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## Settlement Patterns and Sedentarization among the San in the Central Kalahari (1930-1996)

メタデータ	言語: eng 出版者: 公開日: 2018-08-06 キーワード (Ja): キーワード (En): 作成者: 池谷, 和信 メールアドレス: 所属:
URL	<a href="https://doi.org/10.15021/00009126">https://doi.org/10.15021/00009126</a>

## **Settlement Patterns and Sedentarization among the San in the Central Kalahari (1930–1996)**

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### **ABSTRACT**

Most nomadic hunter-gatherers have been forced to sedentarize for various reasons during the past centuries. This chapter addresses nomadic hunter-gatherers in the Kalahari Desert with regard to sedentism. The author specifically examines the distribution and formation processes of San camps and San-Kgalagadi settlements inside the Central Kalahari Game Reserve (CKGR) in Botswana over the past 70 years. Comparative studies of sedentarization among the varieties of nomadic peoples in the CKGR have been examined, focusing on their life styles. Their settlements are classified into four types: ‘hunter-gatherer’ type of San settlement (Type P), ‘agro-pastoralist’ type of San-Kgalagadi settlement (Type A), ‘school and clinic’ type of San-Kgalagadi settlement (Type B), and ‘farm labor’ type of San-Kgalagadi settlement (Type C). From 1966 to 1994, during national formation, the number of Type P settlements had decreased and completely disappeared in the end. On the contrary, Type B had increased rapidly. The number of Type A had declined very slowly over more than 100 years, from 1885 to 1994, so did not have a significant social impact. In the process of sedentarization in this area, many lives have been greatly impacted. This chapter considers the transition from camp to settlement, the validity of sedentism for the lives of San people in the CKGR, and government policies that have promoted sedentarization.

### **INTRODUCTION**

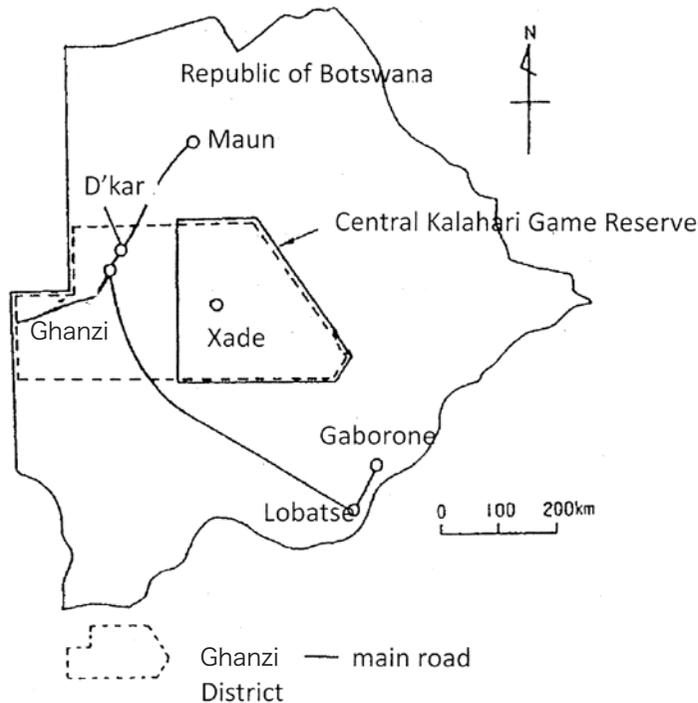
Nomadism and sedentarism are key concepts for the consideration and reconstruction of hunter-gatherer history. Nomadic hunter-gatherers have repeatedly migrated and settled since ancient times in response to natural disasters, economic changes, and socio-political circumstances (Salzman ed. 1980; Ikeya ed. 2017). This chapter will specifically address the case of the nomadic San people in the Central Kalahari Game Reserve with regard to sedentism, including discussions of their adaptations to new settlement life, the validity of sedentism for the future of their lives, and government policies that promote sedentarization.

In previous studies, there are few papers concerning sedentarization of the nomadic San in Botswana because they had already sedentarized across northwestern and western Botswana in the 1960's and 1970's (Guenther 1976; Lee 1979). However, the sedentarization processes of the San in central Botswana have continued to be studied inside the Central Kalahari Game Reserve ('CKGR') and its neighboring areas (Hitchcock 1982, 1999, 2002; Hitchcock and Vinding 2001; Tanaka 1987, 2014; Ikeya 2000, 2001, 2017; Kiema 2010).

This study was designed to clarify the distribution and formation processes of settlements in the Central Kalahari Game Reserve<sup>1)</sup> (Photo 1), Ghanzi District of Botswana, in the 1990s and the processes and causes of sedentarization in the Xade settlement area of Ghanzi District. The Xade settlement is located about 180 kilometres southeast of Ghanzi town in the Ghanzi District of Botswana (Figure



**Photo 1** Nomadic Camps in the Central Kalahari Game Reserve (CKGR).  
(Photograph by the author.)



**Figure 1** Study area in the Central Kalahari Game Reserve.

1)<sup>2</sup>).

As part of the Botswana government's settlement program which started in 1979, a well that provides water year-round as well as a school, clinic, and general store were built in Xade. Many people who had led a nomadic lifestyle came to settle in Xade (Tanaka 1987, 2014; Ikeya 2017). The people living in Xade earn money through engaging in a combination of hunting (Ikeya 1994; 2016a), gathering wild edible plants and fruits (Imamura 1996), growing crops (Ikeya 1996a), raising livestock (Ikeya 1993), paid labour, and handicraft production (Ikeya 1996b). Trapping and hunting with dogs are popular forms of hunting, providing hides for handicraft production (Ikeya 1996b; 2016a). Goats and horses for livestock-raising are purchased with money earned from paid labour and handicraft production (Ikeya 1996b).

