

AGRICULTURAL POLICY CHANGE AND INDIGENOUS AGRICULTURE: EXPERIENCE AND RE-EVALUATION OF A SHIFTING CULTIVATION SYSTEM IN NORTHERN PROVINCE, ZAMBIA

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ABSTRACT Studies of market liberalization implemented as part of structural adjustment programs (SAPs) have generally noted the strong impacts of these policies on agrarian life and the lives of local people. However, analyses of how market liberalization has affected local life have tended to present an image of “passive peasants.” In this paper, I focus on the logic of local people who have responded actively to changing conditions brought about by new agricultural policies through a case study of Bemba villages in Zambia. Currently, villagers are evaluating newly introduced crops and new agricultural techniques, and reevaluating their indigenous cultivation system. I also discuss the process of change in the indigenous cultivation system, and societal effects of the introduction of market liberalization.

Key Words: Bemba; Indigenous agricultural system; Market liberalization; Villagers’ logic; Leveling mechanism.

INTRODUCTION

Following the 1981 Berg report (World Bank, 1981), new policy reforms were initiated in many sub-Saharan African countries. There was a major shift towards market liberalization and away from the government control that had been common in most of sub-Saharan Africa. During the 1990s, the trend towards market liberalization accelerated as part of the rapid globalization of the world economy. The new economic structure inevitably impacted agricultural policies, and numerous studies have examined the effects of macroeconomic changes on local economies and agrarian life. Over the last decade, many studies have argued that structural adjustment programs (SAPs) have strongly impacted agrarian life; however, these studies have also tended to present farmers as “passive peasants.”

In Zambia, agricultural policy change, including the agricultural modernization program in the 1980s and the SAP in the early 1990s, has greatly affected local agricultural systems in rural areas and shaken the basis of agrarian life. However, it is necessary to examine the self-motivation of local people as well as sustainable directions for agricultural development. One key way to address these issues is through the “peoples’ science” approach based on “ecological particularism,” as argued by Richards (1985).

Here, I examine the following questions. How well have local people accepted agricultural policy changes? What kind of empirical knowledge have they accu-

mulated over 20 years of change? How has this knowledge affected their standards of evaluation? I focus on the Bemba villages of Zambia, where my colleagues and I have conducted research for 18 years. Analyzing the dynamics of agrarian change as affected by market liberalization is central to my concern of understanding local agricultural systems and social changes. As part of this goal, observing changes in indigenous agricultural systems is critical, as is analysis of the logic that people employ to evaluate newly introduced crops, techniques, and cultivation systems, and to reevaluate their local agricultural system. The aim of this paper is to analyze the process of change in Bemba villages and to clarify how villagers evaluate newly introduced crops and agricultural techniques in relation to their re-evaluations of the indigenous cultivation system.

RESEARCH AREA

I. Bemba-Land and Villages Observed

Bemba-land is situated on a plateau in Northern Province, Zambia. The land cover consists mainly of *Miombo* woodlands, characterized by low tree density and poor soil fertility. The Bemba have developed a unique shifting cultivation

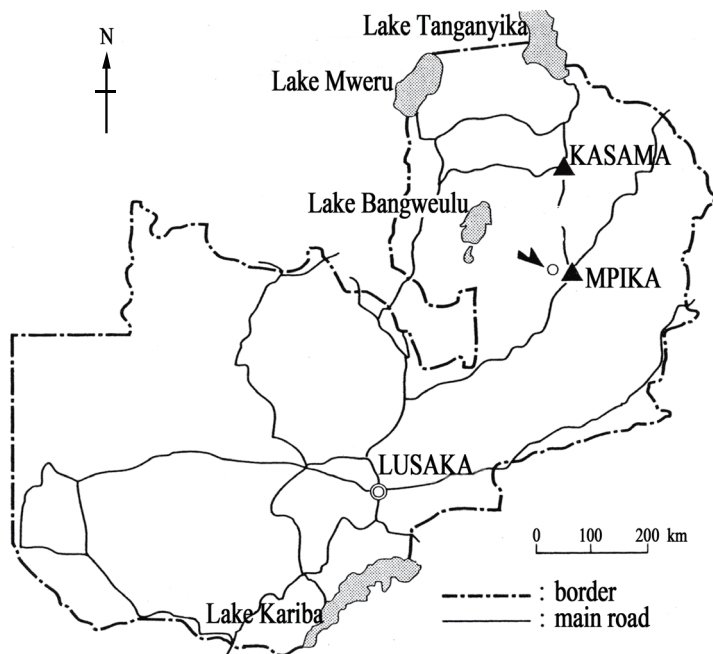


Fig. 1. Research area

system called *citemene*.⁽¹⁾ They are also well known for their matrilineal society and their powerful kingdom prior to British colonization (Richards, 1939, 1940; Allan, 1965; Roberts, 1973).

Since 1983, my colleagues and I have studied the ecological anthropology of the Bemba villages in Chief Luchembe's area of the Mpika District. Our research has mainly been based at M-village, located about 30 km west of Mpika Township (Fig. 1). Mr. M, a village senior, founded the village in 1958. At the time of its establishment, the village was small, consisting of only ten households.

The core members of the village are the matri-kin of Mr. M, the village headman. There is another village called N-village that neighbors M-village. These two villages have close mutual relationships both in terms of economy and social life. Therefore in this paper, I focus on M-village as well as neighboring N-village.⁽²⁾

When we started our research in 1983, M-village was still small, with only 13 households (Fig. 2). Of these 13, three were headed by a female. Because the divorce rate is rather high in Bemba villages, as is typical of matrilineal societies, between one and four of every ten households in a village is female-headed. In N-village, there were 30 households, of which 10 were female-headed. Although most villagers had some experience of city life, they maintained a subsistence economy with strong reliance on the *citemene* system (Kakeya & Sugiyama, 1985; Sugiyama, 1987).

