

PEACE CORPS TIMES



Meet Silvia,
Paraguay's
Prettiest Peccary



Focus—Paraguay

March/April 1986

From the Director

I receive many letters about the work that Peace Corps has done throughout our 25 years of service. Some come from former Volunteers, who through their careers in international development, are able to see the fruits of their labors many years later. I would like to share the following letter from RPCV/Ethiopia Walter North, now with the Agency for International Development.

"I was a Peace Corps Volunteer in Ethiopia between 1973 and 1975. Initially, I was an English teacher in a secondary school. Later, I worked with the Government's Relief and Rehabilitation Commission. This commission was established in response to a devastating famine.

In November of 1984, I went back to Ethiopia to set up an AID office to manage our emergency relief program. You can imagine my mixed feelings about returning to Ethiopia to yet another famine situation.

The grimness of the situation is well known. My own despair about the lack of progress in Ethiopia in the last 10 years was offset by the warm welcome I got. News of my return led to some interesting personal reunions.

Those meetings were especially touching because so many friends were no longer alive or in Ethiopia. The "Red terror" of the late 70's claimed many lives. That so many had survived, were working hard to help their country and were glad to see me, was gratifying. I was absolutely stunned though by the extent to which the memory of the Peace Corps is revered in Ethiopia. I cannot recall how many times reference to the Peace Corps came up in discussion with counterparts in the government and in the NGO community. The positive feedback even worked magic on the streets of Addis and in the field. Countless Ethiopians disbelieve their own government's propaganda about the U.S. government because they knew and liked Peace Corps Volunteers.

When my association with the Peace Corps would surface, I would be accorded special consideration by colleagues. Usually it would begin with a comment such as "I had an American teacher and" or "An American volunteer used to work with us and." Inevitably that opening would be followed by an expression of regret about the state of relations between our governments. Then I would be given every consideration in getting my job done.

The contribution made by volunteers in the 60's and 70's is respected and appreciated by Ethiopians. Volunteers contributed to numerous undertakings which made a difference in that country. In addition to the large teaching program, volunteers were active in the malaria and smallpox eradication programs, agricultural development and health programs. That work is not forgotten. The impact of those efforts did not cease when the last Volunteer left (1977). Perhaps the most important developmental impacts of two decades of involvement are not amenable to quantification.

The enthusiasm, commitment and concern of Volunteers served as a challenge to a generation of Ethiopians. Ethiopia's history during the last decade has not been a happy one. I pray that these sad times will not continue. There must be change. When it happens it will be spearheaded by men and women whose own commitment was in many cases kindled by the dedication of Peace Corps Volunteers.

I would not be able to give that kind of return a dollar value. I know though that it was one of the best investments the U.S. Government ever made in Africa."

And so, Volunteers, keep up your own fine work. No doubt the Ethiopia Volunteers also felt frustrated and discouraged at times... but look what they accomplished!



Loret Miller Ruppe

Research On Southeast Asia

RPCV Tom Otwell (Liberia 1962-1964) who also served as an Army medic in Vietnam (1968-1969), is writing an article and wants to hear from current and former Volunteers who served in Southeast Asia, either in the military or in a civilian capacity, such as USAID, State, CARE, Hope or relief and refugee programs, prior to or after Peace Corps service.

Write to Otwell at: Office of Institutional Advancement, Turner Bldg., University of Maryland, College Park, MD 20742.

The week of April 20 to 26 has been designated as National Volunteer Week. Each country director has been invited to nominate one Volunteer as Peace Corps' Volunteer of the Year. Peace Corps will select, from the nominees, one person from each of the regions—Africa, NANEAP, and Inter-America to represent all current Volunteers in Washington this September to participate in the special 25th Anniversary Celebration. These outstanding Volunteers will be announced in the next issue.

CORRECTION—According to the Ghana desk, the photo on page 2 of the January/February issue incorrectly identifies the location of the photo as Kpalime. The photo of Director Ruppe and PCV Mary Ann Lotscher was taken in Kpandu, in the Volta region of Ghana.

Peace Corps Times

Peace Corps Director

Loret Miller Ruppe

Deputy Director

Edward Curran

Public Affairs Director

Hugh O'Neill

Peace Corps Times Editor

Dixie Dodd

The *Peace Corps Times* is published by the Peace Corps, Washington, D.C. 20526.

The views expressed in *Peace Corps Times* are those of the individual writers and do not necessarily represent the official position of the Peace Corps. The Director has determined publication of this periodical is necessary in the transaction of the public business. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget.

To the Times

Dear *Peace Corps Times*,

I read about Aid to Artisans in a recent issue. My secondary project as a PCV in Paraguay is working with women's clubs, teaching knitting. One of my goals is to have the women knit sweaters that can be sold to supplement their incomes. I would like information on ATA and what types of assistance they provide.

Rosemary Knapp
Cuerpo de Paz
Asuncion, Paraguay

Dear Rosemary,

We have spoken with James Plaut, founder and Chairman of the Board of Aid To Artisans concerning your request for more information about ATA and types of assistance they offer. He responded that ATA works closely with Volunteers and also USAID. In addition, they have many other sources of grants, independent of government agencies. Plaut suggested that Volunteers in the field write directly to him for help with their projects in the areas of marketing advice and small financial aid grants ranging from \$500 to \$1,500. In most cases the grant money is used for materials and equipment to be purchased through an already existing co-op. By doing this, members of a co-op are able to buy at wholesale prices and save considerable money over retail rates for needed materials. They then repay their

Boston Event Draws Large Crowd

More than 800 people gathered at the John F. Kennedy Library in Boston early in March as part of the 25th Anniversary Celebration of Peace Corps taking place throughout the United States.

The cast of former Kennedy Administration luminaries attending was headed by Sargent Shriver, the President's brother-in-law and first Peace Corps director, Eunice Kennedy Shriver and Joan Kennedy.

Other participants included TV commentator Bill Moyers, the first Associate Peace Corps Director for Public Affairs and Warren Wiggins, deputy director during the Kennedy years. Loret Miller Ruppe, current

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co-op. Plaut is very interested in helping Peace Corps Volunteers and welcomes requests. Please write to him at this address:

Mr. James Plaut
Aid to Artisans
64 Fairgreen Place
Chestnut Hill, MA 02167

Dear Friends,

I must thank you very sincerely for the trouble you took to send us a copy of the *Peace Corps Times*, Peace Corps at 25. I went through it with great interest and must congratulate you for the fine job you have done. The idea of Peace Corps was a seminal idea 25 years ago. It has created a lot of other changes in society, even in the understanding of development by the western countries.

As a kind of Peace Co-worker of 35 years standing in India, working as a Jesuit Missionary, I can appreciate the good you have achieved. By way of returning your kindness, I am sharing some of our recent findings on our own field work.

May God bless you and the Peace Corps.

Dr. M.V.d. Bogaert, S.J.
Director
Xavier Institute of Social Service
Ranchi, India

Peace Corps Honors Aaron

As part of its commitment to increase minority recruitment, Peace Corps has launched a pilot project to target audiences in areas with significant minority populations to spread the word about opportunities for Peace Corps service. Public Service Announcements featuring baseball's home run record holder Hank Aaron and Atlanta Mayor Andrew Young were filmed in Atlanta in January and are slated to air in major media markets across the southeastern United States in the next few months.

The Public Service Announcement featuring Aaron was filmed outside Fulton County Stadium in Atlanta, where Aaron hit his 715th career home run breaking Babe Ruth's longstanding record. Arlen Erdahl, Associate Director for Volunteer Recruitment and Selection, was on hand to present a plaque to Aaron for his support of Peace Corps. More than 100 copies of this announcement will be sent to commercial and cable television stations in Alabama, Mississippi, Georgia, Tennessee, Kentucky and South Carolina.



Baseball great Hank Aaron receives a plaque from Associate Director Arlen Erdahl for his work on behalf of the Peace Corps. The statue in the background commemorates Aaron's hitting his record breaking home run.

Peace Corps/Paraguay



Forestry PCVs Timothy Starr of Minneapolis (bending), Tom Nedobeck of Greenfield, Wis. (standing, far left) and APCD George Ritz of Bradford, Maine with counterparts prepare soil to plant young trees.



Ella Pennington, SPA fund coordinator of Pennington, N.J. and Leonardo Mino Aranda, General Coordinator of Promotional Support at the Mision de Amistate visit shoemaker who is one of their clients.

Landlocked Paraguay, located in the heart of South America, is a land of great physical beauty and vast development needs. It is characterized by the Spanish word, *tranquilidad*, a feeling evidenced by a stable government and a friendly peaceful people.

The territory which makes up Paraguay today was inhabited by a variety of Indian tribes when it was discovered by the Spaniards in 1524. A natural alliance between the Guarani and the Spanish has produced the current Paraguayan culture. The population, 95% of which are of mixed Guarani and Spanish decent has also been influenced by settlers from Germany, Japan, Brazil and Argentina. Paraguay's independence from Spain was gained without bloodshed in 1811.

As Paraguay is principally an agrarian society, a major emphasis of government programs is directed at increasing production on the small farms which are the backbone of the agricultural sector. Government officials point out that the economy is in a state of transition, that there are two important stages in the country's economic development, before and after the Itaipu dam. By the end of this decade, Itaipu and the other hydroelectric projects will provide unlimited electrical power to Paraguay.

Peace Corps/Paraguay

The first Peace Corps Volunteers in Paraguay were agricultural extension agents who began working there in 1967. Today there are some 150 PCVs in the country, most working in the rural areas, the *campo*. Currently, Peace Corps is involved in seven major program areas: crop extension, home extension, rural health, environmental sanitation, education, natural and environmental resources and agricultural cooperatives.

Seventeen Volunteers are at work in the **crop extension** project. They are involved in apiculture, marketing, soil conservation and agro-industry. PCVs train farmers in improved production of such crops as corn, beans, and cotton as well as vegetables and fruit. There is an emphasis on chicken and pig breeding and the safe use of pesticides.

The **home extension** program is the primary project for 21 Volunteers. Their work varies in scope from family income and savings activities to presenting workshops on nutrition, food storage and preservation to personal hygiene.

Volunteers working in the area of **rural health** promote health practices through instruction in the schools, community organizations and home visits as well as helping to administer basic health care and first-aid. There are 20 PCVs in this program.

The 12 PCVs working in **environmental sanitation** make house-to-house inspections of water sources and sanitary facilities, construct new latrines and water systems, and help to sanitize existing wells and water sources as well as teaching general health education.

In the Heart of South America

About the country . . .