### **SAN-KGALAGADI MIXED SETTLEMENTS UNDER THE DEVELOPMENT PLAN IN THE 1980'S**

This section elucidates the distribution and formation processes of settlements in the CKGR, from the time when it was part of a British protectorate known as

Bechuanaland, through to its independence as the Republic of Botswana, and up until the time of this study in April 1994.

This study was conducted in the Ghanzi District, which is located in the mid-western part of the Republic of Botswana (Figure 1). The author was able to clarify the existence of 18 San-Kgalagadi mixed settlements in this district (Figure 2).

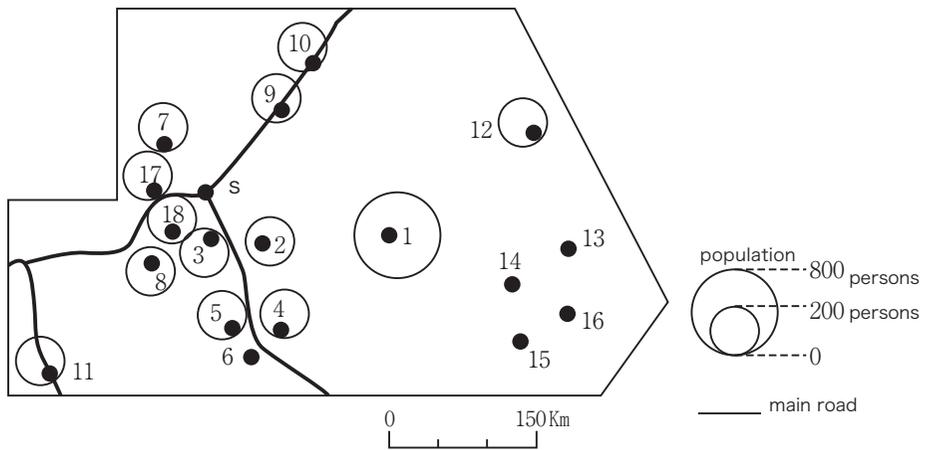
As might be apparent from Figure 2, most of the settlements are located within easy access of the main roads linking Ghanzi with Lobatse, Maun, and Mamuno. Consequently, most of the settlements are convenient to Ghanzi, through which government distributions of food, medical supplies, and educational services pass. However, the settlements located in the eastern part of the district (NO.12–16 in Figure 2) are a long way from the centrally located town of Ghanzi, taking 8–12 hours to reach by car.

Table 1 presents the number of bags of maize distributed to each settlement, to illustrate the population distribution of San-Kgalagadi mixed settlements as of October 1987 (Figure 2, Photo 2), based on a calculation of one bag of maize per person. According to these calculations, the population of Xade in the CKGR (NO.1 in Figure 2) is 791, which clarifies that Xade is the most populated mixed settlement of San and Kgalagadi in the Ghanzi district. The only other settlement with a population greater than 500 was Kuke (NO.10 in Figure 2). Seven settlements have populations of 300–400. Four settlements have populations of more than 200. Although the San-only population distribution cannot be ascertained from these figures, these calculations do show that the San are now living in settlements with 4–6 times the average population of settlements in the 1960s, which was around 50 (Tanaka 1980).

Table 1 also shows which San language groups reside in each of the 18 settlements, and what combinations of subsistence activities are conducted there, as well as which settlements have a school and/or a clinic. The various language groups include G||ana and G|ui in Xade (NO.1 in Figure 2), Nharo in East Hanahai (NO.2) and West Hanahai (NO.3), G|ui, !Ko, and Nharo in Ka/gae (NO.4), and !Ko in Bere (NO.5). G||ana people are living in Molapo (NO.12). Also, Mothomela (NO.16) has a combination of G||ana, G|ui, Tsila, and Hai/no.

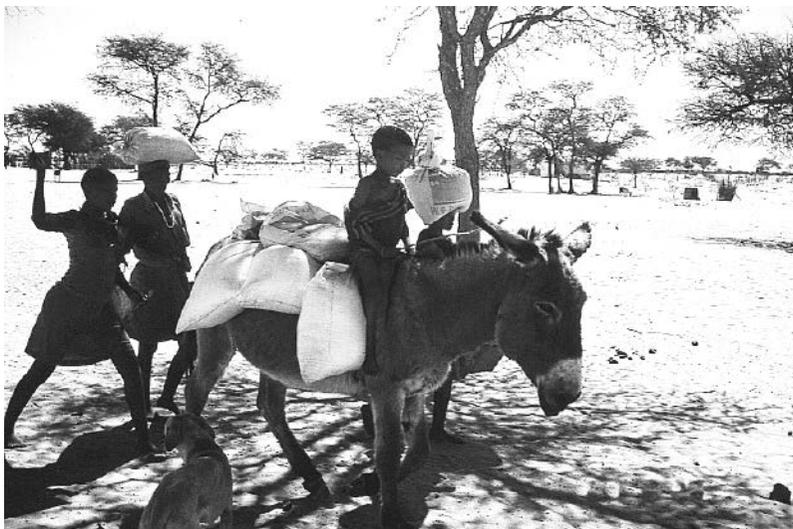
As for the combination of subsistence activities, hunting, livestock farming, and crop farming are apparent in all settlements. Livestock farms include both goats and cattle in all the settlements, except those within the CKGR (NO.1, NO.12, NO.13, NO.14, NO.15), which are limited to goat farming because cattle farming is prohibited in the reserve. The cattle listed in brackets for D'Kar, Kuku, and Metsimantle in Table 1 indicate non-ownership because these cows belong to farms owned by caucasians or Tswana. People were engaged in both road construction and craft production in six settlements: Xade (NO.1 in Figure 2), East Hanahai (NO.2), West Hanahai (NO.3), Ka/gae (NO.4), Bere (NO.5), and Grootlaagte (NO.7).

