation
Solar thermal systems
Economic analysis
- Photovoltaics
Wind-electric systems
Geothermal energy
Project planning
4. In several ways: 1 - Making people in government aware of the need to plan ahead for the time where our hydrocarbon resources no longer suffice to provide energy for the country. 2 - Planning the energy needs for developing the Pando State (for which I work) which doesn't have energy sources readily available. 3 - Work with US Religious Missions providing hot water for indian villages in the "altiplano" by solar measures.
5. Mostly doing all energy balance for the Pando State (N of Bolivia) which is not readily accessible to the oil/gas fields; have any studies made for hydro or other energy sources. This State must be developed and its energy needs permanently met. In this work I am applying most of what I learned in Gainesville and also in Stony Brook.
6. Yes.
I have not been involved in training programs directly on the energy field but I have and am doing a lot of promotion on energy matters informally and [?] applicable in my university classes. (I teach 2 engineering courses at the local university.)
7. Yes.
I would be more than willing and feel we need several such courses here in Bolivia.
8. I was and still am with the Development Corporation of Pando. My position is the same.
9. Please see above.

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Fine Instrument Department
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3. Biogas technology
Gasification
Charcoal Production
Improved stoves
Energy conservation
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
- Photovoltaics
Wind-electric systems
Wind-pumping systems
Stirling engines
Refrigeration, A/C
Hydropower
4. I use the knowledge that I have gained from the program in our projects on biogas, gasification and solar energy. I also provide technical information on A.E.T. to interested persons.
5. Research work on:
Production and utilization of biogas from water hyacinth
Feedstock preparation machinery
Improved biogas stoves and lamps
Construction of downdraft wood gasifier (for 1500 cc gasoline engine)
6. I provide technical information on A.E.T. to my higher authorities and interested persons on informal basis.
7. Yes, I am willing and able to assist. But I require my employers or my government's approval. I belong to the State.
8. I belong to "Central Research Organization" (government's). My position was Senior Scientist.
9. I still belong to "Central Research Organization". I was promoted to the position of Principal Scientist since August 1982. (After I return from TAET.)

NAME: Ndayizeye Audace
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3. Biogas technology
Gasification
Charcoal Production
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Wind resource measurement
Wind-electric systems
Wind-pumping systems
Hydropower
Economic analysis
Project planning
4. One of the things I did after my TAET program was to start taking solar radiation measurement. On the other hand I wrote project papers on solar drying of rice and on solar water heating. An assessment of wind power is on the way. A study of using PV systems on small scale is taking place and selected sites will have panels for light.
5. I have the responsibility of solar and wind energy division; I coordinate all the activities related to solar and wind energy and the activities of CEBEA (Centre d'etudes Burundi en Energies Alternatives - Research Center on Alternative Energy). But up to now, most of the activities have been more or less theoretical because of limited funds in order to run a practical action on a long scale.
6. Yes.
After my TAET program, university students, official [?] and businessmen have been consulting me and seeking my advice especially in PV systems and biogas production. I am much involved in short training on solar drying and biogas production which will take place at the University of Burundi from 26th September to 15th December 1984 and from my department, I am one of the organizers and I may give some materials.
7. Yes.
If a short training program was to be conducted in my country in the field of alternative energy technologies I'll be willing to help in solar energy whether thermal conversion or electrical conversion of solar energy and on biogas technology.
8. When I attended the program I was working in the Ministry of Public Works, Energy and Mines, in the Energy Department where I was the responsible of solar and wind energy division.
9. Same as above.

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3. Biogas technology
Gasification
Charcoal production
Energy conservation
Solar thermal systems
Solar radiation measurement
- Photovoltaics
Wind resource measurement
Wind-electric systems
Wind-pumping systems
Economic analysis
Project planning
4. When I was the director of the "Energy Research Center" at the Instituto Tecnológico de Costa Rica I implemented four programs withing the ITCR for a period of 2 years (wind and solar R & D - biogas R & D - gasification & charcoal production - energy conservation).
5. Yes.
 - 1) ITCR - Citizens Energy Corp. Project
Duration: 1 year Cost: \$600,000
Purpose: Design and construction of three small pilot plants (biogas - pyrolysis and gasification - coffee drier)
 - 2) ITCR - VITA
Duration: 1-1/2 years Cost: \$100,000
Purpose: Electricity generation in an isolated village using a gasifier (75 kW)
 - 3) ITCR - MIEM - CONICIT
Duration: 2 years Cost: \$100,000
Purpose: a) construction of 10 biodigesters (up to 100 m³)
b) wind energy assessment (all country)
6. Yes.
Within the energy center at ITCR I had 7 engineers (mechanical - electrical - chemical - materials) and 4 technicians under my supervision and control.
7. Yes.
I would like to reimburse in some way my country and USAID for my training in this field. I'm sure that I do have the capabilities to do so because:
 - 1) my background in energy and engineering
 - 2) my experience (more than 8 years by now)
 - 3) my position (Deputy Manager of CONICIT)
 - 4) my knowledge of the energy sector in Costa Rica and in most of the region's countries.
 - 5) my connections with the private and public sectors of my country (institutions, companies, universities, consultants, engineers, managers, economists, politics, and so on)
8.
 - 1) When I attended the program: Instituto Costarricense de Electricidad (ICE), Coordinator of the renewable energy program.
 - 2) When I returned to Costa Rica: Instituto Tecnológico de Costa Rica (ITCR), Director, Energy Research Center.
9. Consejo Nacional de Investigaciones Científicas y Tecnológicas (CONICIT), Deputy General Manager.

NAME: Abdoukarim Moussa Yacin
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- | | |
|-----------------------------|---------------------------|
| 3. Energy conservation | Photovoltaics |
| Solar cookers | Wind resource measurement |
| Solar radiation measurement | Wind-pumping systems |
| Refrigeration, A/C | Geothermal energy |
| Economic analysis | Refrigeration, A/C |
| | Economic analysis |

I would like to specify Refrigeration: I learned a lot on my project Absorption with water and ammoniac system (H_2O/NH_3).

4. The knowledge that I gained from the program was really useful. I just finish a photovoltaic installation of 5 kW on the roof of our Service building. My project of encapsulation p.v. module was helpful.

Lectures of wind-pumping systems gave me the knowledge to work with water-pumping windmills. Now I am working with their characteristics-curve.

5. I am responsible for:
- repair water pumping windmills, their maintenance and to do their economic analysis with the gasoline engine.
 - control the 7 meteorological stations in the country which measure 6 parameters: wind speed, wind direction, temperature radiation, humidity and precipitation.
 - test and experiment earth-bricks.
 - compare the economics of 5 kW photovoltaic with the traditional electricity.

6. Yes.

I am responsible of two technicians. I train them in all the activities of the project. I give information and advice to all the people who are very interested in renewable energy, especially in photovoltaics. I advise the agriculture cooperative what kind and size of photovoltaic pump they need.

7. Yes.

I would like to assist or coordinate a program but now I need more training program. The two years that I worked on renewable energy project are not sufficient to train people like a TAET program. I can assist a short program for technicians or for agricultural people.

8. I was working with ISERST/VITA project. ISERST is a government organization, and VITA is a private Volunteers organization that provides technical assistance to ISERST. I worked for ISERST on this project on position of principal technician. The project is financed by USAID (70%) and ISERST (30%).

9. idem.

NAME: Petronald R. Green
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Government Headquarters
Roseau, C/wealth of Dominica

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3. Biogas technology
Gasification
Charcoal production
Improved stoves
Direct combustion
Energy conservation
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Wind resource measurement
Wind-electric systems
Geothermal energy
Hydropower
Economic analysis
4. At the TAET program I got exposed to the various alternative energy forms. As a result I am presently using the knowledge gained to advise my government on any matters pertaining to energy.
5. Yes. (1) Solar drying of agricultural crops. This involves the construction and distribution of various type crop dryers all over the country for use by the rural populace. Project still ongoing. At the end to monitor their acceptance and impact etc. (2) Small 14 kW hydro project in a rural village. This to provide electricity. Project still continuing.
6. No.
7. Yes.
Could assist in the overall co-ordination of any form of energy training programme, better still if the emphasis is on utilization of alternative energy technologies. Could for example present a general background on energy, the utilization of the various solar forms and advantages and disadvantages.
8. Government - Ministry of Communications and Works. My position was that of Civil Engineer. However, I had for a few months before attending to programme been involved in energy matters.
9. Same Ministry of Comm. & Works. I am the overall energy co-ordinator within this ministry.

NAME: Fernando Gonzalez, INE.
ADDRESS: Instituto Nacional de Energia
P.O. Box 007 - C
Quito, Ecuador

Telephone: 541-588 - 541-500

Telex/cable: 2271 MINREC-ED

3. Gasification
Energy conservation
Solar thermal systems
Solar crop drying
Solar radiation measurement

Photovoltaics
Wind-pumping systems
Stirling engines
Refrigeration, A/C

Computer simulations; mathematical models
4. I have used it very much since my work relates with the research and development of non conventional energies, specially solar.
5. Yes, I've been until February - 84. I was in charge of the implementation of the Plan Nacional de Energia Solar, PNES (Solar Energy National Planning). Since that month, I'm developing a work concerning with the non-conventional energy technologies transfer.
6. Yes.
As I mentioned before, I'm in charge of the technology transfer and diffusion, because I'm the head of the respective team at the Instituto Nacional de Energia, INE (Energy National Institute).
7. Yes.
I already have experience in this matter cause I've organized many seminars and workshops in the non-conventional energies field. Besides I'm the first president of the Ecuadorian Solar Energy Society with which I have to make the same kind of activities.
8. I was working for the Energy National Institute as a member of the solar energy team.
9. I'm still working for the Energy National Institute as the head of the technology diffusion division and, also I'm the head of the informatics division.

NAME: Attia A. El-Mallah
ADDRESS: National Research Center
Dokki, Cairo, Egypt

Telephone: 701211 - 701615 Cairo

Telex/cable: 90422 NAREC UN

3. Wind resource measurement
Wind-electric systems
Wind-pumping systems

Field trips.
4. Knowledge updating in the field of wind energy.
5. Wind water pumping systems
Integrated wind-solar energy systems for rural areas in Sinai
6. Yes.
Supervisor of M.Sc. students
Wind energy lecturer for a short training course in renewable energy sources, held at NRC for participants from NRC and other institutions
7. No.
Presentation of the program in the field of wind energy.
8. National Research Centre, Assoc. Prof. & Head, Mechanical Eng. Lab.
9. National Research Centre, Assoc. Prof., Mechanical Eng. Lab.

NAME: Saderr A.M. Ceesay
ADDRESS: Forestry Department
No. 5 Marina
Banjul, Gambia

Telephone: 307

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|-----------------------|----------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind-pumping systems |
| Charcoal production | Geothermal energy |
| Improved stoves | Economic analysis |
| Direct combustion | Project planning |
| Energy conservation | |
| Solar thermal systems | |
| Solar cookers | |
| Solar crop drying | |

I have knowledge on the others not marked but the ones marked are my best and they were my immediate need to be known and disseminated to my people.

