<table>
<thead>
<tr>
<th>Title</th>
<th>THE IMPACTS OF RESETTLEMENT ON LIVELIHOOD AND SOCIAL RELATIONSHIPS AMONG THE CENTRAL KALAHARI SAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Author(s)</td>
<td>MARUYAMA, Junko</td>
</tr>
<tr>
<td>Citation</td>
<td>African Study Monographs (2003), 24(4): 223-245</td>
</tr>
<tr>
<td>Issue Date</td>
<td>2003-12</td>
</tr>
<tr>
<td>URL</td>
<td><a href="https://doi.org/10.14989/68226">https://doi.org/10.14989/68226</a></td>
</tr>
<tr>
<td>Right</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Departmental Bulletin Paper</td>
</tr>
<tr>
<td>Textversion</td>
<td>publisher</td>
</tr>
</tbody>
</table>

Kyoto University
THE IMPACTS OF RESETTLEMENT ON LIVELIHOOD AND SOCIAL RELATIONSHIPS AMONG THE CENTRAL KALAHARI SAN

Junko MARUYAMA
Graduate School of Asian and African Area Studies, Kyoto University

ABSTRACT The |Gui and ||Gana San were relocated in 1997 from the Central Kalahari Game Reserve by the Botswana government. This paper describes continuities and changes observed among the Central Kalahari San in their transition to post-foraging society under the resettlement program, which was done 20 years after their sedentarization.

After initial allotment of fixed residential plots, some San residents remain while others moved out of the resettlement site, forming small residential groups which are mirrored the spatial distribution pattern before the relocation. As different sites of dwellings formed, several livelihood strategies emerged. The members in and out of the resettlement site move frequently, and exchange goods and services. Such movements and exchanges have enabled utilization of both the welfare benefits within the settlement and natural resources from the bush. The complementary relationships between the San families in the two dwelling sites are based on the ties forged by camp co-membership before the relocation.

Key Words: San; Resettlement program; Central Kalahari Game Reserve; Botswana; Transition to post-foraging society.

INTRODUCTION

Recently, an increasing number of foragers has been resettled or displaced from their ancestral land. Such a pressure from the outside world have affected the elements of the foraging societies, which have made hunting and gathering life persist for centuries or even millennia. The San in Southern Africa are no exception. It has been reported that many San have been relocated from the nature reserves, commercial ranches or war zones (Gordon, 1992; Lee & Hitchcock, 2001; Biesele & Hitchcock, 2000; Good, 2001; Vorster, 1995; WIMSA, 2002). This process of facing difficulties in living in new and unfamiliar environments has induced a transition from a foraging to a post-foraging society. It is, therefore, urgent to study and analyze this process, in particular, to delineate the continuities and changes brought about by involuntary displacement.

Since the 1960s, extensive research was carried out on the socio-economic aspects of the |Gui and ||Gana, also called as Central Kalahari San, in the Central Kalahari Game Reserve (CKGR) in Botswana. These studies are divided into two groups. The first group is ethnographic studies on the "traditional" socio-cultural and economic system of the |Gui and ||Gana (Silberbauer, 1965, 1981; Tanaka, 1980). The second group is the studies on the changes in the San socio-economic life, such as subsistence activities (Sugawara, 1991; Osaki 1984;
The data used here were obtained in field research conducted at one of the resettlement sites in Ghanzi District, Republic of Botswana, from August 2000 to March 2001, and from May to June 2001, three to four years after the start of the relocation. The site is called Kx’oensakene, meaning "looking for life" in ||Gui and ||Gana, although administratively it is called "New Xade". Kx’oensakene is situated about 100 km from Ghanzi, the district capital, and 70 km from Xade, the former settlement for most of the residents (Fig. 1).

The first aim of this paper is to clarify the impacts of the resettlement on the livelihood and social relationships of the relocatees and to demonstrate how the relocatees have coped with the problems accruing from the new environment. The paper will serve as a first step to elucidate the long-term reshaping process of a displaced society. The second aim is to analyze the emerging social relationships among the ||Gui and ||Gana in the new settlement, by comparing the factors clarified in this study with those of the studies undertaken before the relocation.