The *citemene* system is unique in its cultivation and crop rotation methods. First, men climb trees to lop off branches, leaving the trunks uncut. When these branches are adequately dry, women carry the branches to the center of the clearing and pile them concentrically. The pile is burned just before the rainy season starts. In the field, crop rotation is maintained as follows. In the first year, finger millet, the main staple food crop of the Bemba, is harvested. In the second year, groundnuts and Bambara nuts are planted. In the third and fourth years, cassava, which was planted in the first year, is harvested. In the fifth year, small mounds are made in part of the *citemene* field for planting and harvesting beans, after which the field will be abandoned and left fallow.⁽³⁾

The basic unit of production is a household. There is a clear division of labor between men and women. Men seldom engage in agricultural activities

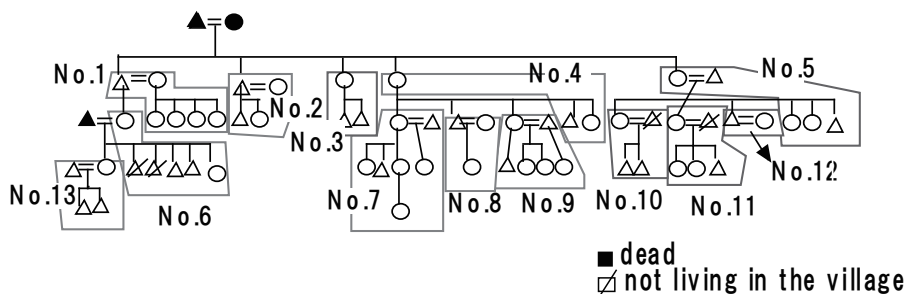


Fig. 2. Kinship relations of M-village in 1983

apart from cutting trees for *citemene* fields and sawing finger millet. Instead, they often go hunting to obtain animal protein and peddle finger millet to earn cash. Women engage in most of the *citemene* agricultural work and in gathering wild food items. In other words, women play the major role in maintaining agricultural self-sufficiency, while men's role is to obtain cash and animal protein.

The level of production generally corresponds to the composition of a household. A household with abundant male labor can open up a *citemene* field that is bigger than that needed to maintain household consumption. The husband can then peddle any harvest surplus (usually of finger millet) to earn cash. On the other hand, female-headed households with a shortage of male labor are deprived of such opportunities. However, if they could open their own *citemene* fields, they would have few economic difficulties. Matrilineal and daily social networks support them in securing male labor for cutting trees for *citemene*. Several customs such as communal labor and bride-service have ensured that female-headed household heads can obtain the minimum male labor necessary to cut their *citemene* fields. To earn cash, female household heads brew and sell finger millet beer, which usually prompts village-wide beer parties.

The villagers traditionally maintained socioeconomic mechanisms for sharing and consumption that promoted a leveling of cash and goods among the people. Although a quarter to a third of village households were generally headed by women, little economic disparity or class division among households developed. The level of production never greatly exceeded that necessary for self-sufficiency.

However, policy changes such as the encouragement of hybrid maize cultivation in the mid-1980s and market liberalization following the SAP in the 1990s have strongly affected the local cultivation system and village life. From about 1985, maize production using chemical fertilizers rapidly spread in the area and became known as *faamu* cultivation. *Faamu* is labor intensive because the villagers have to fell and uproot trees to prepare semi-permanent fields. By the beginning of the 1990s, most villagers had started to build a stable system in which *citemene* cultivation for subsistence coexisted with *faamu* cultivation for cash income.

From the mid-1990s, economic policies such as the SAP shifted towards market liberalization. Agricultural subsidies were discontinued, and the distribution of agricultural products was relegated to privatized companies. In remote areas such as Northern Province, *faamu* cultivation ceased to be viable. Villagers firmly upheld *citemene* cultivation while seeking, through trial and error, opportunities for cash income to replace that from *faamu* cultivation. Five periods are evident in the changes in the villages over a 20-year period (1983–2005): 1) subsistence economy based on *citemene* cultivation, 2) spread of *faamu* cultivation, 3) expansion of *faamu* cultivation, 4) return to *citemene*, and 5) search for a new livelihood strategy, as shown on Table 1.⁽⁴⁾

The following sections discuss Zambian agricultural policy changes, the characteristics of these five periods, the process of change, and villagers' logical assessments of changes and their consequent responses.

Table 1. Five periods of change

Year	Period
–1985	Subsistence economy based on <i>citemene</i>
1986 –1990	Spread of <i>faamu</i> cultivation
1991 –1994	Expansion of <i>faamu</i> cultivation
1995 –1999	Return to <i>citemene</i> cultivation
2000 –	Search for a new livelihood strategy

Table 2. Zambian agricultural policy change and the Bemba village

Year	Agricultural policy	Mpika District	Villages
1914	Food supply for the soldiers (WWI)	Introduction of mound cultivation	
1950s			N-village established
1958			M-village established
1964	(Independence: Establishment of the Republic of Zambia)		
Late 1970s	Agricultural policy change		
Early 1980s	Subsidies for chemical fertilizers, maize seeds Price control by the government		
1984	State-farm plan, 'Back to homelands' plan	Building State-farm near Kanchibiya river	Building State-farm near Kanchibiya river
1985	Loan system of chemical fertilizer, maize seed	Loan system of chemical fertilizer, maize seed	
1986			Maize cultivation boom
1991	President Chiluba declared to proceed the Structural Adjustment Program		Introduction of new method of brewing beer
		State-farm plan reformed into TAZARA* Corridor Development Project	Expansion of maize cultivation
1993	Gradual decrease of subsidies for maize cultivation declared		Agricultural cooperative groups formed
1994	Agricultural credit manage program	Chemical fertilizer loan by FOSUD**	Decline of maize cultivation, Introduction of pig-keeping
1997	Market liberalization of agricultural products		
1998		"TAZARA* Corridor" Resettlement Plan	Pig-keeping abandoned New sales strategy of agricultural products Reevaluation of <i>citemene</i> cultivation

* Tanzania–Zambia Railway Authority

** Mpika Foundation for Sustainable Development

AGRICULTURAL POLICY CHANGES AND THE *CITEMENE* SYSTEM

Table 2 outlines changes in Zambian agricultural policy. Before independence, the colonial government focused on developing industrial mines and mine towns in Copperbelt Province and Central Province. Development of agrarian life in Northern Province had long been outside the scope of the colonial government. Northern Province was regarded primarily as a source of labor for the mines. By the 1930s, labor migration from Northern Province to the industrial mines had become common (Kodamaya, 1993, 1995, 1999; Moore & Vaughan, 1994; Valdes & Muir-Leresche, 1993). M-village was started by a migrant who had worked for the copper mines. The socioeconomic structure of Northern Rhodesia (now Zambia) resulted in a low population density in Northern Province. Despite repeated government prohibition of *citemene* cultivation, the government eventually contributed to maintaining the ecological basis sustaining *citemene* cultivation, which utilizes woodlands widely and sparingly.

After independence in 1964, the Zambian government inherited the basic economic policies of the colonial government. However, plummeting international copper prices in the late 1970s necessitated policy changes. President Kaunda declared the importance of an agricultural development policy and of improvement of agricultural production with a modernized production system, which would enable Zambia to export agricultural products to support the state budget. From the late 1970s to the early 1980s, a new pricing policy for agricultural products and farm subsidies induced rapid expansion of maize cultivation in Northern Province. Distribution of agricultural products was completely under the government's control.