4. The knowledge was so important to me because I got some knowledge before about some subjects, but some are new and I got knowledge at a time when my country needed somebody who has some knowledge about it, e.g. solar crop drying, photovoltaics, wind pumping systems, geothermal energy, solar cookers. When I came back from Gainesville I had been asked by the Minister of Health to do some work on the the photovoltaic refrigerators issued by A.I.D. I worked on them and they worked. I was also asked to work with the fish drying project and most of the jobs are done through instruction books and notes I had from my training. I wish you under go a higher diploma course which I will be given the chance for my interest and my country.
5. Just as I have stated above I was advised by my Minister of Health to work on the photovoltaics refrigerator in Gunjur Kombo South and Kaur (M.I.D) MacCarthy Island Division. I also work with the fish drying project at Gunjur Kombo South. The training was of great value to me and it has caused me to encourage many Gambians to study the American technology. I wish I have a higher diploma or degree in technology because The Gambia has no technologies; we look for them from other countries. If A.I.D. Washington will only listen and so as I have suggested I recommend that the TAET program be changed to a diploma or degree program especially in the interest of the African countries because Africa needs technologies. With in the Sahel I have traveled to the following countries but all technologies are from England and U.S.A., e.g. Senegal, Mali, Upper Volta, Nigeria, Chad, Niger, Guinea Bissau, Guinea Conakry and Gambia, my own country. Please I recommend the program to be a diploma or degree course of which I will be grateful to be given the chance to attend in the interest of my country and my own.
6. Yes.
I have made a symposium on the topic Alternative Energy Technology. The minister of economical planning and the principal planning officer of the country were in attendance with over four (4) thousand people and we discuss all the renewable energy technology and the alternative energy technology and the minister was very much happy. Reports written and sent to those

ministry concerned with different energy units, i.e. forestry where I am a Staff, Community Development where I am on secondment, local government, economic planning, Health and Education.

7. Yes.

If only such is to be held in my Country or region I will be the first to attend. If admission is granted and I am [?] and able to give any assistance to the co-ordinators or presentation of the program because the more I am involved the more I will learn and refresh my knowledge. If only I am seen as the only assistant in Africa please have no fear, do what you want to do and I promise you success. From what America has given me I am always in support of Americans and their technology because what ever they do has to work. If America would give me any more assistance I would like then to train more in technology than any other field of study because Africa now is going towards the era of technology. Without technology some of our field work problems shall never be [?].

8. While I was attending the TAET program I was working for the ministry of water resources and the environment under the Director of Forestry. I was a forest ranger and still. I am for the time being running the A.I.D. Project on Energy and to fight against desertification in the country in that I had to introduce village wood lots, wood stoves and was responsible for the national tree planting which the head of state and all ministers take part. All devices of energy are being introduced to the farmer. I introduce some just after my training, e.g. wind pumping system, energy conservation.

9. I still work for the ministry of water resources and the environment under the Director of Forestry and I am running the U.N.D.P. wood stove project which came into existence four months. I just returned from Niger on a three week work study where I had to train people on some methods of building pottery stove and fired bricks stove with also stoves out of [?] clay. From the 10th September I am also expecting a training work shop to be attended by seven states within the Sahel countries.

NAME: Lamin Jobe
ADDRESS: c/o Department of Water Resources
7 Marina Parade
Banjul, The Gambia, W. Africa

Telephone: 8261 or 8214

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|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Charcoal production | Wind-pumping systems |
| Improved stoves | Stirling engines |
| Solar thermal systems | Refrigeration, A/C |
| Solar cookers | Hydropower |
| Solar crop drying | Economic analysis |
| Solar radiation measurement | Project planning |

Field trips, especially to the West Coast.

4. A report was prepared, covering the training programme and experience, and sent to the Ministry of Economic Planning and Industrial Development. The report is to be used by policy-makers in the field of alternative technologies. I am in the process of preparing a working document for the establishment of an Alternative Energy unit within the Department of Water Resources.
5. I have been involved in creating a unit and program as described above.
6. Yes.
Alternative energy technologies is a new area of interest to the Department. I have talked to members of the Department, both formally and informally about its various aspects as presented during the seminar. The slides recently sent by Martin Bush have been especially useful.
7. Yes.
Inviting guests, organising field trips and providing transport (but not fuel), arrangement of halls and hotel, liaising with interested government and private institutions and provide secretarial duties.
8. I was Principal Engineer and Head of Division of the Irrigation and Swamp Reclamation Division, in the Department of Water Resources, Ministry of Water Resources and the Environment.
9. I am presently the Assistant Director, Department of Water Resources under the above-mentioned Ministry.

NAME: Martin Yaw Asare

ADDRESS: Petroleum Department, Ministry of Fuel & Power
Private Mail Bag, Accra - North, Ghana

Telephone: 63133

Telex/cable: 2188

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|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Improved stoves | Hydropower |
| Energy conservation | Economic analysis |
| Fuel alcohol production | Project planning |
| Solar thermal systems | |
| Solar cookers | |
| Solar crop drying | |
| Solar radiation measurement | |

4. With the experience acquired from the TAET program, I am handling some of the activities of the first established National Energy Board in the field of renewable energy. In order to get the Board functioning, the Ministry is to have some consultants to help in the implementation of some of the projects. A planning committee of which I am a member has been meeting several consultants for discussion on renewable energy program and Energy Information.

Occasionally, I give informal advice on some alternative Energy Technologies to some friends.

5. Since the National Energy Board has not yet started specifically with any renewable Energy Project on its own, there has not been the possibility for me to be responsible for any renewable energy project. But however, it is envisaged that when the projects take off, I shall be one of the key personnel to be responsible for them.

6. Yes.
In the Ministry of Fuel and Power I am specifically scheduled for renewable energy projects. The Ministry has just formed National Energy Board and as some of its activities are about to start, a number of foreign consultants are being invited to help in the projects implementation. Thus I provide information and advice to the Ministry on issues relating to renewable energy projects.

7. Yes.
During the 15 weeks training in the TAET, I was exposed to a whole cross-section of the renewable energy technologies. Also economic analysis and project planning formed part of the training program. With experience gathered during the training I shall be in a position to assist in the presentation of a program in the areas of solar energy, biomass and biogas technologies.

8. When I attended the TAET program I was on secondment to the Ministry of Fuel and Power from the Petroleum Department. I was working as a co-ordinator for the Ministry on mini-hydro projects in the country. I was assistant petrochemical engineer.

9. I still work for the Ministry of Fuel and Power and my schedule presently is renewable energy program. My position is unchanged.

NAME: Benjamin Lartey Lartey
ADDRESS: Food Research Institute
P.O. Box M20
Accra, Ghana, West Africa

Telephone: 77330

Telex/cable: FOODSEARCH

3. Biogas technology
Solar cookers
Solar crop drying
Solar radiation measurement
- Refrigeration, A/C
Economic analysis
4. The knowledge which I gained from the program was used and is being used in my R & D projects in solar energy utilisation, namely the design and construction of solar dryers, solar water heaters and solar cookers. At the moment I am concentrating on solar dryers since crop drying and food storage have become national issues.
5. Yes, I am now the National Co-ordinator for the Commonwealth Service Council African Energy Programme in Solar Crop Drying and Solar Water Heating Systems. I am at present working on the development of suitable solar crop dryers for drying fruit and vegetables and fish. Two prototypes have been developed and are being tested. A solar cooker is soon to be designed and constructed.
6. Yes.
I receive formal requests from individuals and organizations for the construction of solar drop dryers for their agricultural produce which they want to market in dried form--either locally or abroad.

Informally, a lot of individuals come to me for information on solar food drying techniques as well as packaging and storage of dried products.
7. Yes.
I would be willing and able to assist in the co-ordination and presentation of any short training program which could be conducted in this country.
8. 1. Food Research Institute (FRI); Council for Scientific and Industrial Organization.
2. I was a Principal Research Officer, and Head of the Engineering Division of the FRI. I was also the Co-ordinator of the Labour-Saving and Rural Technology Programme of the Institute.
9. 1. The Food Research Institute (FRI); Council for Scientific and Industrial Organization (CSIR).
2. I am still a Principal Research Officer and Head of the Engineering Division of the Institute and also the Co-ordinator of the Labour-Saving and Rural Technology Programme of the Institute.
3. Since 1982, I have been the National Co-Ordinator of the Commonwealth Science Council African Energy Programme on Solar Crop Drying and Solar Water Heating Systems.

NAME: Pablo Dominguez Navarro
ADDRESS: Universidad Nac. Autonoma de Honduras
Physics Department

Telephone: Home 335972

3. Biogas technology
Gasification
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Wind resource measurement
Wind-pumping systems
Refrigeration, A/C
4. Since the latest 1981 I teach Solar Energy (thermal conversion) in the Private University "Jose Ceilio de Valle". I give also some assistance to undergraduate architecture students "Designing with the Sun". Here at the National University Physics Department we built solar cookers (hot box), solar collectors and we test materials for solar energy uses.
5. I am working in the energy section right now. We have installed in the National University campus equipment to measure solar energy radiation, wind, temperature, humidity.
6. Yes.
Assistance to undergraduate students in areas like architecture, electrical and mechanical engineering in projects related to non-conventional energies.
7. Yes.
I would to assist in order to achieve more experience and exchange knowledge.
8. 1) National University of Honduras - Physics Department
2) Professor
9. 1) National University of Honduras - Physics Department
2) "Jose Cecilio de Valle" University

in both: Professor

NAME: Dr. R.H. Bhawalkar
ADDRESS: Solar Energy, National Physical Laboratory
New Delhi 110012, India

Telephone: 567833

3. Solar thermal systems
Solar cookers
Solar crop drying

Wind-pumping systems
Refrigeration, A/C

4. I have utilized the knowledge acquired at TAET in improving the efficiency of box type solar cooker. The main drawback in this type of solar cooker is that the heat transfer to the cooking pot is very poor. This has been improved by using radial tubes filled with liquid (oil or water) connecting central receiving pot to the extreme ends of the absorber. The outer end of these tubes are closed and are at lower level as compared to the central receiving pot. In short this contraption acts as heat concentrator, since hot fluid will always try to rise up and come to the central pot.
5. As explained under (4) the idea of heat concentrator is being patented in India. The advantage of this gadget is that on intermitant cloudy days, it works with sufficient efficiency, since the hot fluid at the centre cannot go down till the temperature of the lower ends of the tube is more than that of the fluid at the centre.

I have also tried glass honey-comb structure for convective loss suppression and observed 20° C rise in cooker temperature.

A 5 kg (10 pound) per day ice plant using water ammonia absorption system and above mentioned gadgets is under fabrication. This will operate only on solar energy and will be a useful household appliance for remote rural villages.

6. Solar refrigeration (Dr. Farber's notes) has been quite useful and the solar thermal group of this laboratory held discussions before 5 kg ice plant per day was designed. Since the whole group is engaged in solar thermal activity, the notes & literature given at TAET programme have been found quite useful in informal discussions as well.
7. Yes.
Solar thermal only.
8. I was a scientist at National Physical Laboratory holding a senior class I post.
9. Same as above.

