VOLUME FOURTEEN / NUMBER TWO / 1990

grassroots development

JOURNAL of the INTER-AMERICAN FOUNDATION

Assessing the Water Decade

Illustration from Lost Crops of the Incas.

book. Its 70 pages, divided into short chapters, will be especially useful for professionals working on USAID projects, but should also appeal to those interested more broadly in women in development.

Available from the U.S. Agency for International Development, Office of Women in Development, Bureau for Program and Policy Coordination, Washington D.C. 20523.

"In the Andes, *mashua* is associated with poverty. [The crop] is shunned by the upper classes because of its Indian origin and because it is eaten by the poor country folk. It is disappearing rapidly and in a few years most people will not remember it. Although [it is] a vital part of the Andean agricultural cycle, so little is known about it that its potential is almost certainly unrealized at present. . . ."

Mashua is but one of the many surprises included in *Lost Crops of the Incas: Little-Known Plants of the Andes with Promise for Worldwide Cultivation*, a handsomely illustrated book designed to inform mainstream agricultural development specialists about undervalued sources of indigenous food that can play a vital role in helping small farmers raise nutrition levels, diversify production, and boost family incomes. Conceived in 1984 at a seminar at the National Research Council of the U.S. National Academy of Sciences, this ambitious study was prepared under the guidance of an ad hoc panel of specialists. Questionnaires were mailed to 200 renowned botanists requesting nominations of "underexploited" Andean crop species. The thousands of resulting comments and suggestions were screened and evaluated by specialists from around the world.

The authors emphasize that *Lost Crops* is not intended as a handbook or as a comprehensive scientific monograph, but as an introduction to a selective range of edible plants with potential for economic development. To accomplish that purpose, the volume offers more than 400 pages of thoroughly researched material, amply sprinkled with beautiful drawings and color photos.

Lost Crops of the Incas is available for $20.00 from the Board of Science and Technology for International Development, National Research Council, 2101 Constitution Avenue, N.W., Washington, D.C. 20418

Distribution bottlenecks impede development information as well as the flow of small farmers' crops to markets. It is a pleasure to report that many of the resources previously cited by *Grassroots Development* are among the 600 development titles listed by Agribookstore, a nonprofit mail-order outlet specializing in publications and learning materials related to Third World development. The store's catalogue provides incisive abstracts of specialized publications spanning the alphabet of sources—from the Australian Centre for International Agricultural Research to the World Resources Institute.

For one-stop-shopping to meet your agricultural development publication needs, contact Winrock International Agribookstore, 1611 North Kent Street, Arlington, VA 22209. ◇

—Barbara Annis

Letters

In 1988, *Grassroots Development* (Vol. 12, No. 1) published an article by Mac Chapin entitled "The Seduction of Models: Chinampa Agriculture in Mexico." This article, which examined the efforts to transfer traditional *chinampa* agricultural techniques from the Valley of Mexico where the chinampas originated to the swampy regions of Veracruz and Tabasco on Mexico's east coast, produced the largest volume of mail in the history of *Grassroots Development* and continues to generate controversy. The letter below is from the former director of Mexico's Instituto Nacional de Investigaciones sobre los Recursos Bióticos (INIREB), which was the institution in charge of the chinampa-related projects.

To refresh the readers' memories of the Chapin article, chinampa agriculture involves constructing raised farming beds in shallow lakes or marshes; the best known example is the famed "floating gardens" of Xochimilco near Mexico City. As the inability of the Green Revolution to improve farm incomes for the very poor became apparent, the quest began for affordable, productive, and ecologically sound small-scale alternatives. As part of this quest, INIREB began its experiences with the transfer of the chinampa system to the lowland tropics of Mexico. Despite being threatened in the Valley of Mexico by the growth of the city, the system seemed to offer a promising model for other areas.

Early in 1988, Chapin visited several projects in Veracruz and Tabasco as part of an IAF-sponsored assessment of ecodevelopment projects among peasant farmers in Mexico. The chinampa-inspired projects had been underway for about ten years. The first, among the Chontal Indians in Tabasco, was backed by the government of Mexico and the World Bank and, according to Chapin, suffered at the outset from unstated agendas and supposi-

tions. Neither the stated nor unstated objectives, he notes, grew spontaneously from the Chontal community. The project encountered numerous difficulties, none so serious as the failure to consider arrangements for transporting and selling the highly perishable vegetables the project produced. The project continued its slide into disorder, Chapin maintains, until INIREB, which began to provide technical assistance in the early 1980s, began listening to the Chontales. Major modifications were made, including abandoning both communal labor and intensive vegetable gardening, and the Chontales now grow subsistence crops that can be tended while they pursue wage labor in the nearby towns.