The state's farm construction project also expanded, coupled with the "back to homelands" plan to encourage urban dwellers to move back to rural areas to increase agricultural manpower. In the Mpika district, the former chief Luchembe agreed to construct a state farm along the Kanchibiya River, where villagers used to maintain their *citemene* fields.

In 1985, a loan system for chemical fertilizers and hybrid maize seeds was introduced. Several young male villagers, seeking an effective way to earn cash, took the loans to start cultivating hybrid maize in what they called *faamu* cultivation.⁽⁵⁾ *Faamu* cultivation soon proved highly profitable. Within a few years, most of the young male villagers were engaging in *faamu* cultivation, which caused a general shortage of male labor for female-headed households, and brought about a rise in wages for males.

With the government transition in 1991, the IMF-led structural adjustment program was embraced to promote the introduction of market-economy principles and market liberalization. Financial support for the equipment needed for *faamu* cultivation was gradually phased out, and policies shifted to offer less and less price supports for agricultural products.

The distribution of agricultural products was completely deregulated in 1997. *Faamu* cultivation in Northern Province became unprofitable and was abandoned by most villagers. The state farm construction project of the Mpika district

was reformed into the Tanzania-Zambia Railway Authority (TAZARA) Corridor Development Plan, and the project area was expanded to include the *Miombo* woodland near the villages.

Market liberalization of agricultural products and enclosure of the woodland by the TAZARA Corridor Project exerted pressure on the villagers and their choice of subsistence activities.

SUBSISTENCE ECONOMY BASED ON *CITEMENE* CULTIVATION

Table 3 shows the characteristics of each period and the corresponding cultivation systems. The era of a subsistence economy based on *citemene* cultivation continued up to 1985. When we started our research in 1983, the villagers cultivated *citemene* fields and *ibala*, a kind of indigenous mound-type cultivation field. Around the edges of *citemene* fields, long mounds called *mpomboloke* were made to plant sweet potatoes, pumpkins, and edible gourds. The villagers lived on the crops from *citemene* cultivation in addition to game and other wild animals and plants. They maintained self-sufficiency while earning cash by peddling finger millet and selling finger millet beer that they prepared themselves.

A division of labor was clearly observed. Men engaged only in the agricultural activities of cutting branches for *citemene* field preparation and planting finger millet; their main role was to obtain animal protein through hunting

Table 3. Periods of change and cultivation patterns

Year	Period	Cultivation pattern	Social aspect
–1985	Subsistence economy based on <i>citemene</i>	<i>Citemene</i> with <i>mpomboloke</i> , long mounds, <i>ibala</i>	
1986–1990	Spread of <i>faamu</i> cultivation	<i>Citemene</i> , <i>faamu</i> . Long mounds and <i>ibala</i> disappeared Crop rotation shortened.	Economic disparity among households Stagnation of cash circulation mechanism
1991–1994	Expansion of <i>faamu</i> cultivation	<i>Citemene</i> , <i>faamu</i> .	Introduction of new beer brewing method Revitalization of cash circulation mechanism Daily cooperation unit of female household heads
1995–1999	Return to <i>citemene</i> cultivation	<i>Citemene</i> with long mounds, <i>ibala</i> revived, <i>faamu</i> abandoned	Decrease in cash income New strategy of crop sales spread Cooperative unit of young unmarried men and female household heads
2000–	Search for a new livelihood strategy	<i>Citemene</i> with long mounds, <i>ibala</i> , grassland garden Several trials seeking for new profitable crop	“ <i>Bizinesi</i> ” sales strategy Cooperative unit of young unmarried men and female household heads

and cash through peddling. Women had the substantial role of attaining self-sufficiency by engaging in most of the *citemene* agricultural work and gathering wild food items. In households that included men, there was more likelihood that they could maintain secure labor for branch cutting and obtaining animal protein, and cash through peddling; households without men were deprived of these opportunities. This could have led to economic disparity between households with different constituents. However, such disparity was leveled by a social leveling mechanism, the intra-village sharing of *citemene* products, and a system of consumption (Kakeya & Sugiyama, 1985; Sugiyama, 1987, 1988). Fig. 3 shows the cash and labor circulation based on the leveling mechanism of this period.

Female household heads frequently made and sold finger millet beer. The cash that they earned was used for buying dried fish for protein and for employing males of other households to cut branches to establish *citemene* fields. Female household heads also brewed beer so that they could ask fellow villagers to work communally to help cut branches for their *citemene*. This communal labor was followed by a beer party for the whole village. It was possible for female-headed households to maintain a stable livelihood, as long as labor for cutting branches was secured. In the village society of the Bemba, people retained an important social ethic: it is imperative for the "haves" to share what they have with the "have-nots." Those who did not follow this ethic were severely criticized by the other villagers. This ethic was reinforced by fear of witchcraft, and was derived from jealousy of the wealthy and enmity against those who refused to share.

Men who made a lot of money would buy beer for the other villagers upon their demand. The wives of households with larger *citemene* fields would frequently brew beer for free communal drinking to entertain others. The brewing and sale of finger millet beer was the linchpin of the system for leveling dis-

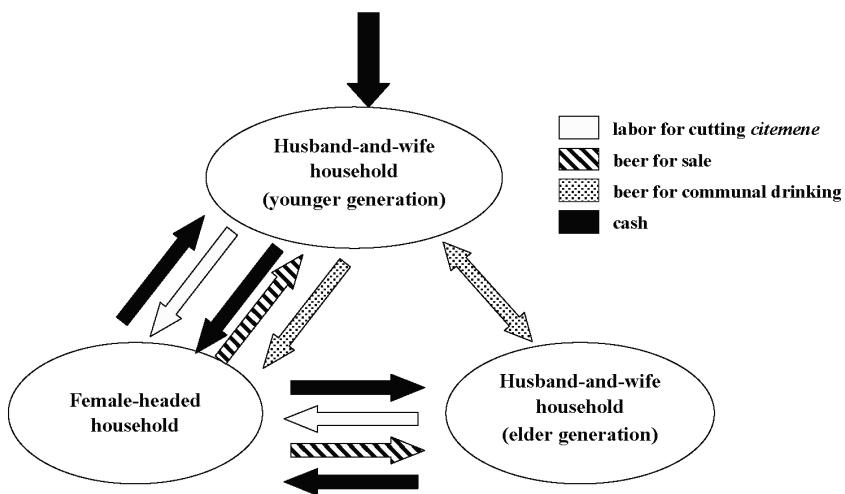


Fig. 3. Leveling mechanism in the *citemene* period

parity among the households in terms of *citemene* products and cash earning. Moreover, this system was instrumental in confirming village communality. Such a leveling mechanism worked to control individual accumulation of goods and wealth and to suppress change in the village.