NAME: S.L. Daga
ADDRESS: Scientist
Central Salt & Marine Chemicals Research Institute
Bhavnagar 364 002, India

Telephone: 24497 Telex: 0162-230 SALT IN Cable: NAMAK

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|-----------------------|---------------------------|
| 3. Gasification | Photovoltaics |
| Improved stoves | Wind resource measurement |
| Energy conservation | Wind-electric systems |
| Solar thermal systems | Wind-pumping systems |
| | Geothermal energy |
| | Stirling engines |
| | Refrigeration, A/C |
| | Hydropower |

OTEC

4. Continuing work on solar energy R & D.
5. Yes - Solar Refrigeration. A project on solar intermittent absorption refrigeration system using zeolite-water is being carried out.
6. Yes.
Information is passed on to solar energy group on informal basis.
7. Yes.
Can assist in the coordination and/or presentation of the programme in my own field of activity - Solar Thermal Systems.
8. Central Salt & Marine Chemicals Research Institute, Bhavnagar.
One of the national laboratories under Council of Scientific & Industrial Research. As Senior Scientist.
9. Central Salt & Marine Chemicals Research Institute, Bhavnagar.
One of the national laboratories under Council of Scientific & Industrial Research. As Senior Scientist.

NAME: Meena J.R.
ADDRESS: Department of Non-Conventional Energy Sources
C.G.O. Complex, Block No. 14, Lodi Road
New Delhi - 110003, India

Telephone: 611294

Telex/cable: 031-5318 DNES-IN/RENEWABLE

3. Biogas technology
Gasification
Direct combustion
Energy conservation
Fuel alcohol production
Solar crop drying
Solar radiation measurement
- Wind resource measurement
Stirling engines
Refrigeration, A/C
Hydropower
Project planning
4. Department of Non-Conventional Energy Sources is responsible for coordination and implementation of programmes pertaining to alternative renewable energy technologies in India. The experience/knowledge I gained from the TAET programme is useful in dealing with projects in the field of new and renewable sources of energy which are being funded by the Department. The reports/informations collected from the U.S. were found to be quite useful for my day-to-day work here. Similarly, I observed the practical problems associated with the field applications of renewable energy devices during my field visits to various installations in the U.S.A. and their solution. Such observations are helpful in the similar demonstration programmes being implemented by Govt. of India. Laboratory work though it was not adequate, also proved to be useful.
5. I have been dealing with various R & D projects being sponsored by the Department in solar photovoltaics. Among the areas covered by these projects are silicon manufacturing processes, polycrystalline and amorphous silicon solar cells, thin film cells, concentrating cells and photoelectrochemical cells. I am associated with the projects involving collaboration of U.S.A. and FRG.
6. Yes.
Though I am not directly involved in arranging training for people in renewable energies, I organise training in solar photovoltaics through Central Electronics Ltd, a public company implementing a major national programme in this area.
7. Yes.
8. Department of Science & Technology, Govt. of India (Analyst).
9. Presently I am working in the Department of Non-Conventional Energy Sources which has been established in 1982, as scientific officer.

NAME: Dr. Jayanta Kumar Nayak
ADDRESS: Mechanical Engg. Dept.
Indian Institute of Technology
Powai, Bombay-400 076, India

Telephone: 581421, Ext. 342

Telex/cable: 011-71385 IITBIN

3. Biogas technology
Gasification
Fuel alcohol production
Solar thermal systems
Solar crop drying
- Wind resource measurement
Geothermal energy
Hydropower
Economic analysis
4. I am involved in the teaching of a course "Non-Conventional Energy Sources" to postgraduate students and organising the laboratory experiments concerning to it.
5. I am working on a project concerning to the development of solar collector out of building elements and materials. A master level project has been finished and a doctoral student is presently working on it.
6. Yes.
My primary work in the present job is teaching. So I do provide information to students.
7. Yes.
8. Indian Institute of Technology, Powai, Bombay-400 076, India. Lecturer.
9. Indian Institute of Technology, Powai, Bombay-400 076, India. Lecturer.

NAME: Mr. Rahul Parikh
ADDRESS: Research Engineer
Agricultural Tools Research Centre
Suruchi Campus, P.O. Box 4
Bardoli 394601, India

Telephone: 95 and 258

3. Biogas technology
Energy conservation
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
Photovoltaics
Wind resource measurement
Stirling engines
Refrigeration, A/C
4. To develop small and appropriate energy devices for rural areas of India.
5. I was working on renewable energy projects before attending TAET. It has definitely helped me to improve the project activities since attending the programme.
6. Yes.
We are a voluntary group working on appropriate rural technologies. So the fundamentals I learned in the TAET course has been useful to whole of our group.
7. Yes.
 1. By arranging the program on our campus.
 2. By providing workshop facilities we have.
8. Agricultural Tools Research Center, Bardoli
Position: Research Engineer
9. Same

NAME: Dwight A. Butterfield
ADDRESS: Dept. of Chemical Engineering
University of the West Indies
St. Augustine, Trinidad

Telephone: 663

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|-----------------------------|--------------------|
| 3. Biogas technology | Refrigeration, A/C |
| Gasification | Hydropower |
| Fuel alcohol production | Economic analysis |
| Solar thermal systems | Project planning |
| Solar crop drying | |
| Solar radiation measurement | |

Useful in the sense that I have had to utilize this knowledge (all the areas ticked) since participating in the course.

4. In all the areas ticked overleaf, I have had some input whether directly or indirectly because the institution with which I worked 1 year prior to going on the programme and 1 year after completion of the programme, Scientific Research Council, is very well integrated in all aspects of alternative energy, both dissemination and implementation in Jamaica.
5. While at SRC Kingston Jamaica:
1. Building of medium scale (up to 50 cu. metre) biogas units on farms in Jamaica. (5 such units built.) Feb. 1982 - Sept. 1983.
 2. Overseeing of 15 existing units (up to Sept. 1983).
 3. Solar salt project. Old Harbour Jamaica. Pilot project utilizing approximately 10 acres of land with a view to salt production from the sea water.
 4. Pilot scale fuel alcohol project with cassava peelings.

While at UWI St. Augustine, Trinidad:

1. Anaerobic digestion of rum distillery effluent.

6. Yes.

While at SRC.

1. Various biogas technology dissemination exercises in all the media (i.e. radio, television, and newspaper).
2. Short course on wood gasification.

While at UWI St. Augustine (since Sept. 1983).

1. Preparing lecture notes and practical demonstration and also lecturing the biomass section of a three week short course (July 1984) on alternative energy.

7. Yes.

As stated in (6) above I have already participated in short course in both Trinidad and Jamaica and I am and will always be willing to do so in the future.

8. Scientific Research Council, P.O. Box 350, Kingston 6, Jamaica, West Indies. Scientific Officer in the alternate energy unit.

9. University of the West Indies, St. Augustine, Trinidad, West Indies, c/o Dept. of Chemical Engineering. Research Assistant.

NAME: Rashad Aburas
ADDRESS: P.O. Box 2310
Amman - Jordan

Telephone: 815615

3. Energy conservation
Solar thermal systems
Solar radiation measurement
Wind-electric systems
Refrigeration, A/C
Hydropower
Economic analysis
Project planning
4. I did several studies on energy conservation. I did two economic feasibility studies to evaluate mini hydropower projects. Another study to assess the possibility of electrifying a Jordanian village was carried out under my supervision. I am writing, at the present time, standards for solar collector for water heating.
5. Yes.
See above.
6. No.
7. Yes.
I can give lectures on economics of photovoltaics, economics of wind energy, energy conservation, energy planning.

I can also act as a coordinator and help in finding the suitable place, either for lecture or for participants accommodations.
8. Jordan Electricity Authority
Research Engineer
9. Jordan Electricity Authority
Head of Energy Section

NAME: Marwan Mahmoud
ADDRESS: Royal Scientific Society
Solar Energy Research Centre
Amman P.O. Box 6945
Jordan

Telephone: 844701 (Amman)

Telex/cable: 21276 RAMAH JO/ERRAMAH-AMMAN

3. Biogas technology
Gasification
Charcoal Production
Improved stoves
Direct combustion
Energy conservation
Fuel alcohol production
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
Photovoltaics
Wind resource measurement
Wind-electric systems
Wind-pumping systems
Geothermal energy
Stirling engines
Refrigeration, A/C
Hydropower
4. I use the knowledge which I gained in the execution of my projects specially in photovoltaic and wind energy.
5. 1) Design and building an outdoor testing facility for photovoltaic cells. This project is located in Aqaba on the Red Sea, and it is being working. The photovoltaic cells types can be checked automatically by a data acquisition system. Special consideration is given for the measuring of the efficiency in function of different parameters.
2) Wind-electric system. A wind mill (12 kW) drives a generator of 12 kW was built in the Jordanian desert to pump water from a depth of 60 m. The water is used for the Beduens and their cattle. The optimization of the components of this project is still going on.
6. No.
7. Yes.
I will be able to give lectures in the design, sizing and testing of photovoltaic cells. In addition I can give lectures in the sizing of the electrical components (wind generator, control, storage inverters, electrical pumps) of wind electric systems. Related measuring techniques of such systems is also possible.
8. RSS - Research Scientist.
9. Royal Scientific Society
Solar Energy Research Centre
My position is: Head of wind energy and photovolatic section (since Dec. 1, 1983)

NAME: Sadique M. Mullei
ADDRESS: P.O. Box 30582
Nairobi, Kenya

Telephone: 333551 ext. 2531

Telex/cable: 23094 Energy

3. Solar thermal systems Photovoltaics
Solar radiation measurement Refrigeration, A/C
4. I am now heading a section dealing with Solar/Wind/Nuclear/Ocean Energy Technology in the Ministry of Energy and Regional Development, Kenya Government. The knowledge gained at the Training has greatly improved my ability to deal with many technical problems.
5. Yes.
 - 1) A USAID funded project dealing with Photovoltaic system for Rural Health Centre at Kibwezi [?] and Ibuthu [?] in Kenya.
 - 2) Development of Energy Labs for Kenya Energy Training Centre.
 - 3) Development of a Wind Energy project for rural applicatons in Kenya.
6. Yes.

As you will see from previous questions I have been involved in the development of a project to establish an Energy Training Centre for Kenya.
7. Yes.

I am willing to identify the most important areas for such a course since I am in charge of energy technology development in the areas of Solar/Wind/Nuclear/Ocean.
8. Government of Kenya, Ministry of Energy, as head of Solar Energy.
9. Government of Kenya, Ministry of Energy and Regional Development, Head of Solar/Wind/Nuclear/Ocean Energy Technology Section.

NAME: Edmond K. Zowulu
ADDRESS: Forestry Development Authority
P.O. Box 3010
Monrovia, Liberia

Telephone: 262252, ext. 45

Telex/cable: Forestry Development
Authority, Monrovia

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|-----------------------------|-----------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind-electric systems |
| Charcoal Production | Geothermal energy |
| Fuel alcohol production | Hydropower |
| Solar thermal systems | Economic analysis |
| Solar radiation measurement | Project planning |

Biomass production and conversion, end-use matching and renewable energy cost.

4. I have just returned from the training but during the time I was out of my office, there was no change in the organization. I still work in the research section of my office and attend National Energy Committee meetings as representative of FDA. I recently commented on a feasibility study conducted by the National Energy Committee for proposed improved charcoal production in Liberia and attended a 3-week project evaluation course conducted by the USAID Energy Advisor to Liberia.
5. No, but prior to my attending the program, I worked on a team as forester to assess energy resources in Liberia. I also worked on a team of four that did a feasibility study on Economics of Production of Fuelwood in Liberia. This study has been forwarded to the authorities for approval and funding. If approved and funds made available, we expect to establish a fuelwood plantation to fire a one Mega Watt wood burning plant for rural Liberia (electricity).
6. No.
However, during our energy assessment we tried to encourage the use of wood energy by forest industries. We also attempted to divert our charcoal producers from the earth pit method to metal kiln method which is more cost effective. We have also from time to time appealed to our authorities to approve our proposal for tree planting, efficient charcoal production methods, and energy conservation.
7. Yes.
I would be very happy. My ability to speak one of the local languages is an advantage provided the training is for rural people. My participation in the Florida training program exposed me to many alternative energy sources. I would pass this knowledge to my fellow men. I would also be helpful in selecting candidates, place of training, time, duration and materials. I may assist in the presentation.
8. I worked for the Forestry Development Authority and my position was Planning Officer. I still work with the same corporation in the same capacity.
9. Forestry Development Authority as Planning Officer.