All settlements with populations over 300, except Grootlaagte (NO.7), had



- |                |                   |                |                  |
|----------------|-------------------|----------------|------------------|
| 1 Xade         | 6 Matiao phuduhdu | 11 Metsimantle | 16 Mothomela     |
| 2 East hanahai | 7 Grootlaagte     | 12 Molapo      | 17 Western Farms |
| 3 West hanahai | 8 Tsaawe          | 13 Metsamaneng | 18 Chobokwane    |
| 4 Ka/gae       | 9 D'kar           | 14 Monatse     |                  |
| 5 Bere         | 10 Kuke           | 15 Kikao       |                  |

**Figure 2** Population distribution of San-Kgalagadi mixed settlements in Ghanzi District in Botswana (October 1987).  
Source: Made by the author.



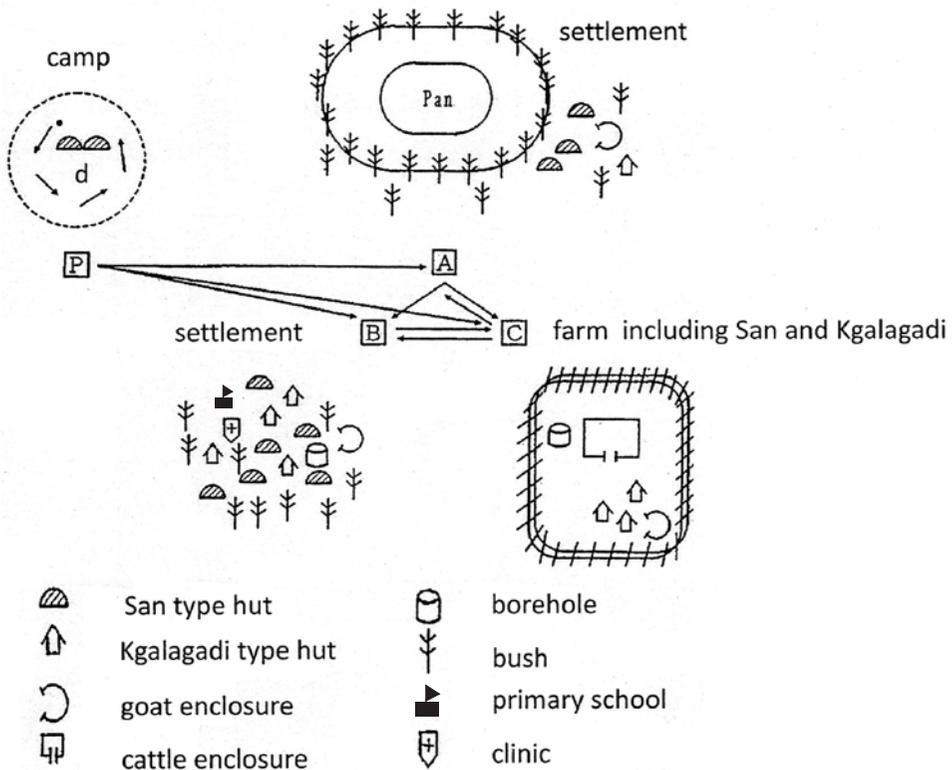
**Photo 2** San People Transporting Sacks of Distributed Corn Using a Donkey.  
(Photograph by the author.)

**Table 1** Subsistence complex and public infrastructure of San-Kgalagadi mixed settlements in Ghanzi district (refer to Figure 3 for Key to Settlement Types).

	settlement name	hunting	farming	livestock	road construction	folkcraft production	the number of sacks of distributed corn	language	the number of elementary school students	clinic	settlement type
1	Xade	○	○	goats	○	○	791	G//ana, G/ui, Kgalagadi	148	○	B
2	East hanahai	○	○	cattle, goats	○	○	398	Naro	113	○	B
3	West hanahai	○	○	cattle, goats	○	○	391	Naro	137	○	B
4	Ka/gae	○	○	cattle, goats	○	○	414	G//ana, G/ui, !Ko	94	○	B
5	Bere	○	○	cattle, goats	○	○	297	!Ko	65	○	B
6	Matiao phuduhdu	○	○	cattle, goats	○	?	?	!Ko	×	×	?
7	Grootlaagte	○	○	cattle, goats	○	○	349	Naro, Makaukau	×	×	?
8	Tsaawe	○	○	cattle, goats	×	○	387	Naro, Makaukau	113	○	B
9	D'kar	○	○	cattle, goats	×	○	346	Naro, G/ui, G//ana	290	○	C
10	Kuke	○	○	cattle, goats	×	○	575	?	339	○	C
11	Metsimantle	?	○	cattle, goats	×	○	273	?	×	○	C
12	Molapo	○	○	goats	×	×	202	G//ana, Kgalagadi	×	×	A
13	Metsamaneng	○	○	goats	×	×	?	G//ana, Kgalagadi	×	×	A
14	Monatse	○	○	goats	×	×	?	G//ana, G/ui, Kgalagadi	×	×	A
15	Kikao	○	○	goats	×	×	?	G//ana, Kgalagadi	×	×	A
16	Mothomela	○	○	goats	×	×	?	G//ana, Tsila, G/ui, Kgalagadi	×	×	A
17	Western Farms	?	○	cattle, goats	×	?	240	Naro	?	?	C
18	Chobokwane	?	○	cattle, goats	×	?	309	?	?	?	C

A: Agro-pastoralist type, B: School and clinic type, C: Farm type.

both a primary school and clinic. The numbers of children attending school in these settlements were 60–150, except for Kuke (339) and D'Kar (290).