RESEARCH AREA AND METHOD

The government of Botswana started the largest resettlement program in the country, involving 1,200 ethnic ||Gui and ||Gana San and the Bantu-speaking Kgalagadi from CKGR. The government established two resettlement sites outside CKGR. This resettlement program was justified by the government mainly to conserve natural resources and promote community development. Although the program triggered opposition from the residents and international protests, in the end, some residents accepted the resettlement, and gradually others have started to resettle as well (Sugawara, 1999).

Most people were afraid that the resettlement program would have a detrimental impact on the San society. Anthropologists who study the San society have reported on the entire process of the resettlement program (American Anthropological Association, 1996; Hitchcock, 1999, 2002; Sugawara, 1999; Tanaka, 2001; Ikeya, 2001). The Botswanan and world media such as Mmegi, Botswana Daily News, The Washington Post or New York Times reported on the program and the related political campaign (Hitchcock, 1999; Ikeya, 2001). To date, however, little research has been undertaken on the actual impacts of the resettlement on the people’s life and their response to it, which seems curious in light of increasing global interest in involuntary displacements during the last two decades (Cook, 1994; Cernea & MacDowell, 2000).
Resettlement among the Central Kalahari San approximately a quarter of the total |Gui and ||Gana population in Botswana. However, it is difficult to know the exact number of people belonging to each group in this area, because the identity is flexible and inter-ethnic marriage occurs frequently among the |Gui, ||Gana, and Kgalagadi.

The study methods were as follows. First, an intensive survey was conducted in three households, including direct observations of daily activities and food sharing, and recording of daily food intakes. Second, all the residents were interviewed on their past residential moves and work experiences. The dwelling sites, hunting and gathering grounds, kraals, and fields of all the households in the settlement were also located with a Global Positioning System (GPS). The interviews were conducted in the ||Gana language. Third, written documents on the resettlement and development program in Kx’oonsakene were obtained from the village office, the Ghanzi District Council, and from some NGOs, and these were carefully examined.

THE CHANGES CAUSED BY THE 1997 RESETTLMENT

I. Before the Resettlement

Here I describe the |Gui and ||Gana lifestyles and the pattern of residence
before relocation, reported in previous studies. The CKGR was established in 1961 as a means of protecting the traditional lifestyle of local people, including the |Gui and ||Gana (Silberbauer, 1981). The Reserve is the largest in Botswana, covering 52,000 km$^2$ and situated in the center of the country.

Until the 1970s, the |Gui and ||Gana in CKGR relied mainly on hunting and gathering, although some worked temporarily on ranches in Ghanzi (Tanaka, 1980; Silberbauer, 1981). They traveled widely from place to place in search of food and good company. Their small and highly flexible groups were called "camps" (Tanaka, 1980), each consisting of several related families. Camps were usually 3 to 10 km apart, and functioned as the basic unit for food sharing and cooperation. They did not have fixed membership, and the location changed every few weeks.

The |Gui and ||Gana were first sedentarized in 1979 when the Remote Area Development Program started at Xade in CKGR. In addition to the 200 people who originally had been living around Xade, another 100 immigrated to Xade from southern CKGR, 150 from eastern CKGR, and 70 from the Ghanzi ranching area (Tanaka, 1987) (Fig. 2). While the government encouraged raising goats, farming, wage labor, and selling handicrafts, the new residents managed to continue hunting and gathering (Osaki, 1984; Ikeya, 1993, 1994, 1996a, 1996b; Imamura-Hayaki, 1996). Although camps were located closer to one another, the residents did not intermingle, but maintained the nomadic groupings (Tanaka, 1987). There were 45 semi-permanent camps scattered around the Xade borehole in 1990 (Imamura-Hayaki, 1996).

In 1997, the relocation program started. Approximately 1,000 people were relocated from Xade, Molapo, and Mothomelo to Kx‘oensakene, and 300 were

---

**Fig. 2.** The History of Migration and Resettlement.
II. After the Resettlement

The lifestyle and residential pattern in Kx’oensakene changed drastically. Kx’oensakene has facilities found in typical government settlements in Botswana: in the center, there is an elementary school, clinic, village office, workshop, and a police station (Fig. 3). In addition to pensions and food aid, the residents were given one-time cash payments, one or two ha of farmland in the designated area, and either 15 goats or 5 cattle, in compensation for their relocation. Moreover, the government employed the people as construction workers, and started income-generating projects, such as dressmaking, vegetable gardening, carpentry, and candle making (Fig. 4). It became quite difficult for the people to access natural resources from the overpopulated settlement in the new and unfamiliar territory, more than 70 km west of their old settlement.