NAME: Dr. P.O. Ezema
ADDRESS: Ministry of Finance & Economic Planning
Enugu, Anambra State
Nigeria, West Africa

Telephone: 042:333775

3. Biogas technology
Charcoal Production
Improved stoves
Energy conservation
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
Photovoltaics
Wind-pumping systems
Refrigeration, A/C
Hydropower
Economic analysis
4. I use the knowledge I gained from the programme in various ways: I am setting up a Research Programme for students in Solar Energy, especially solar radiation measurement. I am yet to have funds to conduct a survey in the country for mini hydro power, where suitable, for small streams and rivers.
5. I have not been oppertuned to doing any work before being called out for national duty.
6. Yes.
I have used the idea of Energy Conservation to reduce electricity bills in offices by getting my colleagues to see the rationale in putting off light during the day in their offices because of our hot weather.
7. Yes.
I would like a training programme to be established in Anambra State University of Technology, Enugu, if members of the Training Programme such as Dr. Bush, Dr. Pagano and Professor Farber are willing to come to Nigeria. Adequate arrangements will be made for them by the University.
8. I was heading the Department of Industrial Physics of the Anambra State University of Technology when I attended the programme.
9. I am now working for the State Government as the Commissioner for Finance and Economic Planning and the knowledge I gained is helpign me in taking vital decisions.

NAME: John U. Manukaji
ADDRESS: Solar Energy Research Centre
Federal Polytechnic
P.M.B. 55
Bida Nigeria W. Africa

- | | |
|-----------------------------|--------------------|
| 3. Energy conservation | Photovoltaics |
| Solar thermal systems | Refrigeration, A/C |
| Solar cookers | Economic analysis |
| Solar crop drying | Project planning |
| Solar radiation measurement | |

Field trips.

4. I am still using the knowledge that I gained from the program. This is because we are the last set of this program. But all not withstanding, I have started investing the knowledge in solar oven development, water heater development, solar cooker development and radiation measurement analysis. Recently, I have started making advances on solar air-conditioning and refrigeration development.
5. Yes. The projects involved a critical study of the thermodynamic properties of a solar hot box. This study had led to the development of solar ovens from the hot boxes and the study is to continue.
6. Yes.
I have provided both formal and informal information to both members of staff of the Solar Energy Research Center and the Polytechnic in general on the advantages of looking for an alternative to fossil fuels. I have also told them of the efforts so far made by developed countries to harness the energy from the sun and the angles of attack we have to adopt to harness our own natural and free resources.
7. Yes.
If a training program is to be organised in my country or in my institution, I will not only make all my services available, I will also harness the services of other competent lecturers in my institution to help in making the program a success. But I must say that we are not all that rich in instruments and equipment. But we have enough man power to coordinate the program.
8. I was working with the Federal Polytechnic Bida and I was an Assistant Research Fellow at their Solar Energy Research Centre.
9. I still work with the Federal Polytechnic Bida and I am still an Assistant Research Fellow in their Solar Energy Research Centre.

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PMB 1660
Enugu, Nigeria

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|-----------------------------|-----------------------|
| 3. Solar thermal systems | Photovoltaics |
| Solar radiation measurement | Wind-electric systems |
| | Refrigeration, A/C |
| | Hydropower |

The field trips to alternative energy installations were very useful.

4. I have incorporated some of that knowledge into courses that we teach to students at my university. I have not yet started my development projects in this area due to lack of funding, but I am still optimistic that funds may become available for me to carry out experimental work in some areas of alternative energy technology.
5. No.
6. Yes.
I am involved in a departmental course "Energy Sources in Power Systems" which we teach to final year undergraduates, and a large part of this course consists of alternative energy sources. Furthermore, I supervise some final year students' projects in solar thermal systems and radiation measurements. Informally, I discuss with colleagues and others about alternative energy technology.
7. Yes.
I will be very pleased to assist in both coordination and presentation of lectures and demonstrations. My areas of most interest are solar thermal systems, solar radiation measurements, photovoltaics, wind-electric systems, refrigeration and A/C, hydropower (small scale).
8. Professor at the Anambra State University of Technology.
9. Same.

NAME: Chukwebueze G. Odunukwe (Mr)
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Federal Ministry of Education, Science & Technology
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3. Biogas technology
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
- Wind-electric systems
Geothermal energy
Refrigeration, A/C
Hydropower
Economic analysis
Project planning
4. Since the last four months of my return from last session's program, I have initiated actions to expand the research work in solar energy. In addition to this, programs on wind, biomass and small hydro resources are being considered. This is due to the apparent availability of these resources which could also be tapped to increase the alternative energy resource base in Nigeria. In general efforts are being made to develop an enriched program to synthesize the knowledge gained from the TAET program for a more result oriented research in alternative energy.
5. Yes, Assessment of the construction and testing of solar drying systems to serve the farmers' needs in drying, storage and preservation of their produce. These systems include: solar hot houses, solar grain dryers, of either passive or active versions, silos for storage and preservation.

A solar radiation measuring panel which was a product of the TAET program has also been set up and data are being collected on a near daily basis on this location and hopefully we shall extend to other locations.
6. Yes.
Mainly on informal basis. This is due to limitations in the formal training facilities which has not been a priority to the Institute. However enquiries on relevant fields have been received from outside and are handled satisfactorily. In addition, students of institutions of higher learning who are posted to us on annual industrial training are exposed to practical applications and constructions of solar energy and solar devices respectively.
7. Yes.
I shall be both willing and able to assist in either the coordination or presentation of any training program. Program that shall include: Solar, Wind, Hydro and Biomass shall prove very profitable in Nigeria.
8. I worked at the Projects Development Institute (PRODA), Enugu, which is one of the Industrial Research Institutes owned and funded by the Federal Government of Nigeria. My position was a Senior Research Officer (S.R.O.).
9. I still work for same PRODA and my position has not changed from that of Senior Research Officer (S.R.O.).

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3. Energy conservation
Solar thermal systems
4. Fibropan Inc. started in Panama to introduce the use of solar collectors for hot water and I was in charge of this. I also had to explain the system to some students in the University of Panama.
5. I designed a system to drying the puzzolane for our cement plant in order to produce cheaper cement.
6. Yes.
I gave training to students that were working in their thesis [?] in solar energy and have given assessment to people who were interested in applying the system in different kinds of installations such as houses, buildings, meat processing machinery, etc.
7. Yes.
As much as I could.
8. I was working for Fibropan, which is a company that produces and install asbestos-cement roofs. And I was and am in charge of [?], installation, supervision and promotion of energy product that we produce or sell, including solar systems.
9. Same.

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Panama

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3. Direct combustion
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
Hydropower
Photovoltaics
Wind-electric systems
Wind-pumping systems
Stirling engines
Refrigeration, A/C
Economic analysis
Project planning
4. In many ways.
5. Yes: Several installations on solar thermal systems (hot water) [5] with IRHE and [9] nine with my own company (Sistemas Solares S.A.), [2] two 2 kW wind systems; 1 biogas (100 m³) systems; two (2) photovoltaics and one for refrigeration and one for radio station. Construction of one NH₃/ H₂O refrigeration system (experiment). Conversion of 25 Electralux refrigerators to gas or electricity or kerosene or wood. (Contract with OMS). Finished.
6. Yes.
7. Yes.
With my actual experience in the renewable energy use and problems, ie (transient and expensive), I think that I have the experience to say where a renewable energy tech can be suitable for use in costs and payback time terms, reliability etc.
8. IRHE (Electrical Company)
9. IRHE (Electrical Company)
Design, installations and maintenance of Sistemas Solares S.A. (General Manager). Electromechanical systems (water pumps for buildings, electrical emergency plants, alarms etc). Design, installation and maintenance of solar water heaters, wind systems, gasification systems.

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|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Charcoal production | Wind-pumping systems |
| Energy conservation | Hydropower |
| Solar crop drying | Economic analysis |
| Solar radiation measurement | Project planning |

Field trips to alternative energy installations, exchange of information with alternative energy project implementors, manufacturers & resource persons/instructors on the above subjects. Also, the exchange of experiences with co-participants at the training and after going back to our respective countries.

4. 1) It gave me a better insight and perception on available technologies which may be considered in my field of work.
2) I tried to pass the knowledge to my staff engineers & project implementors.
3) Apply the knowledge to opportunities for alternative energy project in particular area (rural).
5. 1) 1981-82: While at the Farm Systems Development Corporation (FSDC)
 - a) Gasification of charcoal, woodchips, coconut shells & using the producer gas as supplement to diesel engines for irrigation pumps.
 - b) Piloting & demonstration of sail & blade type windmills for water pumping in selected sites in the Philippines.
 - c) Field testing of small biogas digester.
 - d) Demonstration of solar heated air for rice paddy drying.
 - e) Field test of a water wheel for small elec. gen.2) 1982-present at the Gasifier and Equipment Mfg. Corp. (GEMCOR), a subsidiary corporation of FSDC
 - a) Product development, production & sales of producer gas equipment-- this is the commercialization of densified biomass fueled gasifier equipment for shaft power and direct process heat applications.
6. Yes.
Formal (1) resource speaker at the recently AID supported Biomass Gasification Workshop at the Chulalongkorn Univ., Bangkok, Thailand; (2) presenter at the First International Producer Gas Course & Conference-- Colombo, Sir-Lanka; (3) resource person in alternative energy (gasification) seminar/workshop in the Philippines; (4) conduct employee (particularly engineers) orientation on gasification theory & practical applications; (5) Chairman of GEMCOR's gasifier design review committee; (6) trainer, alternative energy (producer gas, windmill and small solar dryers) project implementation technologies considering technical, financial and institutional/cultural considerations.

7. Yes.
 - (a) Can assist in the formulation of training design to suit regional needs.
 - (b) Can assist in the coordination for a short training program.
 - (c) Can act as resource person in gasification (theory, practical aspects, applied research, production, sales and promotion/institutional aspects).
8. FSDC, Engineering and Technology, Unit Head, Research and Dev. Dept.
9.
 - (a) Gasifier and Eqpt. Mfg. Corp. (GEMCOR) - Asst. to the General Manager and concurrently Marketing Manager. Formerly, Manufacturing Manager.
 - (b) Allied Systems Inc. (ASYST) - Corporate Secretary and member of the board of directors. This is a management and consultancy firm engaged in energy management, computer and business development services.

