from
its source of energy and placed in a heavily insulated box where all the heat is trapped. This "haybox cooker" concept has been successfully used for hundreds of years in Europe, although in most developing countries acceptance of this idea has been slow.

In many parts of the world, the task of cooking does not make the most efficient use of all available energy. Perhaps this is because energy efficiency is not the only factor important for the cook when selecting fuel. Besides a predominant concern with cooking performance, other considerations in selecting fuel may include:

*** price or availability of the fuel**
*** tendency of fuel to smoke excessively**
*** convenience.**

In the Gambia, women who work in rice fields are interested in cooking systems that work rapidly so that they can spend as little time as possible in the kitchen. In Burundi, many women have rejected smokey peat in favor of smokeless charcoal even though charcoal costs much more. In parts of western Niger, the women could burn twisted grasses or millet stalks, but they prefer smokey cow dung because the fire requires less attention. The needs and preferences vary widely, and yet they must be considered when energy for cooking is being discussed.

Sometimes the women in an area will use a fuel simply

because it is traditional. There has been no conscious choice, and the cooks may be unaware of the relative merits of any alternatives.

Compared to almost any other fuel, biogas for cooking is the cleanest and easiest to control. Yet a number of problems exist. Collecting human and animal waste for the digester may be impossible where there are social taboos against the handling of wastes. Families may not have enough livestock to provide the necessary amount of dung. With community biogas plants there may be problems in the equitable distribution of the gas among community members. Also, there is the expense not only of the digester but also of the individual stoves or heating elements to replace the traditional system. Biogas systems require training for proper maintenance of the system.

Heating: In some parts of the developing world, homes require heat, at least during certain seasons. While not always as significant a problem as in the temperate regions, space heating can be an important need. It can often be met by the heat produced from the cooking fire.

Most efficient cookstoves enclose the fire and minimize the transfer of heat to the surroundings. A stove specifically designed for both cooking and body heating can be one solution. Otherwise, if a family adopts a fuel-efficient cookstove it may be obliged also to acquire additional energy for personal warmth.

In Korea, the traditional "ondol" system is one that successfully combines the functions of cooking and space heating. Unfortunately, it uses coal as a fuel, and the widespread use of this stove in Seoul is believed to contribute heavily to the high incidence of tuberculosis and other respiratory ailments and carbon monoxide poisoning.

Lighting: For most rural people night-time lighting is provided by the moon, stars, or occasionally a flickering wood fire or kerosene lamp. However, women who cook after dark or inside a dark kitchen depend on light, often from the cooking fire. If the traditional fire is replaced by a fuel-efficient cookstove, very little light will escape and it will be necessary to find other sources of illumination.

Kerosene lamps (or "paraffin lamps" in British English) are widely used in urban areas where there' is no electricity. However, the price of kerosene is very high and rising steadily.

Biogas can produce a very bright light when burned in a lamp with a mantle. Electricity also gives very satisfactory lighting. Neither of these systems provides portable lighting, however. And both are costly.

While light is often desirable in rural settings, it usually carries no direct economic or survival benefits. For this reason, it may be best considered a possible side-benefit of energy production where the primary use is more directly linked to basic

needs and income generation.

Food processing: Food processing includes husking, grinding, oil extraction, pickling, drying, and refrigeration or freezing. These last two require significant amounts of energy. Refrigeration and freezing, once begun, place a continuous drain on energy resources until the food is either consumed or spoiled. This makes it an expensive process, and in many areas priority for refrigeration will go to medicines rather then food. Energy for refrigeration can come from electricity generated in any number of ways. Biogas is also highly appropriate for refrigeration.

For large-scale drying of foods, a solar dryer can be extremely practical. The drying is more even, more rapid, than most traditional methods, and the food is protected from insects, dogs, and other animals. See page 85 for further details on solar food drying.

Energy for agriculture

Energy is used in all phases of agriculture. From land clearing and management, to crop production, harvesting, processing, and transport to market, considerable work is required. In most areas of developing countries, much of the energy for agriculture is from human labor, animal power, and the cycling of nutrients in natural biological processes.