THE SPREAD OF *FAAMU* CULTIVATION (1986–1990): EXPANSION OF ECONOMIC DISPARITY AMONG HOUSEHOLDS

During the era of *faamu* cultivation, villagers abandoned *ibala* cultivation and the making of *mpomboloke* (the long mounds around the edges of the *citemene* fields) due to the general shortage of labor (Table 2). Most of the male labor was devoted to opening *faamu* fields and cultivating hybrid maize. As a result, the acreage of *citemene* fields decreased. Female-headed households suffered, as they had to secure male labor to cut their *citemene* fields. The intra-village cash circulation system also broke down during this era, but was later revitalized.

The era of *faamu* cultivation can be divided into two sub-periods: the *faamu* cultivation boom period (1986–1990) and the era of the expansion of *faamu* cultivation (1991–1994). *Faamu* cultivation expanded rapidly between 1986 and 1990. In 1985, we found only two villages that had taken up *faamu* cultivation when we surveyed the 17 villages along the main road. Within a few years, all 17 villages had started *faamu*. It was during this period that the aforementioned leveling mechanism of the village worked to enhance change rather than to suppress it (Kakeya & Sugiyama, 1987; Sugiyama, 1992).

While I will not discuss the details of the process here, a few pioneers played an important role in showing other villagers the profitability of cultivating hybrid maize in semi-permanent fields; other villagers learned from these pioneers by observations and daily dealings. It was around this time that the external situation of the villages changed dramatically with the beginning of a survey and road construction for the state farm. According to the construction plan, the state farm would encompass the *Miombo* woodland quite proximate to the village. Commodity prices rose rapidly due to inflation. Loans for chemical fertilizer and hybrid maize seeds were also introduced.

In the villages of M and N, several young and middle-aged men aggressively utilized these loans and began *faamu* cultivation. At the same time, several former city dwellers began settling in the villages after retiring from jobs in Copperbelt Province cities. They bought soap and clothes with their retirement money to reward villagers for cultivating large *faamu* fields for them. Such actions stimulated the wage labor necessary for *faamu* cultivation in exchange for cash and goods, which was called “piece work.” The men who started *faamu* also began to hire wage labor. Thus, *faamu* spread rapidly, propelled by young and middle-aged villagers and retirees from the cities. However, the same process also spread economic disparity between households with male labor and those without.

As young and able men busied themselves cultivating *faamu* for their own

households, a general shortage and resultant rise in the wages for male labor in the village ensued. It became hard for female household heads to find men to cut branches for their *citemene* cultivation. Background inflation drove down the sales of finger millet beer, formerly the main cash source for women. The intra-village cash flow degenerated. Female household heads became laborers for large *faamu* owners instead of cultivating their own *faamu*, and were paid in cash or maize. As a consequence, households with ample male labor that had a head start in *faamu* cultivation increasingly profited, using female labor to expand their fields for more profit, whereas female household heads were left.

EXPANSION OF *FAAMU* CULTIVATION (1991–1994): TRANSLATION OF MAIZE INTO DAILY FOOD AND REVITALIZATION OF THE LEVELING MECHANISM

The conditions mentioned above did not last. Hybrid maize started to be incorporated as a daily food staple as *faamu* cultivation spread. Through their employment as *faamu* labor, female household heads earned hybrid maize, which they cooked for daily meals. Hybrid maize was once considered a “cash crop.” It was regarded as shameful to ask for maize to be shared as it corresponded to begging for cash. This symbolic status of hybrid maize interrupted the circulation of agricultural products in the intra-village sharing system. However, since it became common to eat maize in daily life, the villagers easily translated its symbolic value from “cash” to a “food” to be shared. The people started to share hybrid maize produced in the *faamu* fields, which eventually helped lessen the economic disparity between households (Sugiyama, 2000).

After 1991, *faamu* cultivation was taken up by almost all of the households, including those headed by women. Since one female household head had introduced a new method of brewing finger millet beer, the intra-village cash flow and the leveling mechanism was reactivated. The beer made with the new method required far less processing and ingredients but fetched a relatively high price. By frequently making and selling this beer, the female household heads could earn enough cash to employ men of other households. The intra-village cash circulation emerged again. Supported by the aforementioned “translation” of maize into daily food, the leveling mechanism was revitalized (Fig. 4).

These women also asked the men who would drink beer “on credit” to pay in labor. The men would cultivate *faamu* fields for the women, so that finally they were able to own sizeable *faamu* fields. The women who sold beer frequently were household heads usually of the generation called the “young ones.”⁽⁶⁾ These women did not dare make *citemene* fields that would be big enough to support their households, but would join the *citemene* agricultural work of the older female household heads who were often their mothers.⁽⁷⁾ Consequently, the crops harvested in their mothers’ *citemene* fields were shared to be cooked and consumed by the daughters’ households. The “young ones,” who were able to secure food for their own household consumption by work-

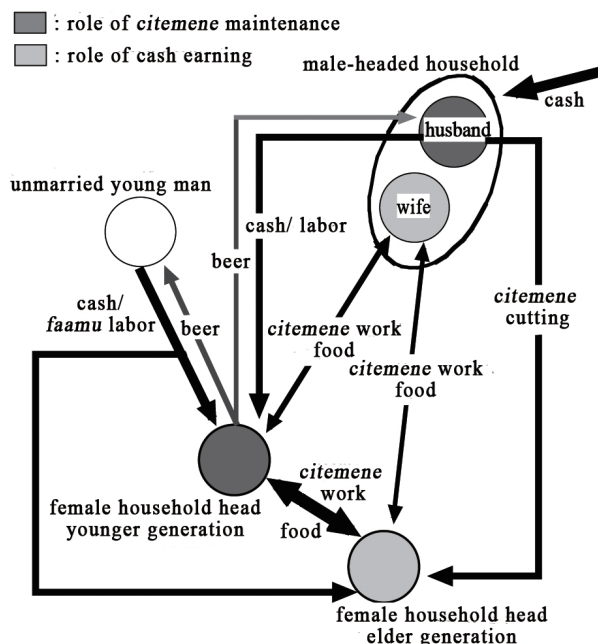


Fig. 4. Leveling mechanism and the cash/labor flow in the expansion of *faamu* period

ing jointly with their mothers, also asked the men who drank the beer for labor to cultivate *faamu* for their mothers' households. As a result, almost all of the households in the village could engage in *faamu* cultivation. A two-tiered strategy became commonplace, whereby self-sufficiency was secured through *citemene* cultivation and cash earning could be gained through *faamu* cultivation.