In Kx’oensakene, which covers about 2 km², each household was allocated a fixed residential plot of 25 × 40 m, arranged in a grid (Fig. 3). Each numbered plot was allocated in the order of arrival without regard to kinship or residential groupings prior to relocation. According to the Ghanzi land board documents, the officers only took into consideration the three "ethnic groups" the applicants

![Fig. 3. Map of the Resettlement Site.](image)

*Modified from land board designed map.*
wanted to live with. Those who selected "||Gana" were given a plot on the western part of the resettlement site, while the "|Gui" and "Kgalagadi" received plots on the south and east, respectively.

III. Changes Caused by the Resettlement

There are mainly two things that have been changed due to 1997 resettlement program. First, although the residents’ access to social and economic welfare programs improved, their access to natural resources declined significantly. Consequently, people were forced to shift their principal means of livelihood from hunting and gathering to wage labor and agropastoralism. Second, San families ceased to form the camps that had functioned as a production-consumption unit. Furthermore, the residential mobility decreased; they were no longer allowed to move anywhere they liked, as was the custom.

Most of the residents see these changes as negative. A marriage woman, *oni* (2), once told me, "When the officer told me about the resettlement, I thought it was not too bad. Keeping cattle sounded nice and I like to earn money. When the new life actually started here, however, I soon realized I don’t like this land. There are too many people here and we cannot find any wild food nearby. Now, I want to return to my homeland. However, I am afraid of the government officer. I don’t have any choice except to live here."

HOW THE RESIDENTS DEALT WITH THE CHANGES

I. Dwellings Outside the Resettlement Site

Fig. 5 shows how the plots were actually used in December 2000. While a
total of 335 plots had been originally distributed to families, no more than 65% were actually occupied. Of the 131 missing households, 37 had either returned to their former communities in CKGR or in Ghanzi ranching area, 30 had moved to other plots, and 44 had squatted on the outskirts of the fixed plots.

Immediately after the relocation, some residents tried to build dwellings outside the resettlement site, but these did not last very long. Some were seasonal dwellings for cultivating or harvesting the fields and others were for short-term hunting and gathering trips (Ikeya, 2001). In the beginning of 2000, as many as 83 fields were cultivated because there was ample rain that year. During the harvest, more than 100 adults lived close to their fields. Unlike previous years, some of the inhabitants did not return to their plots in 2000, but remained near their fields or moved elsewhere to make another dwelling after the harvest. These new dwellings outside the resettlement site increased and they emerged as the new living quarters. In December 2000, 116 adults lived in 20 small residential groups outside the resettlement site. By May 2001, there were 138 adults in 28 groups, which accounted for one-fourth of all the adults in Kx’oensakene.

The dwellings established outside the site can be divided into two types: "distant dwellings" located more than 5 km away from the center of Kx’oensakene, and "proximate dwellings" within 5 km. While the distant dwellings shifted every few months, the locations of the proximate dwellings appeared to remain unchanged.

II. Differentiation of Livelihood Activities

As dwellings regrouped, livelihoods differentiated accordingly. Wage earners remained in the resettlement site. Of these, 13 were political appointees (e.g.,
chiefs and members of the Village Development Committee), 48 were involved in the income-generating projects, and 158 worked in construction. There were 13 small stores and 19 small bars operated by residents. There were all but one residence in the proximate dwellings with kraal and/or field. Some of these inhabitants set hunting traps near their residences. The residents of the distant dwellings built their houses near the gathering grounds, and set traps for the small antelope (Fig. 6 & Appendix). The dwellings moved in accordance with seasonal shifts in the major gathered food (Tanaka, 1980), such as melon (*Acanthosicyos naudiniana*, *Citrullus lanatus*), berry (*Grewia flava*, *G. retinervis*), bean (*Bauhinia petersiana*) and desert truffle (*Terfezia* sp.).