A well-functioning ecosystem is critical for dependable and

sustainable yields. Many heavily used energy sources play a major role in maintaining the well-being of the agricultural ecosystem, such as crop residues and dung gathered from fields, or trees planted around or near fields. In planning projects, the competition between using these resources for energy and using them for their value in protecting soil and maintaining the water supply must be considered.

In some areas, large amounts of energy are added to the natural system (effectively changing the limiting factors) to increase yields. This includes chemical fertilizers, pesticides, and highly mechanized farming techniques. This can damage the ecosystem, especially on marginal lands. Energy intensive agriculture in such areas as the Sierra Madre of Mexico or the drought-prone plains of the Sahel can lead to serious erosion and other unwanted problems, making the land even less productive than before.

However, one should take advantage of the impressive impact that small infusions of well-placed energy for fueling appropriate technologies can have on crop yields. For example, if water is the limiting factor and is intermittent in supply, a wind-powered irrigation pump may be an answer.

Irrigation: Irrigation is the application of water to crops to increase their productivity. It may be used, for example, to lengthen the growing season or to cultivate in arid regions where natural rainfall is insufficient. Under some circumstances,

irrigation can bring parasitic diseases and may ultimately impair soil fertility. While these issues are beyond the scope of this book, they should not be ignored.

Pumping water for irrigation usually differs significantly from pumping water for domestic use; this needs to be considered when seeking an appropriate technology. For example:

*** Water for irrigation is usually required in larger volumes, so the pumps are usually more powerful and they operate uninterrupted for hours at a time.**

*** Pumping for irrigation directly affects agricultural production and hence income, while pumping domestic water usually has no direct financial benefits. Thus, farmers may be willing to invest more money or effort into installing irrigation systems. This is already evident from the large number of diesel-powered irrigation pumps seen throughout the Third World.**

*** Irrigation pumping is usually not required year-round. The pumps may actually be idle for months at a time.**

*** Reliability in meeting the demand for water is an essential feature of any irrigation system. It is wise to have back-up equipment and spare parts in case of mechanical breakdowns.**

A range of energy sources can be exploited to pump water for irrigation. The best choice of technology depends, of course, on the specific circumstances, especially local farming practices. Here are a few guidelines:

Wind power can be successful in pumping water. For irrigation, it is suitable only as long as there is a reliable breeze at the right time. You may construct a large tank or above-ground reservoir to store water for calm days, but the evaporation losses and high cost in this solution must be carefully weighed against possible benefits.

Electric pumps operated by a photovoltaic system are worth considering. There is never any fuel to store or carry to the pump site, which is a great advantage if the system is far from a town or village. Because of the large initial cost of equipment, a photovoltaic system is probably most suitable where there is a long irrigation season with the likelihood of a high profit from the harvest. You should purchase only equipment that has been proven reliable in thorough field testing.

Biogas may be used in some instances, to run the motors of irrigation pumps. Alternatively, a mixture of 70 percent biogas and 30 percent diesel fuel has been tried. It is convenient to have the sludge and supernatant produced close to where they will be applied to the soil. A possible disadvantage is the large size of digesters and great volumes

of raw materials needed to provide adequate amounts of biogas. A single batch digester may be inadequate for even a short irrigation season, so either multiple batch digesters or continuous feed operations are required. Given the importance of reliability, biogas technology should be considered for irrigation only where it has already been successfully used locally for other functions.

Ethanol, diesel fuel, gasifier engines, and other organic fuel systems may all be appropriate in specific situations. Here the major issues are fuel transport and storage, energy efficiency, cost effectiveness, and environmental impact. As always, the long-term effects must be considered, for they are ultimately more important than any short-term gains.

Animal traction is sometimes well-suited for small irrigation systems. Proven schemes are available for using various types of draft animals to lift a continuous stream of water a vertical distance of 1-30 meters. The technology is relatively simple and reliable. When irrigation water is no longer needed, the same animals may be put to work transporting the harvest, cultivating the land, or performing other functions. This technology does require training and handling animals, and the availability of fodder in dry seasons.

Land preparation, crop management, and harvesting: In traditional western agriculture, these end uses depend on farm machinery such as tractors, plows, planting implements, and

threshers. Before such tools are adopted for small-scale tropical agriculture, you must be sure they are appropriate for local conditions. Great erosion damage can result from plowing on hilly terrain where the soil structure is poor. Even on flat land, farmers may find that a heavy rain can wash away soil to the lowest depth of plowing. When using energy in agriculture, much environmental damage can be avoided by proper timing of all activities and a wise selection of suitably scaled machinery.