The equipment necessary for *faamu* cultivation could be obtained by simply registering for a loan. Trucks sent from the fertilizer company collected the maize harvest, and the produce price was nationally set so that for farmers in remote areas such as Northern Province, *faamu* cultivation was a very profitable way of earning cash income.

RETURN TO CITEMENE CULTIVATION (1995–1999)

I. The Cultivation System and Market Liberalization

I term the period after 1995 “return to *citemene*.” During this period, policy shifts shook the basis of *faamu* cultivation. With the government transition in 1991, the SAP was wholly embraced. Agricultural pricing policies shifted from government control to market control, and *faamu* cultivation became unprofitable. In general, conditions became very severe for those living in remote areas

with poor infrastructure in Northern Province. Under market liberalization, people in these areas had to compete price-wise with agricultural producers having great advantages in transfer distance or in infrastructure.

In the villages of Chief Luchembe, people started to try new and different activities to earn cash. The responses of the villages were diverse according to their location and the conditions of the *Miombo* woodland surrounding them (Oyama, 1999). The villagers who were close to Mpika town with its deteriorated woodland aggressively started to make charcoal to earn cash. Some villagers relocated in search of pristine *Miombo* woodland that would enable larger *citemene* fields of higher productivity. These people transported and sold *citemene* crops such as finger millet at markets during the rainy season when prices became high, a marketing strategy aimed at earning more cash. This was due to seasonal changes in the price of produce resulting from market liberalization. This strategy spread in just a few years to nearby villages, and now selling the crops in tune with the seasonal fluctuations of market prices has become common. Such changes were also made possible by the "heritage" of the era of *faamu* expansion: the sale of agricultural products had become a common way of earning cash, and many households had purchased bicycles with the cash that they earned with *faamu* cultivation.

II. The Prevalence and Decline of Pig Keeping

Between 1995 and 1997 M-village had 19 households, of which 8 were female-headed (Fig. 5). In this village, the young and middle-aged generations who bore the expansion of *faamu* cultivation have gained political authority in the village. After 1994, free-range pig keeping became popular in M-village. A household headed by a middle-aged man was the first to keep pigs, which were bought from his wife's natal village. Six months later, another middle-aged man bought some pigs from some other villages. The pigs reproduced, and some were slaughtered and the meat was exchanged for *faamu* labor. Some pigs were exchanged for maize and goats. The villagers that obtained pork in exchange

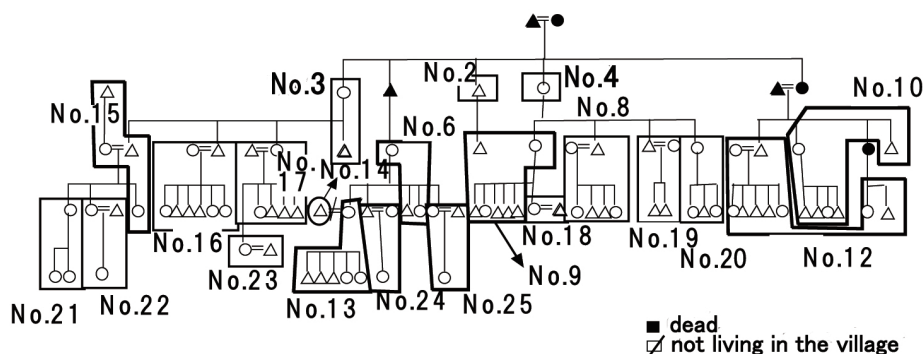


Fig. 5. Kinship relations in M-village in 1995

for labor liked the taste of pork and the fact that pigs reproduced well; they started to keep pigs themselves.

At first, it was common to obtain pigs in exchange for maize. Gradually more opportunities arose for obtaining pigs in exchange for labor or goats, which made it possible for households without maize or cash to raise pigs on their own. Many villagers started to concentrate labor on pig keeping and abandoned *faamu* cultivation altogether. After 1997, M-village households mostly pursued a double-tiered livelihood strategy of securing self-sufficiency through *citemene* cultivation and raising pigs for cash.

However, pig keeping was suddenly abandoned in 1999. In August 2000, only one household kept pigs in a pigsty. Other villagers had sold or eaten their pigs, or had exchanged pigs for goats. Some villagers started to keep goats in pens, which enabled them to collect goat manure to fertilize vegetable gardens that they cultivated in the *dambo* grassland.

Villagers gave the following reasons for abandoning pigs. First, pigs severely damaged *citemene* crops such as cassava and sweet potatoes. The villagers particularly noted an incident that they memorialized as “the lesson of 1998.” That year, the finger millet harvest was very poor due to irregular rainfall; this was followed by a severe food shortage during the 1999 rainy season. The villagers tried to survive on cassava and sweet potatoes. However, pigs went to the *citemene* fields near the village, where they dug up and ate the cassava and sweet potatoes that the villagers had been counting on.⁽⁸⁾ This experience also made people realize the importance of *citemene* cultivation. Second, Chief Luchembe declared a prohibition on free-range pig keeping due to cases of murrain, a highly infectious disease, spreading through the pig population.

III. The Return to *Citemene* and the Diversification of Market Strategies

The cultivation system of this period is characterized as follows: 1) *faamu* cultivation declined, 2) *citemene* acreage increased, 3) the increase of the *citemene* acreage was more clearly observed among female-headed households due to the change in the labor distribution, 4) *mpomboloke* (long mound cultivation) and *ibala* (small-scale mound cultivation) were revived, 5) goat keeping in pens and the use of goat manure in vegetable gardens in the *dambo* grassland began, 6) a sales strategy utilizing the seasonal fluctuation of market prices was devised, and 7) a daily cooperation unit between female household heads and unmarried young men was observed.

In 1997, the distribution of chemical fertilizers and agricultural products was completely liberalized to become market oriented. The villagers returned to *citemene* cultivation and revived the *ibala*, small-scale mound cultivation in the abandoned *faamu* fields. They started to earn cash by selling *citemene* crops at the market instead of maize. The villagers tended to hold on to the finger millet harvest until the rainy season when the price of produce increased in the market. If there was an immediate need for small amounts of money, they would transport the *citemene* crops to the Mpika town market to sell.

Modes of selling also diversified according to the purpose of expenditure, as follows. 1) Selling at the Mpika town market in any season: Persons in urgent need of money transport and sell crops without regard to market price fluctuations. 2) Peddling: Persons needing a certain amount of money continuously can peddle crops, a classic way of selling foods. 3) “*Bizinesi*”: A person wanting to make a profit and a fair amount of money can try to reach the Zambia-Tanzania border and sell the crops.⁽⁹⁾ The price of produce is usually much higher there than at the Mpika town market.⁽¹⁰⁾ Transporting crops to and selling them at the border is called “*bizinesi*.” The word *bizinesi* itself was derived from the English word “business” and means “profitable sale in a modern way.”

