

INSTITUTE OF CURRENT WORLD AFFAIRS

GSH-10 USAID & Conservation of
Costa Rican Natural Resources

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Dear Peter:

When I agreed in early March to help the U.S. Agency for International Development (AID) and a team of Costa Ricans prepare an AID loan project, I did not expect to become so heavily involved. I originally committed myself to eight days, but my involvement and interest in the project lengthened my work to about three weeks.

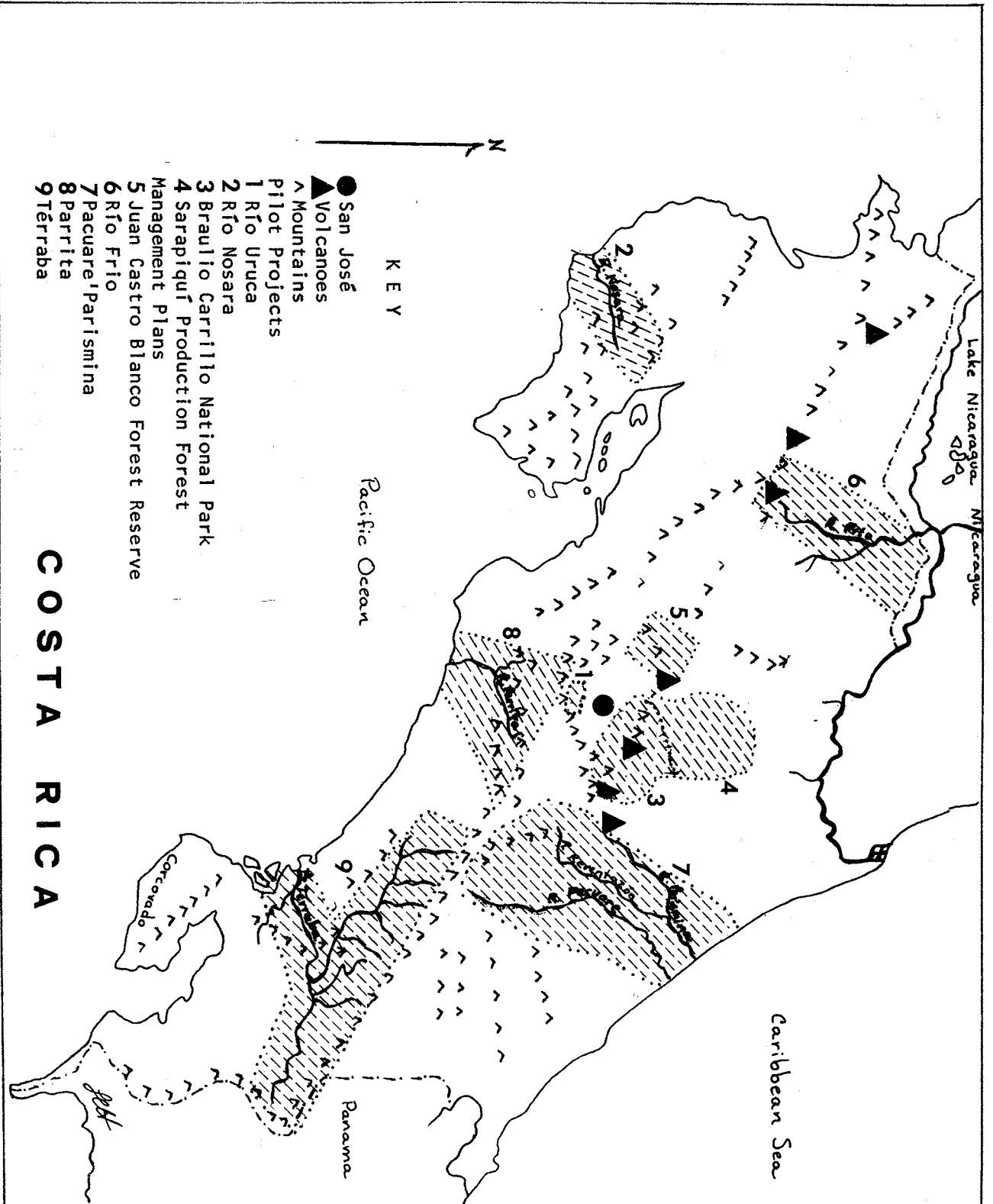
It may surprise you that AID makes loans to developing countries for conservation of natural resources. I am frankly astounded that a U.S. government agency like AID, with a long tradition of sponsoring unfettered development, is now funding natural resources conservation projects. Perhaps the growing concern and publicity in Washington about tropical deforestation has helped catalyze AID support.