For small-scale agriculture, animal traction still provides the best low-cost energy in many situations. The animals must be fed and cared for, properly harnessed, and given only work that does not exceed their strength and endurance. The manure is an added benefit when properly applied to the soil or used in a biogas digester. If there is inadequate fodder, however, soil may be degraded by the animals eating the ground cover.

Another option is the use of a hand tractor powered by compressed biogas or any of the liquid fuels, such as gasoline, diesel, or ethanol. Small gasifier engines may soon be proven practical for hand tractors, although this will considerably increase their weight. Also, there is some work currently underway to develop dual-fuel engines to take advantage of seasonal fuel availability.

There is increasing interest in having energy to supply power to machinery that comes directly from the land itself. This entails the use of crop residues, such as rice husks or animal

wastes, or the production of fuelwood or ethanol feedstock. It is possible to integrate the production of these energy resources with other uses of agricultural land. On the other hand, growing or using local resources to provide energy may actually conflict with food production.

Chapter IX

SUMMARY

There are no cookbook recipes for successful energy projects; different communities and local conditions require adaptation in approach and design of a project. However, there are basic concepts and considerations that should be an integral part of planning and carrying out environmentally sound small-scale energy projects. Below is a list of the "ingredients" covered in this manual:

*** Environmentally sound energy projects can help maintain a balance in resource use, thereby contributing to the regeneration of resources. This can lead to long-term availability of renewable resources, the basis for sustainable energy development.**

*** Energy is produced and used in different ways. The local ecosystem, particularly those factors such as climate and soil fertility, affects the productivity of renewable resources. Socioeconomic structures and cultural values**

affect a community's choice of technologies for producing energy and the use the community will make of available energy.

*** Traditionally women have played a key role in the collection and use of energy sources in the Third World. Energy projects that ignore the knowledge and experience of women may increase rather than lessen the time and effort required to obtain energy from various sources.**

*** The planning process requires information about the community and data on the physical environment. Socioeconomic information on the needs and use of energy for families and for different income groups helps development workers to predict better answers to the following questions:**

-- How will a proposed project affect the local ecosystem?

-- How will it affect various income groups involved in the project?

-- How can a particular technology or new energy source effectively be introduced to assure implementation?

-- How might traditional attitudes and practices in carrying out the project affect the physical

environment?

Useful information about the natural environment or local ecosystem is available from local people and sources. Additional technical information can be collected from government offices and other sources.

*** Community participation together with guidelines that include environmental, social, cultural, economic and technological considerations form the basis for decision making and reaching participant groups. Members of the community that will benefit from the project, especially women, should be involved in all levels of project planning, implementation and evaluation. Talking with participants is the best way to learn about local attitudes and values, community priorities, and other factors that influence energy use and acceptability of change and new technologies.**

*** The planning process helps explore present problems and avoid future problems related to energy use and production. Examining ways to meet the energy needs of a particular community involves several factors:**

-- Feasibility of developing additional energy sources or improving production of present sources or both

-- Benefits and costs of developing new conversion

technologies

Improving the efficiency of current energy "end uses" (tasks/devices for which energy is needed, such as improved stoves where they are shown to be effective).

*** Planners can compare and measure various energy sources and end uses by: collecting information as described above; considering multiple uses of an energy source; and properly testing the efficiency of end-use devices under local conditions.**

*** Matching energy uses with the appropriate energy sources should be based on environmental considerations that minimize negative effects on the availability and growth of resources.**

Development workers should find it useful to explore these points further within the context of the local community and the specific environmental setting in which they are working. Development workers of community-based organizations with an established relationship with the people of the community have a special role to play in the area of sustainable development projects. In these cases, implementing and monitoring projects that meet real needs is more likely. One further step that would be helpful is to share and exchange information about experiences in the process of planning energy projects. Through talks, workshops, and publications and other documentation, the lessons

learned can benefit the work of other groups and communities.

