

# Two traditional African settlements – context and configuration

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Vernacular African settlements and buildings are widely appreciated for their human scale, aesthetic clarity and harmony with nature. But this appreciation appears to be limited to their iconic and picturesque qualities, and there seems to be little understanding of the value of these architectural traditions as products of historical, ecological, cultural and economic circumstances. This study compares a traditional Tonga compound at Siamundela, southern Zambia with a Banoka village near Khwai in the Okavango Delta, Botswana. Whereas Siamundela is totally remote, the Banoka are occasionally exposed to passing safari traffic. These case studies demonstrate how the built environments of different cultures reflect changes in social structures in response to the varying degrees of exposure to external influences. The two case studies are described in terms of context (historical perspectives, socio-economic and cultural conditions, geography) and dwelling and settlement patterns. The emphasis is on a comparison of spatial organisation and fabric.

Sustainability is an increasingly relevant issue in architectural discourse and practice, and Laugier's "Primitive Hut" (Figure 1) often emerges as a philosophical ideal, implying – albeit sometimes with Rousseauian romanticism – that traditional, or vernacular, architecture embodies principles, which modern architecture largely abandoned (Farmer 1996: 9). Edwards and Du Plessis argue (2001: 10) that there are "pockets of good sustainable practice" in rural communities in Africa. Du Plessis adds (2001: 47):

Historically, both the indigenous and the settler homesteads were characterised by climate-conscious design, the efficient use of local materials and the use of agglomerations of small individual buildings and delineated outdoor spaces to house the various functions of a household. This allowed for flexibility and growth in the design. The building and its environment were not seen as separate entities, but as integrated, though different, aspects of a holistic life style. In a sense, this early architecture of grass or mud huts ... can be seen as the ultimate in green architecture.

Traditional African architecture is generally studied for its historiographical and anthropological content, and to investigate it from a contemporary perspective is exceptional, although there seems to be an increasing trend to

search for African solutions to African problems. Topics like local tradition versus globalisation (processes of change, transformation, and modernization) and development (cultural sustainability; tourism, 'museumification') have now become part of the debate<sup>1</sup>.

The study of vernacular architecture – the pre-industrial folk tradition – is firmly rooted in the idea that forms and configurations developed over a long time, and that change depended on culture, the availability of resources and the level of technology, rather than simply on chronology (Rapoport 1969: 14). An example is the grass and mud tradition that evolved during the Early Iron Age, 7<sup>th</sup> century BC, in West Africa (Garlake 1978: 61; Oliver 1999: 84) but remains the prevalent technology in some areas to this day.

This implies that these settlements could be studied for the core characteristics that allowed for such resilience and the sustainability associated with the technology, bearing in mind the dynamic nature of all cultures (Clark 1957: 171). Biermann's claim that "students of southern African dwelling forms are fortunate that building traditions from prehistoric times

survive in the shadow of high-rise structures” (1985: 57) is figurative; villages close to roads generally feature both traditional and shanty constructions, as well as a large proportion of migrant households (Denyer 1978: 1). The least disturbed settlements are inevitably rural and relatively inaccessible, and the case studies selected are a Tonga compound at Siamundela, southern Zambia and a Banoka village, near Khwai in the Okavango Delta, Botswana (figure 2).



Figure 1  
Laugier's primitive hut (Rykwert 1972: 45)

A narrowly drawn, tightly focused approach was selected for the study. For orientation this report commences with a review of the sources of information and methodology, followed by a brief historical overview of the peoples concerned. Observations of the Tonga and Banoka respectively are broadly described in terms of (1) origin; (2) economic activities; (3) family

organisation; (4) material culture; (5) sanitary arrangements; (6) settlement form and (7) construction, with special emphasis on the impact of external influences. The main themes of the subsequent assessment are:

- Classification of the case studies
- Settlement
- composition and dynamics
- Spatial response to climate