AID is apparently making a substantial effort to improve its performance in the rational use of natural resources. AID co-sponsored the conference on Improved Utilization of Tropical Forests in May, 1978 (GSH-2). In Jakarta last October I met a competent ecologist employed as an environmental officer of AID. In August 1978, AID provided a \$240,000 grant to ASCONA, the Costa Rican Association for the Conservation of Nature, for an 18 month public education program in Conservation. I imagine AID is supporting several other natural resources conservation programs as well.

In this newsletter I intend to describe my experiences in working on the project.

Broadly titled "Conservation of Natural Resources," AID's objectives are directed to natural resources assessment, institution building, technical assistance, rational use of natural resources, and the development of appropriate information systems to monitor the rapidly changing status of natural resources in developing countries. The last item brought me in contact with AID's natural resources conservation program about 18 months ago, when the AID mission director in Costa Rica asked for my informal appraisal of a company's proposal to AID for a program of environmental assessment and monitoring.

Having conducted tests in Costa Rica using data from satellite images, the aforementioned company proposed a remote sensing program to inventory Costa Rica's natural forest resources and to maintain an up-to-date monitoring of changes in the use of those resources. I was surprised to find that on satellite images company photo-interpreters could not distinguish between mangrove forests and forests on firm ground, nor between mature natural forest and shaded coffee



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C O S T A R I C A

plantations. Needless to say, such a low resolution environmental monitoring system wouldn't be of much use to Costa Rica. I don't intend to evaluate remote sensing technology in tropical forestry in this newsletter, but it does seem to be a case of salesmen for a sophisticated technology out beating the bushes to drum up business. Developing countries often view sophisticated technology as a panacea for righting purported "backwardness." Costa Rica may take advantage of satellite imagery, where appropriate, but this technology will not replace conventional aerial photography for mapping forest cover types.

The AID natural resources conservation project in Costa Rica involves two approaches: (1) for three pilot areas with sufficient baseline ecologic and socio-economic information, preliminary management plans have been prepared to rationalize actual land use to potential land use, rehabilitate degraded watersheds, establish a production forest, aid national park development, etc.; (2) for five areas of interest lacking basic information, the AID loan will be used to collect the necessary information and to prepare management plans. Two of the pilot areas (see map), Rio Uruca above Santa Ana and Rio Nosara on the Nicoya peninsula, are small watersheds with considerable areas of overused and degraded soils and no coordination between people deforesting the upper watershed and the farmers living on the floodplain. The 32,000 ha (124 square miles) Braulio Carrillo National Park plus 53,000 ha (205 sq. mi.) north of the park, comprise the third pilot area. The five areas of interest for which management plans will be prepared are the watersheds of the Parrita, Terraba, Rio Frio, and Pacuare-Parismina rivers and the Juan Castro Blanco forest reserve. It is expected that the expertise and knowledge gained in implementing the management plans for the three pilot areas will assist developing management plans for the five areas of interest and to conserve the natural resources of other parts of Costa Rica.

Since the loan proposal was to be prepared by Costa Rican Ministry of Agriculture and Animal Husbandry (MAG) officials working closely with AID officials, I expected my limited input would be mostly conceptual. The possibility of contributing to development plans for a managed natural production forest attracted my interest. The AID office divided project preparation among four working groups. I joined a group that was to develop management plans for Braulio Carrillo National Park (BCNP) and the Sarapiquí area north of the park. Only two Costa Ricans attended our first meeting: Mario Rojas, director of BCNP, and Danilo Vindez, of the Forest Service. Our group coordinator from MAG, plus representatives from ITCO (Lands and Colonization Institute) and the Central Bank of Costa Rica, failed to appear. After some general discussion of the project, it fell upon me to act as temporary organizer. Mario agreed to prepare a management plan for the park, and Danilo, who recently graduated from a local forestry school, was most interested in reforestation. That left me with responsibility for the management plan for the Sarapiquí area. I thought we got off to a good start.

