



The Importance of Women to Agroforestry in Borneo



Their relevant role in reversing a nutritional decline . . .

By Carol J. Pierce Colfer, Ph.D., M.P.H.

In a long and arduous move, a large contingent of *Uma' Jalan Kenyah* (Dayaks) came down out of the interior of Borneo where they had lived for centuries and settled in the lowland community of Long Segar. Here they could enjoy the advantages of easier access to the coastal cities. They came because they wanted schools, medicines, trade goods, and most importantly, SALT — akin to gold in the *Apo Kayan*, the upland interior.

Six widely scattered lowland Dayak communities were formed from the stock of one upland village, Long Ampung. Other groups have also been moving down out of the interior and forming similar satellite communities from which coastal cities can be reached by longboats in a matter of days, rather than by foot journeys of weeks' or months' duration.

In 1972 Long Segar was officially included in the Indonesian Government's Resettlement Program — a program designed to move populations out of remote areas so that necessary goods and services could be provided to them more easily. Although they moved on their own initiative, their inclusion in the Resettlement Program brought them a variety of development-related resources not available to most villages such as extension services, teachers and para-medical personnel, as well as tangibles such as seeds, fertilizers, pesticides, garden implements, medicines, rice-hulling machines, longboats and generators.

One might well expect a resultant improvement in the health and well-being of Long Segar's people. Indeed, if one measured health by cash income, availability of consumer goods, or even medicine (as many do), their situation looks rosy compared to life in Long Ampung.

NUTRITIONAL DECLINE OBSERVED

But observation of the children under five in the two communities suggests a different picture. *Brown* hair among the young children of Long Segar was so common that I began to question the accuracy of the belief that brown hair in black-

haired populations indicates malnutrition. Then I went to Long Ampung and found myself surrounded by black haired children. Skinny arms and pot bellies were much more in evidence in Long Segar than in Long Ampung. Although atypical, during my first month in Long Segar, six children died out of a population of 1,000. No children died during my month in Long Ampung. The generalizability of this observation was strengthened by a comparable observation of no child deaths made by a colleague, Tim Jessup, over a six-month period in Sungai Barang, a village only a day's journey by foot from Long Ampung.

Changes in the people's diet and changes in their time allocation to rice production — rather than gardening and forest harvesting — are primarily responsible for this deterioration in the nutritional status.

In Long Segar the diet is primarily rice. At mealtime a huge platter of rice is set on the floor and people gather around. A small side dish (perhaps 1/4 to 3/4 cup) is available to each individual, consisting of such foods as leaves, bamboo shoots, amaranth, boar, fish, snails, grasshoppers, palm hearts, banana flowers, peanuts, and a variety of other nutritious offerings.

Canned sardines and corned beef, instant noodles, candy, popsicles, and bottled soda pop are available in Long Segar, but most are too expensive to use regularly. Only sugar represents a major, dramatic, new food item and it is consumed in great quantities.

The nutritional problem does not lie in the quality and variety of the side dishes but in the fact that such a large proportion of the food consumed is rice. My estimate (based on observations, not measurements) is that the diet in Long Segar is about 80 percent *machine-hulled* rice, whereas in Long Ampung, rice is *hand-hulled* and comprises perhaps as little as 60 percent. The nutritional inferiority of machine-hulled rice is not recognized in the village.

The decrease in gardening activities observed in Long Segar is one important determinant of these dietary changes. This is related to the following factors: (1) in Long Segar, spare time can be utilized to earn money, an option not available in Long

Ampung; (2) in the interior (Long Ampung) the soil is richer, the temperature cooler and there are fewer floods and droughts; (3) in Long Segar, the simplest way to generate cash is to sell surplus rice, so time is devoted to rice production, while vegetable production for sale as a cash crop has proved exceedingly risky so far because of poor communications, quick spoilage, and inadequate transportation; (4) cattle (gifts from the Government's Resettlement Program in 1975) roam free in the village and wreak such havoc with gardens that people are reluctant to make them though gardens are still made in ricefields far from the village. (Colfer, Soedjito, and Azler, 1980, examine in more detail this development effort that went awry.)