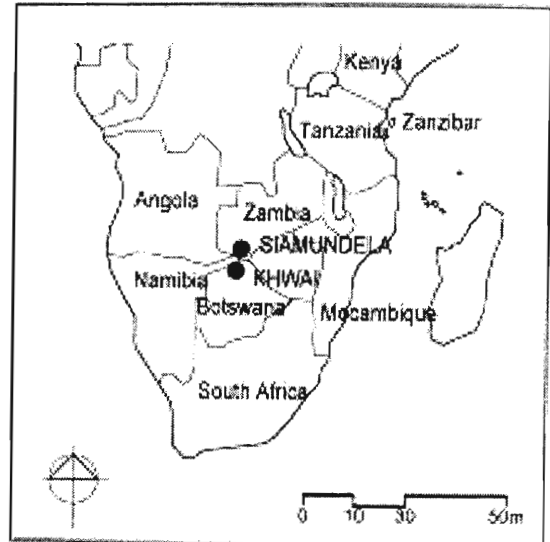


Figure 2  
Locality map showing case studies (Steyn)

### Flexibility

This framework, however, focuses on the spatial organisation and fabric of these African settlements, whose contexts and formative concepts differ so radically.

### Sources of information

An interest in traditional African architecture only emerged towards the late 1960s, arguably made possible by works like *Architecture without architects* (Rudofsky 1964), *Village planning in the primitive world* (Fraser 1968) and the seminal *House form and culture* (Rapoport 1969). Studies that focus on this continent include Denyer's *African traditional architecture* (1978)

and the more recent *African architecture: evolution and transformation* (Elleh 1997). With the exception of Fraser, most of the literature tends to focus more on individual dwellings than on village and settlement layout. Even so, authors often seem attracted to the iconic nature and picturesque examples of West African vernacular forms, which explains why the simple thatched mud huts of the southern African interior have remained largely ignored.

South Africans such as Walton and Frescura have, however, done valuable work. James Walton's *African village* (1956) offers descriptions and surveyed drawings of settlements in southern Africa and his illustrations still appear in very recent publications. Franco Frescura's thesis entitled *Major developments in the rural indigenous architecture of southern Africa of the Post-Difiqane Period* (1985) arguably offers the most authoritative review of vernacular Southern African settlements to date.

Most published drawings of traditional African settlements are sketchy rather than measured. Researching this theme without fieldwork is simply not credible. But field surveys and observation of traditional villages – valuable as they undeniably are – could take a long time before any significant patterns are recognised, if at all. In addition, interviews seldom reveal these patterns, basically because inhabitants cannot conceive that their customs might be of interest to outsiders! Somebody remarked, "They live the pattern". That pattern is embedded in the belief system.

Several days were spent at each site, which was surveyed and recorded photographically<sup>2</sup>. Observations under the section headings of Tonga and Banoka are, where not acknowledged otherwise, from the report that emanated from these trips (Roodt 2002). All drawings (except freehand perspective

views) were done in CAD, using a uniform format, to allow comparison with information from the literature and other sites. For analyses a simplistic typological methodology was applied, similar to that of Bernard Leupen and his colleagues at the Faculty of Architecture at the Delft University of Technology (1997).

### Historical overview

Much of the tropical interior of sub-equatorial Africa remained isolated until the middle of the 19<sup>th</sup> century. Apart from leaving no written record, the people of the interior used perishable natural materials such as mud, wood and grass, and the tangible manifestations of most early settlements have simply vanished.

For two million years only the hunter-gatherers occupied eastern and southern Africa. These Pygmies and Khoisan were Stone Age hunters and food gatherers. Then came the black people with their knowledge of agriculture and iron smelting, reaching the northern parts of southern Africa by 300 C.E. The San retreated before this advance.

Willcox reminds us that this southward movement by the Bantu-speakers was not a nomadic migration but rather a gradual movement by small groups, or clans, over fairly small distances (1988: 95). They established villages and built more permanent huts, compared with those of nomadic people.