When our group coordinator appeared the following week, we quickly learned we were better coordinated before his arrival. Mario, Danilo and I found it necessary to avoid the MAG offices and our coordinator in order to make progress on our assignments. Our coordinator seemed to delight in extolling his political connections and contacts. Mario and Danilo contrast markedly to the 10-15 year MAG personnel working on the AID loan proposal. Both Mario and Danilo are recent alumni of Costa Rican universities. It was refreshing to collaborate with two government employees dedicated to their professions and willing to work nights and

weekends without regular or overtime pay. I think Mario is an excellent example of the dedicated and competent young professionals that are contributing to the impressive success of the Costa Rican Park Service (SPN). Former SPN directors Mario Boza and Alvaro Ugalde deserve much credit for developing such a competent organization.

The Costa Rican Forest Service (DGF) is a considerably older MAG dependency than its sister SPN and has a notorious reputation for incompetence and ineffective administration of national forestry. During the past six months new top administrators of DGF have been installed. There is considerable hope throughout Costa Rica for a major upgrading of the DGF. Some critics point out that essentially all of the DGF professional staff are agronomists rather than foresters, and that the agronomists lack the professional training so necessary in the DGF. Danilo Vindez is one of the first professional foresters to be hired by the DGF. If he is representative of the new foresters joining the DGF then we can expect to see an improved, more competent forest service.

During April, most of my time was devoted to preparation of two draft papers-- a preliminary management plan for the Sarapiquí area and a summary of project activities in BNCP and the Sarapiquí area. A land-use capability classification of the Sarapiquí area prepared in 1977 by the Tropical Science Center indicates 50% of the area is suitable for timber production from natural forests. Of the remaining area, 16% is restricted production forest, 14% is absolute protection forest, 16% is suitable for plantation forestry, 2% is suitable for perennial crops and 2% is suitable for annual crops. The Sarapiquí area is definitely one of the most attractive areas for sustained yield tropical forestry.

I evaluated three potential ways of organizing production forestry in the Sarapiquí area. From a technical standpoint, the most attractive method is for a government forest corporation to control the land. Single control of the area would permit the most effective organization of forest protection, timber production and forest management. This possibility was rejected because current government policy is strongly opposed to large-scale expropriation and concomitant moving of rural people. (Such a government policy does not apply, however, to the huge Hacienda Murcielago ranch in northwestern Costa Rica, owned by Nicaraguan ex-President Anastasio Somoza.)

The other two possibilities would involve ITCO colonies in production forestry. ITCO officials told us they have legal control of about 70% of the Sarapiquí area. The purported ITCO land encompasses over 5,000 ha (19 sq. mi.) granted in the 1930's and 40's to an organization called the National Workers (Accion Nacional de Trabajo--ANT). The ANT holdings were divided into 100 ha (247 acres) blocks and assigned one block to an individual. Close inspection of an ANT map indicates a high degree of familial relatedness among the block holders. ITCO apparently believes it can reappportion the land because of the failure of ANT to do anything with the land over the past 30 years.

I evaluated two possible ways to involve ITCO colonists in production forestry. The first would be for the colonists to live in nuclear settlements with each colonist owning a few hectares for growing subsistence food crops while cooperatively holding title to the production forest lands. ITCO was not very receptive to a production forest cooperative because of the Costa Rican's traditionally strong desire to own land.

That left us a second possibility for each ITCO colonist to receive a sufficient number of hectares for a sustained-yield of timber that would supply the colonist with an adequate annual income. Using basic data on timber volume of commercial species, present value, cost of logging, and rate of regeneration, I calculated a minimum size of 30 ha of natural production forest with an annual cut of one hectare.