Using a time sampling method, the daily activities of all adults (14 males, 22 females) living in 14 plots (Plot Nos. 3, 4, 6, 7, 9-12, and 15-20) in the "Gana part" of the resettlement site, one proximate dwelling (2 males, 5 females) and one distant dwellings (4 males, 5 females) were recorded for five days. In all the three dwelling types, the livelihood activities accounted for approximately 25% of the adults’ daytime activities. However, as shown in Fig. 7, differences are found in the composition of the livelihood activities. While many of adults spent most of the work time on wage labor in the resettlement site, hunting and gathering were major activities outside the resettlement site. For the adults in the proximate dwelling, herding and farming came next to gathering, whereas craft making was the second major activity for the adults in the distant dwelling.

Fig. 6. Map of Outside the Resettlement Site.
*The places were recorded using GPS in May 2001.*
Next, the sources of all food items for one each of the fixed plots in the "Gana part," the proximate dwelling and the distant dwelling were recorded for one week (Fig. 8). The plot dwellers purchased nearly half of their food items at small stores in the resettlement site. These included tea leaves, sugar, milk, tinned foods, and soup stock. On paydays, they often bought rice, ketchup, mayonnaise, and tinned sardines. The residents of the proximate dwelling obtained their food from gathering, farming, and livestock, although they received some food from others. The residents of the distant dwelling obtained more than 60% of their food from hunting and gathering. During this research.

Fig. 7. Livelihood Activities of Families by Three Different Dwelling Types.

Fig. 8. Food Sources of Families by Three Different Dwelling Types.
period, they trapped steenboks (*Raphicerus campestris*) and gathered wild beans and melons.

Two distinct types of habitations in Kx’oensakene emerged after relocation: resettlement site, and outside the resettlement site (Fig. 9). A dense population and wage work characterize the resettlement site (Fig. 10). People who value schooling, clinics, or job opportunities have chosen to remain in the plots. Conversely, small residential groups, hunting and gathering, herding, and farming characterize the habitations outside the resettlement site. These people have left the resettlement site to avoid the dense population, or to search for natural resources: some gave valued grazing stock or cultivating fields (Fig. 11), and opted to settle in proximate dwellings, while others preferred hunting and gathering (Fig. 12), and chose to settle in distant dwellings.

III. Reappearance of Former Residential Groups

Not only did the residents within and outside the resettlement site differ in their livelihood strategies, but the residential pattern also differed. In the resettlement site, the houses formed rows and were very close to one another. Outside the site, by contrast, the houses were arranged in a circle, and spaced farther apart (Fig. 13).

All the residential groups outside the resettlement site had reverted to the groupings that had been in effect before the resettlement. Moreover, these groups were scattered around the resettlement site conforming to the spatial distribution pattern prior to relocation. The northern side of the site was occupied by people from the north, Ghanzi ranching area, the eastern side by the people from the eastern CKGR, the southern side by people from Xade south, and likewise for the other areas (Fig. 14). The dwellings outside the resettlement site reestablished the original relative positions, just as was seen on
Resettlement among the Central Kalahari San

Fig. 10. Construction Workers Make Bricks as One of Their Main Jobs.

Fig. 11. Near Proximate Dwellings Goats Graze during Daytime.

Fig. 12. In Distant Dwellings Wild Melons Are Cooked Buried in a Mixture of Sand and Charcoal.
the previous migration to Xade (Tanaka, 1987; Nakagawa, 1997). The official arrangement of the plots neither affected the grouping nor the location of the outside dwellings. Even the people occupying the same "ethnic group" plots have selected different sites outside the resettlement, in the original relative positions of their former communities.

One middle-aged man, TB, explained this residences pattern: "No, we never live near the people who come from different places. If unfamiliar people live together, they will end up quarreling with one another. When I leave my plot, I will choose the southern or western side, so that I can live among my familiar people." This was in response to my proposal to him to move to the northern side where there were abundant berries. He had been born and had lived exactly in southern Xade until the relocation.