The acreage of *citemene* fields increased by approximately 1.4 times on average compared with the acreage during the era of *faamu* expansion. The increase in acreage was quite clear among female-headed households, where holdings became 1.2 to 2 times larger than in the era of *faamu* expansion, due to reasons described below. The system of making long mounds, *mpomboloke*, was revived. Villagers even made two parallel long mounds around the edges of *citemene* fields, where they planted sweet potatoes and beans. Some villagers began making mounds for *ibala* cultivation in abandoned *faamu* fields to plant beans and groundnuts, which were also sold at market. Maize is seldom part of the daily diet but finger millet and cassava once again became staple foods.

SEARCH FOR A NEW LIVELIHOOD STRATEGY (2000–)

I. “*Bisinesi*” Sales Strategy and Vegetable Cultivation in the *Dambo* Grassland

Fig. 6 shows the kinship relations of M-village in 2000. In 1999, several young male villagers started cultivating the *dambo*, a seasonally flooded grassland, to grow vegetables such as Chinese cabbage, spinach, and onions, using goat manure collected in the pens. In the early 1980s, some villagers attempted to cultivate vegetable gardens, but only as a small-scale trial. It was difficult then to get the chemical fertilizer necessary to grow vegetables in *dambo* gardens. After the mid-1980s, when the supply of chemical fertilizer became abundant, people were so busy opening their own *faamu* cultivation fields that they had no interest in cultivating vegetable gardens in the grassland. The vegetable gardens in this era of return to *citemene* have been much easier to maintain than in the early 1980s because goat manure, which according to villagers is “very powerful” for growing vegetables, can be collected in the pens for free, thereby eliminating the need for chemical fertilizers. In August 2000, 14 young villagers under the age of 30 were engaged in growing vegetables in the *dambo* grassland gardens near the villages. They sold the vegetables in their village and nearby villages. In most cases, they exchanged vegetables for *citemene* crops such as finger millet, beans, sweet potatoes, and groundnuts. After a certain amount of crops were collected, they transported them to the market by bicycle

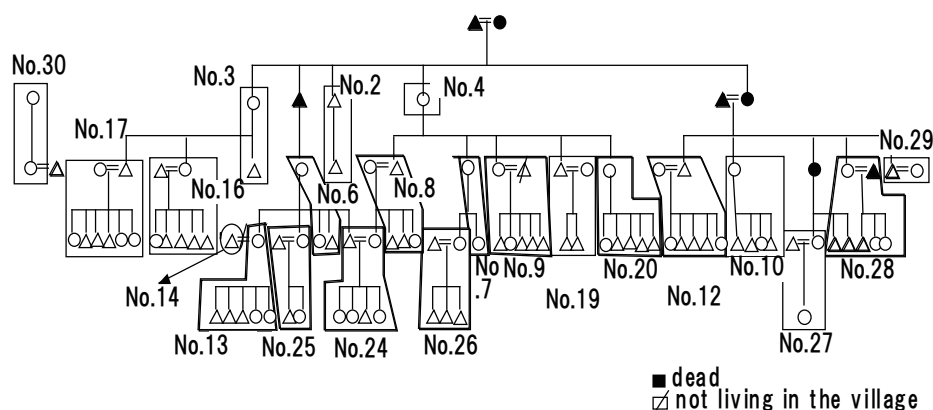


Fig. 6. Kinship relations in M-village in 2000

and would sell them using sales strategies such as the *bizinesi* strategy noted above. In other words, growing vegetables was coupled with *bizinesi* to activate the selling of *citemene* crops.

Apparently, several female household heads, seeking greater profits, entrusted the young vegetable growers with their *citemene* crops to sell by *bizinesi*, as female household heads tended to lack the labor and time needed to transport and sell crops at the market. For example, the household head of No. 4 in Fig. 6, who had no male labor within the household, asked a young 20 year-old man to take her *citemene* crops to the market to sell, whenever she needed some money. The young man usually lived in No. 28 household (his dead mothers' younger sister's household) but frequently went to his "grandmother's," the household head of No. 4, and ate with this household. Several examples were observed of such daily cooperative units between vegetable growers (at the same time, *bizinesi* keepers) and female household heads, formed along matrilineal kinship ties.

II. The Emergence of Finger Millet as an Important Cash Crop

In 2000, there were only two households within M-village and N-village that cultivated maize with chemical fertilizer. A young husband of one of these households engaged in *ibala* cultivation without fertilizer to plant beans that were then transported to and sold at the town market. With the profits from his bean sales, he bought a set of chemical fertilizers and hybrid maize seeds to cultivate *faamu*. He intended to use the maize harvest for self-consumption, which would enable him to keep his finger millet until the rainy season to sell at a high price. He explained, "If you hold the finger millet until the rainy season, you can enjoy a high profit with which you can get enough chemical fertilizer and maize seeds to maintain *faamu* cultivation as well as *citemene* cultivation. Then you don't have to worry about hunger."

Interviews suggested the same tendencies in other households. People placed much value on securing a level of self-sufficiency. As mentioned above, they

have accomplished an adaptation to the market economy by diversifying the sales strategy for *citemene* crops, as well as securing a level of self-sufficiency.

Finger millet has become a much more important crop as a food staple and a source of cash income. In other words, finger millet has emerged as an important cash crop. However, it is important to note that finger millet is not merely a cash crop; it is a multi-purpose crop that allows people to flexibly change its usage. According to the socioeconomic conditions, the villagers have the option of using finger millet for earning cash or for self-consumption. This has enhanced the worth of finger millet and, as a result, has increased the worth of the *citemene* cultivation system.

III. Villagers' Continuing Experiments

The pioneers who led the *faamu* cultivation boom also reevaluated the worth of *citemene* to open bigger *citemene* fields to secure food for self-consumption and for earning cash. At the same time, they are continuing to experiment with new crops and new cultivation methods.

For example, a middle-aged man of household No. 14 cultivated sorghum, sesame, sunflowers, and Irish potatoes in his *ibala* mound cultivation fields in order to find an effective cash crop. He also opened nearly 60 ares (1.5 acres) of *citemene* fields, much more than he needed for self-consumption, from which he harvested finger millet, cassava, and beans for sale. Another middle-aged man of the neighboring N-village built his house near the *dambo* grassland, apart from the main village. He started to cultivate mounds without using chemical fertilizer in the abandoned *faamu* fields; he planted sorghum, castor beans, and sunflower for trial in addition to more traditional crops such as beans, groundnuts, sweet potatoes, and cassava. He also started to cultivate in the *dambo* grassland, which had not been used before, to try opening semi-permanent fields of finger millet and sorghum, as well as to make a small orchard of lemon, orange, guava, and avocado trees.