The stability of the southern African region was catastrophically shattered in the 1820s – the *mfecane* scattered the Bantu tribes of southern Africa as they fled the Zulu impis – a substantial number moved back into eastern Africa. This scattering of the people had a profound demographic effect as fleeing communities formed new groupings for protection and their migration was often very aggressive. To fully appreciate the catastrophic events of the 19<sup>th</sup> century,

one must realise that the *mfecane* coincided with the slave trade, which was so disruptive that smaller and vulnerable Bantu-speaking village communities were scattered.

## Tonga

The Tonga is described by Davidson as "...very much a product of external pressures" (1967: 66). Having moved from inland Tanzania after being displaced by the 19<sup>th</sup> century disruptions, the Tonga is probably a regrouping of several migrant groups. He admires that they have seemingly solved their major problems with pre-industrial resources (1967: 172). Their indigenous technologies certainly confirm this extraordinary talent for innovation and improvisation.

Maize is the main agricultural product, although cotton, tobacco and groundnuts are also cultivated for commercial and domestic use. These crops are grown on small patches of land near the village and ploughed with oxen. Maize is stored in granaries and grounding it by means of a mortar and pestle. Beans are also planted and stored in separate granaries.

Cattle are the main symbol of wealth, and very well looked after. There are also many sheep, goats, pigs and chickens. The village produces burnt clay bricks for own construction. Grass is also cut for domestic thatching. Bicycles are used for transporting goods and even for long distance travelling. Donkeys and cattle also serve as beasts of burden. Nobody in the village owned a vehicle.

It was observed that woman ground maize, cooked and decorated the dwellings. Men made and maintained implements and furniture, fished and minded the cattle. It was not determined, however, how work was distributed cultivating crops or constructing the dwellings and other structures.

The Tonga is monogamous and patrilinear. Parents share their sleeping hut with children younger than twelve, after which they sleep in separate huts for boys and girls. The various groups that make up the extended family – that is, the parents and young unmarried children, and brothers and sisters with their families – all live in their own villages, which are within walking distance of one another. If one of an elderly couple dies, the remaining spouse would move to the village of one of the children.

The Tonga craft chairs, about 300mm high, from solid wood and construct beds from mopane poles. There are no cupboards and clothes are simply hung from roof timbers. Baskets woven from bark are used to store personal belongings.

Toilets are holes dug in the ground, covered with mopane poles with a clay topping and a 300 by 100mm opening. Each toilet has a grass screen wall in a spiral configuration for privacy. A bathing area features the same type of screen wall, but the ground is covered with grass (Figure 3). Bathing is by sponging the body with warm water from a small bowl.

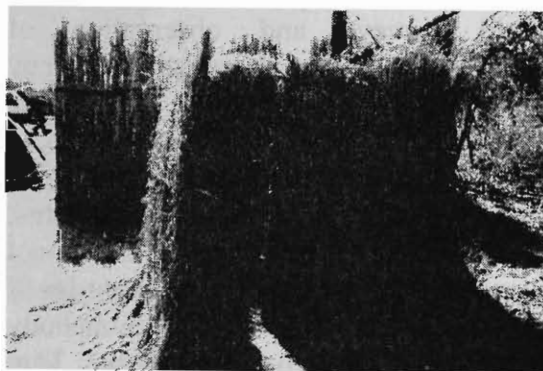


Figure 3  
A Tonga bathroom (Roodt)

Each compound resembles a self-contained village. It features a gazebo-like thatched shelter in the centre used predominantly by the men for meetings and making tools (Figure 4). Sometimes these structures have lath or reed walls approximately 1,5 metres high. Food is

prepared in a nearby lapa with a grass wall. Utensils are stored on a raised wooden platform, where domestic animals cannot reach them (figure 5). A midden, from which pigs and chickens feed, features prominently in the centre of the village. Interestingly, no plastic or glass will be found here due to the value of such items as containers for water and food.