Population: 3.6 million
Land Area: 157,048 square miles, about the size of California
Capital: Asuncion
Languages: Spanish and Guarani
Religion: Roman Catholic (97%), Mennonite and other Protestant denominations
Terrain: East of Paraguay River—grassy plains, wooded hills, tropical forests. West of Paraguay River (the Chaco) semi-arid conditions, scrub forests
Borders: Landlocked---borders Brazil, Argentina and Bolivia

In the **education program**, 18 Volunteers work in three basic areas; rural teacher training, special education and community development. In the teacher training area PCVs work as trainers and do outreach work in more isolated schools assisting with development of new materials and modern teaching methods. Special education needs special techniques which are provided by PCVs in rural schools throughout eastern Paraguay organizing parents' groups, special activities and increasing the awareness of the needs of special children. In vocational education, PCVs provide training in carpentry, electrical and metal work. The community development Volunteers help to identify obstacles that keep the people from availing themselves of the resources available. These PCVs have assisted in the construction of new classrooms (see photo), renovation of old schools, fund raising and library development.

PCVs in **agricultural cooperative** work (17) assist the CREDICOOP in strengthening its technical capacity through the development of new services such as credit, technical assistance, agricultural diversification, and marketing.

The **natural and environmental** resources program has four basic elements: biological inventory, forestry extension, national parks and environmental education. In forestry extension, PCVs help start nurseries and collect data for reforestation and watershed management projects. The environmental education Volunteers work with primary teachers to develop teaching programs in the schools. The last two areas are prime examples of how Volunteers work themselves out of jobs—the biological inventory (see related stories) and national parks. The inventory Volunteers are compiling a valuable natural resource catalog of specimens of plants and animals. The PCV working with the national parks is developing plans for park management. Both these areas will be phased out in the future. The total number of PCVs working in the natural and environmental resources program is 22.

Traditionally, Peace Corps Volunteers have been warmly welcomed by the Paraguayan people. Contrib-

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Taking a break from household chores are two of Paraguay's PCV married couples. Donna Sharpee Schmitz of West Bend, Wis. (seated, left) and her husband, Richard Schmitz of Waterloo, Iowa (top left) are both in the forestry program. Brooke Hart of Schenectady, N.Y. (standing) is working with coops and her husband, Sean Hart of Rexford, N.Y. (seated, top right) is with the forestry extension project.



PCV Tracy Lee Thompson (adult without hat), a graduate in forestry from Penn State checks on progress of a school under construction near Chore. The school is being built with funds through Peace Corps Partnership which Thompson arranged through his church.

PCV Gould Studies Silvia, a Peccary Thought Extinct

Zoologist Gina Gould lives in the Chaco, the Indian word for dry place. It is, in the classical sense of the word, a romantic, untamed section of Paraguay, about 98,000 square miles of jungle.

Although Gould's project is mammalogy, which includes everything from rats to jaguars, her favorite subject is her Chacoan peccary, Silvia.

There are only three species of peccaries known to exist. The Chacoan peccary (*Catagonus wagneri*)—which lives in a small area in Paraguay, Argentina and Bolivia, was not identified by scientists until 1972. A more commonly known col-

"She's like a very large woman, but very much the lady, in her high heeled shoes."

lared peccary (*Tayassu tajacu*) thrives in an area from Arizona to Argentina. The white-lipped peccary (*Tayassu pecari*) is a wilderness animal found from southern Mexico to Argentina. In 1972, Dr. Ralph Wetzel of the University of Connecticut found the Chacoan species in Paraguay. This was its first sighting by modern man. Before that, it was only known to science as a fossil from the Pliocene Period, but most scientists agree peccaries originated in the Western Hemisphere. Two distinguishing characteristics of peccaries are the scent gland and the unusual chambered stomach. The peccaries have a scent gland in the middle of the back which first drew the attention of early naturalists, true pigs don't have this gland. If the scent gland isn't cut three on four hours after the animal is killed, it will taint the meat and make it inedible. Also, the Chacoan only has two toes, true pigs have four. The Chacoan has four common names; tagua, pagua, cure-boro and quimilero given by the indigenous people.

There are two tagua known to be in captivity; PCV Gould has one, the other, a male, lives in a Paraguayan zoo.



PCV Gina Gould, her Paraguayan counterpart and their pet project, Silvia, a peccary which was thought to be extinct.

When Silvia was photographed here she was about 40 weeks old. She is very friendly, curious, likes lots of attention and knows her own name. She likes to play with Gould's cat and to sleep under the table. Silvia thinks it's fun to play with a volley ball, but confidentially, she's not so good at spiking. Gould says, "She's like a very large woman, very much the lady, in high heeled shoes."

Gould plans to catch a maximum of 25 peccaries for her breeding project. She must catch them when they are very young because the adult males have dangerously large incisors and the local people kill the females for food.

She says of her life in the Chaco, "It's not easy but it's fun and exciting." Gould says it's not uncommon to be walking down the road and come face to face with a jaguar.

Gould, a resident of St. James, N.Y., received her degree in zoology from the State University of New York, Oswego.

Peace Corps/ Paraguay

(Continued from page 5)

uting to this receptivity are the efforts which Peace Corps/Paraguay has made to foster cultural sensitivity in its Volunteers, to place them at the community level and to teach them the indigenous language, Guaraní, as well as Spanish.

The current Country Director of Peace Corps/Paraguay is Richard Soudriette, who formerly served in the same capacity in the Dominican Republic. Special thanks to Soudriette and to the Country Desk Unit, Maria Lameiro and Jeanne Jenson for assistance with this feature.

The next issue of Peace Corps Times will feature the African nation of Mali.



Examining an Iguana are PCV Daniel Drennen, Ichthyologist and his counterpart, Aida Luce Aquino, herpetologist. Drennen earned his bachelors at Birmingham-Southern, his masters from Auburn University and has been with the Biological Inventory since July, 1984. Aquino, also degreed, trained at the Smithsonian, Carnegie Museum of Natural History and the U.S. Fish and Wildlife Service. She has been with the program since its inception in 1980.

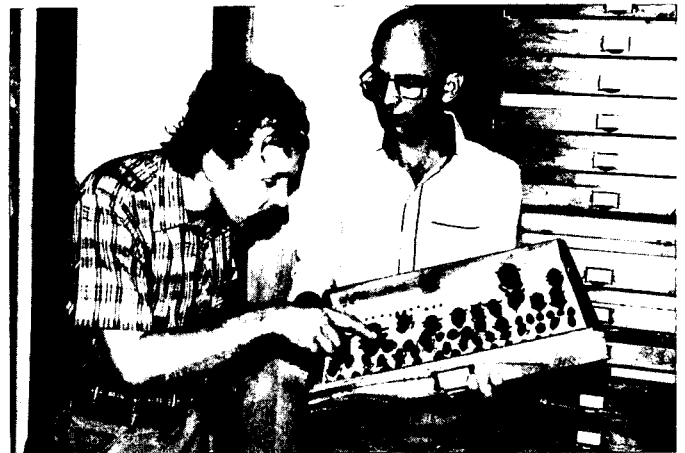


Drennen and RPCV John Kochalka, entomologist (right) inspect a freshwater stingray. Unique to Paraguay, these rays are eaten as food by local people. Kochalka, who COSed in December, 1984 earned his bachelors and masters in zoology at the University of Vermont. He is currently working as an independent for the National Biological Inventory, a project of the National Forest Service of Paraguay.

Paraguay's Biological Inventory Is in Its Sixth Year of Collecting Flora and Fauna, Some of the Rarest in The World



On a recent visit Peace Corps Director Loret Ruppe (second from left) examines specimens from the biological inventory project. On hand for explanations are PCVs Daniel Drennen and Terry Bonace, entomologist (third from left); Paraguayan counterpart, Aida Luce Aquino and RPCV John Kochalka.



A large collection of predatory aquatic insects is being examined by PCV Drennen and RPCV Kochalka. These insects are important to the biological inventory and the Paraguayan ecosystem because they consume other aquatic insects and can also eat certain fish and tadpoles.

Tanganyika (Tanzania) I

Now called Tanzania, Tanganyika was under German colonial domination until World War I. After that and until the end of World War II, Tanganyika was administered by the British, first under a League of Nations mandate and then as a United Nations Trust. Full independence came in 1961 when Tanganyika united with the island nation of Zanzibar in 1964 to form the United Republic of Tanzania.

Comprising an area somewhat smaller than New Mexico and Texas combined, Tanzania is nestled between the great lakes of the continent ... Lake Victoria, Lake Tanganyika and Lake Malawi. The lush Serengeti Plain in the north is one of the major natural habitats of African wildlife. Not far to the east, Africa's tallest mountain, Kilimanjaro juts to a soaring height of 19,340 feet along the Kenya border.

Bordering countries circling Tanzania are Kenya, Uganda, Rwanda, Zaire, Zambia, Malawi and Mozambique with the Indian Ocean lapping at its eastern shores. The inland city of Dodoma is the official capital but most administrative work takes place in Dar es Salaam on the coast. Zanzibar City on that island in the ocean is the world's greatest exporter of cloves. Tanzania grows and exports large amounts of cotton, coffee, sisal, cashew nuts, cardamom and tea.

Tanzania's peoples, among the first on Earth according to anthropologists' studies in the famous Olduvai Gorge, are currently estimated to number 20.2 million. Of these, 35% are Christian, 35% Muslim and the rest are believers of traditional religions. Although Kiswahili is the major language, English as well as more than 100 Bantu dialects are spoken.

In 1961 Tanganyika's economy was based largely on agriculture, yet only nine percent of the land was under cultivation. A lack of farm-to-market roads and year-round water supply limited further expansion. Building a network of feeder roads to link even the most remote agricultural areas with main roads, railroads and seaports was imperative to growth. Tanganyika also needed major roads that were passable in the most inclement weather. De-

tailed geological mapping was essential to attain the benefit of Tanganyika's rich mineral resources.

Peace Corps and Tanzania

Even before full independence was gained, Peace Corps was invited to help with these unique problems. Civil engineers, geologists, road and map surveyors were asked to build those necessary farm-to-market roads and to develop a system of main territorial roads. Geologists were given the task of mapping several thousand square miles to tap the country's minerals.

In that first group of Peace Corps Volunteers there were 28 ... all men. Currently in Tanzania there are 69, 24 of whom are women. About 30 teach science and math, 19 are working in fisheries and the remainder are with agriculture or health programs.

Richard Van Loenen, now with the United States Geological Survey in Denver, and a member of that first (and only) all male group, recounts his experiences with Tanganyika I for Peace Corps Times readers.

"Why did I want to join the Peace Corps 25 years ago? I'm not really sure other than it seemed like it had possibilities and would certainly be worth a try. I'd first heard of it when John F. Kennedy proposed a "peace" corps during his campaign in 1960. I wanted to be among the first to help with this "new" kind of foreign aid, have a chance for adventure and travel and a two-year deferment from the military draft.