APPENDIX A

ENERGY CONVERSION TABLE

UNITS OF ENERGY

1 Kilocalorie (kcal) warms 1 kilogram (2.2 lbs) water 1[degrees] Centigrade (1.8 F).
1 British Thermal Unit (Btu) warms 1 pound of water 1 degree Fahrenheit.
1 foot-pound (ft-lb) lifts 1 pound 1 foot.
1 joule (J) lifts 1 kilogram 10.2 centimeters (4 in.).
1 kilowatt-hour (KWH) is energy used at the rate of 1000 watts for one hour.

UNITS OF POWER

1 watt (W) = 1 joule per second
1 kilowatt (KW) = 1000 watts
1 Megawatt (MW) = 1000 kW
1 horsepower (hp) = 33,000 ft-lbs per minute
1 Quad - [10.sup.15] Btu (a million million Btu)

TO CONVERT TO MULTIPLY BY

Btu's cal 252

Btu's ft-lbs 787
Btu's joules 1055
Btu's kWH 0.000293

cals. ft-lbs 3.080
cals. joules 4.184
kcals Btu's 3.97
kcals kWH 0.00116

ft-lbs Btu's 0.0013
ft-lbs joules 1.356
ft-lbs kWH 0.000000377
ft-lbs cals. 0.3247
joules Btu's 0.0009
joules cals 0.239
joules ft-lbs 0.737
joules kWH .00000028

kWH Btu's 3413
kWH ft-lbs 2,631,000
kWH joules 3,570,000
kWH kcals. 859

horsepower watts 746
horsepower kcal/day 15,412

watts horsepower 0.00134
watts kcal/day 20.66

kcal/day horsepower 0.000065
kcal/day watts 0.048

APPENDIX B

ECOLOGICAL MINI GUIDELINES
FOR
SMALL-SCALE/COMMUNITY DEVELOPMENT PROJECTS

by
Fred R. Weber(*)

The following short-form version of the CILSS/Club du Sahel Ecologic Guidelines has been developed to meet the needs of development workers at the community level. The original version is available at cost ($5.00) from the CODEL Environment and Development Program. This paper was prepared by Fred R. Weber as a result of discussions with private development agencies at CODEL workshops on environment and development in 1980.

The guidelines assist in analysis of proposed activities and a design that will minimize negative impacts. It is to be used for small-scale projects under $250,000. The general approach is the same as for the complete CILSS/Club du Sahel Ecologic Guidelines. Methods and procedure, however, have been condensed in a form that is less time consuming and can be carried out by project design personnel not formally trained or

experienced in environmental analysis.

You are encouraged to adapt the guidelines to your project. CODEL welcomes comments on the usefulness of this tool and reports on your experience in utilizing it.

(*) Fred R. Weber, a long time VITA Volunteer, is a forester and engineer who has worked for many years with private development agencies in West Africa. He is the author of many books, including the classic resource Reforestation in Arid Lands (VITA, 1977).

Introduction to the Guidelines

Begin with any project in the community development area: wells construction, school gardens, poultry raising, village woodlots, access roads, and so forth. Any community activity will, in one form or another, affect the environment somehow. Especially if "environment" is regarded in its broadest form, not only the physical aspects are affected but also health, economics, social, and cultural components.

The objective of this exercise is to try to predict as far as possible the various effects the proposed activity will have in both negative and positive terms. A project normally is designed with specific results in mind. An attempt is made to provide well defined, "targeted" inputs to bring about some improvement to the people in the field. What is less clear is the nature and extent

of incidental consequences these activities might bring about that are less desirable, in fact often adverse or negative.

In reality, more often than not, the good will have to be taken with some bad. Choices often involve trade-offs. The trick then consists of developing a system where these trade-offs ultimately are as favorable as possible in terms of the people involved.

INSTRUCTIONS

In order to identify areas where possible adverse effects may occur, the basic question that should always be asked is:

HOW WILL PROPOSED PROJECT ACTIVITIES AFFECT _____?

If we insert in this question the components that together make up the environment, we will get answers (and possible warning flags) for those situations where otherwise negative consequences "inadvertently" may result.