The other INIREB project Chapin highlights was located in the *ejido* of El Castillo, in the State of Veracruz. Here, the community was not at all interested in chinampas, but one young farmer—Imeldo Méndez Carmona—did volunteer to turn his land, which included an inlet of a lake, into a model integrated farm including four chinampa beds. An impressive array of vegetables was produced, but once again no marketing plans had been made. While hasty efforts were underway to address this oversight, Méndez accidentally drowned, and the project was subsequently abandoned.

In analyzing these case studies, Chapin concludes that nowhere in Mexico has the transfer of chinampa technology from the Valley of Mexico to the humid lowlands been successful. Among the reasons he cites are that the stated and unstated objectives of project managers had little fit with the farmers' interests and needs, that there was inadequate local participation in designing and implementing the projects, that the technicians were preoccupied with the narrow task of implanting an agroecological model, and that they failed to consider how their model might adapt within wider social, economic, and political contexts.

In the case of the Chontales of Tabasco, Chapin notes that any correspondence between chinampa agriculture as an ideal construct and the raised beds of the Chontales was minimal. In El Castillo, he concludes that, even had the young farmer lived, too few of the necessary conditions for intensive chinampa gardening were present for the technology to have succeeded.

In concluding, Chapin reflects that it is very possible that in contemporary Mexico the chinampa model can never function as "much more than a small-scale scientific side show kept afloat by heavy subsidies." Yet the myth that the technology transfer succeeded lives on with surprising vigor in the literature, he points out. His explanation is that the "chinampa model, after years of promotion in journals and through word of mouth, has managed to break free of the constraining grip of the tangible world to take on a life of its own." He concludes with the observation that "considerable time and money are wasted when we become blinded by the beauty of a conceptual model and lose our bearings, mistaking it for reality itself. We end up seducing ourselves."

—*The Editors*

I read with great interest and sadness Mac Chapin's article regarding INIREB's efforts to transfer some aspects of the chinampa agroecosystem to the lowland tropics of Mexico. As the director of this effort for INIREB, I would have welcomed a serious and complete evaluation of my colleagues' and my research in chinampas; Chapin's article was so misguided and poorly documented that I originally thought it required no response on my part. However, Chapin's letter of response in the Summer 1989 edition of *DESFIL* [the newsletter of the Development Strategies for Fragile Lands Project] to a criticism by William Doolittle so misquotes my work and publications that I feel I must now respond.

With the subtitle "Transplanting Chinampas," Chapin begins his deliberations regarding field research in chinampa technology. Unfortunately, he has misunderstood the objectives and history of the research and, in addition, confused three different projects:

1. The chinampa research (including the experimental research on technology transfer) of INIREB at Mixquic, San Pedro Balancán, El Espino, La Mancha, Tecocomulco, Nacajuca, and Cárdenas.
2. The Camellones Chontales project inspired by the chinampas but undertaken by the Mexican federal government; and
3. A rural development program of INIREB that includes primarily integrated farms along with other related activities.

These projects were the result of several initiatives:

1. The desire of many farmers to try alternative approaches to increase agricultural production and become more self-sufficient. INIREB, from the beginning, had an institutional commitment to respond to these aspirations, and it undertook many different projects, including apiculture, pig farms, manufacturing of wood tools, crocodile farms, pot irrigation, and biogas digestors.
2. Interest by INIREB's own scientists and students in trying nonconventional approaches. As a director of INIREB, I felt that alternatives were needed because conventional agricultural research was neither providing much help to poor farmers nor slowing the rate of deforestation or pasture conversion.
3. Initiatives from local and federal governments, mainly as a result of political pressures from environ-