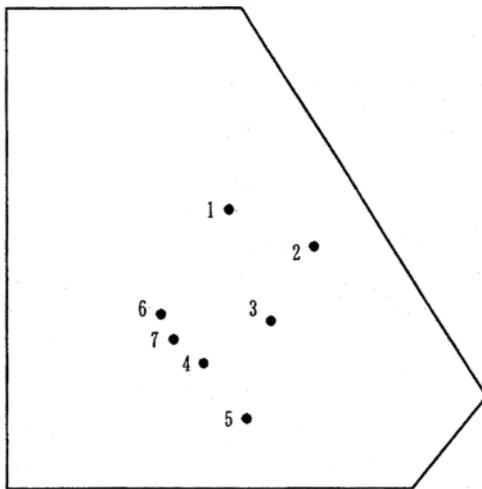


**Figure 3** Camp, Settlement patterns and the formation process in the Central Kalahari.  
 Type P: Camp, Type A: Agro-pastoralist San-Kgalagadi settlement (without a borehole), Type B: School and Clinic San-Kgalagadi settlements (with a borehole), Type C: Farm.  
 Source: Made by the author.

The author divided San-Kgalagadi mixed settlements into three types based on differences in subsistence activities and whether the settlements had facilities such as a school and clinic (Figure 3). Type A is the ‘agro-pastoralist’ type of San-Kgalagadi settlement (NO.12–15 in Table 1) (Ikeya 2000). These settlements are goat and crop farming settlements. They have no facilities such as a school or clinic. Moreover, the people in these settlements have no opportunity for employment in road construction. Type B is the ‘school and clinic’ type of San-Kgalagadi settlement (NO.1–5 in Table 1) (Photo 3). These settlements have a both a school and clinic, plus a well that can supply water throughout the year. The third type, Type C, is the ‘farm labour’ type of San-Kgalagadi settlement (NO.9–11 in Table 1), in which the people are employed on cattle farms owned by caucasians or Tswana. Another type of settlement, the traditional ‘hunter-gatherer’ type of San camp (Type P in Figure 3), which was a camp for nomadic San (Silberbauer 1965), could no longer be found anywhere in the Ghanzi district in the 1990s.



**Photo 3** San People Sitting in front of the Clinic in Xade.  
(Photograph by the author.)



**Figure 4** The distribution of settlements in the CKGR in about 1930.  
1 Molapo 2 Koutou 3 Metsamaneng 4 Menoatse 5 Kikao 6 Chukudu 7 Gomodimo.  
Source: Made by the author.

## DISTRIBUTION OF SETTLEMENTS IN THE CENTRAL KALAHARI GAME RESERVE

### 1) San-Kgalagadi Settlements during British Rule (1885 to 1966)

Records of the exploration of the Central Kalahari led by Clifford in 1929 show discoveries of settlements such as Kikao, Chukudu, and Gomodimo along the exploration route (Ikeya 1999) (Figure 4). These settlements are now located in

the southern part of the CKGR, as established in 1961.

From interviews with elders in the CKGR, the author was also able to confirm that the settlements of Molapo, Koutou, Metsamaneng, and Menoatse existed around 1930. Although some of these settlements (e.g., Koutou and Metsamaneng) were inhabited chiefly by Kgalagadi, all of these old settlements were inhabited by both San and Kgalagadi.

According to an anthropological study conducted in the 1960s, camps of nomadic G|ui, but no established settlements, were reported around the area now designated as Xade (Tanaka 1980; Silberbauer 1981). The settlements reported to be in existence at around this time were the same as those previously reported, except for Chukudu and Gomodimo. Settlements at this time were found near shallow basin ('pan') areas (Photo 4, 5), which collected rain water, except for Xade, where a well had been constructed in 1962.

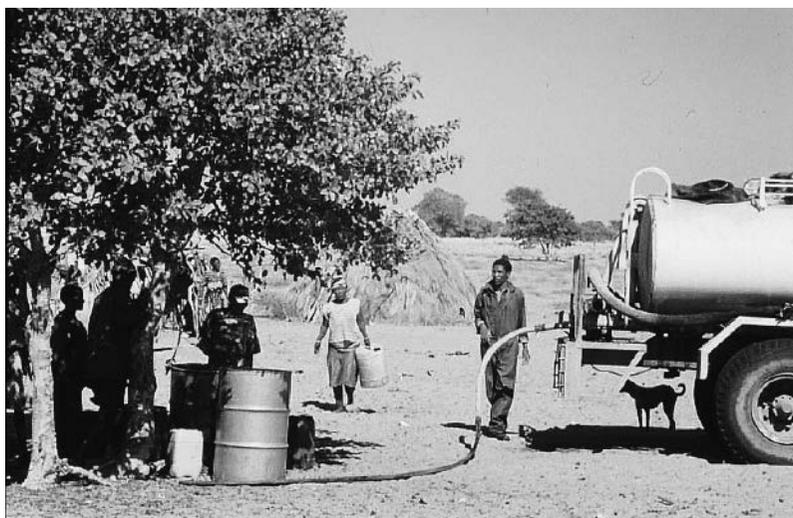
## 2) San-Kgalagadi Settlements and the Population in the Formative Period of the Nation (1966–1994)

Although there were no major changes in the distribution of settlements in the first half of this formative period, in the latter half of this period, Xade was established as the central settlement area of the government-designated CKGR. The establishment of Xade provided a route for medical supplies and educational services to be extended to other settlements within the CKGR.