In addition to these trials, he joined an informal group of people selling harvests of finger millet and sorghum by *bizinesi*. This group, which consisted of three N-villagers, was planning to build up an improved cultivation system coupled with an improved sales strategy. The improved cultivation system that they designed combined the three cultivation methods of *citemene*, *ibala*, and semi-permanent fields, the main crops of which were finger millet in *citemene*, sorghum and beans in *ibala*, and maize in semi-permanent fields. This system enabled them to secure self-sufficiency as well as the possibility of dealing with the seasonal and annual fluctuations of market prices and demands.

IV. Two Different Principles

Although these examples are the most trailblazing, the same general attitude toward the market is shared by most of the villagers. It has become common for villagers to choose when and where they sell their crops. This attitude clearly contrasts with that of exchanging goods within the village and among

the villages where items are mainly bartered. The young male villagers would exchange the vegetables they grew for finger millet and beans, but despite the price fluctuations of the market, the rate of exchanging vegetables and *citemene* crops is almost fixed throughout the year.

Currently, finger millet beer is seldom purchased with cash but is exchanged for labor. Young vegetable growers often drink finger millet beer (brewed by the new method) in exchange for the vegetables they grow. Therefore, female household heads who sell finger millet beer acquire plenty of male labor to cut trees for *citemene* and have been able to open *citemene* fields of 40 to 50 ares (1 to 1.2 acres). The finger millet beer brewed using the traditional method is still sold for cash, creating an intra-village cash flow and eventually serving to level differences in cash income among the villagers. A female household head who harvested plenty of finger millet tended to brew beer frequently for free communal drinking. Even if she brewed beer for sale, she would offer between a quarter and a third of her materials to brew beer for communal drinking, just as villagers used to do in the era of a subsistence economy based on As stated above, the villagers seem to follow two different principles, one of which serves to integrate them with the market economy and the other of which reflects the ethics of village life. The latter principle contributes to the exchange of materials apart from the cash economy, which becomes one of the mechanisms of social security to maintain subsistence stability under the rapidly changing socioeconomic conditions of Zambia.

SUMMARY AND CONCLUSIONS

I. The Process of Change and the Updated Subsistence Strategy Based on *Citemene* Cultivation

The most considerable change observed over these 20 years is that the existence of the market has become much more relevant to the villagers' subsistence strategies. Selling crops is no longer unfamiliar to the villagers in their quest for cash. People are well aware of the mutual relations between the fluctuations of the market economy and the quantity of their own cash income. They began to choose when and where they sold crops because they recognized the difference in prices between the seasons and the markets. They also seek profitable crops to sell at the market through their own trial-and-error processes and daily observations of other villagers' behavior. Throughout the experience of the relevance and the decline of *faamu* cultivation, the people in M-village and N-village have enhanced their opportunities to engage in the national economy. Life in the Bemba villages has become much more involved in wider socioeconomic systems.

However, it must be noted that such changes have been accomplished without producing any noticeable economic disparity among the villagers, or any

great reform of the village social structure. Rather, the process of change has been brought about by the leveling mechanism, which clearly reflects the unique logic of Bemba village life. The following four tendencies of the process of change are continuing characteristics of the Bemba village: 1) *citemene* have been updated and maintained as a central part of subsistence according to changes in external socioeconomic conditions, 2) securing a level of self-sufficiency is the basic standard of choosing subsistence strategies, 3) the crops accepted as cash crops are available both for self-consumption and for sale, allowing villagers to use the crop according to external socioeconomic conditions, and 4) patterns of change have been evident in all of the eras outlined above.

These tendencies are supported by the following characteristics of Bemba society. First, loose social ties within a household make it possible for villagers to flexibly reform the daily cooperation unit of production and consumption. Reform of the unit is mainly brought up along the "traditional" matrilineal kinship ties. Note that the reform of units of cooperation between younger female household heads and elder female headed household heads set the stage for the expansion of *faamu* cultivation. Second, food and labor circulation beyond the household level occurs daily, which serves to level economic disparities between households and to secure a level of self-sufficiency for the whole village. Third, the leveling mechanism helps encourage the circulation of cash, goods, and labor within the village. It eventually ensures the people a relatively autonomous intra-village life that follows different principles of production, distribution, and consumption. The basic features of Bemba village society include the potential to cope with external factors such as macro-socioeconomic changes.

It is particularly notable that there always has been somebody who tries new crops or new cultivation methods. On the basis of each villager's experiments, others have found ways to cope with the changing socioeconomic conditions. For example, during the *faamu* period, even though it seemed to be most effective to cultivate maize for cash, the household head of No. 14 tried to grow sorghum and finger millet using chemical fertilizer so that he could compare the harvest to a non-fertilized harvest. An elderly man of N-village tried barley, castor beans, Irish potatoes, and sorghum in his *citemene* field. He also tried to make a new crop rotation of seven to eight years.

Other villagers' behavior is a very important information source. By carefully observing behavior and results, each villager can judge if the method and crops are suitable or not. The high mobility of Bemba villagers contributes to their observations of other villagers' behaviors. For example, they often visit their relatives and friends who live in remote areas and stay for a few months; these trips and stays provide them with an opportunity to observe foreign crops and agricultural methods practices. The *faamu* cultivation boom is based on such a process of a few pioneers being observed by others (Kakeya & Sugiyama, 1987). Processes such as former city dwellers hiring labor for *faamu* cultivation, a new method of brewing beer developed by a young female household head, and free-range pig keeping by a middle-aged man, are other good examples of

such innovation.

This pattern of change is not newly invented but has evolved throughout the history of the Bemba, at least since the colonial period. In this respect, the effects of macro-socioeconomic change, such as the infiltration of the cash economy, agricultural modernization, and market liberalization, have presented great similarities for the villagers to cope with. They have maintained an autonomous system based on their own logic in dealing with external socioeconomic changes; this logical decision-making process has been strengthened by empirical knowledge accumulated through 20 years of experience.