FOREST HARVESTING DECLINES

Besides reduced gardening activities, Long Segar people expend less effort, and harvest less produce from the surrounding forest than do Long Ampung's. This reduction also influences the diet and relates to the facts that: (1) surrounding forest near Long Segar is *primary* forest, whereas that near Long Ampung is secondary forest which has different and more diverse, edible forest products, including planted crops such as fruit trees; (2) the population of Long Ampung is half that of Long Segar, putting less pressure on the forest food supply; and (3), in Long Segar, allocating one's time to rice production earns cash more easily and certainly than forest harvesting efforts.

The children's appearance and more numerous deaths, combined with the behavioral observations related to gardening and forest harvesting activities, are clear indications that, in-

Gleaning Forest Foods



Hale Koa seeds provide nourishing 'fast food'.

deed, the nutritional status of the Long Segar people has *declined*, rather than improved, in their move toward "civilization." Increasing references to this phenomenon are found in the literature; therefore it behooves us to make some suggestions for alleviating the problem.

A number of governmental efforts to encourage gardening have been implemented. The Resettlement Program and other agencies have provided seeds, tools, fertilizers, pesticides, and extension services to village *males*. Gardening, however, is



Dayak women glean grasshoppers from logs after flood.



Dinner is rice and side-dishes of forest gleanings.

considered locally to be more of a female activity — so the “target audience” was inappropriate.

Furthermore, transportation and communication problems have so far rendered these attempts less than successful. The ‘traditionalism’ and ‘unwillingness to take risks’, which are so often attributed to rural peoples to explain failures of development efforts, can not be invoked regarding the *Uma’ Jalan Kenyah* of East Kalimantan. One rarely sees people so willing to experiment or so motivated by the desire to maximize money incomes. But the fact that other constraints, such as transportation or marketing problems, doom to failure the efforts to encourage gardening is often unknown to government bureaucrats and policy makers, who continue to see the people as irrational and unbending ‘traditionalists.’ Any renewed effort to improve the standard of living, including nutritional status, by encouraging gardening activity, must take into account the local interest in making money, problems of storage, transportation, and communication with markets, and the local division of labor by sex which, though comparatively flexible, exists.

WHAT CAN BE DONE?

Based on eleven months of observation, I recommend that development efforts be focused on the *increased production, use, and sale of forest foods — by women*. My reasons are the following:

First, the *Kenyah* have a tradition of gathering and eating foods from the forest. No major shifts in their diet or food preparation would be necessary — only the *return* to a better balance between the consumption of carbohydrates, on the one hand, and proteins, vitamins, and minerals on the other.

Second, because the people — including the women — have an established body of knowledge, unavailable from other sources, about the forest plants that provide them with food they could *participate in a partnership with the extension agents and health providers* who have a complementary body of knowledge related to the cultivation and beneficial use of plants. Thus the scene could be set for the kind of cooperation that, alone, allows for true community participation and the success of development efforts.

Third, the flourishing existence of many kinds of forest foods, growing wild, is an obvious indication that these crops are appropriate to the environment. How much more productive such crops could be if cultivated and cared for in their forest surroundings.

Fourth, vast regions of East Kalimantan are now scheduled to be cut down — both for timber revenues and to accommodate the burgeoning population of Java and Bali (via the Transmigration Program) and turned into plantations. Although the immediate development-related impetus to this course of action is obvious, the potential for dire, long-range, ecological consequences has been identified by experts in many fields. Therefore, Government experimentation in the production of forest foods (“agroforestry”) — particularly if successful — could serve to ameliorate this seemingly ill-advised plan by providing a more ecologically sound economic use of forests to feed people, as a substitute for their obvious use as timber. The concern over feeding the burgeoning population of Transmigrants in Kalimantan is already keenly felt by the Government.