Explanation of Columns <see chart>

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CILSS/CLUB du SAHEL

ECOLOGIC GUIDELINES

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
PHYSICAL ENVIRONMENT	SURFACE WATER		2						
	GROUNDWATER		1						
	NATURAL VEGETATION		2						
	SOILS		2						
	OTHER		3						
HEALTH	FOOD		1						
	DISEASE VECTORS		4						
	POPULATION DENSITY		3						
	OTHER		2						
SOCIO-ECONOMIC	AGRIC. PRODUCTIVITY		1						
	VOLUME OF GOODS, SERVICES		1						
	USE OF COMMON RESOURCES		1						
	PROJECT EQUITABILITY		1						
	GOVMT SERVICES, ADMIN.		1						
CULTURAL	EDUCATION, TRAINING		1						
	COMMUNITY DEVELOPMENT		1						
	TRADITIONAL LAND USE		1						
ENERGY	ENERGY		2						
THE BASIC QUESTION: How will the proposed project activities affect the factors listed above? (Range from +2 to -2)		BASIC SCORES	MULTIPLIER	PEOPLE SURFACE FACTOR	ADJUSTED SCORES = 3 x 4 x 5	POSITIVE IMPACTS	NEGATIVE IMPACTS	Measures to add which will reduce negative impact scores (and/or which will increase total positive impact	REVISED SCORES

1. In the table on Page 5, ask yourself the basic question for each of the 18 lines (described below) and assign the

following values in Column 3.

Very positive, clear and decisive positive impact .... + 2

Some, but limited positive impact .... + 1

No effect, not applicable, no impact 0

Some definite, but limited negative impact .... - 1

Very specific or extensive negative impact .... - 2

2. A brief explanation of the factors in columns 1 and 2:

Surface Water runoff: peak and yields. How does the project activity affect runoff? How does it affect the peaks (flood discharges)? How does it affect the amount of water that will flow (yield)?

Groundwater: Its quantity, recharge rates, etc. Also, does the project alter its chemical composition?

Vegetation: Accent on natural vegetation. Will natural cover be reduced (bad) or increased (good)? How will natural regeneration be affected? Will there be additional (or fewer) demands on trees, bushes, grass, etc.?

Soils: Will the project increase or drain soil fertility? Where

land surfaces are affected by the project, is "optimal" land use affected favorably or adversely? Will erosion be more or less likely?

Other: Basic questions dealing with improvement or deterioration of factors such as wildlife, fisheries, natural features. Also, does the project follow some existing overall natural resource management plan?

Food: Will people have more food and/or a more complete diet?

Disease vectors: A very important point and one that is often overlooked: Will the project create more standing water? Will the project increase (or create) fast flowing water? How will it affect existing water courses?

Population density: How much will population density increase as a result of the activities? What contamination conditions will be altered? How? Will more health care services be required?

Other: Toxic chemical, exposure to animal borne diseases, etc.

Agricultural productivity: Per capita food production (staples or cash crops), yields.

Volume of goods or services: Will the project provide more goods (food, firewood, water, etc.) or less?

Common resources: (Water, pasture, trees, etc.) Will the project require people to use more or less water, pastures, etc.? Will it eliminate any of these resources now available? Will it restrict access to these resources?

Project equitability: How are benefits distributed? Who will profit from these activities? Special segments of the population? How "fairly" will the benefits be shared.

Government services, administration: Will the project demand more work, "coverage" of government services? Will it cause an additional load on the administration: more people, recurrent costs, etc.?

Education and training: How will it affect existing education/training facilities? Strain or support? Or will it provide alternates? What about traditional learning (bush schools, etc.)?

Community Development: Will it encourage it, or will it affect already ongoing efforts? If so, is this good or bad?

Traditional land use: Will it restrict existing use, harvesting, grazing patterns? Many projects promote "better" land use but at the (social) cost of some one or some group being

restricted from using land, vegetation, water the way they have been used to.

Enerqy: How will the project affect the demand for (or supply of) firewood? Will it increase dependence on fossil fuels?

3. Column 4: This is an arbitrary number based on experience.

4. Column 5: Choose an adjustment factor between 1.0 and 5.0 depending on whether a large number of people and/or large areas are affected. If a large segment of the population is affected (say: over 1,000 people) use a factor of 2.5. If 1,000 hectares or more are involved, use 2.5 also. If both, large numbers of people and extensive area are affected, combine the two: use up to 5.0. Never use a factor less than 1.0.