In the 1970s, more San began to settle in Xade, in the western part of the CKGR, following the construction of a well, which despite some breakdowns caused by a shortage of oil for the pump, provided a reasonably constant supply of water throughout the year. Although at this time beef production and beef



**Photo 4** People collecting rain water in Molapo.  
(Photograph by the author in 1989.)



**Photo 5** A water supply vehicle in Molapo.  
(Photograph by the author in 1993.)

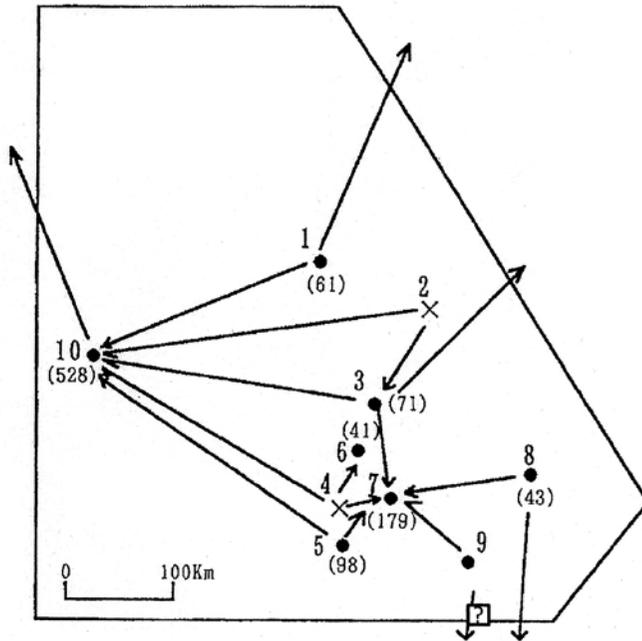
exports were main contributors to the nation's economic development (Ikeya 1996b), settlements in the CKGR could not make any contribution to the beef market because of a ban on cattle farming within the game reserve.

After 1979, the Botswanan government's development plan for remote areas spread to the CKGR, and Xade, being in the centre of this area, was the focus of development in the reserve (Ikeya 1994). A primary school, clinic, and general store were built near the well in Xade. The Xade settlement population increased rapidly to around 600 (Tanaka 1987).

In the 1980s, the De Beers diamond company signed an agreement with the Botswanan government for exploration rights in the eastern part of the CKGR. This led to the construction of wells by De Beers at Mothomela and Gope and the establishment of survey camps at Baape and Gope. Following the construction of these wells, Kgalagadi and various San groups such as G||ana, G|ui, Tsila, and Hai/no began to settle near Mothomela and Gope. The well at Mothomela came under government administration in the late 1980s. Exploratory surveys are still being conducted at Gope.

De Beers built a network of roads in the reserve, replacing the old, winding road thought to have been built by George Silberbauer in the 1950s. The Wild Animals Office, which made use of the roads for surveys and management of wild animals, as well poaching patrols in the reserve, took responsibility for road maintenance.

The total population in the Central Kalahari Game Reserve, according to a government census conducted in 1991, was 944, including 472 men and 522 women. The population counts for respective settlements in the reserve were the following: 528 in Xade (254 men, 274 women), 61 in Molapo (26 men, 35



**Figure 5** Distribution of settlements and people migration in the CKGR in 1991.  
 1 Molapo 2 Koutou 3 Metsamaneng 4 Menoatse 5 Kikao 6 Baepo 7 Mothomela 8 Gope 9 Gukanba 10 Xade.  
 ( ): population in 1991 government census.  
 ×: deserted settlement.  
 →: people migration (1980–1993).  
 Source: Made by the author.

women), 71 in Metsamaneng (30 men, 41 women), 98 in Kikao (48 men, 50 women), 149 in Mothomela (60 men, 89 women), 41 in Baepo (27 men, 14 women), and 43 in Gope (24 men, 19 women) (Central Statistics Office, 1992: 196) (Figure 5). No population figures were available for Gukanba.

Consequently, it has been clarified that, as of the time of this study, a total of eight settlements exist within the CKGR (Figure 5) and that Xade, which has the only government-built well in the CKGR, is the only settlement with both a school and clinic.

### 3) Formation Processes of Settlements Based on Patterns of Migration in the CKGR

The arrows in Figure 5 indicate the directions of San and Kgalagadi migration in the CKGR from 1980 to 1993, based on the author's interviews. Large population concentrations can only be observed for Xade and Mothomela. San and Kgalagadi migrated to Xade from Molapo, Koutou, Metsamaneng, Menoatse, and Kikao and to Mothomela from Metsamaneng, Menoatse, Kikao, Gukanba, and Gope. Migration also occurred out of the CKGR from Xade, Molapo, and Metsamaneng. Koutou and Menoatse have almost become 'ghost settlements' as a result of

migration.

It was clarified from interviews with 51 residents (designated 1–51) that many people migrated from nearby nomadic camps to settle in Xade. Resident interviewees 1 and 2, who had been leading a nomadic life in an area called/tuimu, moved to Xade, which had the attraction of a permanent water supply, in around 1980. Using the settlement types on Figure 3, this would be a Type P→Type B move. Numbers 37–48, who had also been leading a nomadic life near Xade, first moved to farms in Ghanzi, Kuku, or D’Kar and then later moved back to Xade (Type P→Type C→Type B). Numbers 49–51 represent examples of people who had been living in Xade, but who later moved out to work on farms (Type P→Type B→Type C). Consequently, Xade, located in the centre of the Central Kalahari Game Reserve, with its vast surrounding lands and abundant water supply, attracted many migrant San and Kgalagadi from other areas, leading to a dramatic increase in population.

The results of this investigation related to San and Kgalagadi migration patterns among settlements of three types defined earlier, show that most of the migration occurred directly from Type P to Type B, although there was also some migration from Type P to Type B via Type C, and from Type P to Type C via Type B. While the migration pattern from Type P or Type B to Type C reflected the movement of labour to farms, a temporary migration pattern from Type A to Type B or Type C was also seen during times of water shortage in the dry season. The results above show the formation processes of the different types of settlements presented in Figure 3.