THE RELATIONSHIPS BETWEEN INSIDE AND OUTSIDE THE RESETTLEMENT SITE

I. Frequent Movement

The clear differences in the livelihood strategies and the residential patterns have not yet led to a severing of relationships. There still existed a flow of people back-and-forth for economic and social reasons. As Fig. 15 shows, movements in and out of the resettlement site often exceeded the movements between two dwellings outside the site. In all, 92 adults changed residence
between inside and outside the resettlement site in a 10-month period, and adults moved from one residence to another 125 times. Moves occurred in response to changing employment opportunities, seasonal shifts in availability of wild vegetables, or trouble with neighbors.

One example: A young couple, LG and tg, worked as construction workers until the project finished in November 2000. The next month, they moved to a proximate dwelling which was established by tg’s parents, and helped them to cultivate the fields. According to LG, they moved because, "I had spent up the money in drinking beer. We cannot live in the resettlement site without money. Our neighbors do not share their food with us!" After 5 months, they were still in the proximate dwelling but preparing to return to their plot. In another example, a family, KS, ai and their 3 children lived in a proximate dwelling tending goats and cattle until December 2000, when they moved to a distant dwelling where the ai’s aunt had lived, "in order to get wild meats and berries." The following June, they returned to their plot saying: "We have been
II. Exchange of goods and services

One-day visits between inside and outside the resettlement site were also frequent. Often, goods and services were exchanged on these visits. For example, one family in a plot shared food with outside dwellers as many as 20 times in a month. As Fig. 16 shows, the plot-dwelling family provided mainly purchased foods, such as tea leaves and sugar, and received mainly wild food from outside dwellers.

Most of the residents in the resettlement site not only provided those from the outside with purchased foods, but also passed on important information from the government, such as job opportunities and welfare services. Moreover, they received distributed food or pension money by proxy and looked after the vacant fixed plot dwellings belonging to outside residents. In return, the outside residents supplied them with wild food, livestock and farm products, building

---

Fig. 15. The Movement of Residents between Different Dwellings Types (Sept. 2000-Jun. 2001). *One adult changing residence from one place to another treated as 1 time.
237 Resettlement among the Central Kalahari San

In addition, they sometimes kept livestock or maintained fields for the plot dwellers.

It is therefore clear that the residents living inside and outside the resettlement site created a mechanism to utilize both of the welfare benefits and natural resources, through shifting residences, sharing, and cooperation in livelihood activities.

PERSISTING SOCIAL SOLIDARITY

I discuss here the social relationships that newly facilitated the exchanges and movements. A family (Plot No. 9) in the "||Gana part" of the resettlement site consisted of a married couple, KH and om, their four children, and the KH’s elderly father, PL. Since the relocation, they remained their plot. KH and om was wage earners and their children went to elementary school and kindergarten in the settlement.

Over one month, this family shared cooked and uncooked food with 41 adults, of whom about a quarter lived outside the resettlement site, more than 3 km from Plot No. 9. As Fig. 17 shows, 10 out of the 41 shared food with the family frequently, while others did merely once or twice in this period. Moreover, 7 of the 10 also shared goat or cattle kraals and/or cultivated fields with the same family.

These 10 people were not only kin to the Plot No. 9 family but were sharing camps frequently before the relocation (Fig. 18). Tanaka (1980) observed in 1968 that most of the 10 people and the Plot No. 9 family lead a nomadic life in the area to the northwest of Xade, and very often camped together. Later, they lived in the same semi-permanent camp in Xade settlement.

Fig. 16. Exchange of Foods between Outside and Inside of the Resettlement Site.
*Bold: food resource, (number): times.
Fig. 19 shows the dwellings of the people who shared food with the Plot No. 9 family. The family frequently shared food with families in particular plots in the resettlement site, and a dwelling outside the site to the west, in the area occupied by the people from Xade north. By contrast, they did not share food with other neighbors in the same "Gana part" of the resettlement site. Some of these neighbors, such as families in Plot Nos. 11, 12, 15, 16, 18 and 20 came from the eastern part of CKGR or the ranching area to Xade under the Remote Area Development Program. Others, like the Plot No. 7 family had lived around Xade area in their nomadic days, but had never experience of camping together with the Plot No. 9 family. These people had their own sharing-partners outside the resettlement site, in the same manner as the Plot No. 9 family. For example, the Plot No. 16 family from eastern part of CKGR cooperated with the families in an outside dwelling in the eastern side.