I filled out an application I'd picked up at the Post Office and took the Civil Service exam along with many others. The large numbers certainly indicated a favorable response to Kennedy's enthusiasm to assist undeveloped countries with this new concept of a Peace Corps.

After receiving my degree in geology from Kansas State University in 1961, I worked briefly in the oil fields, then went home to work on the family farm. That July, I was notified that I had been selected to participate in a training program for a Peace Corps project in a place called Tanganyika. It was exciting and timely ... it spared me from the remainder of the haying season! I had no second thoughts about going.

Thirty-five men were chosen to attend the training at the University of Texas in El Paso. This Peace Corps program was unique in that we were all men and were all civil engineers, road builders, surveyors or geological mappers. We had representatives from every part of the U.S. as well as many races and ethnic backgrounds. (We even had folks from New Jersey!) The original count was narrowed down to 28 ... five geologists, 23 surveyors and civil engineers.

I suspect our durability was being tested. But we did complete the job.

The training was a mix of many disciplines including African studies, American and World Affairs, Swahili, technical studies and much emphasis on health and physical fitness. (In those early days Peace Corps training had been compared to Marine Boot Camp training.) We were bused to a nearby military base for medical exams.

We lived in a dormitory and studied on campus. Our gear was supplied by Peace Corps and included boots, khaki shirts and trousers and pith helmets. Most of those helmets were lost to the first West Texas wind storm.

Because this was one of the first three Peace Corps programs it was considered a hot news item and reporters were always on hand. Their coverage didn't stop in El Paso but followed us through to the end, two years later. There were many critics of Peace Corps back then and two of the more famous are worth a mention. A former U.S. President said, "For whatever good they will do in Africa, you might just as well send them to the moon," and from the Russians, we were "spies and agents of the CIA."

The final stages of our training were held in Tengeru, Tanganyika, a beautiful setting some 60 miles west of Mt. Kilimanjaro. We had all the necessary field equipment for use in mapping and were eagerly looking forward to our two year assignment in Africa.

Settling down in modest housing near the survey headquarters in Dodoma, we were given a living allowance of about the equivalent of \$280 a month. Outfitted with gear that included land rovers, tents and medical supplies, we went with our drivers, cooks and two of three survey boys into the north central region to begin mapping. The field season was nearly a disaster ... it was then the middle of the rainy season. I suspected our durability was being tested. But we did complete the job.

The Tanganyikan Geological Survey was manned by some 20 British geologists with a supporting staff of chemists, cartographers and clerks who were British, Indian and African. My duties were to conduct reconnaissance mapping at a scale of 1:125,000. Only parts of Tanganyika had been previously mapped by private exploration companies, the Geological Survey or the Germans prior to World War I when that country was a German colony. At the end of my two years I had contributed towards the completion of nearly 7,000 square miles of mapping. These maps, with accompanying reports were all published by the Tanganyikan Geological Survey.

Tanganyika mainly consists of pre-Cambrian rocks with a thin covering of phanerogous sediments along the coast and southwest with young volcanics in the north ... near Kilimanjaro. It is relatively poor in mineral resources compared to the Congo (Zaire) to the west and Rhodesia (Zimbabwe) to the south. Diamonds, produced from the Williamson Mine in the western region, were the most important mineral resource.

While on official field duty we were expected to provide at least some of the fresh meat for ourselves and our crew. In those days Tanganyika afforded some excellent game birds, waterfowl and big game animals. 1961 was long before reports of endangered species and elephants were plentiful then. The game management harvested several hundred each year ... mostly in places where the animals became a threat to crops on newly developed farm land. It was interesting to observe the elephant hunts which were always exciting and usually rewarding. The meat was eaten by the local people and never wasted. They could process and carry off an entire elephant in a very short time. The



Richard Van Loenen (right) and assistants take rock samples as a part of their project for locating and mapping the country's mineral resources.

Africans were very conservative and would take the meat back to their villages where it was dried and kept for use as needed.

In remote regions, the local people soon learned that there was a "European" in the area and assumed he was either a missionary or a doctor. I was far from being either, but Africans would come from miles around for medical attention for afflictions ranging from elephantiasis to hangovers. Because our field gear included a large box of medical supplies including antiseptics, bandages,

eye medications, jars of malarial drugs, aspirin and even placebos, in the evenings after a long day of field work I'd dispense some innocuous medications and treat a wound or two. The most serious cases would leave with only my sympathy.

Two years in the Peace Corps was a rewarding experience for me and I'd volunteer again if I had it to do all over. Through the years I've met some good candidates for Peace Corps and I've encouraged them to join. Not one has been disappointed."

Personnel/Personal

Tom Bentley, APCD/Programming and Training for Costa Rica has a long history of Peace Corps "firsts." Bentley was a PCV in the first group into Colombia in 1961 and 1962; he was the first Peace Corps Volunteer from Arizona and he was among the first PCVs to marry another PCV. His wife, the former Elizabeth Marple was a Volunteer in Colombia III in 1962 to 1963. A graduate of the University of Arizona and the University of Texas, Bentley studied for his Ph.D. at Portland State University in Oregon. He also has a long history of overseas work with CARE from 1963 to 1974 in Liberia, Turkey, Lesotho and Costa Rica. He worked with Refugee Programs and Project Concern in Oregon from 1974 to 1986.

* * *

Dr. Alan Zeller of Newcastle, Maine is the new Medical Officer for Sierra Leone and Liberia. A graduate of Dartmouth, he earned his M.D. at McGill University in Montreal, Canada. No newcomer to Peace Corps, Dr. Zeller gave medical care to PCVs while he was Team Captain for CARE/MEDICO in Afghanistan from 1969 to 1973. He was Medical Director for VALCO (a subsidiary of Kaiser Aluminum, Inc.) in Ghana from 1974 to 1979 and is now a member of the CARE/MEDICO Advisory Board. His son, Robert was a PCV in Fiji and his stepson, Douglas Teschner served as a PCV in Morocco. Another son, George is currently a PCV in Sierra Leone.

* * *

Roger Conrad has been appointed APCD/Administration for Tanzania. Conrad was a PCV in Ethiopia from 1973 to 1975 and also in Chad from 1977 to 1979. He worked in Washington as an evaluator in 1979 and was APCD/Agriculture and Development in Mauritania in 1979 to 1982. His wife, Kathe was a PCV in Afghanistan in 1977 to 1979. A native of Davis, Calif., he earned his bachelors degree at Kalamazoo College and his masters in African Studies from Ohio University.

Michael Zwack, the new APCD/Agriculture and Rural Development for Thailand was originally from Dubuque, Iowa but has called Thailand his home since 1978. He was a PCV there from 1978 to 1981, then was a consultant with USAID/Ministry of Interior from 1981 to 1984. Since then he has been a private consultant for agriculture training ... also in Thailand. He received his bachelors degree from the University of Northern Iowa.

* * *

Elizabeth Ernst, RPCV Burkina Faso, serving from 1975 to 1977, has been named APCD/Forestry and Soil Conservation for Mali. In 1979, she was a Peace Corps Fellow and then went to Niger as APCD/Agriculture and Rural Development in 1979 to 1982. Elizabeth comes from Bonita Springs, Fla. and earned her bachelors degree at Colby College, Maine. She has taken graduate courses at the University of Tucson.

* * *

Gerard Roy has been appointed to the position of Director of Compliance, Peace Corps/Washington. From 1980 to 1986 he was Assistant Director with the Inspections and Audits Division and Senior Special Agent, Office of the Inspector General with the U.S. Treasury. Prior to that he worked with the U.S. General Accounting Office. A Fulbright Scholar candidate, he received his bachelors and masters degrees from George Mason University.

* * *

Dr. Dean Johnson of Concord, Calif., has been named the Peace Corps Medical Officer/Cameroon, Gabon and the Central African Republic. Dr. Johnson has been in family practice since 1953 with interruptions for work overseas as PCMO in Afghanistan from 1971 to 1974 and on special assignment in Yemen in 1973. From 1975 to 1979 he served in Iran as Medical Director for Bell Helicopter International. He was the Medical Director in the Alcohol and Chemical Dependency Unit at Mt. Diablo Hospital in Concord from 1980 to 1986. Dr. Johnson received his medical degree from Ohio State University.

The new APCD/Generalist for Swaziland is Thomas Bailey of Winston-Salem, N.C. Bailey was Country Desk Officer for Botswana, Lesotho and Swaziland from 1984 to 1986. A graduate of North Carolina Ag and Tech University, he earned his masters at Duke University.

* * *

A native of San Diego, Patrick Barry is the new APCD/Administration for Zaire. He was a PCV in Nigeria in 1966 to 1968, Training Officer in Cameroon in 1970 and APCD and Country Director in Mauritius from 1971 to 1974. Barry received his bachelors degree from the University of San Diego.

* * *

Brian Richmond, APCD/Health and Rural Development for Sierra Leone, is a native of Muncie, Ind. He was a PCV in Chile from 1980 to 1982 and a health trainer consultant in Liberia in 1985. He has been a curriculum planner and group facilitator trainer for international health courses at the University of North Carolina. He earned his bachelors from Indiana University and his masters from the University of North Carolina.

Boston Event

(continued from page 3)

director of Peace Corps was there with statistics of Peace Corps today.

"More than 120,000 Volunteers and staff have served in about 92 countries overseas since Peace Corps' inception in 1961," Ruppe said. "We receive an average of 5,000 inquiries each week from people expressing interest in volunteering."

There were films of Peace Corps overseas projects, slide shows and panel discussions of the agency's past and future. Former Volunteers and newly-returned Volunteers traded stories and memories.

And of course, at this 25th Anniversary celebration there was a cake ... a huge, 550-pound cake decorated with flags from the 63 countries where Volunteers are serving today.

New Country Directors



Lawrence A. Marinelli



John H. Wright, III



Donald L. Smith

Photos—Anne Alvarez

Lawrence A. Marinelli

Former Foreign Service Officer Lawrence Marinelli has been named Director for the Eastern Caribbean which includes Barbados, Grenada/Carriacou, St. Vincent, St. Lucia, Dominica, Antigua, St. Christopher/Nevis, Montserrat, Anguilla and the Grenadines. The Eastern Caribbean office is located in Barbados and fields nearly 200 Volunteers.

No stranger to the region, Marinelli served as the Director for the Caribbean Basin, U.S. Trade and Development Program. He held a similar position in the Mediterranean and the Middle East. While with the Department of State and AID, Marinelli also served in Africa and Asia. He was the director of the Program Planning Division for the Military Assistance Command/Vietnam.

Marinelli did his undergraduate work at Canisius College and received both a masters and a doctorate in international affairs from St. John's University. He is married and has three children.