**Figure 4**  
Core structures in the Tonga compound (Roodt).



**Figure 5**  
A raised platform for eating utensils in the Tonga compound (Roodt)

Every compound has granaries for maize and beans, constructed of mopane poles, with the floor about one metre above the ground (figure 6). Walls are covered with clay and the granary is thatched over. Chicken coops consist of grass shelters, placed about 1,5 metres from the ground on wooden pole gantries (figure 7). Cattle pens are constructed of logs.

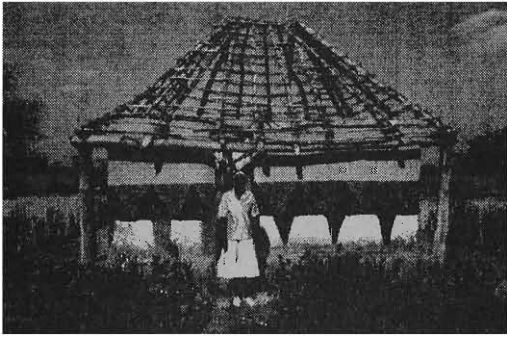


**Figure 6**  
A Tonga granary (Roodt).



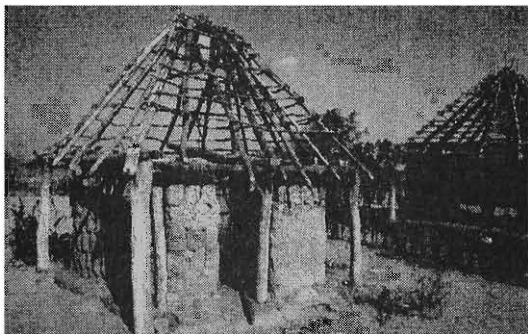
**Figure 7**  
Tonga chicken coops (Roodt).

Most of the daily activities take place in the open and huts are used only for sleeping and keeping valuables. These are round or rectangular single room units with thatched roofs and clay brick walls (Figure 8). Each hut has a door and some have small window openings that can be secured with solid wooden shutters. Where posts are outside the walls, the resulting generous roof overhang serves as a veranda, providing shade for sitting in on a slightly raised apron.



**Figure 8**  
Tonga huts (Roodt).

Both hand-made sun-dried and burnt clay bricks are used. Brick walls are plastered with clay and often decorated. Timber is again mopane. Roofs, sometimes also of huts with brick walls, are supported on 100 to 300mm diameter posts with forked top ends (Figure 9). Ring beams and rafters are 100 to 150mm thick and laths about 25 to 50mm. Roofs are covered with thatch. Only bark rope is used to secure the structure and for thatching. The grass is not combed out before placing. Floors are not finished at all but left absolutely natural and simply swept.



**Figure 9**  
Tonga construction technology (Roodt).

## Banoka

By the mid 20<sup>th</sup> century the San were restricted to the Kalahari Desert and the northern parts of Botswana. But they might not be descendants of San displaced by advancing herders and farmers – hunter-gatherers have been living in the Kalahari region for more than 20 000 years (Reader 1997: 117). The Banoka, an !Kung community, is one of the few remaining Khoisan-speaking communities on the continent. They were hunter-gatherers, but their territory is now an area bordering the Moremi Game Park and they are not allowed to hunt any more.

It is not commonly known, however, that the whole community still abandons the village for five months of the year, which is spent in the bush ... not hunting, but harvesting grass that is sold to safari lodges for roofing thatch. During this harvesting season they use the bundles of grass to construct temporary shelters. These are simply stacked in a circle. At night the entrance is closed off with another bundle of grass, as protection against lion and other predators. Their dogs are expected to warn them of imminent danger.

They fish and get meat from a nearby lodge. Outside the hunting season meat must be bought in Maun, 150 kilometres away. The government does not allow the Banoka to keep cattle because of foot-and-mouth restrictions. Chickens are kept for eggs and meat. Agriculture is limited to small patches of maize and sorghum because of the constant threat of raiding elephants and hippos. Planting is done by hand and no ploughing implements are used. They use donkeys, which are often preyed on by predators, especially to transport grass.