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3. Biogas technology
Improved stoves
Direct combustion
Energy conservation
Fuel alcohol production
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Geothermal energy
Hydropower
Economic analysis asurement
Project planning
4. I had been involved in a number of training programs on alternative energy, both as an organizer and implementor. Being assigned the task of head of the Continuing Engineering Education Group of the National Engineering Center of the University of the Philippines, the responsibilities of assisting in the planning and conduct of short courses in engineering subjects (particularly those which are energy-related) have made me realize the fruitfulness of my attendance to the TAET program of Fall 1981.
5. Yes, in projects which consist of programming short courses geared for government and industry personnel, academicians, private personnel, entrepreneurs and others in the technical field. Under the subject renewable energy, we had conducted courses in biomass energy technology, solar power, hydroelectric power plants, energy management and conservation, coal, conversion technologies, etc.
6. Yes.
Presently I am actively involved either as project officer, project coordinator or project manager in a number of training programs which our office co-sponsors with the Philippine Ministry of Energy. These are mostly in the fields of energy management and conservation and energy resource development.
7. Yes.
Not only for me, but the office where I am presently connected with would surely be willing to help you out in this matter. This may be in the form of assisting you in the preparation, invitation of participants and resource persons as well as the actual implementation of the training program.
8. National Engineering Center as a Senior Research Assistant and in-charge of the Continuing Engineering Education Group.
9. Same as in No. 8.

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3. Gasification
Solar radiation measurement
Economic analysis
Project planning
- Wind resource measurement
Wind-electric systems
Wind-pumping systems
4. My present work largely comprises of conducting techno-economic studies and long-range planning for renewable energy technologies. As part of this, the center is presently implementing a host of nonconventional energy projects with four (4) different technology programs (on gasifiers for boilers, ricemills and iceplant, pyrolysis, stirling engines and fuel substitution) on ready proven and reliable technologies for specific applications. The knowledge I gained from the TAET program have definitely been very instrumental in my evaluation of the feasibility of certain technologies on a general and specific basis. Technical know-how on gasification, measurement of wind and solar radiation as well as their translation to usable energy have thus been always behind my day-to-day activities.
5. YES. Among the renewable energy project activities I have been involved with are the following:
 - a) Plans for Commercialization of Selected Noncon Technologies--This specifically involved drawing up of detailed plans for the commercialization of eleven (11) selected noncon technologies by establishing the readiness of the systems under study from the standpoints of technological viability, market demand and financial feasibility and subsequently developing a marketing plan for each.
 - b) Assessment of the Potential for the Utilization of Biomass Resources in the Philippines--still on-going, this project primarily aims to provide baseline data on the production and utilization of selected biomass resources in selected survey areas for logistical studies on biomass fuel transport system. I took part in the conceptualization and preparation of the project package.
 - c) Long-Range Biogas Program--a program prepared for the Nonconventional Resources Division (NCRD) of the Ministry of Energy by the undersigned and a colleague, the program package was designed at accelerating the application and utilization of biogas technology in key industries throughout the country. Specifically, it aimed at firming up assumptions on the technical and economic viability of biogas and ancillary technologies adopted to local conditions, formulate government intervention schemes to effect wider acceptance of the technology and facilitate appropriate participation of the private and public sectors.

d) Technology Program on Gasifier for Ricemill Applications--This is presently being implemented by our center (on a private entity's viewpoint) with the end in view of utilizing ricehulls as fuel for gasifier systems as retrofit to existing ricemills. As of the first semester of 1984, the program had initiated producer gas system designs incorporating results of market, economic and technical studies. The program's target highlights for 1985 are:

1. Laboratory performance data gathering and analysis using both loose and densified ricehulls
2. Pilot plant operation for both loose and densified ricehulls taking into consideration actual operating conditions of the ricemill
3. Pre-feasibility studies using actual field operation data
4. Preliminary market development through the conduct of seminars/training for possible end users.

e) Aside from the foregoing, I am continuously monitoring and participating in the implementation of other projects being implemented by the center and these include: "Medium-Scale Wind Energy Systems", Gasification of Densified Ricehulls", "Analysis of Solar Water Heating Systems", and "Noncon Public Promotions and Information Program". Most of my involvement here are on techno-economic aspects.

6. Yes.

As part of our implementation of the technology program on producer gas for ricemills, we coordinate with our marketing and research people on the different inputs needed for the effective realization of the program objectives. We therefore constantly brief one another on the results and principle of our respective areas of work. For the latter part of 1984 and the whole of 1985, we shall be involved with preliminary market development which largely constitutes conduct of seminars and training programs for would-be users. I shall be directly involved with this.

7. Yes.

Our center is one of the country's leading reasearch arm for renewable energy technologies. Through the years, we have thus established linkages, both institutional and otherwise, developed/maintained facilities enabling us to conduct seminars both in-house or otherwise and have gained the expertise in so far as logistics and coordination needed for such programs are concerned. I, personally, can assist in the coordination and presentation of the program, in coordination with our marketing people.

8. The Nonconventional Resources Division (NCRD) of the Ministry of Energy's Bureau of Energy Development as a Chemist/Analyst working with the Technology Assessment Section.

9. The Philippine National Oil Company's Energy Research and Development Center as an Analyst working with the Project Monitoring and Evaluation Section.

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Xavier University, Cagayan de Oro City, Philippines

Telephone: 48-81

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|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Charcoal Production | Wind-pumping systems |
| Improved stoves | Refrigeration, A/C |
| Direct combustion | Hydropower |
| Energy conservation | Economic analysis |
| Fuel alcohol production | Project Planning |
| Solar thermal systems | |
| Solar crop drying | |
| Solar radiation measurement | |

I think that the fieldtrips to the various energy installations and the individual/group projects were very important.

4. The knowledge and the skills that I gained from the program became the materials for my physics teaching. Later when I joined Xavier University's Extension Service, I was able to apply my training more concretely to village situations where I worked with other extension service workers in many energy-related projects. When I joined the Appropriate Technology Center of the College of Agriculture of Xavier Univ., my work became almost totally involved with alternative energy technologies.
5. I made the designs and supervised the constructions of a solar distiller, a solar water heater, a biomass digester for the Regional Science Teaching Center at the Notre Dame of Marbel College in the southern part of the Philippines.

I have been involved in the simplification of the coconut oil processing methods so that the manufacturing process becomes affordable by the village cooperatives.

There are two village projects that dealt with diverting water from upstream so that the water can be used for irrigation and paddy cultivation. The design of these diverted water canals included provision for enough water head so that water can be used to drive a rice mill.

I also have been engaged in crop drying activities. Foremost of these is solar drying fruits for preservation, drying coconuts for oil extraction, and in flue drying tobacco for cigarette processing.

6. Yes.
Training occupies half of my work now. First, I advise senior college students on their theses, most of which are in alternative technologies. Second, the extension component of my work requires that I go out to the villages and demonstrate to them the use and operation of alternative technologies. Third, in the Appropriate Technology Center, we run Small Farmers' Classes in which alternative energy technologies comprise one of the staple offerings. Fourth, I get invited by several groups to train appropriate or alternative energy technologies.

7. Yes.
The Appropriate Technology Center has facilities for training in alternative energy technologies. We had been doing these to small farmers locally and nationally. WE also service the Southeast Asian Rural Social Leadership Institute (SEARSOLIN) that train rural leaders for Southeast Asia, India, Sri Lanka, Bangladesh, Africa, and the Pacific on their training needs for appropriate and alternative technologies. Since by now I have extensive experience both in local and regional trainings, I think I am able to assist in the coordination or presentation of the program.
8. Before I attended the program, I worked as a college physics instructor at Xavier University. The job involved routine lecture/laboratory teaching of basic physics principles.
9. Now I work for the Appropriate Technology Center of the College of Agriculture, Xavier University as the research and publication officer of the Center. My work involves design and fabrication/testing of equipment, training and extension work.

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|-----------------------|----------------------|
| 3. Biogas technology | Wind-pumping systems |
| Gasification | Geothermal energy |
| Charcoal Production | Stirling engines |
| Improved stoves | Refrigeration, A/C |
| Solar thermal systems | Hydropower |
| Solar cookers | Economic analysis |
| Solar crop drying | Project planning |

I think that among these technologies the Stirling engine has the greatest promise for making Third World communities energy self-reliant and is compatible to a development strategy for rural economic growth through rural industrialization and use of machinery. Improved stoves are important for saving on biomass fuel. Solar crop drying is practical. Gasification needs to be developed some more to be practicable for widespread use. When emphasis is given on biomass energy technologies, it must always be accompanied by a massive forestry program although wastes may be utilized. Wind-pumping systems, geothermal energy and hydropower are site-specific.

I think the lectures on economic analysis and project planning were deficient. Practical exercises on the preparation of project proposals will provide better learning. Also, project management should be added as a new element of the future training program.

4. 1. I implemented renewable energy projects--particularly biomass gasifiers for various applications (different sizes of engines fuel-fed with producer gas and large gasifiers for direct heating in dryers and kilns).
2. I wrote papers and delivered lectures on the use of renewable energy technologies for rural areas and for appropriate industries.
3. The training provided the proper technical background which enables me to identify renewable energy technologies that are viable for widespread utilization in the Philippines--and relate the use of these technologies with our national development strategies. (The present thrust is called "Balance Agro-Industrial Development Strategy".)
5. Yes. My most recent position is Acting Research & Development Manager of the Gasifier and Equipment Manufacturing Corporation--a promotion from being formerly Product Development Supervisor. In this capacity, I have carried out research, development, testing, pilot installation and monitoring of gasifiers of different sizes and applications (both for engine fuel provision and for direct heating of dryers and kilns).

At this time, I am preparing a master's thesis entitled "Renewable Energy Technologies for Rural Mechanization: A Strategic Approach to Philippine Development." I have been conducting a survey of farm equipment/machinery that could be powered with renewable energy technologies and have been trying to determine what private firms and government agencies could be organized/coordinated to carry out a rural renewable energy program.

6. Yes.

From the time I arrived from the training, I have been considered as the expert on alternative energy technologies at our Office. In all the office trainings conducted since then, I was always called to be the main lecturer on this topic and on energy policies and strategies.

I have written a number of technical papers:

1. "Energy Situation and Technologies"
2. "The Philippine Experience in Gasifier Technology"
3. "Do's and Don'ts in Gasifier Operation"
4. "Gasification - Its Potential in the Energy Conversion of Rice Hulls" etc.

7. Yes, I can take the following roles:

1. Present a paper on "Renewable Energy Technologies for Rural Mechanization: A Strategic Approach to Philippine Development", putting emphasis and detail on how a rural renewable energy program fits into the national development strategies of the Philippines and how this program can be carried out.
2. Coordinate with organizations that are likely to participate in this training program--agencies of our Ministry of Energy (like its Energy Research & Development Center), our Ministry of Agriculture & Food, the University of the Philippines, etc.

8. I was with the Gasifier and Equipment Manufacturing Corporation and was then Product Development Supervisor, and concurrently Coordinator for Corporate Planning.

9. I am presently studying full-time for a degree in Master of Urban and Regional Planning at the University of the Philippines, and expect to complete the course by early October, 1984.

My last employment position was Acting Research and Development Manager of the Gasifier and Equipment Manufacturing Corporation.

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Butare, Rwanda, Africa

Telephone: 302

3. Solar thermal systems

Photovoltaics
Refrigeration, A/C .

4. I attended the first session which ended July 1980. Back home, I was elected a Director of the Center of Study and Applications of Energy in Rwanda. In this position, I have made many projects on solar water heaters, PV planning. One year later, I was appointed in another position non-related with energy. Anyway, the training was very useful and I hope to use later the techniques learnt in Gainesville.

5. Yes.

1) A project of water heating: 9 m³ of storage tank with 25 m² of useful area. I have designed the project and put it on in February 1981. That heater is supplying hot water in a hotel in Rwanda.