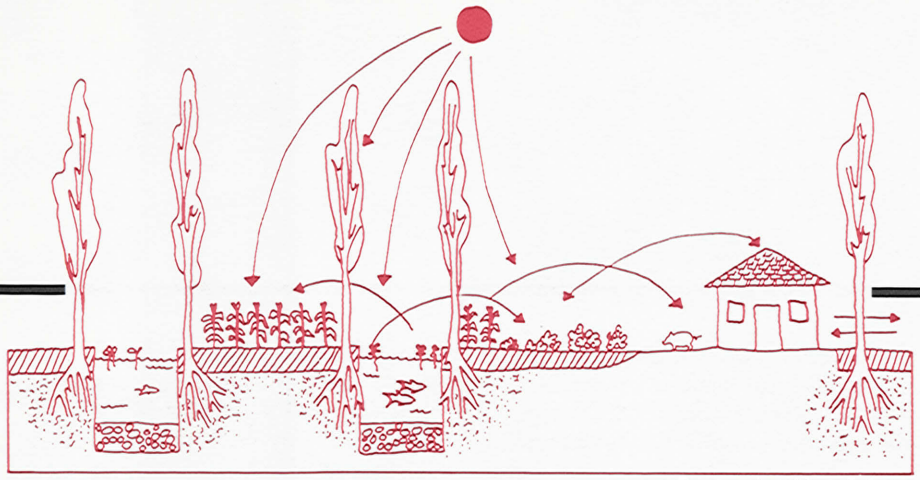

Diagram of INIREB integrated farm with chinampas.

Drawing adapted from: *Ecología y Autosuficiencia Alimentaria*

mentalists, farmers, and scientists.

Chapin's task was to assess ecodevelopment projects among peasant farmers in Mexico. It saddens me that most of his assessment was based on quick visits to a few field sites. There is no indication that he visited the farmers who participated in the projects. He did not even interview those, such as myself, who planned the research. Such a cursory review calls into question the quality of his research and the validity of his conclusions.

I would like to correct some fundamental mistakes in Chapin's assessment. The few small experimental chinampas that were constructed in Tabasco and Veracruz were just that: experimental. We paid to have them built and, by so doing, learned about their construction, scheduling, and production potential. The results were quite favorable in that we found it was possible to build chinampas and produce food from a swamp using hand labor and the *chinampero* approach. When the field research was finished, the areas were abandoned. These projects were never presented or planned as direct development projects, only as experiments to investigate the feasibility of an approach.

The only functioning tropical chinampas still in existence at the time of Chapin's research were those at La Mancha biological station near the port of Veracruz (formerly of INIREB), which Chapin neither visited nor mentioned. They have been active since the beginning, thanks to a chinampero farmer of INIREB who has done an outstanding job of experimenting with new introductions, combinations of species, and soil management techniques. Hundreds, if not thousands, of farmers and students have passed through the La Mancha chinampas and learned about techniques and new species of horticultural crops successfully introduced by this chinampero.

The experience in handmade chinampas was evaluated by Chapin based, in part, on the El Castillo project. However, El Castillo was not a chinampa project; it was part of a different INIREB project that focused on integrated farms. The project was a response to a request from Ejido El Castillo for help with treatment of coffee pulp discharges and with the management of fish in the ejido's lagoon. Chapin's comment that the community was not interested in chinampas is correct. For that reason, an integrated farm was developed at El Castillo.

In the meeting with the ejido we met a young farmer, Imeldo Méndez, who proposed to undertake a project on his land with the support of INIREB. We accepted his offer because we saw in him a future leader. The farm's production was quite satisfactory, and, as in so many other cases, the problem was not one of production but of what to do with the products. We tried only to prove that one can produce a lot of food in a small area, and that was done, as Chapin notes. His complaint that "no one thought about marketing harvested produce, even though INIREB had an economist on the project team," is unwarranted as the project was never designed to develop markets but rather to explore intensive production systems.

The project closed because of the death of Imeldo and the decision by INIREB not to continue it. For the purposes of INIREB, the project had been a valuable experience.

It should be understood that the work done in rural development was intended to show that, if needed, alternatives exist to produce food in a way less damaging to the environment and based on labor-intensive agriculture. The farms produced food in excess of what the families, INIREB employees, or even the local community needed. Marketing the products was not part of the projects, though the need for research on this became immediately apparent, as we pointed out in our own evaluation.

In response to the need for marketing products, INIREB suggested a marketing cooperative (Bio-Cop) as a possible solution. In addition, INIREB started a project for the development of small-farm businesses based on biotic resources.

In the early stages of these new initiatives, the Mexican government faced an economic crisis. Programs were cut and institutions closed; the first projects suspended were the rural development projects of INIREB. INIREB was instructed to terminate all its activities in rural development and to cancel its project on small-farm business development.