The dependence of the !Kung on the contribution of women to the traditional hunter-gatherer way of life is well documented (Reader 1997: 119). Their role at Khwai could not be established with certainty.



The village under study seemed patriarchal and monogamous. Parents and children under the age of twelve slept together in a hut. Boys and girls older than twelve have their own huts, separate for each gender. By age sixteen most of the girls are married with children. Husbands would join the brides' families until they are able to set up their own dwellings. Only the eldest son would remain in the homestead, to eventually succeed his father as head of the family.

Family ties are very strong. Children would regard their mother and father's brothers and sisters also as their parents. Cousins are regarded as brothers and sisters. Each family in this "clan" would have its own homestead, but it would be an organic part of the village.

Furniture seems almost incidental. The Banoka have no beds. They sleep on mattresses discarded by one of the nearby lodges, but more often they improvise a bed of grass or the inflorescence of the Foam Bush (*Aerva leucura*). Pillows are commonly made of this plant. There are no cupboards and clothes are simply suspended from the rafters. A few villagers own 4x4 pickup trucks. Bicycles are not used because of the danger of wild animals.

The village consists of several homesteads, as well as a few shops to serve the lucrative safari trade. These all relate to the dirt road that runs through the village. There are a number of wooden gantries for the storage of processed thatching grass (Figure 10). There are no traditional toilets – the Banoka use the bush. The government built communal toilets but these are not really used. There is, however, a communal washing facility consisting of a reed screen wall, with grass laid on the ground to avoid mud.

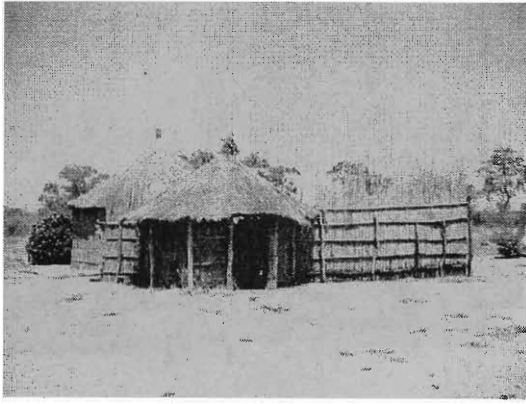


**Figure 10**  
**Storing thatching grass (Roodt).**

There is no refuse dump and the village is consequently very untidy. There are also small patches of maize and sorghum, which are apparently under constant threat from elephants and hippos. No granaries were observed, probably to avoid encouraging elephants. The donkeys are kept in mopane pole stockades, which do not seem to deter lions and leopards.

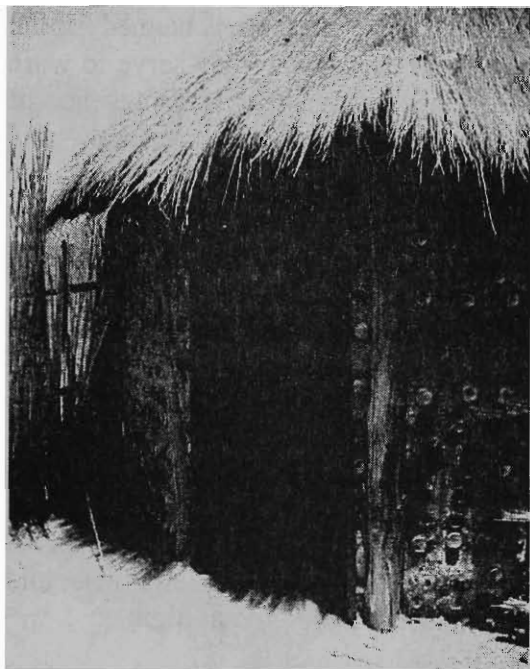
Dogs were used extensively for hunting until that was banned about three years ago. Now they serve to warn the village of the nocturnal presence of predators and raiders. Elephants and hippos are chased away with the whole village shouting and banging pots. Thorn hedges are also used to discourage raiders.