John H. Wright, III

Assuming the post of Country Director for Jamaica, which has about 160 Volunteers, is John Wright of Columbia, South Carolina.

A builder and developer, Wright graduated from the University of Virginia and also holds a masters in business administration from the University's Darden School of Business Administration.

For the past 10 years, Wright has been the owner and president of

Spacemakers, Ltd. Self-employed most of his career, Wright has extensive experience in land use and management, marketing and in financial analysis. Wright and his wife, Trula, have two children who will be accompanying them to Jamaica.

Donald L. Smith

Don Smith, new Country Director for Papua New Guinea in the South Pacific, comes to Peace Corps from ACTION where he has spent the past 12 years. His most recent position there was Director of Administrative Services. Prior to his service with our sister agency, Smith was in business and was also a pilot for Trans World Airlines.

Smith received both a bachelor's degree in history and political science and a masters in management from the University of Utah.

In the early sixties, Smith worked in a youth development program with the Maoris in New Zealand. He and his wife, Patricia, have two sons.

James Lassiter

Former Volunteer James Lassiter was appointed to the position of Country Director for Tanzania in December. He was a PCV in Swaziland from 1980 to 1983.

From 1984 to 1985, Lassiter was Country Desk Officer for Botswana, Lesotho and Swaziland, and from March to December of last year, was CDO for Tanzania and Malawi.

Prior to his service with Peace Corps, Lassiter lectured at the University of Oregon and was a research analyst at the California Cen-

ter for Health Statistics.

Lassiter graduated from California State University with a degree in anthropology and biology. He holds both a masters and a doctorate in anthropology from the University of Oregon. (Lassiter's photo was unavailable.)

Future Directions Meet Set For July In Colorado

From July 7 to 11, Colorado State University in Fort Collins, will be hosting a Peace Corps 25th Anniversary Seminar. The topic is "The Next 25 Years: Future Directions for the Peace Corps." Director Ruppe will be the keynote speaker for the July 8 session. The findings of this meeting will be presented at the September conference in Washington, D.C.

This seminar is sponsored by the Citizens Committee on Future Directions for the Peace Corps, the International Development Conference as well as the University. It will be held in conjunction with the Association of University Directors of International Programs conference which plans to have AID Administrator and RPCV Peter McPherson as its keynoter.

For more information about the seminar write to: Future Directions/Peace Corps, % Dr. Maurice Albertson, 203 Weber Bldg., Colorado State University, Fort Collins, CO 80523.



Grenada Volunteers receive a visit from President Reagan. They are pictured here with the President with their Peace Corps 25th Anniversary banner.

White House Photo

Peace Corps/Grenada

Peace Corps was invited to return to Grenada in January of 1984. (The first group of Volunteers began service in 1963 and the program was phased out in 1982.) The initial request from Grenada was for secondary teachers. The number of PCVs has gradually increased to a current contingent of 33.

In October of 1984, an office was opened in St. Georges and an Associate Director was appointed to administer the program in Grenada and Carriacou. Mary Silewski, APCD, is a RPCV from Belize. Peace Corps/Grenada is part of the Peace Corps program for the entire English speaking Caribbean. The regional office is located in Barbados with Jim Sanford currently serving as Acting Director with satellite offices located in Antigua, St. Vincent, Dominica and St. Christopher.

After the initial request for teachers, calls for Volunteers in the areas of agriculture, health and

small business development quickly followed. The Grenada Volunteers range in age from 24 to 71 and have a wide variety of educational and work-related experience.

Those currently serving with education as their primary projects include: Geoffrey Land, Gordon De Spain, Susan Poteate, Mary Vance, Signe Norman, Ann Gillidette, Gertrude Douglas, Craig Payne, Karen Rourk, Mark Muller, Michael Neis, John Craig, John Simpson, Bruce McFarling, Christopher Oates, Pamela Horosco and Helen Fentress.

The request for education Volunteers was made because of the local teacher shortage. Peace Corps and the Government of Grenada have now decided to move into the area of teacher training and PCVs will be placed at Grenada Teachers' College this fall.

The health program today consists of five nurses who primarily work at

St. Georges Hospital assisting local nurses and helping to train nursing students. Future plans call for community health workers and public health nurses. Peace Corps nurses include: Frances Porter, Joanne Adams, Ellen Kargl, Nina Longly and Ida "Sam" Houston.

Serving in small business development are John Toasperm, Suzette Horspool and Bernice Simpson. An expansion of this program is forecast.

Agriculture, one of Peace Corps foremost programs worldwide, is becoming increasingly important in Grenada. Those volunteers serving in this program are: Leo Nickol, Matthew Lavington, Cynthia Dunn, Jim West, Bruce Johnson, Lee Adams, David Walton and Sharon Clancy.

The above photo was taken during President Reagan's visit to Grenada on February 20.

ICE ALMANAC

From the Field

Coconut-Oil Fuel/Micronesia

*The following article is adapted from a report entitled, **Comparison Tests of Crude Coconut Oil Versus Diesel Oil in diesel Type Engines** based on tests performed at Pohnpei Agricultural and Trade School (PATs), Pohnpei, Caroline Islands, Federated States of Micronesia (FSM). The tests were conducted under the coordination of PCV John Girdley. (A vocational teacher/machine shop instructor, Girdley served as a PCV in Malaysia prior to his assignment in Micronesia. PCV Girdley has just completed 7½ years of service in Micronesia and has begun a new assignment in Peace Corps/Sri Lanka.) The tests were performed with the assistance of staff and students at PATs, under contract to Micronesia. The FSM Government has kindly given permission to Peace Corps to reprint the findings of the tests.*

Any PCVs or staff wishing to acquire a complete copy of the report please contact the ICE office.

In recent years, Pacific magazines have carried stories of diesel engines, trucks, and generators operating on crude coconut oil. As far back as the Second World War, coconut oil was used in the Philippines, especially in barrios for light. There seems to be no doubt that coconut oil can be used as a fuel in diesel type engines.

This study aims at a more systematic investigation and comparison of the two fuels in their performance and their overall effect on the engines they power. This should provide more information for interested nations in the Pacific Basin.

The test is of extreme value to the Federated States of Micronesia. For example, outlying islands of the State of Ponape (Ngatik, Pingelap, Nukuoro, Kapingmarangi, Mokil) are hundreds of ocean miles from Ponape State Capital. The only contact with the Capital, especially in emergencies, is by radio using small diesel generators. Since delivery of diesel fuel is both expensive and ir-

regular, this study hopes to show that locally produced coconut oil can be used without detriment to equipment, and at a reasonable cost.

Project Description And Justification

The purpose of this project was to determine the ability of small diesel engines to be operated on coconut oil. One engine was operated on unrefined coconut oil purchased from Ponape Coconut Products of Madolenihmw. The second engine was operated on light marine diesel fuel purchased from Mobile Oil. Both engines were operated under identical conditions and at the same time. The only difference in their operation (aside from minor adjustments to the coconut oil engine) was in the fuel used.

Equipment in Project

Two model TS-50 horizontal Yanmar Diesel Engine Company (Japan) units with 5 horsepower ratings were purchased for this project. Each was run under identical schedules and settings. Daily Comparison Logs were kept on their performances.

The engines were each run for a total of 1008 hours either under free-load or simulated work-load conditions. One cursory dismantling and inspection and two complete dismantlings and inspections were made.

Expected Economic Impact

At the present time, outer island communities are handicapped in their attempts to fully participate in the First Federated States of Micronesia Five-Year Development Program. In large measure this is due to the high cost of imported petroleum fuels on which outer island communities now depend to fuel the

engine-generators that produce their electricity. The major economic drawback of this system is the outflow of scarce capital to pay for the imported fuel.

This project is the first step in an effort to ultimately make the outer islands economically independent with respect to energy resource utilization. When completed, the project will allow outer island communities to operate small diesel engine-generators on unrefined coconut oil. Although actual costs of generating electricity with this fuel will probably not decline, and in some cases may actually rise, the outer island community utilizing coconut-oil fuel will see an overall improvement in its economic condition. Dependence on imported petroleum will decrease, and the creation of a new, secure market for copra-derived coconut oil will enhance economic independence.

Summary of Results of First 100 Hours

After the first one hundred hours of operation, the engines were partially dismantled and inspected to determine the effects of the operation.

Diesel engine shows no signs of abnormal wear or need for extra maintenance procedures of any kind.

Coconut engine shows no signs of abnormal wear, but it does require extra maintenance procedures involving an additional 30 to 40 minutes for each week or each 40 hours of operation. Necessary maintenance includes:

1. removing and washing fuel filter after each 40 hours (10 minutes)
2. removing, inspecting and cleaning injector after each 100 hours (30 minutes).

(Continued on page 14)

Coconut engine runs much smoother. An early estimate of this is 25 percent less engine vibration.

Coconut engine develops .1 to .2 more horsepower than diesel engine. This may be due to a slower rate of burn during combustion process.

Coconut engine is 2 percent to 4 percent more thermal efficient than diesel. On extremely dry, hot days, the efficiency of the coconut engine was as high as 33 percent.

Coconut engine runs 3°F to 9°F cooler water temperature and 10°F to 20°F cooler exhaust temperature.

Coconut engine produces .1 percent more carbon monoxide. A recommendation is made for adequate ventilation when engine is running. Though .1 percent seems small, this is a considerable amount of CO (carbon monoxide).

Coconut engine consumes 5 percent to 10 percent less fuel by volume than diesel.

Coconut fuel when first received from the factory was checked for acidity and the result was .8 percent. After 30 days storage, and near the end of our 100-hour schedule, same fuel was checked again. The result was 1.4 percent or almost double. At first this was suspected as the cause of our problem mentioned earlier (raw fuel exuding from the muffler). This suspicion was eliminated when we discovered the real cause. Extra acidity in the fuel could be stopped by the addition of an anti-oxidant such as:

Trade Name—Ionol C.P.

Chemical Name—Butylated Hydroxytoluene

Common Name—BHT

A decision was made not to add this anti-oxidant, in order to keep the experiment running on crude oil, with no additives.

Cylinder head, crankcase cover and connecting rod caps were removed from each engine and a cursory inspection made.

No signs of abnormal wear were apparent on either engine. Because of the problem on the coconut engine, a slight amount of carbon film could be seen on top of the piston and around valve seats and faces. This was easily removed by washing. A strong recommendation is made for thorough filtering of fuel in any future experiments. An extended run without correcting this problem

would have resulted in hard carbon deposits.

Preliminary Recommendations

Make no changes in the basic schedule, but insist on application of the extra maintenance details mentioned earlier.

Purchase a third engine to run on a staggered schedule of both fuels and to experiment with fuel mixtures and additives.