II. What the Villagers Learned from Their Experiences

The villagers reported that their 20 years of experience from the beginning of the *faamu* cultivation era, including the massive policy shift following 1991 and the SAP, has taught them the following. First, the *citemene* system fits the present condition of their area both in natural and socioeconomic aspects. Second, securing a level of self-sufficiency is an essential livelihood strategy under the present socioeconomic conditions of Zambia. In pursuing self-sufficiency, maintaining the *citemene* system is inevitable. Third, the basic standard for accepting a newly introduced crop is that the crop be edible. Whether the crop can be used in the daily diet is essential in its evaluation. Fourth, affluence depends on the quality of the *Miombo* woodland of this area. As “the lesson of 1998” revealed, the *citemene* system depends on the relationship between the *Miombo* woodland and the fertility of crops. In other words, villagers recognize the importance of environmental sustainability through the logic of “securing self-sufficiency.”

Given this recognition, it must be pointed out that the enclosure of the *Miombo* woodland by the TAZARA Corridor Development Project poses a crucial problem. The ecological sustainability of the *citemene* system is at risk. The villagers have been excluded from parts of the *Miombo* woodland that they had always utilized widely but sparingly. The Bemba way of utilizing the woodland has been the base ensuring the continuous reform of subsistence strategies according to changing socioeconomic conditions, as well as offering subsistence stability to the village as a whole.

Villagers were given the chance to register for rights to cultivation plots in the project area a few years ago. However, the offer was rejected by most of the villagers because the registry conditions required permanent field cultivation and prohibited *citemene* cultivation within the project area. Although the people were aware of the impending shortage of woodland, nobody dared to risk giving up *citemene* cultivation and shifting to a permanent cultivation system. The villagers recognized the risks of a permanent cultivation system given the area's environment.

The dilemma of the villagers clearly shows that the development direction of the TAZARA Corridor Development Project basically differs from the villagers' practical logic. They regard permanent field cultivation as too risky to depend

on entirely. They said that if they continued cutting *citemene* without moving to another area, the cycle of cutting woodland would be shortened, which would lead to a rapid decrease in the harvest. According to interviews with the villagers, there are some options. First, they could move to another area to seek *Miombo* woodland. Second, if the *Miombo* woodland deteriorates, they could try to adopt the techniques of the Lala or the Namwanga people living in already deteriorated *Miombo* woodland areas, in order to accommodate the foreseen woodland shortage. The villagers who choose to maintain *citemene* cultivation face an increasingly less amenable environment. They must continuously seek an effective way to manage these issues.

Several studies have examined the effects of the infiltration of a cash economy on local agricultural systems and have shown the diverse directions taken by local people. The most common tendency is for a monoculture of cash crops to become widespread, altering or destroying the local agricultural system. However, some other papers have reported situations in which the local agricultural system enables the integration of the cash economy.

For example, the Matengo people who live in the mountainous area of southwestern Tanzania introduced coffee cultivation in permanent fields to earn cash (Araki, 2000; Itani, 1998). Even though they do not consume the coffee that they cultivate, they use intense care including the use of fertilizers in coffee cultivation. On the other hand, they have maintained the local cultivation system called *ngolo*, a type of pit cultivation, to cultivate beans and maize which are their staple foods. They enjoy high productivity using the *ngolo* pit cultivation system, which enables them to secure self-sufficiency; at the same time, they earn a large amount of money by selling coffee, cultivated using chemical fertilizer. In other words, they chose a two-tiered strategy.

The Bemba people, unlike the Matengo, have confirmed the importance of self-sufficiency and the cultivations of food crops that they can consume. By this standard of evaluation, the *citemene* cultivation system was revalued and reinterpreted into an updated mode to accommodate the villagers' adaptations to the market economy.

In searching for ways of integrating local socio-environmental sustainability and the market economy in wider economic and political contexts, researchers must carefully record the knowledge accumulated from the experiences of local people and clarify the logic derived from such experiences.

NOTES

- (1) 'Ci' in the Bemba notation corresponds to 'chi' in Roman notation. Bemba words will be written in singular form.
- (2) M-village was dissolved in 1986 because of a social conflict within the village. About half of the households moved to neighboring N-village, where our research base was then located. However, in 1996, M-village was rebuilt again, not far from the former site of the old village.
- (3) Oyama estimated the optimum fallow period to be "16 years in the tree cutting area and 35–40 years in the garden (inside of the *citemene* field) in order to achieve the sustain-

- able utilization of the *Miombo* woodland, and a certain level of finger millet production” (Oyama, 1996: 114).
- (4) This classification is based on our previous paper presented at the COE international conference held in 2001 in Kyoto (Takeya et al., 2001). Based on the classification in 2001, the discussion was developed into our paper published in 2006 (Takeya et al., 2006). In that paper, we showed the following five periods: 1) subsistence economy based on *citemene* cultivation (–1985), 2) spread of *faamu* cultivation (1986–1990), 3) expansion of *faamu* cultivation (1991–1994), 4) return to *citemene* (1995–1999), and 5) search for a new livelihood strategy (2000–2006).
 - (5) In villages M and N, experimental cultivation of maize was begun around 1982 by three pioneers who used chemical fertilizers that they had procured.
 - (6) Most of “the elders” rejected the brewing of beer by the newly introduced method, saying “This is not the real Bemba beer. This is children’s drink!” Instead, they insisted on opening *citemene* big enough to secure daily food as well as the raw material for brewing the “real Bemba beer.”
 - (7) It is a common practice in the Bemba’s matrilineal society that married daughters and their mothers work together and share their harvest from the *citemene* fields.
 - (8) Consequently, some villagers had to relocate to live with relatives in other villages where there were plenty of *citemene* crops. It is said that quite a few people who mainly cultivated *faamu* rather than *citemene* suffered from hunger that year. They moved to other villages where they made *citemene* fields big enough to secure staple food and temporally worked for food.
 - (9) Both men and women can try to do “*bizinesi*,” but it is more likely for unmarried young men to engage in this business.
 - (10) The price of one gallon of finger millet at the Mpika town market was 1,000 Kwacha in the dry season in 2000, whereas in the rainy season the price reached 30,000–35,000 Kwacha. At the market near the Zambia-Tanzania border, more than 20,000 Kwacha was considered a reasonable price even in the dry season. In August 2000, 3,200 Kwacha was equal to one US dollar.

ACKNOWLEDGEMENTS This paper is based on the research supported by Grant-in-Aid for Scientific Research of Japanese Ministry of Education, Culture, Sports, Science and Technology (#14086206), and Japan Society of the Promotion of Science (#11691186). I express my sincere appreciation of the staff of the Institute of Economic and Social Research, University of Zambia, and Professor A.Z. Matee, the Director of SCSRD, Sokoine University of Agriculture, Tanzania. My special appreciation goes to the M- and N-villagers of the Bemba, Mpika District, Zambia.

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————— Accepted *January 10, 2007*

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