Fifth, the initiation of a new area such as this for development efforts would provide an opportunity to try a better approach — one that recognizes the important function of women in food production and collection. As is well known, agricultural extension services, credit, marketing, and other forms of development assistance have traditionally been available principally to men. Yet, particularly in tropical regions, women are usually very active in agricultural production. In Long Segar, for example, women provide 54 percent of the agricultural labor, and responsibility for rice production is considered the prime symbol of womanhood. (The corresponding male symbol is making journeys out into the larger world.)

DEVELOPMENT AID TO WOMEN

Additionally, women perform 67 percent of food preparation, and 75 percent of the care and feeding of the young, the sick, and the elderly. Their active participation in food production and preparation is combined with a greater likelihood of their remaining in the village to attend to these responsibilities. (Of the males 20 to 49 years of age, 26 percent were away working while only 0.8 percent of the women of this age range were away working.) Therefore, women are the most logical target for agricultural and agroforestry development efforts. From a nutritional standpoint, targeting women is even more important since they and the children they care for are among the most disadvantaged (Yang, 1979).

Another consideration that has begun to concern development planners is the question of the status of women. The Dayak women of Borneo, both in Kalimantan and Malaysia, are reported to have true equality with the men of their ethnic group. Though I would not attest to *equality*, I can say I have never seen or heard of a group where women had higher status. Yet the forces of modernization are already evident, with a corresponding potential to erode this status. These forces include (1) *Kenyah* women’s contact with higher status groups where sex attitudes are less egalitarian, (2) their unequal access to extension services and other forms of government aid, (3) their lack of

access to money-making opportunities, while facing the increasing importance of money in day-to-day life, (4) an increasing necessity to avoid the more exploitative attitudes and behaviors of members of other ethnic groups, and (5) the related fact that women know less Indonesian — which is both the national and the trade language — than do the more mobile males.

Government programs designed to help women increase their income-generating potential, while simultaneously offering the opportunity to improve the nutritional status of the community, can help offset some of these trends that people concerned with the over-all quality of life would decry.

SUMMARY

I am suggesting a development approach that focuses on agroforestry in tropical areas where this is still feasible (i.e., where there is still a forest), with the goals of improving nutritional status, and providing additional sources of cash income. In the Kalimantan situation, success would require the provision of some support services like help with marketing and storage. The promise of something as amorphous as nutritional improvement alone would be insufficient to counter the economic lure of allocating time to the very easily stored and sold rice. Success would also require addressing extension, credit, and/or other agricultural inputs to the *women*, because the women are the solid, reliable, ever-present agricultural producers and forest food gatherers.

I would recommend, in *any* area (tropical or otherwise), that extension efforts be undertaken within a philosophy and practice of *working with the people*. The people know what they, as human beings, can and cannot do. They also have an intimate knowledge of their environment, based on long experience with it, and therefore have valuable, and otherwise completely unavailable, information that can expedite any effort to improve conditions locally — if it can be tapped. Our challenge is to learn to tap it.

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About the Author . . .



Dr. Colfer, an anthropologist with an M.P.H. in public health ('79) combines the two fields with notable success, focusing her research on women's role in a changing world. She's done field work in the U.S., Iran, and South East Asia and is now an assistant specialist in the Hawaii Institute of Tropical Agriculture and Human Resources, heading their Women in Development Program.

In 1979 and '80 she conducted an ethnographic study of human uses of forests in Indonesian Borneo, both in Long Segar, a resettlement village of Dayaks, and in Long Amping, the interior, upland village from which they had migrated between 1963 and 1972.

She emphasizes that agroforestry — the cultivation of food crops within the forest — is (1) a new approach with good potential to increase food production, improve nutrition, protect the ecological balance in tropical rainforests and provide cash incomes, and (2) that women are the traditional food gatherers and cultivators in many tropical regions and successful development projects require their participation.

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