2) As Director of the Center described above, I was in charge of supervision of the whole activities (biomass, solar, micro-hydro, wind).

6. No.

7. Yes.

I would be ready to speak about some results in solar activities in Rwanda and give some advice in project conducting. Moreover, I could be useful in contacts local authorities in view of some facilities.

8. I was a researcher in the Centre for Study and Application of Energy in Rwanda, a center of the National University of Rwanda.

9. I still work for the National University of Rwanda as Secretary General.

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C.E.A.E.R. P.O. Box 117
Butare, Rwanda

3. Biogas technology
Solar thermal systems
Solar crop drying

Field trips: Morning Star Factory; farmer's biogas plant in Washington, D.C.

4. The gained knowledge from the TAET program helps me in my job as a researcher. I use it directly for designing systems using solar energy. I need it also to promote existing devices and improve them (in using local materials, in improving efficiency). It allows me to make better choices in energy planning in my country.
5. Yes. I am the manager of the Rwandan (C.E.A.E.R.) improved stove program. I work on solar crop and fish driers.
6. Yes.
I actively participate in different seminars organized by the C.E.A.E.R. staff. I trained masons on improved stoves' building and using.
7. Yes.
In our center, our government sends people for training. I am usually requested to give lectures and seminars. I teach also physics in the National University of Rwanda. From that experience I hope to be willing to assist that kind of program.
8. In National University of Rwanda. I am a researcher in C.E.A.E.R. (Centre d'Etudes et d'Applications de l'Energie on Rwanda).
9. The same.

NAME: Ibrahima Lo
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3. Biogas technology
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Wind resource measurement
Wind-pumping systems
Refrigeration, A/C
Hydropower
Economic analysis
4. We have many research programs and projects which require all the knowledge I gained from TAET program.
5. Yes, a biogas project.
We expect to produce 5 m³/day of methane. This gas will be used in a cooking stove, a lamp (for lighting), a motor. The residues will be used by farmers for growing vegetables.
6. No.
7. Yes.
With my 4 years experience and all the training I have attended, I think I will do this task right.
8. I worked for C.E.R.E.R., Center for Renewable Energy Research and Study. I was responsible of department of solar drying program.
9. I still work for the same organization and my position is the same but now I am involved in other programs such as biogas, photovoltaics and solar house.

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|-----------------------------|---------------------------|
| 3. Gasification | Photovoltaics |
| Fuel alcohol production | Wind resource measurement |
| Solar radiation measurement | Refrigeration, A/C |
| | Economic analysis |
| | Project planning |

Field trips

4. I use the knowledge from the program by participating more effectively to the research program in our center.
5. I remain responsible of the project I was carrying out before attending the program.
6. Yes.
So often if special informations on renewable energies are needed, people refer to me. I have also participated to seminars for giving lectures on renewable energies topics.
7. Yes.
I will ready to give a lecture on renewable energy applications in developing countries (water pumping, wind and solar potential evaluation).
8. I was working (am still working) in the Center of Research and Studies on Renewable Energies of the University of Dakar. I am responsible of two programs: 1) solar and wind data evaluation for Senegal; 2) scientific and technical following out of solar installations in Senegal.
9. The same.

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|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Charcoal Production | Wind-electric systems |
| Improved stoves | Wind-pumping systems |
| Solar thermal systems | Stirling engines |
| Solar crop drying | Hydropower |
| Solar radiation measurement | Economic analysis |
| | Project planning |
4. At present I am greatly involved in Improved Stove dissemination. The training was great helpful because I acquired an in-depth knowledge of theories of combustion and heat transfer. I am also working on Wind Mills for pumping water and on Solar Pumps. I am doing site surveys for site selection and doing economic analysis for operating costs and end use matching. The training was very useful, since I can now view a technology from different and diverse angles.
5. I am now technical director in the project I am working with. The main program of the project is National Cookstove Program and I am in charge of all the technical matters.
6. Yes.
After my return I was giving occasional presentation on what I gained from the training to the staff of the project on different technologies in my country. Slide show of pictures obtained from the field trip were great help in my presentations.
7. Yes.
I can make contacts required with the officials of the country and give best of help I am capable of giving.
8. Volunteers in Technical Assistance (VITA). My position was Research Assistant.
9. Volunteers in Technical Assistance (VITA). My position is Technical Director.

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3. Gasification
Energy conservation
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
- Wind-electric systems
Stirling engines
Refrigeration, A/C
Economic analysis
Project planning
4. In my subsequent R & D activities and energy planning activities.
5.
 1. Solar devices for crop drying
 2. Solar water heaters
 3. Solar cookers
 4. Wood gasifiers
 5. Wind driven battery chargers
6. No.
7. Yes.
I could deliver lectures on solar thermal energy, economics of energy conservation, wind energy and wood gasification. I also can assist in the planning and conducting the programme.
8. National Engineering Research and Development Centre.
I was Principal Research Engineer.
9. Same as 8.
I am now the General Manager.

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St. Lucia, West Indies

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3. Biogas technology
Charcoal Production
Energy conservation
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Wind-electric systems
Geothermal energy
Hydropower
Economic analysis
Project planning
4. Knowledge gained is assisting the Central Planning Unit with the evaluation of the choice of technologies. In all cases the discussions arrived at are then submitted to Government through the Cabinet.
5. 1) Wind Powered Chill Room Project - for temporary storage of fish in one of the fishing villages.
2) The Geothermal Development Project - coordinated the deep resistivity test by Los Alamos National Laboratory of New Mexico.
3) Advising the Central Planning Unit on matters related to the possibility of establishing an OTEC demonstration plant in St. Lucia.
4) Coordinating activities related to biogas projects in one of the villages.
6. No. This activity should be starting soon.
7. Yes. Most of my work within the Central Planning Unit involves coordination of projects and programs in the fields of renewable energy technologies.
8. The Energy Unit (Central Planning Unit) in the Ministry of Finance and Planning.
9. Same as above.

NAME: Ahmed Abasaheed
ADDRESS: Chemical Engineering Dept.
Auburn University
Auburn, AL 36849

Telephone: (205) 821-8597

- | | | |
|----|-----------------------|--------------------|
| 3. | Biogas technology | Photovoltaics |
| | Solar thermal systems | Refrigeration, A/C |
| | Solar cookers | |

Atmosphere under which the whole program was conducted. Sharing ideas with different people from different backgrounds and countries. That direct contact, I believe, was invaluable. This element can't be fully appreciated unless one really lives and experiences it.

4. It broadened my scope to renewable energy resources. It gave a better understanding as to how these systems work, how to apply them, how to improve them and what possible research that could be done.
5. No. As I came back to U.S. for graduate studies in biomass area.
6. Yes.
I spent 6 six in Sudan before coming back to U.S. During this period we had quite a number of discussions in an attempt to convey to our people what we had learned here in the program. That discussion had opened new avenues for research in my institute.
7. Yes.
If it happened while I am in Sudan I will more than willing to help in any form I was asked to.
8. I was working in the National Council for Research, Institute of Energy Research. At that time I was a research assistant.
9. Same organization, promoted to researcher position and sent back to U.S.A. for graduate studies.

NAME: Abdelsalaam Ahmed Abdelsalaam
ADDRESS: P.O. Box 2649, National Energy Administration
Khartoum, Sudan, Africa

Telephone: 73315

- | | |
|-----------------------------|---------------------------|
| 3. Biogas technology | Wind resource measurement |
| Gasification | Economic analysis |
| Solar crop drying | Project planning |
| Solar radiation measurement | |

All practical work.

Lectures in Biomass resources in developing countries (Dr. Foley).

4. - Participating now in producing co-report in wind and solar measurements.
- Constructing of biogas units. (We are building now a unit alone and about to finish; I will provide you with more news on that matter.)
- Supervising operation of gasifier which are bought from Kenya and we are trying to test it and run it.
- Use of economic analysis in writing reports.
5. All my work is concerned with renewables.
- Introducing of groundnut shells as a source of energy in household sector.
- Biogas project (building of units).
- Gasification project (experimental).
- Assesment of wood fuels consumption in industry.
- Improved charcoal stoves.
6. Yes.
Explain to people the principles of biogas technology: how they can build units. Nowadays many people are interested in this technology.
7. Yes.
I would prefer to participate in the coordination and can advise on the topics and issues to be addressed and to organize for selecting of participants and recommendation for areas which can be visited inside the country.
8. National Energy Administration
Position: Head of Biomass Section
9. National Energy Administration
Head of Biomass Section, Coordinator in other projects
- Biogas project
- Woodfuel consumption project
I am taking full responsibility of these two projects.

NAME: Egbal Elsadig M. Ahmed
ADDRESS: National Energy Administration
P.O. Box 2649
Khartoum, Sudan

Telephone: 77208

3. Biogas technology
Gasification
Charcoal Production
Improved stoves
Direct combustion
Energy conservation
Solar thermal systems
Solar crop drying
- Wind resource measurement
Wind-pumping systems
Geothermal energy
Stirling engines
Refrigeration, A/C
Hydropower
Economic analysis
Project planning
4. The program is covering the different renewable energy technologies excellently so that we studied the different available tech. and we had the chance to see these technologies in practice. During my work in energy planning in the Ministry of Energy, it is easy for me to deal with the different energy data and its analysis. Also I got acquainted with technology so I can follow the on-going researches and make use of it.
5. I joined energy assessment project in Sudan, specially renewable energy technologies. The training help me a lot in my work specially in dealing with collection and analysis of the data. I worked in improvement of charcoal stove. I worked in gasification project phase I survey of the resource (feeding material) plus technology survey in W. Germany.
6. No.
7. Yes.
I have four years of experience in dealing with energy sector. I have got the idea about activities abroad beside our own activities in Sudan. My work in different project help me to collect a lot of information and allowed me to deal with different problems in energy. I think I have a lot of problems to raise, many things to discuss, and a lot of questions to ask?
8. When I attended the program I have been working in National Energy Administration, Ministry of Energy and Mines, Khartoum, Sudan.
9. I am still working in the organization. My position is energy planner.

NAME: Mohamed Fawz Mohamed Ali
ADDRESS: National Energy Administration
P.O. Box 2649
Khartoum, Sudan

Telephone: 77208

- | | |
|-----------------------------|---------------------------|
| 3. Gasification | Photovoltaics |
| Solar thermal systems | Wind resource measurement |
| Solar radiation measurement | Geothermal energy |
| | Hydropower |
| | Economic analysis |

The Ocean Thermal Energy Conversion was very interesting.

4. Before I attended the program I didn't have a clear idea about what alternative energy sources are nor whether they are really feasible or implementable. Now in my job as a planner for different energy aspects for the different regions of my country, I can better evaluate the potential of the alternative energy resources and I am better equipped to judge which technologies are suitable for which areas.
5. I have been involved in the evaluation of gasifiers as a potential energy source for running irrigation pump engines of two large agricultural schemes. On the whole the gasifiers now don't look very suitable compared to other sources but they can be considered at some time in the future.
6. No.
7. Yes.
I would be willing to assist in such a program and my organization would not object to my working in a program like that because it is part of our objectives to disseminate energy awareness and knowledge.
8. I was working for the national energy administration of the ministry of energy and mining as the regional energy planning section head. I am still with the same administration in the same position.
9. NEA of the Ministry of Energy and Mining. My position is Regional Energy Planning section head.

