

OVERVIEW: We have already studied the important role which botany occupies in human stewardship of plants as sources of food and manufactured products including pharmaceutical drugs. We now return to “stewardship of plants,” this time with an emphasis on how plants and agriculture can be used as part of a mission to improve economic stability, nutritional health and ultimately, the spiritual well being of people in communities of developing nations of the world.

ASSIGNMENT: To prepare for our class discussion, please read the following “case study.” It is intended to place you in a hypothetical scenario in which you will need to think about how you might draw upon your knowledge of botany, biology in general, and your learning in other disciplines. Please aim to come to class with an awareness of some of the issues facing development workers and missionaries who seek to minister to the “whole person” in communities facing physical as well as spiritual needs; and with ideas of how you might approach these needs.

CASE STUDY SCENARIO: Based upon the experience of ECHO in the Central Plateau of Haiti

"Imagine that you have just graduated from Cedarville University and have accepted a 3-year position with a mission that operates a school located in a remote rural part of Haiti where most people make their living from the land.

"The mission is thrilled to have someone with a degree in the sciences joining their staff and have sent you a letter. It describes the difficult issues the local farmers face. Though the mission is there primarily to operate the school, they recognize that the poor health from inadequate diets and other outcomes of abject poverty limit their students' ability to take advantage of their education.

"They want to take advantage of your training in the sciences to help them find a few things they can do to improve life at least a little. They enclosed a sheet (see p. 22.2) describing many of the problems the teachers have noticed. They want you to start thinking about what might be done. The school could let you use a few acres that is available at the school if that would be helpful.

"There is more. The science faculty at Cedarville have been thinking that they would like to involve students in research that would help farmers just like these. But how do you do research that will help the poor? It needs to begin with identifying some specific research needs and they have asked you to see if you can identify some of those research opportunities. There won't be a lot of money available for the research, but the University has laboratories and basic chemicals and the community has gardens and farms that might be available and missionaries might send tropical plant products if the research idea involved something that needed to be grown in the tropics.

Note: This description is based upon problems faced by the Haitian American Friendship Foundations school in the Central Plateau of Haiti where ECHO has done a limited amount of "adaptive" experimentation. – Martin Price, ECHO

QUESTIONS:

1. Identify two or more needs within this or another hypothetical community in a developing nation which you would select as high priority for attention and give your rationale.
2. Share your personal thoughts at present as to how you could see God using your interests, background, abilities, and education in such a setting.

WEBSITES: Educational Concerns for Hunger Organization (ECHO) <http://www.echonet.org/>
Closed Door Ministries (CDM) <http://closeddoorministries.org/index.php>
Care of Creation <http://www.careofcreation.net/>

ENVIRONMENT, DEVELOPMENT AND MISSIONARY EARTHKEEPING

Observations and Inventory of Problems Encountered in the Community in and around HAFF

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Most farms are too small to provide an adequate living (each generation divides into smaller pieces)

Labor is so intensive that they could not farm much more if they had it.

Many own no land at all.

Many who do own land have no clear title to it. (How does this affect their farm management decisions?)

It takes the wages from eight days to purchase one bag of fertilizer.

Soils have low fertility, due to centuries of farming, erosion and leaching.

Weed control takes up a lot of the farmers' time.

Hillsides are heavily deforested.

Many fields are on steep slopes (the richer farmers own the bottom land). Erosion of these fields is severe.

Reforestation efforts usually fail because (1) the soil is now too shallow to get new trees started, (2) people cut small trees for firewood, (3) goats destroy young trees, (4) farmers are afraid to plant trees because it is illegal to cut a tree without a permit (and bribe?), (5) people live in the present, not the distant future, (6) people need the land for staple crops, (7) if the farmers rents the land or does not have clear title, someone may take it if he builds it up too much.

Firewood for cooking has become quite expensive.

Banking is unavailable to the community. However, having a few large trees is like a bank account for emergencies. They can be cut, for example, to pay a hospital bill or to pay school tuition.

Animals run free (goats and chickens and in places even pigs). People in some areas do not use toilets, so in these places especially the pigs do help clean the environment.

They make gardening very difficult. Also it is hard to collect manure to use in the gardens since the animals are not penned up in one location.

There is little to eat at the end of the dry season. Consequently malnutrition is widespread at this time, increasing susceptibility to diseases. This is a special problem because at the end of the dry season and start of the rains is when all the planting work must be done and food is at its lowest at this time. Animal pasture is also at its lowest.

In any season, poor health and hunger limit ability of farmers to farm.

Disease is widespread: (1) heavy rains lead to malaria and dengue fever, (2) only very limited medicines are affordable, though clinics and hospitals are in the region. (3) In more remote locations the only drinking water is from a stream that is also used for bathing, watering animals, washing clothes, etc., (4) because of poor sanitation, parasites and diarrhea are prevalent.

Houses of the poorer people are made from sticks, mud and thatch, with dirt floors. A few have tin roofs and concrete floors.

Newcastle's disease kills many chickens each year.

Parasites and poor quality forage limit productivity of animals.

The community is vulnerable to crop failure because they rely on a relatively small number of crops (especially corn and beans but also cassava and pigeon pea), for some little is harvested even in good years, and there are no storage facilities (except in the home).

Marketing any excess produce is a problem for some who may need to walk > hour to the nearest road. Some people have no income for very long periods of time, especially widows and elderly w/o children. There is no "safety net" to pick up the absolutely desperate.

Weather is too hot and humid during the rainy season for temperate vegetables, and too dry for them the rest of the year except in special sites where irrigation is possible.

The few stores that sell some seed may be selling old seed that will not germinate. Customer can't tell.

Because so little cash is available, these stores sell insecticides in small quantities in a small plastic bag.

There are no instructions included (but few can read anyway).

The local man who tried to start a local seed business was put out of business the first year by a rare government free seed program funded from overseas.