This example demonstrates that the complementary relationships between the families in different areas were based on the existing relationship among families who had lived and worked together in the same area over a long period.

*kc shared foods with the Plot No. 9 family 43 times within one month (16/Nov.-15/Dec./2000).
**kc shared cattle kraal, goat kraal and cultivated with the Plot No. 9 family.
Fig. 18. The Relationships between the Family Living in Plot No. 9 and Their Sharing Partners (see also Fig. 17).

Fig. 19. The Dwellings of the People who Shared with the Plot No. 9 Family.
CONCLUSIONS

In spite of the drastic changes caused by the resettlement program, the San are coping with the changes through converting the settlement into a multi-faceted environment that they can live with. The most important way is to utilize diverse methods for earning a livelihood, and to maintain frequent shift from one residence to another, or one type of livelihood strategy to another. As Vierich (1982) and Guenther (1986) pointed out, such flexibility has been reported from various societies of the San, and underpins their fundamental survival strategy.

The solidarity based on co-membership of a camp has enabled the San to flexibly adapt to social changes. When it comes to the matter of land utilization, food sharing, and cooperation in livelihood activities, the crucial factor for the |Gui and ||Gana people is that they belong to a group that previously shared camps frequently. Sharing camps frequently is much more important than simply belonging to the same |Gui or ||Gana. Tanaka (1980), besides emphasizing the flexibility of the residential groups of the |Gui and ||Gana in their nomadic days, pointed out that there existed a clear tendency of co-residence among the respective families in a certain area, not at random. Even after they twice experienced drastic changes, first the sedentaization in Xade (Sugawara, 1988) or other settlements, and then resettlement to Kx’oensakene, they still retain their affiliations with their traditional co-residential groups, which are becoming conspicuous nowadays. This is very corresponding case which Lee (1999) says as foragers "have maintained some portion of their life-worlds" nevertheless they are "absorbed into ‘global’ culture".

At the same time, the |Gui and ||Gana’s social organization under the new environment came to have different meanings from prior to the resettlement. First, closely related families have adopted a new economic relationship between inside and outside the resettlement site, which might indicate an emergence of "division of labor." This relationship is not principally based on barter or other types of economic transaction, but on sharing and cooperation. When the people move their dwelling types the survival strategies also shift, which leads to the change of the role of activity. Of particular interest, however, is that the hand-to-mouth economy of the San in which everyone performed similar activities is now changing from within their society in this new relationship.

Second, the relationship that has been formed by the accumulated experiences of camping together is beginning to function differently in the new environment. Camping together had formerly provided the |Gui and ||Gana with a sufficient basis for mutual cooperation. But the relationships thus formed through such co-residence are now functioning to differentiate closely related people from the other, unrelated people in the highly populated resettlement. In this way the same relationship function to express social "inclusiveness" in one hand, and "exclusiveness" on the other, in different situations.

It has been reported that, in January 2002, the Botswana government stopped providing welfare services to the people who remained in or returned to
Most of these people have relocated again, and Kx’oensakene has become an even larger settlement containing many residents from different areas. It is necessary to continue the research in Kx’oensakene in order to understand more about the social and economic relationships among the residents from different backgrounds.

ACKNOWLEDGEMENTS The present study was financially supported in part by Grants-in-Aid for Scientific Research (No. 10041070) "Study of San Socio-Cultural Changes in Historical Dynamics of the Area" and Grant-in-Aid Program for Priority Area (No. 606) "Distribution and Sharing of Resources in Symbolic and Ecological Systems: Integrative Model-building in Anthropology" of the Project (No. 14083205) "Correlation between Ecological, Symbolic, and Medical Systems in the Construction and Distribution of Body Resources" from Japanese Ministry of Education, Culture, Sports, Science and Technology. This is an expanded and revised version of the paper presented at the 9th International Conference on Hunting and Gathering Societies. I am grateful to the participants of the conference for giving me valuable comments. This paper owes much to helpful suggestions from my academic supervisors Prof. J. Tanaka and Prof. M. Ichikawa. I also wish to express my gratitude to the government of Botswana for providing us the research permission (OP 46/1 XLII (43)). My sincere appreciation goes to the people of Kx’oensakene who welcomed me as their friend.

