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REPORT ON TRAVEL TO COSTA RICA
14-21 February 1981
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Purposes of this trip were to attend an international seminar on technologies for converting biomass to fuels and chemical feedstocks; to establish contacts with organizations and individuals working with biomass-for-energy in Caribbean and Central- and South American countries; and to visit a "jojoba research center" and commercial jojoba plantation.

1. The seminar, "Fuels and Chemicals from Biomass through Fermentation Processes", was organized by Instituto Centroamericano de Investigacion y Tecnologia Industrial (ICAITI, headquartered in Guatemala City) with support from the Organization of American States (OAS), United Nations (UNEP/UNESCO/ICRO), and several Central American national and regional organizations.

Registration and a reception were held on Sunday, 15 February, at the Herradura Americano Hotel outside of San Jose. Technical sessions were held at the same site on the following three days: Monday was devoted to biogas production and utilization; Tuesday's program covered microbiology and production of chemial intermediates; on Wednesday, papers dealt with ethanol production (see copy of program, Attachment 1).

Of the 16 technical papers presented, 10 came from U.S. public institutions and private companies, 3 from Mexican (two by U.S.-trained authors), and one each from Canada, Guatemala, and Brazil. The majority of the presentations were academic in nature, heavily weighted toward sophisticated treatments of engineering and biochemical principles, and drawing mostly from laboratory and pilot-plant research performed in the U.S. Most of the speakers were well acquainted with each other and with each other's work, and apparently represent the mainstream of the U.S. biomass engineering establishment.

A total of 77 attendees registered for the seminar including 17 speakers and 3 ICAITI representatives who carried out the organizational work (see list of attendees, Attachment 2). Costa Rica (33 persons) and Guatemala(7) had the most attendees. Other nations represented were Honduras (2), El Salvador (1), Nicaragua (4), Dominican Republic (1), Venezuela (1), Ecuador (2), Peru (2), Uruguay (2), and Paraguay (1); most of these persons received OAS and/or UN scholarships to attend the seminar. At the conclusion of the seminar, the scholarship recipients were to proceed to Guatemala for two weeks of "hands-on" training in biogas and ethanol production in ICAITI facilities. Since the attendance list only became available on Wednesday, I was unnable to identify all of the scholarship recipients, nor their institutions, nor the state of biomass-for-energy programs in their respective countries. On the basis of several informal conversations, however, I gained the impression that most of them are involved in academic research and teaching, rather than in action programs of government ministries.

The speakers were all well prepared and the general quality of presentations was very good. Despite my own misgivings (was theory emphasized at the expense of practice? Were cited examples in U.S. really comparable to Latin American situations? And so forth.), all of the attendees with whom I talked expressed satisfaction with the program. The seminar seems, therefore, to have been a complete success.

2. Informal discussions during the week provided opportunities to discreetly advertise our Bio Resources Team and our relationship to USAID, and to talk about possible future situations in which we might interact with national or regional activities. We have already made contacts with OAS, and I made a particular effort to establish similar contacts with ICAITI; both of these organizations are supporting biomass work in Latin America, and collaboration with them could be useful to our team in fulfilling our PASA responsibilities.

On a visit to the University of Costa Rica campus in San Jose, I observed work on a biogas generator (Department of Chemical Engineering) that is to be installed at a rural school. In the Chemistry Department, we met Dr. Orlando Bravo who is receiving (or seeking) some AID money for an ethanol-from-sugar cane project. A consultant had been sent recenly by our team to review this project; there had been some adverse reactions to that visit, I believe, so I did not emphasize it in my conversations with Dr. Bravo.

3. Jojoba has relevance to our team because we were recently asked by AID Africa Bureau to comment on its potential value as an introduction in some African LDCs. Monte Galan S.A. is a Costa Rican company (apparently owned by non-Costariccenses) that is promoting jojoba as "the super bean of the future". On Thursday, 19 February, I drove a rental car to Liberia (near the Nicaraguan border in the Province of Guanacaste, some 200 kilometers northwest of San Jose), near which I eventually found the Monte Galan Jojoba Research Center. With well-arranged seed germination and nursery facilities, offices, a laboratory (not yet equipped), at least two modern residences situated in the shade of a mango orchard, and neat rows of young jojoba trees (irrigated), the research center is an impressive sight. After explaining my interest in jojoba, I was given a brief tour of the center and permitted to take photographs. The guest book contains many names, and it is obvious that visitors are not rare; presumably those interested in investing in the company receive warmer welcomes than those who come representing the USDA Bioresources Team--which is understandable.

I was given directions to Monte Galan's plantation (reputedly 1000 hectares already planted) and found it in a hilly region south of Liberia. The hillsides are being terraced and seedlings set out in contoured rows. The foreman of a labor crew politely refused me permission to inspect the plantation until I could produce written authorization from a company official whose whereabouts were not known. My zeal for jojoba wilted before the prospect of a prolonged search for an elusive quarry, and so I settled for general observations as I drove past the terraced plantings on my way out.

The plantation is in an area that is (at least seasonably) dry but certainly not arid; surrounding lands are mostly rangelands and the cattle appear well fed. I saw no evidence that the terraces are irrigated but water for irrigation is available in the region. Land preparation, including terracing the hillsides, must be a major expense for this plantation, and the entire operation appears to be based on extensive use of heavy equipment. I did not see any trees and assume that they are still seedlings (one to two years in age) not easily visible from a moving automobile. I have no reason to doubt that the Monte Galon jojoba trees will eventually clothe the slopes; the company seems to be proceeding in an orderly fashion. On the other hand, a meaningful evaluation of jojoba as a commercial crop in Costa Rica will have to await the time when this young plantation is actually producing marketable seed--and that is at some time in the future.