While searching for costs, I was surprised to learn that logging operations are often only marginally profitable. This is due primarily to the high cost of skidders--articulated, powerful tractors for pulling logs through the forest to a loading dock--and the penchant for logging only the premium quality timber. Logging costs are drastically lower if more traditional, less-costly techniques are used. Since each colonist need log only one hectare per year, which can be done in about one month using a pair of oxen, there is no need for costly technology. The more appropriate logging technology using oxen also has the advantage of causing much less damage to fragile tropical soils. Needless to say, I made a very strong recommendation against mechanized logging.

ITCO is considering giving each colonist 80-100 ha. I suggested that ITCO officials grid the area in accordance with topographic heterogeneity. ITCO's proposed unit size should adequately allow for land that must be kept as protection forest, as well as a few hectares for subsistence or cash crops and pasture for work animals.

I had the good fortune to accompany Mac Chapin, an AID anthropologist from the Washington office, on a four day field trip in the Sarapiquí area. As I told Mac on the way out of San Jose, I was particularly interested in seeing how an anthropologist does field work. I believe Mac provided me with an excellent example. He is well-traveled and versed in Latin America, including four years on the Panamanian San Blas Islands with the Cuna Indians. Naturally, he is fluent in Spanish, but more importantly, he is "muy simpatico," *i.e.* he gets along well with people. We visited several small farms in the area and conversed with the people about where they came from, crops, their plans, land titles, politics, soils, mothers, *et al.* One day was devoted to a 12 km hike east of the Peje River to talk with squatters on ANT land.

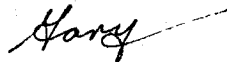
Mac and I learned a lot about the people living in the Sarapiquí area. With rare exception, the objective of everyone from the squatter to the large land holder is to put his land into pasture for beef cattle. This pervasive desire to be a cattle rancher--"pötreroismo" as it is called by geographer James Parsons of the University of California at Berkeley--aided by government incentives to supply beef for the export market, is one of the prime causes of tropical deforestation. It is a complex relationship I intend to focus on in a future newsletter. Suffice it to say here that cattle ranching in the Sarapiquí area is probably the most inappropriate use of the fragile forest soils. Conversion from forest to pasture will decrease soil fertility and physical structure with an increase in erosion in a very rainy region. In sum, conversion to pasture will result in a general deterioration of the natural resources, possibly to a stage where they will no longer be renewable.

Our productive reconnaissance of the Sarapiquí area prompted a return trip for me to accompany the US-AID mission director and the AID rural development

officer. We had an informative conversation with the president of the municipality of Puerto Viejo, Sarapiquí, who spoke knowledgeably of the problems of destruction of natural resources, including poor land use and the need for both conservation and rational use of natural resources. The municipal president briefed us on the history of the recent, spontaneous colonization of an isolated chain of hills northwest of town. Suspecting those hills are the source of Puerto Viejo's potable water, I asked the municipal president if I were correct. In answering positively, he added that he is worried about contamination from the new farms on the slopes as well as diminished flow during the dry periods due to deforestation. He sees no possibility of protecting the town's small watersheds, so he hopes to bring municipal water from a small creek near La Virgen, which will require more than 20 km of tubing! How ironic that a municipality can get government funds to bring potable water 20 km, but nothing to protect an adequate watershed less than one kilometer from town.

Although I departed for Bolivia before the final loan proposal was completed, I am optimistic it will be well-received in Washington. I am much more skeptical of Costa Rica's ability to successfully develop the proposals in the loan agreement. My skepticism derives from a growing discordance over natural resources policy I detect between the National Park Service (SPN) and the Forest Service (DGF), both sister dependencies of the Ministry of Agriculture and Animal Husbandry. The Vice-Minister of Natural Resources is adamantly opposed to any increase in national park numbers or size and budget. He is very interested, however, in forest management and strongly supports the proposed production forest for the Sarapiquí area. The final decision rests, of course, with President Rodrigo Carazo, who has made a strong personal as well as governmental commitment to the conservation of natural resources. He appears to be trying to outdo former President Daniel Oduber's accomplishments for conservation (see GSH-4). I wish President Carazo my best and hope he succeeds in his conservation efforts.

Sincerely,



Gary S. Hartshorn
Forest and Man Fellow