Research should be made on practices used in remote areas for hand extraction of coconut oil by boiling, as is common in Micronesia. Samples of this oil should be obtained and, in a new or extended series of tests, compared to the crude coconut oil we were using. On the outer islands of Micronesia, only this primitively extracted coconut oil will be available.

Assuming that this experiment will be successful, exploration of various means of continuing this type of operation in rural areas should be made.

The engines were reassembled and operated for another 200 hours, again under identical conditions except for the fuel used. At the end of this period, approximately three months, the engines were again dismantled and inspected to ascertain the effects of operating with each type of fuel.

Summary of Results, Second Stage of Experiment

After the engines were reassembled following the first 100-hour run, some new procedures were introduced.

Coconut fuel was filtered twice, once when it was taken from storage, and again when it was put into the fuel tank. This was accomplished by using clean cloths as filters. This added no extra time to servicing the engine.

Fuel filter and sediment bowl were removed from the engine once each week, cleansed and washed. This took about ten minutes. To shorten this time factor, extra filters were purchased. When the filter was removed, it was put into a container of diesel oil and soaked until the next weekly change. This worked very well and was easier on the filter.

Daily performance logs kept on each engine showed no appreciable change from the original 100-hour test until the 49th run. At this time, a total of 348 hours had been logged on each engine. A slight increase in fuel consumption was noticed on the coconut engine. This gradually increased until the 54th run. At this time, a small amount of raw fuel was seen exuding from the muffler on the coconut engine.

Engines were run an additional 32 hours after that, with several tests being made. Air filters on both engines were dirty. A decision was made to clean each air filter every two hundred hours. It was also noticed that when the engines were run at varied RPMs, the fuel exudation stopped. This would be the norm under actual work-load conditions and is viewed as creating no problem at this time.

Results of second Dismantling of Engines

Cylinder heads, injectors, valve assemblies, fuel pumps, oil covers, connecting rod caps and bearings were removed and inspected. It was decided not to remove pistons and compression rings since they could be seen clearly and inspected without removal.

Both engines showed no signs of abnormal wear. Each had a small amount of carbon around the valve ports and piston heads. This was easily removed by washing and is considered normal.

Nothing else unusual was noticed on the diesel engine.

ICE Almanac

Acting ICE Director
Maureen Delaney

Editor
David Thomas

Networking
Trish Heady

SPA Network
Linda Spink & Jim Patterson

From the Field
PCV John Girdley, Micronesia

Feature
Nadine Leisz, Forestry Sector

On the coconut engine, it was noticed that there were several places near the connections where small particles of vegetable matter adhered. Also, around the orifices on the injector, a build up of light carbon had started. Methods of correcting these two problems are discussed in the following "Recommendations".

Recommendations

Both fuel injectors were tested on our injector tester, using both fuels. Both formed a perfect mist at 1,800 PSI. However, the one using coconut fuel showed a small "weeping" effect around the bottom orifices. At 2,000 PSI this "weeping" stopped. Both injectors were set at 2,000 PSI and reinstalled on the engines.

A decision was made that the coconut engine would now be run on *refined* coconut oil for the next 100 hours. This was to pinpoint the problem of build up on the injector nozzle. Since refined oil has less water content, this would determine whether the cause was the water content of the coconut oil or vegetable matter. During this time, a better, simpler way of filtering the fuel would be devised.

Being considered as tests before this project was completed were two very simple changes on the engines. Both now have vertical mufflers. The same muffler could be converted to a horizontal muffler, thus giving exhaust gases a less restricted flow. This might result in less carbon around the valve ports, something beneficial to both engines.

Another test being considered is to reroute the fuel line on the coconut engine. A line would be looped around the muffler and insulated which would result in the fuel being pre-heated to about 200°F just prior to entry into the injector. This would result in a ten-fold decrease in the viscosity of the fuel and should eliminate the buildup around the injector nozzle. This is a very simple, inexpensive process. If successful, a drawing will be included in the next report.

After reassembly, the engines were operated for another 400 hours. At the end of that period, they were again dismantled and inspected to determine the effects of operation using unrefined coconut

oil and diesel fuel.

Summary of Results, Third Stage of Experiment

After the engines were reassembled, a decision was made to fuel the coconut engine on *refined* coconut oil. This was to pinpoint the problem of build-up on the injector. A better system of filtering was devised while keeping it as rudimentary as possible. Several layers of cotton cloth (such as old undershirts) were used and fuel was filtered twice, once when removing from the storage tank and again when filling the fuel tank on the engine. No extra precautions were taken with diesel fuel.

During the 100-hour run on refined oil, initial filtering of fuel removed particles of vegetable matter that were of a hard granular composition. The particles were more noticeable because they were of a brownish-black color. No laboratory analysis is available at this time, but it is apparent from our own laboratory that refined oil has a lower water content than crude oil.

No appreciable change was noticed in the daily logs during this run on refined coconut oil. Visual observation of the engines leads us to believe that the performance is *better* on crude oil. It can be stated that the higher water content in crude oil presents no problem and may even be beneficial.

At the end of run number 72, the coconut engine was switched back to crude oil and the experiment continued.

Engines ran efficiently for another 160 hours. At this point, the fuel consumption on the coconut engine showed an increase. After 40 hours a slow increase in engine exhaust temperature was noticed. These temperatures never reached a critical stage.

Later, during the dismantling of the engines, it was determined that these two phenomena were caused by higher exhaust temperature. This was due to muffler blockage from the first stage of the experiment with a gradual increase from subsequent second stage runs. This was eliminated by washing the muffler several times in gasoline. Higher engine temperatures were also due to this muffler blockage.

Both engines were completely disassembled after 760 hours. Two representatives of the FSM witnessed the inspection of parts. Microscopic examination of all vital parts was made and pictures taken of these results.

All parts of the diesel engine showed signs of normal wear. *It can be positively stated that coconut oil is easier on the engine than diesel fuel.* Only one observation was made that might present a problem after long usage of coconut oil. Build-up at the top of the cylinder wall where the ridge usually forms was noticeably larger. However, this build-up was soft and was easily wiped off to show clean metal. If an engine were run on diesel fuel occasionally, this deposit would probably burn away.

Parts of the engine were inspected with a 5-10-20-power magnifying glass. The coconut engine showed much less sign of wear on the bearing surfaces of the crankshaft. Normal signs of rotary motion were visible to the naked eye on the diesel engine. On the coconut engine crankshaft, no sign of wear was visible to the eye. The 5-power section of the magnifier had to be used before any marks were visible.

The final 300 hours of operation saw the engines placed under a workload. The engines were observed on a daily basis by PATS personnel during the time they were being used in the coconut plant. When the 1000-hour mark was reached, the engines were completely dismantled. Each part was inspected in detail, and when necessary, certain critical components were sent to a laboratory for a more in-depth analysis.

During the entire 1000 hours of operation, various tests and measurements were made. These included tests to determine engine RPMs, fuel consumption, operating temperatures and exhaust emission levels.

Summary of Results, Fourth Stage of Experiment

Engines were reassembled prior to the fourth stage of the experiments and daily runs were started again.

Both engines were performing as expected. The coconut engine was still producing slightly more torque

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Forestry and Natural Resources: The

Severe social and economic problems, caused by increasing deforestation, are being experienced in most lesser-developed countries. Forest loss, lack of other appropriate vegetative cover and reduced soil and water are directly and adversely affecting the basic needs of all people. Short-term and long-term problems associated with the degradation of natural resources call for concerted actions. The tasks which lie ahead for the conservation community are those of programming, coordinating, training, teaching, leveraging resources and working with farmers, institutions, ministry officials and an array of private voluntary organizations (PVOs) and non-governmental organizations (NGOs).

Programs that fail to take local dependence on forests into account run the risk of being not only ineffective but counterproductive.
UN/FAO

Some of the more pressing problems everyone must address today are: rapid population growth, which makes maintenance of production needs on remaining land area difficult; political constraint, which may prevent or impede development 'trickle down' to most of the rural and urban poor; soil erosion which reduces the fertility and increases the loss of organic matter, thereby reducing crop yields; water loss and erosion, which results in flood damage to villages, rapid siltation of irrigation projects, and the increasing severity and frequency of drought; and the reduction or elimination of habitat for plant and animal species with consequent reduction of animal food sources, medicinal sources and genetic diversity.

Numerous strategies and actions are being applied on several fronts in an effort to reduce tropical deforestation. Some actions being taken are:

- the establishment of better institutional and infrastructural framework(s) to improve the needed planning, designing and managing of public forests. This also helps increase the number

of extension agents to assist farmers and the technical assistance for villagers. Actions of this nature must involve the rural and urban poor and may include the establishment of cooperatives, credit provisions, PL 480 food-for-work programs, and the support of other PVO and NGO on-going initiatives.

- the strengthening of developing countries' conservation institutions to increase forestry and natural resource programming. These institutions also affect the training of ministry officials, forest technicians, extension workers and local farmers who work in related natural resource projects. Training must be relevant and precisely tailored for the target audience(s).
- the establishment of program, management and protection strategies and plans to sustain or protect existing forests. Such strategies and plans will protect against indiscriminant slash and burn activities, illegal grazing, wildfires, wildlife destruction and genetic loss. Actions of this type may include the identification, establishment and management of national parks, preserves or public forests.
- the creation of incentives to encourage people not only to protect existing forests, but to establish and manage new village woodlots or nurseries. Such incentives may include: technical assistance to local farmers, villagers or cooperatives who desire to grow trees for fuelwood or construction poles; loans, food aid or other financial assistance such as the Peace Corps Partnership fund to assist in these efforts. Forestry extension work can demonstrate that there are efficient and economical means to produce fuelwood, building materials, food and fodder. These approaches (cottage and small-scale industries) are also income generating in nature.

In response to this challenge, Peace Corps now has approximately 525 Peace Corps Volunteers (PCVs) working together with host country



Pat Evans, PCV/Paraguay 1984 teaches school children to plant trees.

counterparts in forestry and allied natural resource projects in over 40 developing countries. This program area is one of the fastest growing in Peace Corps, and the demand for skilled Volunteers is increasing to meet the new field program requests.

Today's PCVs serve as facilitators to change, focusing on an integrated approach to community development. The outcomes are both short-term and long-term. Volunteers assist small farmers in planting trees which enrich their soil, thus increasing food-crop yields and fuelwood supplies. These trees supply construction poles and materials for cottage industries. Government officials, calling on the expertise of Volunteers, respond to diminishing natural resources by establishing, planning and managing national parks and wildlife refuges. Volunteers teach school children to plant and care for trees. These children gain an understanding of the total ecological system along the way. Volunteers manage seedling nursery operations, passing on not only technical skills but bookkeeping, inventory management and marketing skills to other parts of community life.