NOTES

(1) Some studies conducted in the resettlement site, Kx’oensakene were as follows. Ikeya (2001) has conducted the research on "Some changes among the San under the influence of relocation plan in Botswana," immediately after the resettlement. Akiyama (2001) described the influences of schooling and relocation on the companionship patterns of the San children. Takada (2002) analyzed social changes among the resettlers focusing on child weight.

(2) Abbreviated names of males and females are represented by two capital letters and by two small letters, respectively.

(3) Both in the distant and the proximate dwellings, the activities of the all adult residents were observed every 30 minutes from 7:00 to 19:00. In the fixed plots the observation was conducted every 60 minutes from 6:00 to 18:00. When the target residents were away from their residence, they were interviewed on their activities.

(4) When one adult ate one dish it was counted as one point. For example, when porridge was cooked from cow milk and maize obtained from food aid and 6 adults ate, it was counted as 6 points ("livestock" 3 points and "food aid" 3 points).

(5) The result of the investigation into sources of all foods cooked by the family of the plot for one month was as follows: hunting (2.79%), gathering (1.80%), farming (5.08%), purchase with wage (47.54%), receiving from others (21.64%), and food aid (21.15%).

REFERENCES


——— Accepted April 23, 2003

Author’s Name and Address: Junko MARUYAMA, Graduate School of Asian and African Area Studies, Kyoto University, 46 Shioyadachi-cho, Yoshida, Sakyo-ku, Kyoto 606-8501, Japan.

E-mail: maruyama@jambo.africa.kyoto-u.ac.jp

<table>
<thead>
<tr>
<th>Dwelling Number</th>
<th>Male (adults)</th>
<th>Female (adults)</th>
<th>Straight line distances from the center of the site (km)</th>
<th>Goat Kraal</th>
<th>Cattle Kraal</th>
<th>Field Traps</th>
<th>Dwelling type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>5</td>
<td>5.7</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>D*</td>
</tr>
<tr>
<td>2</td>
<td>7</td>
<td>8</td>
<td>About 10</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>D</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>7</td>
<td>2.3</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>P**</td>
</tr>
<tr>
<td>4</td>
<td>4</td>
<td>5</td>
<td>2.3</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2.1</td>
<td>−</td>
<td>+</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>4</td>
<td>2.4</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>2</td>
<td>1.4</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>8</td>
<td>3</td>
<td>3</td>
<td>3.4</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>9</td>
<td>3</td>
<td>3</td>
<td>3.3</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>10</td>
<td>5</td>
<td>4</td>
<td>3.4</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1</td>
<td>3.2</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>12</td>
<td>4</td>
<td>3</td>
<td>3.2</td>
<td>+</td>
<td>−</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>5</td>
<td>1.9</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>14</td>
<td>3</td>
<td>3</td>
<td>1.8</td>
<td>−</td>
<td>−</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>15</td>
<td>1</td>
<td>1</td>
<td>1.7</td>
<td>+</td>
<td>−</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>16</td>
<td>1</td>
<td>1</td>
<td>1.7</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>17</td>
<td>1</td>
<td>1</td>
<td>1.9</td>
<td>+</td>
<td>+</td>
<td>−</td>
<td>P</td>
</tr>
<tr>
<td>18</td>
<td>2</td>
<td>2</td>
<td>3.0</td>
<td>−</td>
<td>−</td>
<td>+</td>
<td>P</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>1</td>
<td>1.6</td>
<td>−</td>
<td>+</td>
<td>−</td>
<td>? P</td>
</tr>
<tr>
<td>20</td>
<td>0</td>
<td>0</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>0</td>
<td>0</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>0</td>
<td>0</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>0</td>
<td>0</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>0</td>
<td>0</td>
<td>−</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Appendix. (continued)

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>+</th>
<th>+</th>
<th>−</th>
<th>−</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>26</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>28</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>29</td>
<td>2</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>30</td>
<td>2</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Sum: Dec.00 54 62 8 6 5 7 D2, P18

*Sum: May 01 70 68 14 15 6 8 D3, P25

* D: Distant dwelling
** P: Proximate dwelling