It is thought that settlements initially consisted of only two types: The Type P of ‘hunter-gatherer’ San settlement and Type A of ‘agro-pastoralist’ San-Kgalagadi settlement. In the rainy season, people in the Type A settlements built huts around a ‘pan’, which was a good water reservoir, and engaged in goat farming as well as their traditional activities of hunting and gathering, whereas in the dry season, they switched to a nomadic lifestyle, moving around the area of their settlement. Some people from the Type A settlements moved out of their settlements to work on farms, where some remained, never to return. However, with the construction of schools and clinics in some settlements, others chose to settle. The population of these settlements increased. The people in these settlements began working on road construction and handicraft production to supplement their income. It is interesting, however, that even now, these Type B ‘school and clinic’ San-Kgalagadi settlements still move a distance of around 100 meters about once a year. Additionally, even in these stable settlements, some San still move out of the settlements to work on farms, and some San who have been working on farms return to their old settlements.

Another interesting point is the development pattern of settlements of these three types, which has taken the form of concentric circles spreading out from main towns at the centre. Actually, Type C settlements have formed around the outskirts of the main towns in the Ghanzi District, such as Ghanzi and Nojane. In

addition, Type B settlements have formed at the periphery of the Type C settlements, with Type A settlements forming at even greater distance, near the district borders. Because of the high cost of transporting goods and services to these more remote settlements, the government of Botswana is proceeding with a plan to relocate the remote Type A and Type B settlements closer to the Type C settlements.

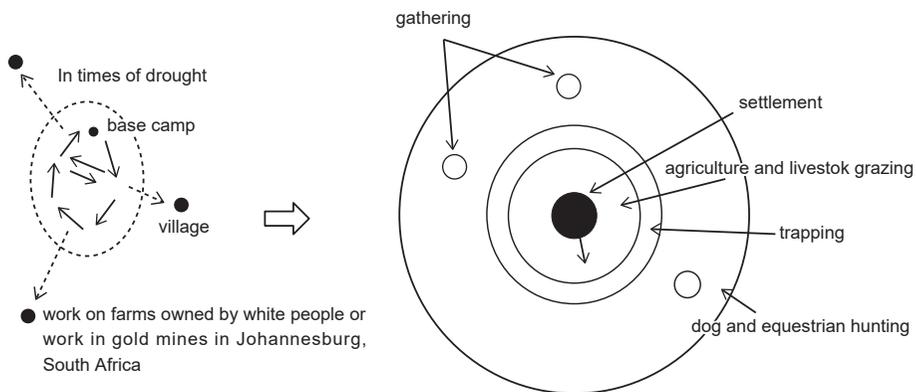
## SEDENTARIZATION AND CHANGES IN LAND USE IN XADE SETTLEMENT

### 1) Changes in Land Use (Pre-1970 to 1996)

Figure 6 shows a model of the changes in land use in the Xade settlement area.

Before 1970, the migratory routes of nomadic camps covered a vast area. In times of drought, the San moved with their livestock to towns and villages outside the Central Kalahari Game Reserve. Some San went to work on farms owned by white people or to work in gold mines in Johannesburg. Around 1950, a particularly large exodus took place out of the reserve to farms owned by white people. Some of the San bands in the reserve disappeared completely. Before 1970, base camps were located in areas in which crops were grown. The San stayed in the base camps to tend to the fields during the wet season and migrated to other places in the dry season. In times of drought, the San moved to towns or villages with a water supply outside the reserve.

However, the pattern of land use in 1987, when Xade had been established as a settlement, was much different. Land use was divided into three zones forming concentric circles around the centre of Xade, with the closest zone to Xade being used for agriculture and livestock grazing, the next closest zone being used for trapping, and the zone at the greatest distance from the centre of Xade being used



**Figure 6** Changes in land use from nomadic to sedentary life.

Source: Ikeya 2017: 7.

for dog and equestrian hunting. Patches of land within the dog and equestrian hunting zone were used for gathering wild edible plants.

The changes in land use with the transformation from nomadic camps into permanent settlements can be summarized as follows. First, the type of land use changed from an intensive type (nomadic lifestyle centred around a base camp near land used for growing crops) to an extensive type (separate zones of land used for growing crops and livestock grazing, for trapping, and for dog and equestrian hunting that were located in concentric circles around the centre of the settlement). Second, the frequency and distance of migration changed. Before the establishment of a settlement at Xade, the migration distance in one month was 20–30 kilometres, according to a survey conducted by Silberbauer from November through July, although only 17 percent of the inhabitants of Xade moved within the settlement area in 1994 (Nakagawa 1997: 193). A survey conducted by the author showed that one particular inhabitant of Xade moved within the settlement area only eight times during 1982 to 1996. Consequently, the establishment of a permanent settlement at Xade caused a marked reduction in migration frequency. The third point is related to the impact of desertification. With the increasing area of desertification, trees and grass needed for the construction of huts have become increasingly difficult to obtain, an increasing number of goats have been dying from sickness, and many donkeys and horses have been killed by lions.

## **2) Causes of the Sedentarization**

### **a. Increases in Population and Number of Huts**

The increases in the population of Xade from 1965 to 1991 are as follows. The population of only 40 in 1965 grew to 300 in 1981, to 500 in 1982, 860 in 1985, 774 in 1987; then down to 550 in 1991. The number of huts also increased with the general increase in population. There are currently 23 camps in the Xade settlement area (Ikeya 1994). More trees and grass were needed for the construction of huts. Furthermore, greater distances had to be travelled to obtain these construction materials. Trees for hut construction are now felled at a distance of about three kilometres from the centre of Xade. Even the grass for thatching is taken from an area four to five kilometres from the centre of Xade. Moreover, the increasing number of Tswana-style huts being constructed requires an even greater amount of wood than that required for the construction of San-style dome-shaped huts.