In the late 1970s and early 1980s, following the cancellation of the Smithsonian program, Peace Corps

Role Of A Sector

forestry projects focused on village forestry. These projects offered incentives to people at the community level to preserve and renew local forests. Projects included: helping villagers or cooperatives develop woodlots, helping farmers establish tree nurseries, windbreaks, and other small, soil and water improvement projects. The major focus of the program was to provide people with a supply of wood, fodder, etc., through village woodlot projects, thus lessening the need to destroy their natural resources. Also, by establishing and managing nurseries, woodlots and forests people would gain a greater understanding of the benefits derived from forestry and conservation.

As the basic needs of food, fuelwood and construction materials are being met, and with the understanding and acceptance of conservation, today's forestry program has broadened in scope. While continuing to address basic forestry needs, Peace Corps has expanded its project portfolio to include forestry extension, park planning and management, environmental education, agroforestry and wildlife management, and more. The expanded em-

"Peace Corps has intensified its focus on forestry and natural resource development." Loret Miller Ruppe

phasis requires extensionists who specialize in interpersonal communication which facilitates skill transfer to counterparts. The increasing number of requests for assistance in establishing national parks and preserves, and for the establishment of extensive environmental education and interpretation programs, points up this area of most rapid growth.

The Forestry and Natural Resources Sector in the Office of Training and Program Support was created in 1978 to support Volunteers serving in related programs. The Sector is staffed by George Mahaffey, Natural Resource Sector Specialist on detail to Peace Corps from the National Park Service, Ja-



Creating a nursery at an SST, 1985.

cob Fillion, Associate Sector Specialist, and Nadine Leisz, Administrative Assistant.

The Sector's main focus is to provide Peace Corps staff and PCVs, AID Mission staff, PVOs, NGOs and Host Country Nationals with ready access to sound programming and technical advice. Materials, project models, training techniques and models, and quality professional field support in natural resources are all tools available through the Sector. The key to successful Peace Corps' programs lies in the capability to support collaborative grassroots level forestry projects.

The Sector has developed several training models (PSTs, SSTs and ISTs). Pre-service training, designed to give the trainee a technical base in a variety of skill areas, has two models. The topics focused on in these models include agroforestry, nursery management, soil erosion, irrigation systems, fruit tree grafting and management, park planning, environmental interpretation, wildlife management and basic resource inventories. The training also enables the trainee to analyze community social systems, identify problems and help communities seek solutions as well as acquaint the trainees with women in development (WID) issues related to forestry.

The Stateside Training (SST) model is used in the United States for two to four groups of trainees bound for different countries with similar natural resource needs. The second Pre-service Training (PST) model hosts no more than two groups of trainees. It is conducted in either the country of service or a "third" country.

A second form of training is for Volunteers who have at least 14 months of service remaining. This In-service Training (IST) is usually designed to give specific technical information on one or two topics related to PCV projects. ISTs are conducted for both PCVs and their counterparts, strengthening their working relationship. Previous ISTs included training in agroforestry, national park management, environmental interpretation and wildlife management. Areas of consideration for future ISTs include, but are not limited to, arid land forestry, fruit tree propagation, nursery development, park planning and management, soil conservation and water harvesting.

ISTs are supported in a variety of ways. The Forestry and Natural Resources Sector uses people world renowned in their field as guest trainers and facilitators. These people

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Forestry And Food-For-Work

During the last 18 months the Forestry and Natural Resources Sector has been examining a new programming initiative. This involves an opportunity for collaboration between AID, the Peace Corps, host country governments and PVOs in community forestry projects supported by PL 480 Food-For-Work (FFW) programs. Adding forestry projects to those which are currently supported by Title II monies gives new direction to an existing program.

This initiative is the cornerstone of a pilot program which will touch all three Peace Corps regions. The initial phase will be conducted in Africa. Latin American and Asian countries who will benefit most directly from PL 480-supported forestry projects will become actively involved in this pilot program during the 3rd and 4th Quarters of FY '86.

"Data reveal that PL 480 programs may be responsible for more reforestation, in terms of trees actually planted and surviving, than of all AID's direct forestry funding worldwide." Dan Deely, AID/S&T/FNR

Based on the initial recommendations of the assessment phase completed last year, and the acquisition of funding, PL 480 community-level forestry programs are targeted for three to five African countries. Country assessment visits to Latin America and NANEAP are forthcoming in the 3rd and 4th Quarters of FY '86. Additional discussion and interaction among country and mission staff and PVOs is planned for the coming months.

An Africa-wide workshop will be held in September/October to work out details of collaborative interaction. Areas of organizational and procedural concern will be highlighted.

Additional activities planned for all three regions in support of this initiative in FY '86 and '87 include: in-country assessments, country-specific programming consultations, in-country workshops for

participating organizations, development of staff training models for program managers and development of pre- and in-service training models for PCVs and Counterparts.

The new PC/AID interest in PL 480 opportunities in forestry is an outgrowth of data gathered by AID's Office of Science and Technology, Forestry, Energy and Natural Resources. Commissioned under the joint AID and Peace Corps Forestry Resources Management Initiative (PC/AID PASA), an examination of program needs is underway. The first findings of this study were published by Peace Corps and AID. The document, *Community-Level Forestry Development: Options and Guidelines for Collaboration in PL 480 Programs*, suggests entirely new and modified approaches to both community forestry and food aid programming. This document is available through the Forestry and Natural Resource Sector, OTAPS.

In this program Peace Corps will provide direct technical support to projects. PCVs will assist with soil conservation projects, nursery development, tree planting activities and technical skill transference to project personnel and FFW laborers.

Volunteers can increase the impact of food aid and other project resources by strengthening short- and long-term project planning and management capability. PCVs will

also act as extension agents promoting agroforestry principles and private woodlot development to local farmers.

An appropriate role of the Peace Corps forester in ongoing FFW projects might be as follows:

- Provide direct technical support to project nurseries and tree planting operations on a regular basis.
- Develop standard work norms for each of the various nursery and tree planting FFW activities.
- Institute a process of forward planning for each activity to achieve optimal organization, sequence and timeliness of work tasks, required tools and other resources.
- Establish a management information system.
- Train work site supervisors and PVO/government field personnel in technical skill areas, as well as in data collection and record keeping.
- Introduce tree species to FFW nurseries which are appropriate for agroforestry purposes and private woodlot establishment.

Field representatives of PVOs, FAO/World Food Programme, AID and recipient governments agree that these contributions by PCVs would significantly increase the impact of existing FFW/forestry and soil conservation projects.



Agroforestry scheme with *Palma cana* in the Dominican Republic.

S.P.A. NETWORK

Agroforestry

While agroforestry is not a separate S.P.A. program area, the project activities often fall within the categories of food production, income generation and energy. These projects can greatly enhance a community's self-reliance by helping the group understand and plan for important issues of land use, soil conservation, increased food production and greater self-reliance through community organization. We hope those of you involved in community agroforestry projects, or considering such work, will find the information and resources in this edition to be helpful.

Future editions will focus on Water/Sanitation, Fisheries, and Agriculture. Let us know of any technical information, examples of projects or resources that you have discovered during your field work in these areas.

Recently, a great deal of discussion has focused on the question of the "appropriate" use of S.P.A. funds and the Role of the Volunteer. To help address this issue, a brochure on S.P.A. is being distributed. It covers the basic mechanics of the S.P.A. Program and discusses the community development aspects of the program. Additionally, training materials have been developed on "designing small projects" and the "use of external assistance". We would like to hear field experiences/opinions regarding the issue of using S.P.A. funds and ways you may be handling the topic in training.

Costa Rica S.P.A. Case Study

Many communities in Costa Rica are facing two critical issues—rapid deforestation and few sources of income generation. These two factors have given impetus to projects that promote community-level nurseries which both aid in reforestation efforts and provide needed income. One such project is the Perez Zeledon fruit-tree nursery project in western Costa Rica, which is partially supported by the S.P.A. program.

The Perez Zeledon Sheltered

Workshop for the Handicapped near San Isidro was interested in making productive use of its unused land. The Peace Corps Volunteer, Kirk Koepsel, assisted the Workshop in designing a small-scale fruit-tree nursery project. The proposed project offered increased food production as well as a means of training some of the center's members in nursery establishment and maintenance. A local needs assessment identified mango, avocado and several citrus fruit varieties as the most profitable crops. The Ministry of Agriculture helped provide technical assistance by providing extension workers to the project. These agents offered advice both before and after the purchase of seedlings, regarding soil preparation and marketing.

The budget drawn up by the Sheltered Workshop for the Handicapped and the PCV amounted to \$1660. This money was spent primarily for the tools required to prepare the soil and plant the seedlings. Some funds were used to construct a simple germinating room and the storeroom made of wood and chicken wire. The rest of the funds were used for the purchase of the plants and fertilizer. The Workshop donated the land and the necessary labor, administrative support, a hand pump, and transportation of all materials for the project.

The project has been well-received for a number of reasons. First, the farmers understand that a system of erosion control is necessary, given the vulnerable nature of the soil in their area. Because of the project, extension agents are able to demonstrate a cost-effective means of achieving this goal. Also, residents at the Workshop are now provided with a real opportunity to gain new skills and participate more fully within the community.

In the final project report submitted by the PCV, the following accomplishments were highlighted:

- 100 fruit trees, representing 18 varieties have been planted and are available for grafting;
- 10,000 seedlings are being planted (initially);
- 30,000 seedlings can be grown annually after the first year;

- the germination and storage rooms are in place;
- the nursery is being maintained by one instructor and five handicapped workers; and
- a local agency is beginning a series of community talks on the advantages of planting fruit trees.

This case study offers a number of insights into the successful use of S.P.A. financial assistance. Underused local resources formed the basis for the project. A great deal of collaboration took place between several local organizations, which increased the chances of project continuation after the PCV left the site. Training and environmental education were integrated into the project from the beginning. This provided the community group an opportunity to plan and organize a project from its inception through its implementation and evaluation. Finally, the project was designed to become economically self-sufficient after initial S.P.A. support.

Latest Events

If you are interested in more information on any of the following technical assistance programs, please contact the host country's staff directly.

Third Quarter FY86 (Proposed Activities)

1. Small Project Design and Management Workshop in Costa Rica, Haiti, Belize, Solomon Islands: Training for staff/PCVs who are involved in designing, implementing and evaluating small community-initiated projects. In addition, workshop covers questions of how to determine appropriateness of using external assistance.

2. Project Feasibility/Costa Rica: Workshop to promote project design and implementation based on economic and social feasibility considerations, including ideas for assessing markets and increasing organizational cohesion.

3. Well Rehabilitation/Mauritania: An IST Workshop on well site selection, rehabilitation criteria and techniques, budgeting and project proposal writing.