This step is necessary because some activities may help a handful of people, but at the same time have some adverse affect over large areas. By assigning such area/people factors to each of the 18 lines, proper "weight" will be given to these conditions.

5. Compute the adjusted score by multiplying columns 3, 4, and 5. Enter result in column 6. Make sure to carry positive and negative signs.

6. In Column 7: list all impacts that are positive.

7. In Column 8: list all impacts that are negative.

8. Now take another look at Column 8. Here you'll find a summary of the negative aspects of your proposed activity. Beginning with the largest values (scores), determine what measures you can incorporate into your project, what alternate approaches can be followed to reduce these negative values, one by one. This may not always be possible, but try to modify your plans so that the sum of all negative impacts will be as small as possible. (Tabulate the new, improved scores in Column 10)

Modify, adjust, redesign your project so that the total of all "negative impacts" is as small as possible. This is the essence of "ecologically sound project design."

APPENDIX C

TROPICAL CLIMATES

There are three principal types of tropical climates: the wet or humid equatorial climate, the dry tropical climate, and one that is alternately wet and dry. <see map>

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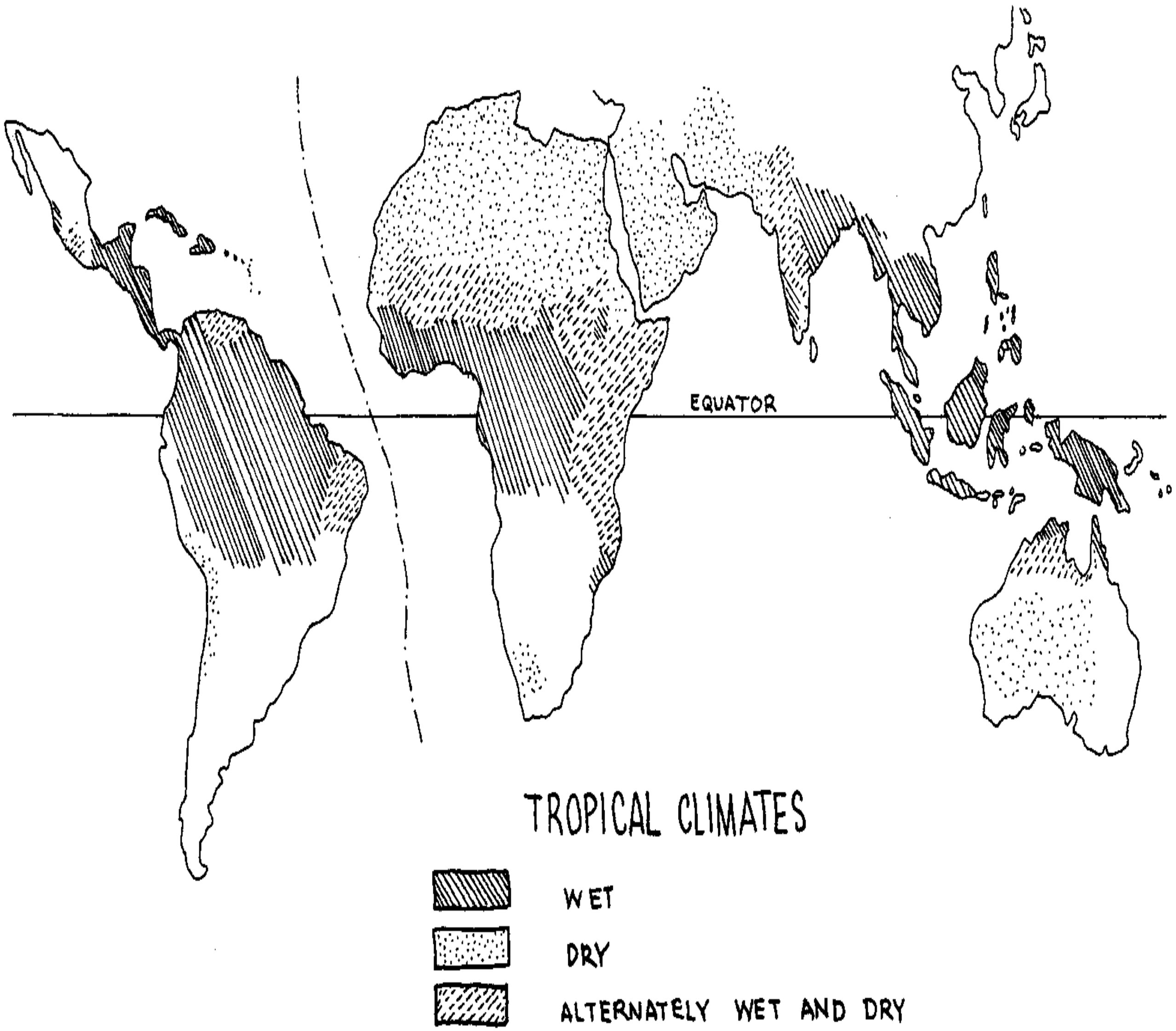