### **b. Increase in the Number of Livestock and Pens for Livestock**

The livestock raised in Xade include goats, horses, and chickens, many of which were brought to Xade by new settlers. The number of goats in Xade increased from only 10 in 1960 to about 2,000 in 1987 (Ikeya 1993). There are currently more than 2,000 goats being raised in Xade. Most of the goats are kept near the well located in the centre of Xade. The goats are taken out of their pens each morning and herded to grazing land about five kilometres from the centre of Xade

(Ikeya 1993).

### **c. Increases in the Area of Cultivated Land and Materials Used for Construction of Fences**

In 1982, there were 20 fields for crops located two to three kilometres from the centre of Xade (Osaki 1990: 67). The number of fields, ranging in size from 10 to 250 acres, had increased to 40 by 1993 (Ikeya 1996a). Most of the fields were located about three kilometres from the centre of Xade, but some were located as far as 20 kilometres away from the centre.

### **d. Collection of Firewood**

The firewood used in K camp in the Xade settlement area was collected by the women in the camp from areas about a 30-minute walk from the camp. Roots of trees that had been felled near the camp were also used for firewood.

Consequently, the environmental degradation (destruction of vegetation) in the Xade settlement area was a result of the Botswana government settlement program, which led to the felling of more trees for hut construction with the increase in population, an increase in the number of goats because of the promotion of commercialism, and an increase in the demand for firewood.

## **DISCUSSION**

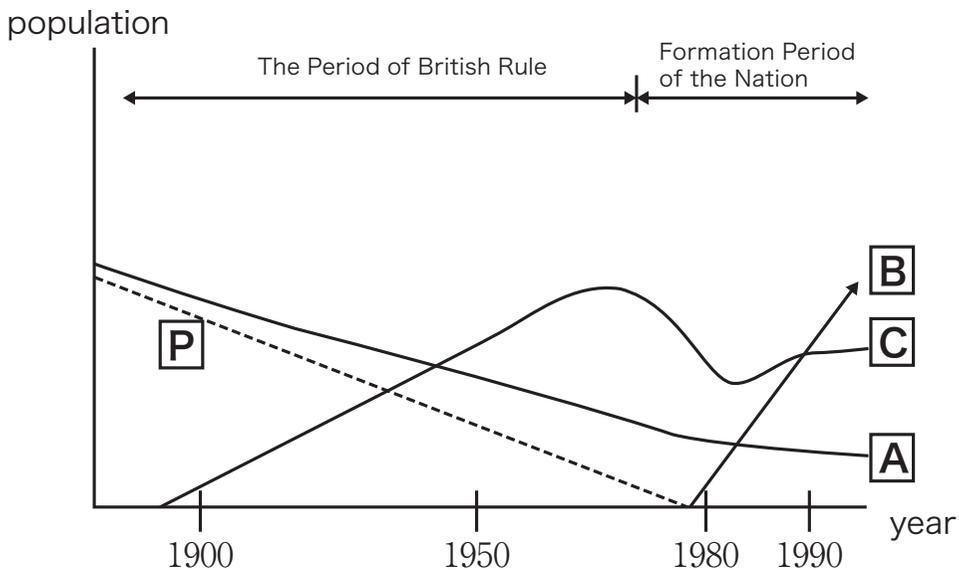
### **1) Settlement Patterns**

Figure 3 shows the relationships among the settlements of four types: a ‘hunter-gatherer’ type of San settlement (Type P), an ‘agro-pastoralist’ type of San-Kgalagadi settlement (Type A), a ‘school and clinic’ type of San-Kgalagadi settlement (Type B), and the ‘farm labour’ type of San-Kgalagadi settlement (Type C). Among these four settlement types, P is not a fixed settlement, but rather a temporary camp in which the members are constantly changing. A past study described that the San settlements in Xade changed from original ‘hunter-gatherer’ settlements (Type P) to ‘school and clinic’ San-Kgalagadi settlements (Type B) (Tanaka 1987). However, considering the fact that there are also many Kgalagadi farmers living in the CKGR, and that many San must have lived in ‘farm labour’ San-Kgalagadi settlements, a simple change in the type of San settlement from Type A to Type B, for example, is apparently an oversimplification of the true situation. At present, migration occurs to a great extent between Type C and Type B settlements. There are also cases of people migrating from Type C to Type B, then moving back later to Type C, and vice versa.

This frequent migration among the settlements of three types is probably a reflection of the common lifestyle and mentality shared by the San and Kgalagadi. This migration between settlements differs from the image we have of migration as being a permanent move. Rather, it is just a temporary move to secure food and water, and further migration to a new settlement or back to the old settlement

is soon induced by the reluctance to continue working in one form of manual labour for an extended period, which is a mentality shared by both the San and Kgalagadi.