Country Spotlight: Costa Rica

The Peace Corps was invited to work in Costa Rica in 1963, making it one of PC's first Latin American hosts. Currently, about 200 PCVs are serving in the country. They are involved in a wide range of projects which focus on the needs of the rural population in food production and income generation. The S.P.A. Program has contributed much to these efforts.

To date, the Program has funded 43 projects throughout the country, allocating a total of \$78,732. These grants funded:

- 19 food production/income generation projects;
- 10 income-generating projects;
- 6 food production projects;
- 2 projects devoted to other activities.

These small projects have sought to provide concrete economic benefits for the local participants, within the bounds of the limited natural resources available. Therefore, environmental education and project self-sufficiency are integral parts of the overall efforts. Such concerns

are addressed whether establishing a fish hatchery, starting a forestry extension program at a high school, or setting up a rural nursery.

The Costa Rican Peace Corps staff is actively involved in the approval process for S.P.A. projects, helping to ensure that projects are well planned, feasible and meet community needs. Both the staff and Volunteers will receive In-Service Training in the months ahead to reinforce their project design, monitoring and evaluation skills.

In the future, income-generating S.P.A. projects will be assessed for their ability to help the social development of the entire community as well as for their ability to provide economic benefits. As elsewhere, Costa Rica sees major advantages of the S.P.A. system in the program's rapid response time, the level of review afforded to proposals, the emphasis on community involvement, and the importance placed on intermediate and long-term planning.

the world's renewable natural resources.

As a result of collaborating with many entities Peace Corps' Forestry and Natural resources Sector had developed integrated forestry and agriculture projects as well as training materials. For example, forestry is one of three components in the African Food Systems Initiative (AFSI) which will send its first group of Volunteers to Mali after an SST this spring. The foresters serving in this integrated program will be expected to function as part of a team with PCVs whose skills lie in other areas such as agriculture and water sanitation.

The newest programming initiative being implemented through the Sector is a major effort to develop a new and expanded capability within Peace Corps to combine Volunteers with food aid programs in appropriate ways. The Sector is also developing program models for close association with PVOs, HCNs, AID and NGOs.

Expanding program areas bring projects in park planning, wildlife management and environmental education. The need to conserve natural resources is spotlighted. Volunteers and ministry officials study ways to preserve habitat and effectively manage populations. U.S. government agencies facilitate assessments and encourage interaction with local people who will be most affected by environmental change.

The Forestry and Natural Resources Sector supports programs currently in place through its professional network. Responding to PCV requests for technical and material support is a primary function of the Sector Specialists. Assuring that new programs are fully backed by experienced natural resource personnel is a chief concern of the Specialists as expansion continues.

It is our hope that country staff and Volunteers contact the Sector whenever there is a need for support.

- Before their service, as they go through training.
- During service, when needs are great and resources seem few.
- Once service ends, with a desire to explore the network of professional natural resource organizations.

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come from government agencies, PVOs and professional societies. Funding for ISTs comes through inter-agency agreements and collaborative efforts. Peace Corps is able to use these resources at little or no cost. The Sector is also often able to assist a country with the portion of funding the country is unable to cover.

The Peace Corps and the Agency for International Development (AID) Forestry Participating Agency Service Agreement (PASA) directly provides Peace Corps with additional training and programming dollars as well as material-support dollars to support Peace Corps staff, PCVs and HCNs working in natural resource projects. Staff and PCVs alike have found that with minimal technical and material support this collaboration helps them achieve better results.

In addition to the PC/AID PASA,

other collaboration has significantly increased in the past six years. Many resources are now available outside Peace Corps to assist in PC projects. These resources may be obtained through government agencies, PVOs, NGOs and a host of academic institutions serving the natural resource community. Benefits derived through collaboration take many forms such as trainers, programmers, written documents, equipment, cash or in-kind donations.

Collaboration with PVOs has been comparable to similar efforts with AID Mission staff. Most collaboration between Peace Corps and PVOs has been initiated and developed in the field. Organizations such as CARE, World Wildlife Fund, Catholic Relief Services and Lutheran World Relief request PCV placement in their project sites. Such joint efforts have enhanced the common goal of protecting and conserving

Desktop Laboratories

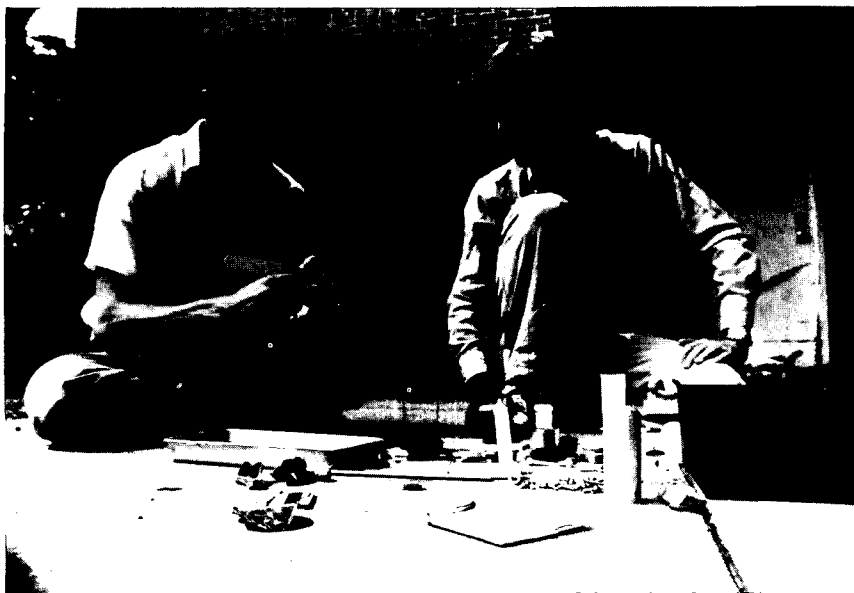
Peace Corps science teachers now have access to additional tools to assist them in teaching. One such tool is the *Misangyi Science Laboratory Kit* which the Misangyi family donated to the Peace Corps. This is a one-time donation and will not be included in the regular ICE inventory.

This general science kit will stimulate the interest of any basic science student in the British system, Forms 1 and 2, and the French system, *Ecole Secondaire*. The kit helps the student understand how and why things occur in nature by systematically presenting concepts involving the measurement of changes in matter and energy. Students read about a topic in the kit's manual, see it illustrated and finally set up, perform and observe an experiment.

The manual, which is included in the kit, presents 72 experiments in basic science, physics and chemistry. The kit comes in a sturdy plastic box about the size of the Peace Corps Volunteer medical kit. The kit also includes the tools and substances needed for the experiments. These items are versatile, such as a ruler with holes used as a measuring device as well as a lever. Many items are easily replaceable locally, such as string, candles and salt. Some experiments do require materials such as water and pencils which are not in the kit. None of the experiments require external electric current; all can be performed on any flat surface.

In order to maximize the kit's use, teachers should allow one kit for every one to two students. Also, it may be more efficient to separate items and use the boxes as bins for storing similar apparatus together. In any case, the six chemical substances in the kit should definitely be stored separately in a dry, locked place.

The manual included in the kit is but one resource that teachers may draw upon for science teaching ideas. The *Science Teacher's Handbook* (R-50) can also be used as a lab manual. It contains chapters on experiments, laboratory techniques, improvising apparatus, and the care and use of tools. The chapters in this handbook on forming science clubs and organizing science fairs are also



Math/science teacher trainees test the science kit during an SST in 1985.

useful to any Volunteer interested in ideas for secondary projects.

The *New UNESCO Source Book for Science Teaching* (ED036) offers teachers and students a number of ideas for devising simple scientific activities, investigations and experiments in the physical, biological, earth and space sciences. The book's many illustrations and appendices add to its unique usefulness. Its companion volume, the *UNESCO Handbook for Science Teachers* (ED039) provides science teachers with the philosophical background and practical applications of science teaching. It includes chapters on the design of the learning environment and equipment, and on safety in the teaching of science. This handbook is an excellent tool for the teaching of science teachers.

In addition to these resources, ICE distributes the following math and science teacher's professional journals on a limited basis:

- *American Biology Teacher*. National Association of Biology Teachers.
 - *Journal of Chemical Education*. American Chemical Society.
 - *Mathematics Teacher*. National Council of Teachers of Mathematics.
 - *The Physics Teacher*. American Association of Physics Teachers.
- These journals should assist teachers in their current work and keep them abreast of changes in their field.

Resources from USIA

Peace Corps' second goal is to promote a better understanding of the United States in host countries. USIA (the cultural voice of America overseas) produces materials in various media which help meet this goal. The Agency distributes these books and audiovisuals at minimal cost through the United States Information Service (USIS) overseas. These materials are of great use to teachers of English as a foreign language (TEFL) and other Volunteers interested in teaching English either in a formal classroom or in a non-formal situation.

The materials listed in the *USIA Publications List* augment English-teaching text books with fiction and non-fiction at various reading levels. The *Ladder Series* sets a pace for language learners by using adapted versions of some of the most important American works. Other series focus on oral or writing skills. In addition to these, USIA also produces teacher training materials and several titles on teaching English for special purposes (ESP) such as English for academic and scientific purposes.

Videos, cassette tapes, posters, and photographs supplement many of the print materials. Among the video series available is *Videoscope*

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Sector Updates

AGRICULTURE

Guidelines for Integrated Control of Maize Pests, Dale G. Bottrell, FAO. 1979 (UNIPUB, P.O. Box 1222, Ann Arbor, MI 48106) 91 pp. \$14.50.

Integrated pest control is a multi-dimensional approach to reducing damage caused by pests using biological, genetic, cultural, physical and chemical techniques. Promises to reduce damage at lowest cost on a continuing basis. Discusses the rationale for using this system with maize. Covers types of pests, describes steps for introducing the system, goes over methods of monitoring and forecasting pest populations and discusses training needs of crop specialists. Focus is on pest problems in preharvest stage. Balanced treatment of weeds, diseases and insects.

Available free through ICE to all PCVs and staff working in maize improvement projects.

Field Problems in Cassava, by J.C. Lozano, et al. 1981 (Centro Internacional de Agricultura Tropical, Apartado Aereo 6713, Cali, Colombia) 192 pp. \$7.00.

Describes how to recognize some diseases and pests that attack cassava. Gives symptoms of common nutritional deficiencies and herbicide damage. Assumes that early identification of these symptoms is particularly important with cassava because it is a long-cycle crop and the roots are the most valuable commercial product. Proposes solutions for each problem identified. Single problem per page makes the guide easy to use.

Available free through ICE to all PCVs and staff working in cassava improvement projects.

Field Problems of Beans in Latin America, by Howard F. Schwartz et al. 1978 (Centro Internacional de Agricultura Tropical, Apartado Aereo 6713, Cali, Colombia) 136 pp. \$8.50.