Chapin cites the *camellones chontales*, the "raised beds" of Tabasco, as another example of failed chinampa agriculture. The camellones are in full operation right now, and the Chontal Indians have full control of them. They use traditional agriculture, and the new raised beds produce a great variety of products. First of all, the camellones chontales were not originally set up to be chinampas, though the idea of agricultural land raised from the swamps was influenced or inspired by the tropical

chinampas. Secondly, the camellones are valuable in the eyes of the Chontales, as well as many researchers; they are not examples of failed chinampa technology transfer. In addition, members of neighboring Chontal communities have asked that similar projects be undertaken in their swamps.

Chapin's comment that the Chontales project was very expensive and benefited only a few is puzzling. How much should a project cost and how many people should benefit in order for it to be worthwhile? The beneficiaries of this particular project were the Chontales, the poorest of the Tabascan inhabitants. What would be the alternative? To move the Chontales to other areas? Or introduce sugar cane monoculture in the Chontal agricultural lands? Transform the Chontales into cattlemen? These suggestions are not acceptable. The camellones remain a positive influence in the lives of the Chontal Indians and are an alternative for new agricultural land. A conference will be held in October 1990 to review and evaluate the raised field projects in Tabasco. We would like to invite Chapin to attend this meeting.

A final comment is necessary about the role of INIREB in the camellones. Chapin writes: "The project continued its slide into disorder until INIREB, which began to provide assistance in the early 1980s, started listening to the Chontales." INIREB was never in charge of the camellones. They were built, planned, and operated by the Instituto Nacional Indigenista and the Tabasco government. We were asked to leave, but we stayed. Later we were asked for advice, which we gave though it was not necessarily taken. Researchers from INIREB continued to monitor and report on activities in the camellones until INIREB's closure in late 1988.

It is unnecessary to continue pointing out flaws in Chapin's evaluation. The facts stand by themselves. The question remains, however, as to what alternatives Chapin might suggest. If the chinampa technology proves successful in terms of agricultural production in a small area, the project is not acceptable because the product cannot be sold. If the raised beds from the swamps produce a whole array of agricultural products, the complaint is that the beds cost too much to build. A project undertaken with paid farmers means that we are using them wrongly. A project with insect pests is criticized because the chinamperos did not know all of them. It is hard to understand what project would satisfy all of Chapin's criteria.

Chapin makes a point of our "seduction" by the chinampa model. Seduction is a very strong word, but I fully accept it. I am seduced by an agricultural system that has prevailed for such a long time, by this system's efficient use of water and organic matter, by the knowledge of the chinamperos, by the staggering hydraulics works of the ancient people, by the resilience of the present day chinamperos, by the agricultural techniques the chinamperos use for the management of their crops and non-crop plants, by the efficiency of the agroecosystem in terms of both energy and economics, by the fact that a similar system was used long ago in many areas of the tropics, and by the fact that similar systems still exist and work in many parts of the world from China to India to Indonesia. I was seduced and continue to be so.

My working hypothesis has been that efficient systems of intensive agriculture existed in the past that sustained a higher density of population in the tropics than exists today without destroying the resource base. The study of such systems is not only important from the scientific viewpoint, but may also help design better agroecosystems for a world that may need new answers to food production in the tropics.

Arturo Gómez-Pompa
University of California
Riverside

The author responds:

Gómez-Pompa's impassioned response to my article on Chinampa agriculture is very interesting, in several respects. For one thing, he demonstrates that we agree completely on one point: namely, that the chinampa system, as an agroecological technology, is one of the most efficient and productive ever devised by man. We also agree that the failure to deal adequately with non-technical aspects—for example, the lack of markets—in project plans created havoc.

However, I want to take issue with his assertion that the chinampas were "never presented or planned as direct development projects." Instead, he says, they were nothing more than "experiments" to see if it was feasible to "produce food from a swamp."

When Gómez-Pompa promoted chinampas as alternative systems for small farmers, and spoke of transferring technology to Third World peasants, many donors assumed he was speaking of development projects rather than mere "experiments" in food production. The chinampas were introduced into peasant and Indian communities as part of INIREB's integrated farm program, and the farmers and technicians I spoke to in the field thought it was a development program. I believe the Inter-American Foundation, which funded the program, had the same impression.

May I suggest that communication has broken down on a very basic point. ◇

Mac Chapin
Cultural Survival
Arlington, Virginia