NAME: Elsheikh Elmagzoub M.A. Magzoub
ADDRESS: Mechanical Engineering Department
Faculty of Engineering and Architecture
University of Khartoum
Khartoum, Sudan

- | | |
|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Gasification | Wind resource measurement |
| Charcoal Production | Wind-electric systems |
| Improved stoves | Wind-pumping systems |
| Solar thermal systems | Geothermal energy |
| Solar cookers | Stirling engines |
| Solar crop drying | Refrigeration, A/C |
| Solar radiation measurement | Hydropower |

Field trips.

4. We started a diploma/M.Sc. programme in Renewable Energy Technologies in our Mech. Eng. department. I lectured in Energy Conversion in the first semester and I will be teaching solar energy courses in the second semester which will start on Sat. 25th August 1984. The TAET programme has given me the confidence to do this job and for sure I will benefit from the handouts given to me by the TAET staff in the teaching duties I carry out. This programme is sponsored by USAID (Khartoum).
5. Not really; but I shall supervise some undergraduate projects in improved brick stoves, solar ovens and cookers. The final year undergraduate session would start on October 1984.
6. Yes.
Since my nature of job is to train and provide information to students, I am involved in such activities.
7. Yes.
As I said earlier, we are running a Diploma/M.Sc. course in the Dept. of Mechanical Engineering, University of Khartoum. Actually this course is sponsored by USAID and the students (about 10 of them) would go to University of New Mexico, USA, for a 6-month period starting January 1985. I am lecturing and supervising a project in solar air drying in this course. If a short course is to be conducted, sure I will be glad to offer the assistance I am asked to do.
8. When I attended the program, I am working as a lecturer in the Mech. Eng. Dept., Faculty of Eng. & Arch., University of Khartoum, Sudan.
9. Still in the same post and organization.

NAME: Francis J. Mkwawa
ADDRESS: Capital Development Authority
Box 913
Dodoma, Tanzania

Telephone: 23311/9

Telex/cable: 53177/MJI MKUU

- | | |
|-----------------------------|-----------------------|
| 3. Gasification | Photovoltaics |
| Improved stoves | Wind-electric systems |
| Energy conservation | Wind-pumping systems |
| Solar thermal systems | Hydropower |
| Solar cookers | Economic analysis |
| Solar crop drying | Project planning |
| Solar radiation measurement | |

Exchange of information between participating members.

4. A. To improve the design and therefore the performance of charcoal stoves
B. To give advice to planners and decision makers on alternative energy technologies.
5. A. We are at the moment engaged in a major afforestation program. The aim of this program is to plant 20,000 ha. of trees which will provide firewood and charcoal to the city within the project is completed.
B. Construction and propagation of improved metal charcoal stoves.
6. No.
Note: I give advice to high school students on how to construct solar cookers and solar water systems.
7. Yes.
But I will be only limited to wind, biomass and solar energy (direct) as we are in a semiarid region. Therefore have very limited alternatives.
8. I was working with the Capital Development Authority as an Environmental Management Officer - Energy Division.
9. I am still with the Capital Development Authority - Energy Division as a Senior Environmental Management Officer.

NAME: Mpiguzi K.S.N. Nilla
ADDRESS: Tanzania Petroleum Dev. Corp.
P.O. Box 2774
Dar-es-Salaam, Tanzania

Telephone: 20773/24285 Telex: 41219 PETROL Cable: PETROL or MAFUTA

- | | |
|-------------------------|----------------------|
| 3. Biogas technology | Wind-pumping systems |
| Gasification | Economic analysis |
| Energy conservation | Project planning |
| Fuel alcohol production | |

Emphasis should be put on energy conservation (energy audits) as this part might have a substantial impact on the economics of the envisaged project. So more lectures on the subject should be incorporated.

4. The knowledge gained from the program helped me to correlate the possible shift from the conventional fuels to alternative energy sources. For example, during my countryside visit (in Aug. 1984) to various petroleum products users it was very easy one industry which produces edible oil from cottonseeds to run its boiler using the cotton husks instead of using IDO (industrial diesel oil).
5. No.
6. No.
7. Yes.
I will be willing to assist in the coordination of the training program. Since I work in the conventional energy sector it will be easy for me to convince the conventional energy users that the alternative energy sources are as good as the conventional ones. This easy to do bearing in mind of the ample knowledge I gained at the TREEO centre.
8. I was working with Tanzania Petroleum Development Corporation (TPDC) as a Process Engineer, mainly charged with projects appraisal and development in the petroleum and petrochemical sector. Also to try to find out energy recovery strategy in the existing plants.
9. I am still working with the same organization (TPDC) with the same position (Process Engineer).

8. I have been with EGAT since 1972. My present position is Chief of Special Energy Division, responsible for all the activities in alternative energy & technology which have been conducted by EGAT.

EGAT is the abbreviation of Electricity Generating Authority of Thailand. As a state enterprise, EGAT is responsible for generating and distribution of bulk electrical energy serve the whole country via the other two distributors namely Metropolitan Electricity Authority (MEA) and Provincial Electricity Authority (PEA).

9. Still working in the same organization and same position. Attached herewith is a copy of our latest annual report which may be of some interest to you.

NAME: Frederick T. Sumaye
ADDRESS: CAMARTEC
P.O. Box 764
Arusha, Tanzania

Telephone: Arusha 3594

Telex/cable: 42126 Airship
(Att. CAMARTEC)

- | | |
|-----------------------------|---------------------------|
| 3. Biogas technology | Photovoltaics |
| Energy conservation | Wind resource measurement |
| Fuel alcohol production | Wind-pumping systems |
| Solar thermal systems | Stirling engines |
| Solar cookers | Refrigeration, A/C |
| Solar crop drying | Economic analysis |
| Solar radiation measurement | |
4. To continue development of appropriate technology devices.
 5. I am still working on biogas development project. We are designing and spreading the technology into the rural areas. We have fixed dome plants and floating dome plants on both the Indian and Borda designs. I am also working on solar energy devices mainly for water heating and crop drying. I am also interested to establish a solar radiation measurement and wind data recording station. (We are looking for funds for this activity.)
 6. Yes.
Short training to village artisans in the projection of water pumps, biogas plant construction and rural transport equipment, e.g. oxcarts.
 7. Yes.
I will be willing to help in any capacity that I will be asked to perfect. Ability depends on the specific area or item required. But I am willing to do the necessary coordination and program presentation and will be very happy to be involved.
 8. I was working for Arusha Appropriate Project, as a technical coordinator, i.e. head of technical department.
 9. Centre for Agricultural Mechanization and Rural Technology, CAMARTEC. I am Technology I and in charge of Rural Technology Department.

NAME: Mr. Iskander J. Tenga
ADDRESS: Small Industries Development Organization
P.O. Box 2476
Dar es Salaam, Tanzania

Telephone: 27691 or 24015

Telex/cable: 41123 SIDO

3. Biogas technology
Gasification
Energy conservation
Solar thermal systems
Solar cookers
Solar crop drying
Solar radiation measurement
- Wind resource measurement
Wind-pumping systems
Geothermal energy
Economic analysis
Project planning
4. After attending the programme, I returned back to my employers M/S Small Industries Development Organization. I was promoted to the post of Projects Supervision Manager and am responsible for projects planning and implementation. The projects under my control include those of renewable energy technologies; therefore the programme proved to be a very useful tool for the dissemination of renewable energy technologies in Tanzania.
5. Yes.
 - 1) Have participated in constructing three biogas projects right from designing, planning and implementation.
 - 2) I am currently supervised design and proto-typing two flat plate solar collectors for domestic hot water systems.
6. Yes.

Some informal training has been imparted to the beneficiaries of the projects mentioned in item (5) of this questionnaire.
7. Yes.

I would be willing to give a presentation on the techno-economic aspects of biogas digesters, gasifiers and hot water solar systems.
8. I was working with the Small Industries Development Organization. My position was that of Technical Officer.
9. I am still working with SIDO but have now been promoted to a post of the Projects Supervision Manager.

NAME: Mr. Chaya Jivacate
ADDRESS: Special Energy Division
Energy Technology Department
Electricity Generating Authority of Thailand
Bangkruai, Nonthaburi, Thailand

Telephone: 4248043

Telex/cable: 82711 TH

- | | |
|-----------------------------|---------------------------|
| 3. Energy conservation | Photovoltaics |
| Solar thermal systems | Wind resource measurement |
| Solar radiation measurement | Wind-electric systems |
| Geothermal energy | Economic analysis |
| | Project planning |

We have found those selected programs very useful since they are just what we are doing here in EGAT regarding the alternative energy & technology activity.

4. The knowledge gained from the TAET program have been very helpful in motivating our staff to be more active and also in convincing the administration...resulting in a more meaningful support on some of our alternative energy & technology programs.
5. A number of alternative energy & technology programs have been initiated and pursued since the past few years. They may be grouped as follows:
 - Exploration of geothermal energy for possible power generation (North Thailand).
 - Demonstration, test and data collection & processing of solar (PV and Thermal) and wind turbines for possible small scale power generation (various places in Thailand).
 - Setting up of energy lab and related facilities to support field work activities.
 - Evaluation of processed data in order to back up any future proposal... should the results be encouraging.
 - Providing information to the public, participating in working group meetings, seminar, exchange of information, etc., regarding the alternative energy technologies.

Some of the projects are under cooperation with foreign countries.

6. Yes.
Progress reports, leaflets, pamphlets, films, video tapes etc. have been prepared, distributed and shown quite often to people, both inside and outside our office.
7. Yes.
Judging from the level of support granted to us I have reason to believe that our superior(s) will be more than willing to allow any of us, if requested, to assist in the coordination or presentation of a short training program. As a matter of fact, our contribution can be quite considerable regarding our practical experiences and those data we have collected and processed during the past few years.

NAME: Mr. Thaveesakdi Keowsim
ADDRESS: Department of Physics
Faculty of Science
Khon Kaen University
Khon Kaen 40002, Thailand

3. Biogas technology
Gasification
Solar thermal systems
Solar radiation measurement
Photovoltaics
Wind resource measurement
Geothermal energy
Stirling engines
Hydropower
Project planning
4. I used the knowledge that I gained from the program in teaching our courses to our students. I supervised special problems in energy to my students.
5. None.
6. Yes.
Teaching Courses on Solar Energy to science students and engineering students.
7. Yes.
I can assist in topic of photovoltaics.
8. Organization: Khon Kaen University
Position: Lecturer in Physics
9. Organization: Khon Kaen University
Position: Lecturer in Physics
Dean, Faculty of Science

NAME: Mr. Songkeat Limsiri
ADDRESS: Special Energy Div.
Electricity Generating Authority of Thailand
Nonthaburi, Thailand

Telephone: 4248043

Telex/cable: 82711 EGAT TH

3. Energy conservation

Photovoltaics
Geothermal energy
Economic analysis
Project planning

Dendrothermal Power Plant

4. I used the information, knowledge, technical data to apply with the EGAT Renewable Energy Proejcts.
5. I have been assigned in feasibility study on small scale photovoltaic project, the geothermal project and other energy projects.
6. Yes.
I have been involved in providing information in my office on both formal and informal basis.
7. Yes.
I may assist in the coordination or presentation about feasibility study on renewable energy project.
8. Special Energy Div. Electricity Generating Authority of Thailand. My position is Head of Fossil Fuel Section and is responsible for feasible study on renewable energy.
9. The same in 8.