Figure 7 shows changes in the population of each settlement in the Central Kalahari from 1885 to 1994. During the early part of the period of British rule, both 'hunter-gatherer' type San settlements (Type P) and 'agro-pastoralist' type San-Kgalagadi settlements (Type A) dominated. 'Farm labour' settlements (Type C) were formed later, following the establishment of farms by the Afrikaner population. The author estimates that the number of this type of settlement increased very rapidly with the commercialization of beef farming, which was facilitated by the construction of an abattoir in Lobatse, in the southeastern part of Bechuanaland, in the 1950s (Ikeya 1994). Following that, in the 1980s, many people migrated from these 'farm labour' type San-Kgalagadi settlements to the 'school and clinic' type of San-Kgalagadi settlements (Type B). Consequently, the population of the 'farm labour' settlements decreased. However, there has been a trend of migration back to the 'farm labour' settlements in recent years. In the formative years of the nation, from 1966 to 1994, the number of 'hunter-gatherer' type San settlements (Type P) decreased and finally completely disappeared by 1980. The number of 'school and clinic' type of San-Kgalagadi settlements (Type B) increased rapidly. Consequently, the type of settlement in which San were engaged only in the traditional activities of hunting and gathering had completely vanished by 1980. The 'agro-pastoralist' type of San-Kgalagadi settlements (Type A), unlike



**Figure 7** Population changes in each settlement type in the Central Kalahari.  
 P = Camp, A = Agro-pastoralist type, B = School and clinic type, and C = Farm type.  
 Source: Made by the author.

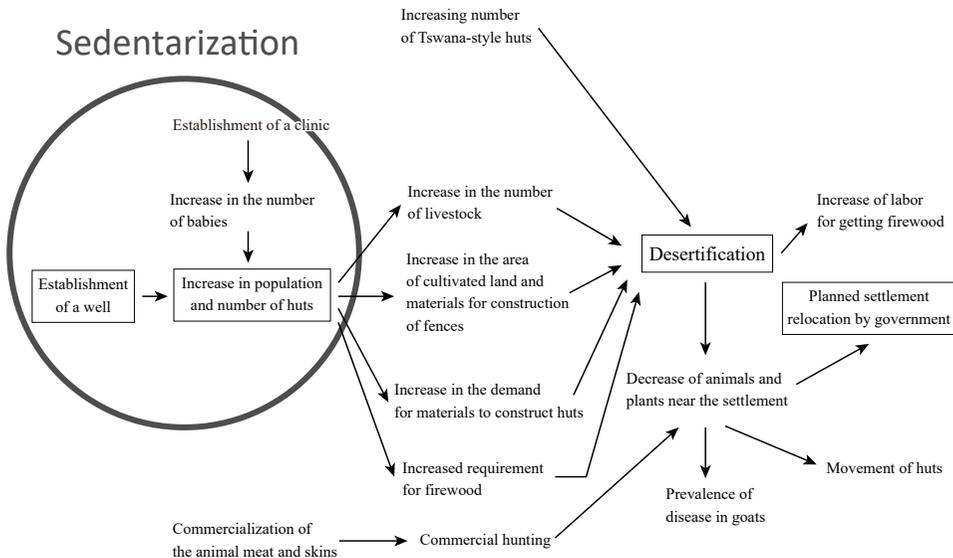
the other three types of settlements, declined very gradually in number over the 100-year period from 1885 to 1994. Therefore, they did not have a major social impact.

## 2) Socioeconomic Effects of Sedentarization

A model of the main causes of sedentarization in the Xade settlement, including increases in population, number of huts, number of livestock, and number of fields, is shown in Figure 8.

Both global and national trends must be regarded as background factors here. The main global background factors affecting desertification are global warming, acid rain, and protection of animals. National background factors affecting desertification are classifiable into government factors such as the Botswana government's settlement policy and the promotion of agriculture and road-construction projects, and non-government factors such as the establishment of Ghanzi Craft Company by an NGO based in Denmark (Ikeya 1996b), the establishment of a sales route for handicraft products, and employment opportunities offered by De Beers.

The greatest social change in the Xade settlement has been the rapid increase in population since well construction. This population increase has caused increases in the number of livestock, the number of fields for growing crops, the demand for materials to construct huts and fences, and the requirement for firewood. All of these factors have contributed to the destruction of vegetation and the resultant desertification in the Xade settlement area. However, the inhabitants



**Figure 8** Sedentarization model of the San in the Central Kalahari.  
Source: Ikeya 2017: 9.

of Xade do not feel that desertification poses any foreseeable danger to their lives because they are heavily dependent on various forms of aid provided by the Botswana government. Despite the increasing extent of desertification, conversion of large areas of land to fields for growing crops, a major cause of desertification, is continuing in the Xade settlement area.

The Botswana government is profoundly concerned about the expanding desertification because it threatens the survival of plants and wild animals in the Central Kalahari Game Reserve, an area in which the government is currently trying to promote tourism. In fact, in an attempt to prevent further environmental degradation in the reserve, the Botswana government forced the inhabitants of Xade to move to a new settlement outside the reserve in 1997 (Ikeya 2001). Consequently, with regard to desertification, a great conflict exists in the views held by the Botswana government and the local inhabitants.

Ultimately, Xade could be classified as the 'school and clinic' type of San-Kgalagadi settlement (Type B), which was transformed from a traditional 'hunter-gatherer' type of settlement (Type P) in the 1960s (Tanaka 1980). However, elements of the 'agro-pastoralist' type of settlement (Type A) were also thought to exist at this time. In other words, in addition to people who engaged purely in hunting and gathering, some people raised goats and chickens and cultivated watermelons and cowpeas (Ikeya 1993; 1996a). Furthermore, although it was not described in detail in this chapter, the nomadic mode of life of the San did not completely disappear along with the establishment of fixed settlements. Many of the San continued to make small movements within the Xade settlement area.

This study has clarified that four San settlement patterns that have been portrayed as a closed society in harmony with nature, have existed inside and outside the Central Kalahari Game Reserve. In addition, these changes in land use, occurring with the transformation of nomadic camps into a permanent settlement, can be described as resulting from the influences of regional politics and economics.

## NOTES

- 1) Five settlements including Molapo, Metsamaneng, Mothomelo, Gope, and Gukanba are located in the CKGR as of February 2018.
- 2) Settlement patterns in the CKGR between 1996 and 2007 are mentioned in two papers (Ikeya 2001; 2016b).

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