Intended to help scientists, technicians, extension agents and farmers identify problems that impede bean production and to develop controls to increase that production. Written with the assumption that average yield of bean fields is well below potential yield and that problems are caused by disease and poor soil, both of which are controllable. Identifies various common plant diseases, insect pests and nutrient problems; proposes solutions for each one. Includes an index of scientific names for plant pathogens and insect pests.

Available free through ICE to all PCVs and staff working in related projects.

APPROPRIATE TECHNOLOGY

Lab Tests of Fired Clay and Metal One-Pot Chimneyless Stoves, by Issoufou Ouedraogo, George Yameogo, Sam Baldwin. 1983 (Volunteers in Technical Assistance, 80 S. Early St., Alexandria, VA 22304) 37 pp.

A technical description covering different aspects of lab tests. Includes stove design, test methodology, procedures for calculating the percent of heat utilized, error analysis, and test results. Includes an analysis of test results. Attempts to get initial research into the field quickly.

Available free through ICE to all PCVs and staff working in related projects.

Improved Wood Stoves: Users' Needs and Expectations in Upper Volta, a report from Volunteers in Technical Assistance (VITA 80 S. Early St., Alexandria, VA 22304) 76 pp. \$8.25.

Identifies ways in which women can contribute to the increased use of efficient wood-burning stoves. Begins with the methodology of the study and goes on to describe the cooking practices of the region, the stoves most commonly used, the fuel re-

quirements of these stoves and the kinds of improvements women are most likely to accept. Includes conclusions, recommendations and the questionnaire used in the study.

Available free through ICE to all PCVs and staff working in related projects.

CONSTRUCTION/ HOUSING

Socio-Economic and Environmental Impacts of Low Volume Rural Roads: A Review of the Literature, by Devres, Inc. 1980 (Bureau for Program and Policy Coordination, U.S. Agency for International Development) 173 pp.

Surveys the available literature on the subject, identifies major unanswered questions and raises issues regarding the construction of rural roads. Paper is exploratory, intended to spark discussion.

Available free through ICE to all PCVs and staff working in related projects.

ENERGY

Environmentally Sound Small-Scale Energy Projects: Guidelines for Planning, by Elizabeth Ann Bassan. 1985 (Vita, 80 S. Early Street, Alexandria, VA 22304) 138 pp. \$7.95

Intended to help development workers and others increase their awareness of crucial environmental factors that effect small-scale energy projects. Defines environment as physical, socio-economic and cultural surroundings. Provides an introduction to ecological concepts, a guide to planning, guidelines for informed decision-making along with background information and a look at alternative solutions. Contains charts and illustrations.

Available free through ICE to all PCVs and staff working in related projects.

FISHERIES

Small-Scale Processing of Fish, prepared under the joint auspices of the International Labour Office, the Food and Agriculture Organization and the United Nations Environment Programme. 1982 (International Labour Office, CH-1211 Geneva 22, Switzerland) 118 pp. \$6.79.

Written for small-scale fish processors, trainers and extension officers, project evaluators and technical cooperation experts. Covers fish salting, drying, fermenting, smoking and boiling. Includes a framework for estimating production costs and an analysis of the environmental impact of fish processing.

Available free through ICE to all PCVs and staff working in related projects.

Fish Handling Preservation and Processing in the Tropics: Part 2, compiled by I.J. Clucas. 1982 (Tropical Institute, 56/62 Gray's Inn Road, London WC 1X 8LU England) 143 pp. \$6.30.

A set of 52 lectures serving as the technical basis for an 8-week course in the various aspects of fish handling. Suitable for middle-management level in government and industry. Covers traditional processes such as drying and smoking, as well as more advanced processes such as canning. Includes quality assessment, microbiology of spoilage, public health microbiology, landing and retail facilities, extension services and training.

Available free through ICE to all PCVs and staff working in related projects.

HEALTH

Primary Health Care Issues: Using Radio, by William O. Sweeney. 1982 (American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20015) 53 pp. \$1.00.

Designed to help health care professionals who are implementing proj-

ects with a media component determine whether and how to use radio in their programs. Focuses on factual information gleaned from related projects. Covers the features of radio that make it suitable for use in primary health care. Includes a guide to developing radio projects.

Available free through ICE to all PCVs and staff working in related projects.

Primary Health Care Issues: Community Participation, by Patricia A. Martin. 1983 (American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20015) 71 pp. \$1.00.

Written to clarify how community participation can help primary health care programs in developing countries achieve their goals. Highlights important issues, gives strategies for developing participation, shows different ways communities participate, and makes conclusions about what works, what fails and why. Attempts to help sort out when community participation is appropriate, what kinds are helpful for what projects and how to encourage such participation.

Available free through ICE to all PCVs and staff working in related projects.

Primary Health Care Issues: Community Financing, by Wayne Stinson. 1982 (American Public Health Association, 1015 Fifteenth Street, N.W., Washington, D.C. 20015) 90 pp. \$1.00.

One in a series of reports directed at health care professionals who plan and implement programs around the world. This report concerns resource mobilization, emphasizing community participation. Describes ways users of public health services have helped defray costs and how these contributions fit into overall primary health care financing. Discusses methods of community financing as well as evaluating the alternatives and the potential and limitations of the process.

Available free through ICE to all Health PCVs.

S.E.D.

Tanning of Hides and Skins, prepared under the joint auspices of the International Labour Office and the United Nations Industrial Development Organization. 1981 (ILO Publications, International Labour Office, CH-1211 Geneva 22, Switzerland) 225 pp.

Contains fairly detailed technical information about the various technologies used in the tanning process. Includes a list of equipment suppliers in both developing and developed countries. Provides a methodological framework for evaluating alternative technologies and information on their socio-economic impact. Generously illustrated with diagrams and charts.

Available free through ICE to all PCVs and staff working in related projects.

Patternless Fashions, by Diehl Lewis and May Loh. 1981 (Acropolis Books, Ltd., Colortone Building, 2400 17th Street, N.W., Washington, D.C. 20009) 278 pp.

Detailed step-by-step instructions for making clothes without using paper patterns. Explains how to take body measurements, sew garments for men, women and children and work with new or recently-developed synthetic fabrics. Illustrated with detailed diagrams. Includes an appendix for the sewing basics and one for mending clothes.

Available free through ICE to all PCVs and staff working in related projects.

SPECIAL EDUCATION

Low Cost Aids, by Don Caston. 1982 (ICE Reprint) 54 pp. Free.

Discusses equipment that helps a physically disabled child function. Presents designs that have been used extensively in India and Africa. Assumes that aids must be cheap, resemble ordinary household furniture as closely as possible and have a

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variety of uses. Consists of drawings that show how to construct aids. No measurements are given as each child has to be individually measured. Includes hints on how to build aids and how to make them more comfortable.

Available free through ICE to all PCVs and staff working in related projects.

A Cry for Health: Poverty and Disability in the Third World, edited by Oliver Shirley. 1983 (The Third World Group for Disabled People, 16 Bath Street, Frome, Somerset BA11 1DN England) 96 pp. \$3.50.

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and horsepower than the diesel engine. However, as the engines increased hours of service, fuel consumption on the coconut engine had become almost equal to the diesel engine. In the first stages of the experiments, there was a marked difference in the quantity of fuel consumed. There is now less of a difference.

Engine temperature became more equalized. This change in temperature on the coconut engine was caused by a partial blockage inside the muffler.

The muffler on the coconut engine was removed after Run #118 and cut into at the original weld seam. All vent perforations showed either partial or complete blockage. Holes were easily cleaned with gasoline and wooden punches. The muffler was reassembled and the engine returned to normal operating temperatures.

This problem was caused by impurities in the fuel. Very close attention must be paid to adequate fuel filtering on any future runs. Two other ways of correcting this are with an installation of a horizontal muffler (discussed previously) or by fuel additives.

Both engines performed efficiently until the 131st run when a total of 1008 hours were logged on each. They have now been cleaned and oiled for a shutdown period while other plans for use or experimentation are made.

GIVE!

The ICE staff works hard to provide you with the most relevant, up-to-date technical information for your projects. Not surprisingly, the most useful materials we distribute are those which have been developed over the years by Volunteers like you working in agriculture, education, forestry and a host of other areas.

We depend on contributions from PCVs and staff in the field to build our collection of appropriate technical materials. Volunteers' contributions are frequently published as how-to manuals. They often appear as articles in the ICE Almanac. And they make up the bulk of reports, designs, lesson plans and other documents in the ICE Resource Center.

We are vitally interested in the results of your work. Take time to write up your fisheries project or your design for a better appropriate technology mousetrap and send it to ICE. Your fellow PCVs around the world will thank you for it!

Cautions For Further Tests

Adequate filtering processes of fuel must be strictly observed. During this 1000-hour test, several problems were caused by impurities in the fuel:

- fuel filter blockage;
- coking or build up on injector nozzle;
- gradual build up of soot in muffler;
- slight exudation of raw fuel in exhaust.

These problems were partially solved by our rudimentary filtering system, but for longer runs a more efficient filtering system should be devised.

Daily maintenance procedures must be strictly adhered to. This includes keeping all external parts of the engine clean. Our static experiment with various materials submerged or partially submerged in coconut oil showed that some corro-

sion will start on several materials if this cleanliness is not observed. Tests and the daily log also showed that signs of all problems which might develop can be spotted early and corrected before they affect the normal operation of the engines.

The operator or maintenance person who will supervise any runs of the engines in the future should have prior knowledge and experience of engines run on coconut fuel.

Since the Yanmar TS-50 engine seems ideally suited for this experiment, other types of engines should be carefully tested before extended use. *The Yanmar TS-50 is a horizontal stroke engine. Results might be different on a vertical stroke engine.* The fuel tank on the Yanmar TS-50 is in a position which insures that fuel is actually pre-heated. This might not be true of other engines. Also, there is enough vibration to keep fuel thoroughly mixed if additives are used in this Yanmar model.

Results of this experiment show that a diesel type engine can be operated efficiently for long periods of time using coconut oil as fuel. More information will be needed to get a clear picture of the economic feasibility of this for long time operation. What data we do possess shows that there is a notable increase in cost when using crude coconut oil. This might be lessened by using crude coconut oil as it is primitively extracted on outer islands of Micronesia.

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which focuses on science and technology topics. The poster sets and picture-talk collections can help develop oral and written skills as well as brighten a room.

Volunteers may contact their local USIS office for the availability of these and other materials.

USIA is also responsible for publishing the *English Teaching Forum: A Journal for the Teacher of English Outside the United States* which ICE distributes to TEFL Volunteers. This quarterly journal contains stimulating articles on teaching techniques and philosophies as well as a section on news and ideas from all over the world. *Forum* will keep the TEFL teacher aware of current topics in the world of teaching.