NAME: Mr. Kiaticchai Patikonsin
ADDRESS: Energy Technology Dept.
Electricity Generating Authority of Thailand
Nonthaburi 11000, Thailand

Telephone: 4248043

Telex/cable: 82711/EGAT NONTHABURI

3. Energy conservation
Solar thermal systems
Solar radiation measurement
- Photovoltaics
Wind resource measurement
Wind-electric systems
Geothermal energy
Economic analysis
Project planning
4. Knowledges and experiences gained from the TAET program broaden my idea in designing and data-processing of renewable energy system which are very useful to evaluate the utilizing of renewable energy system in electricity generation in Thailand.
5. Yes, I have been assigned to take part of data processing and analysing of renewable energy projects in EGAT, eg. PV, wind and solar thermal energy projects.
6. Yes.
I have been assigned to give lectures on "Advanced Energy Technology" at King Mongkut's Institute of Technology Nonthaburi Campus (Thailand) and occasionally give short seminars (in Thai) on general description of wind energy system and wind energy activities in EGAT.
7. Yes.
I very much believe that my boss is willing to allow me to assist in the program. As a matter of fact, as I have mention on questionnaire no. 6 I have done such a matter from time to time.
8. I was working for EGAT and my position was First-level Engineer.
9. I still work for EGAT and my position is now Asist. of Technical Information Sect. and Second-level Engineer.

NAME: A. Phanumphai
ADDRESS: Ramkamhaeng University, Faculty of Science
Bangkok 10240, Thailand

Telephone: 314-2693

3. Fundamental sciences of all.
4. - Teaching "Energy Technologies for Society" with my own text that I had organized myself in Thai for my Thai students. (It is available if wanted.)
 - Doing research in solar thermal systems.
 - As a background toward receiving a scholarship to further my study in this field.
 - Writing articles.
5. Yes. I have been responsible for the life-long study project of Education Faculty in the technology part. Also, under grant-aided program for Ph.D. in France in 1982 by the French Government and would be continued at A.I.T., Bangkok, Thailand, in solar energy.
6. Yes.
As mentioned in 4 and 5.
7. Yes.
I would provide some related paper or arrange a place and fund for the program.
8. Department of Physics, Faculty of Science
Ramkamhaeng University as an assistant professor
9. Department of Physics, Faculty of Science,
and Department of Life-long Study,
Faculty of Education,
Ramkamhaeng University as an associate professor

NAME: Dr. Boonsong Siwamogsatham
ADDRESS: Faculty of Industrial Education and Sciences
King Mongkut's Institute of Technology Chaokhun
Taharn Ladkrabang Campus
Ladkrabang, Bangkok, Thailand

Telephone: 5250824

3. Biogas technology
Energy conservation
Solar thermal systems
Solar crop drying
Solar radiation measurement
- Photovoltaics
Stirling engines
Refrigeration, A/C
Hydropower
Economic analysis
Project planning
4. I used the knowledge to organize a laboratory and research facilities for alternative energy technology in the department of Applied Physics, KMIT Ladkrabang campus.
5. Yes, I have been working on a project "Solar Radiation Measurement at Ladkrabang."
6. I have been involved in training activities providing information about renewable energy to my staff and my students on an informal basis.
7. No.
8. I was working for King Mongkut's Institute of Technology. My position was Dean of the Faculty of Industrial Education and Sciences.
9. I am now working for the same organization and the same position and No. 8.

NAME: Mohamed Ezzedine Khalfallah
ADDRESS: 42 Rue Apulee Notre Dame
Tunis, Tunisia

Telephone: 783 233

Telex/cable: 12 128

Biogas technology	Geothermal energy
Fuel alcohol production	Refrigeration, A/C
Solar thermal systems	
Solar cookers	
Solar radiation measurement	

Heat load calculation; sizing solar systems.

4. I used the knowledge that I gained from this program by participating in different works and studies concerning the formation, the development and the utilization of new and renewable energy in Tunisia.
5. Yes.
 - 1) Project of heating ETAP Building by Solar Energy. The study examines the calculation of the building heat load, the conception, the sizing and the economic feasibility of using solar heating system.
 - 2) Project on fuel alcohol production from date scraps. The required production is about 2000 tons/year of anhydrous alcohol and the installation consists of date treatment and syrup preparation; fermentation and filtration; distillation and dehydration.
 - 3) Project on Geothermal Energy. This project concerns the identification, evaluation and exploration of geothermal resources in the north regions of Tunisia.
6. Yes.

I have been involved in training activities not in my office only, but in other organizations such as Young Sciences Association, and National School of [?] Staff.

In my office I provide information by organizing seminars on renewable energy sources.

In the Young Sciences Association, as a member, I help the young in fabrication of solar projects and I [?] scientific camps on solar energy.

In National School of [?] Staff, I teach scientific activities founded on renewable energy.
7. Yes.

Of course I would be able to do this work since I have already the occasion to assist in consultation and presentation of some training programs which were conducted in my country.
8. When I attended the program I was working for ETAP organization (Tunisian Enterprise for Petroleum Activities) and I was a simple engineer.
9. Now I am working for the same organization, but I am a Departmental Manager responsible for economic studies, renewable energy and energy conservation.

NAME: Tanay Sidki Uyar
ADDRESS: TUBITAK Marmara Scientific & Industrial Research Institute
Mech & Energy Engr. Dept.
P.O. Box 21
Gebze - Kocaeli - Turkey

Telephone: 1st 5207376 Gebze 2300 Ext: 547-543 Telex/cable: 34123 mae tr

3. Photovoltaics
Wind-electric systems
Hydropower
Economic analysis
Project planning
4. I work in Mechanical and Energy Engineering Department of Marmara Scientific and Industrial Research Institute. We have projects in the alternative energy technologies field. I used my knowledge that I gained from the program by being a member in these project groups.
5. I am the manager of the project "Investigation of wind energy utilization options in Turkey".
6. I work in four project groups. In each group, I believe that I was able to make contributions on certain subjects and provide information by using the advantage of being trained in Florida.
7. Yes.
We believe that our facilities and research people working in the department would be able to assist in the coordination or presentaion of such a program. We are ready to consider any of your proposals.
8. I was working in Mech & Energy Eng. Department of Marmara Scientific & Industrial Research Institute as a Research Scientist.
9. I still work for the same organization. And now, I am a project manager.

NAME: Jose L. Perisse
ADDRESS: Apartado 51929
Caracas 1050-A, Venezuela

Telephone: (02)6612626 & 6616524

3. Biogas technology
Energy conservation
Solar thermal systems
Solar radiation measurement
Wind-electric systems
Refrigeration, A/C
Project planning
4. At the Universidad Central de Venezuela as professor and researcher. As adviser in architectural firms.
5. (no answer)
6. Yes.
See annex #1.
7. Yes.
It is possible to coordinate through the College of Architecture: space, administration, in general there is not problem. On the other hand, a training program here is going to be an extraordinary experience with too many people interested.
8. Universidad Central de Venezuela (U.C.V.)
Caracas - Venezuela - Professor
9. Universidad Central Venezuelas (U.C.V.)
Caracas - Venezuela
 - a. Professor in Conservation and Solar Energy
 - b. Researcher in the Energy area: conservation and alternative courses

TRAINING IN ALTERNATIVE ENERGY TECHNOLOGIES PROGRAM
PARTICIPANTS IN SESSIONS 1 THROUGH 9
(Number preceding name indicates session attended.)

Antigua

- 4 Mason, Philbert C.
Meteorological Office
Coolidge Airport
Antigua, West Indies
- 6 Pringle, Milton G.
Antigua Public Utilities Authority
P.O. Box 416
St. Johns, Antigua, W.I.

Bangladesh

- 1 Islam, Khairul
Physics Department
University of Florida
Gainesville, FL 32611
- 1 Mahtab, Mrs. Afiya
Institute of Fuel Research
and Development
Bangladesh Council of Scientific &
Industrial Research
Dacca, Bangladesh
- 2 Quaiyum, Mohammed Abdul
Nuclear Power & Energy Division
Bangladesh Atomic Energy Commission (BAEC)
P.O. Box 158
Ramma, Dacca-2, Bangladesh
- 2 Islam, Shafiul
Power and Natural Resources Division
Block No. 12, Room No. 5
Planning Commission
Sher-e Bangla Nagar
Dacca, Bangladesh
- 4 Ghulam Rasul, Muhammad
Room No. 5, Block No. 12
Planning Commission
Sher-e Bangla Nagar
Dacca, Bangladesh

as

Bangladesh (continued)

- 5 Muttalib, Abdul
Institute of Fuel Research & Development
Bangladesh Council of Scientific &
Industrial Research
Dacca 5, Bangladesh
- 5 Haque, Mohammed Naimul
Institute of Fuel Research & Development
Bangladesh Council of Scientific &
Industrial Research
Dacca 5, Bangladesh
- 5 Ud-Dowla, M. Rokon
Institute of Fuel Research & Development
Bangladesh Council of Scientific &
Industrial Research
Mirpur Road
Dacca 5, Bangladesh
- 5 Begum, Mrs. Nazma
Institute of Fuel Research & Development
c/o Dr. M. Eusuf, HRD & Officer-in-Charge
Bangladesh Council of Scientific &
Industrial Research
Mirpur Road
Dacca-5, Bangladesh
- 6 Ali, Md. Arshad
Research Officer (Technologist)
Institute of Fuel Research & Development
Bangladesh Council for Scientific
and Industrial Research
Dacca-5, Bangladesh
- 6 Hossain, Munshi Mohammed Golam
Institute of Fuel Research and Development
Bangladesh Council for Scientific
and Industrial Research
Dacca-5, Dhanmondi, Bangladesh
- 6 Mahmood, Mrs. Nishat
Renewable Energy and Research Section
Energy Division
Block 11, Room #12
Sher-e Bangla Nagar
Dacca, Bangladesh
- 8 Nahar, Mrs. Syeda Kamrun
Research Officer
Institution of Fuel Research & Development
BCSIR
Dhaka, Bangladesh

Barbados

- 2 Bourne, O. Carlyle
% The Home Salters
St. George, Barbados
West Indies
- 2 Singh, Jerome O.R.
Technology & Energy Unit
Caribbean Development Bank
P.O. Box 408
Bridgetown, Barbados

Belize

- 1 Smith, Douglas
National Meteorological Service
P.O. Box 717
Belize, Central America

Bolivia

- 1 Maldonado V., Ricardo
Instituto Nacional de Electrificación Rural
P.O. Box 6061
La Paz, Bolivia
- 1 Guerra-Fernandois, Jaime Rolando S.
Instituto de Investigaciones Físicas
Universidad Mayor de San Andrés
La Paz, Bolivia
- 4 Garcia-Ontiveros, Angel
Universidad Boliviana
P.O. Box 4722
La Paz, Bolivia
- 4 Urquidi-Moore, Marcelo
Centro de Tecnología Petrolera - YPFB
Casilla 727
Santa Cruz, Bolivia
- 6 Medina, Jorge Doria
Corporación Regional
de Desarrollo de Pando
Casilla 8648
La Paz, Bolivia
- 8 Wende, Rudolf
Corporación de las Fuerzas Armadas
de Desarrollo Nacional
P.O. Box 10023
La Paz, Bolivia

Brazil

- 3 Jaguaribe, Emerson
Laboratorio de Ennergia Solar
Campus Universitario
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