Wet or humid equatorial climate is found in a band of approximately 5 degrees north and south of the equator. It is characterized by heavy rainfall (75-120 inches of rain per year), constant heat and high humidity. This includes the Amazon and Congo Basins; West Africa south of the Sahel; parts of Kenya, Tanzania, and Madagascar; Malaysia; Indonesia; Papua New Guinea; and many of the Pacific Islands.

Dry tropical climates occur in two "belts" approximately 15-30 degrees north and south of the Tropics of Cancer and Capricorn, which are characterized by hot arid weather and deserts. This is true of most of North Africa, Saudi Arabia, Iran and Pakistan, and parts of Australia, Peru and Chile.

Climates that alternate between wet and dry seasons are found in between the wet equatorial band and the dry tropical belts. These areas are found in south and southeast Asia, Africa, the grassy plains of Venezuela, and eastern Brazil. The length of the rainy season and the amount of rainfall vary considerably among these areas and also yearly in a given area.

Rainfall

A major problem in the tropics generally is the amount of rainfall: there is often too much or too little rainfall. Heavy rains, especially in steep areas, crush soil structure, seal off underlying soil from the air, leach out necessary soil nutrients (wash them away) or push them too far into the ground for plant

roots to reach them.

To assess rainfall, one should take into account the total amount of rain per year, and the variability and intensity of the rainfall. Variability indicates whether sufficient water will be available to generate power when it is needed, or whether the seasonal demand for crop residues could be met. For instance, even though the total annual rainfall in Santo Domingo, Dominican Republic, is about the same as Katmandu, Nepal (1400 millimeters per year), the rain in Katmandu is far more concentrated in certain months.

Soil Erosion

The rate of soil erosion also differs between regions, due to the amount and intensity of rainfall, the type of soil and the steepness of the area. Soils in the tropics are generally less fertile than in moist, temperate areas because they contain less organic material (humus) in which nutrients are stored. These soils can less afford to lose organic material from harsh rains. When vegetative cover is removed, bare, exposed soil rises in temperature hastening the oxidation and disappearance of humus. Shifting agriculture is a major means by which farmers in the humid tropics maintain crop production: as poor soils are worn out, they move to other areas.

Some exceptions are found in alluvial and volcanic soils, and in forest soils of tropical mountains that escape the greater heat

of low altitudes and may be rich in humus. The steep rivers in these mountains carry rich alluvial soil from other areas that enriches the farmland. The same is true in parts of Uganda and the Sudan. Volcanic soil is found in various parts of the world.

Insolation and Wind

Insolation varies regionally and seasonally. The angle of the sun varies in the regions away from the equator, and the amount of effective sunlight available depends on cloud cover. This may be quite important if the need for solar energy coincides with the rainy season.

In some places, relatively infrequent wind gusts require windmills that can withstand a wide range of wind speeds. In other areas, such as some islands in the Caribbean, windmills must be able to turn under a relatively slow but constant wind.

All these features together contribute to an ecosystem that is relatively fragile. The risk of long-term damage from any large project may be lessened through careful planning and subsequent monitoring.

APPENDIX D

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contructing specific technologies including solar cookers, solar stills, biogasplants, cookstoves, windmills, waterwheels, hydraulic rams, and dams. For addresses see Appendix E, Sources of Information.

APPENDIX E

SOURCES OF INFORMATION

References can be obtained from:

American Council of Voluntary Agencies for Foreign Service
200 Park Avenue South
New York, NY 10003
USA

CODEL
79 Madison Avenue
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