A homestead typically consists of one or more round or square thatched huts with either reed or mud walls. Every homestead features a reed lapa (Figure 11), as well as a wooden gantry, approximately 1,5m high, for storing eating utensils out of reach of animals. Chickens are kept for eggs and meat, and are enclosed in the *lapa* at night.



**Figure 11**  
A Banoka homestead with lapa (Roodt).

Structural wood comes from the mopane tree. Posts consist of 200mm diameter straight poles. Roofs are assembled with poles about 100mm in diameter, arranged in a cone form. The bark is often burnt off, apparently to discourage termites. Turpentine grass (*Cymbopogon excavatus*) is used for thatching grass. These are tied to 50mm diameter mopane laths.



**Figure 12**  
Banoka innovativeness; using empty beer bottles and cans as bricks (Roodt).

The reeds used for walling are cut in the river, stripped of their leaves and cut to size by means of a hand-axe. They are

tied into bundles by means of the rope-like stems from the Pythan timber. The bundles are tied to the posts with sisal rope.

Mud walls are constructed of soil from termite mounds, which has a near cement-like hardness when dry. Empty soft drink and beer cans and bottles are often used as “bricks” (Figure 12).

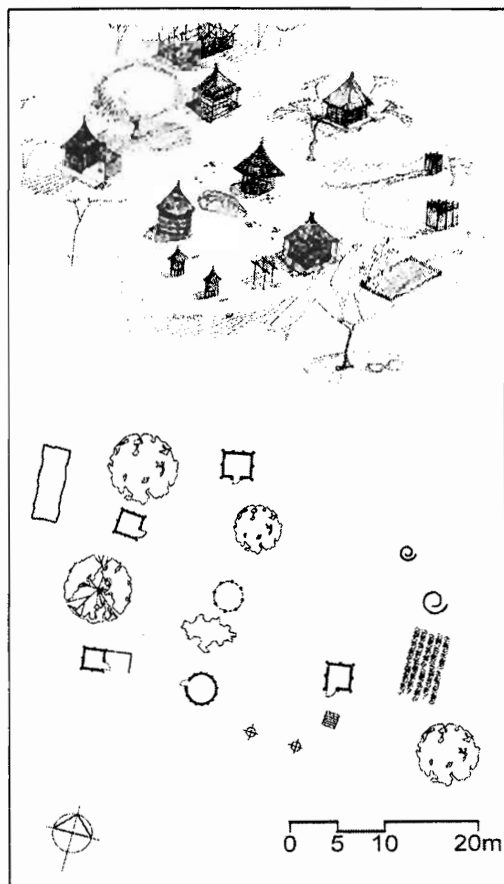
### Classification of the case studies

In eastern and central Zambia, around the 11<sup>th</sup> century – coinciding with increased cattle breeding and mixed farming – evenly spread dispersed homesteads and compounds replaced the earlier pattern of dense villages (Oliver 1999: 123-124). And these are respectively precisely the settlement patterns of the case studies – the dispersed compounds of the Tonga in southern Zambia and the relatively dense villages of the Banoka further south. .

The Tonga settlement is a typical **molecular** organisation, with a number of compounds belonging to members of the same clan, dispersed but still within hailing distance from one another and linked by footpaths. It is significant that each compound initially appears to be a village, but is in fact the compound of a single extended family (Figure 13). Due to the irregular layout and the presence of trees that obstructed lines of sight, it was difficult to identify the pattern prior to graphic analysis, but each compound is **centralised** – huts and ancillary structures are arranged around a cooking lapa and an eating gazebo. The village proper could, therefore, occupy several hectares. The boundaries between villages might even be difficult to identify due to the complexities of defining kinship. The extent of the village is determined by how family relationships are defined, rather than by any physical edge. Paul Oliver suggests that the siting of compounds depends mainly on the farming potential of the mature extended family – how much

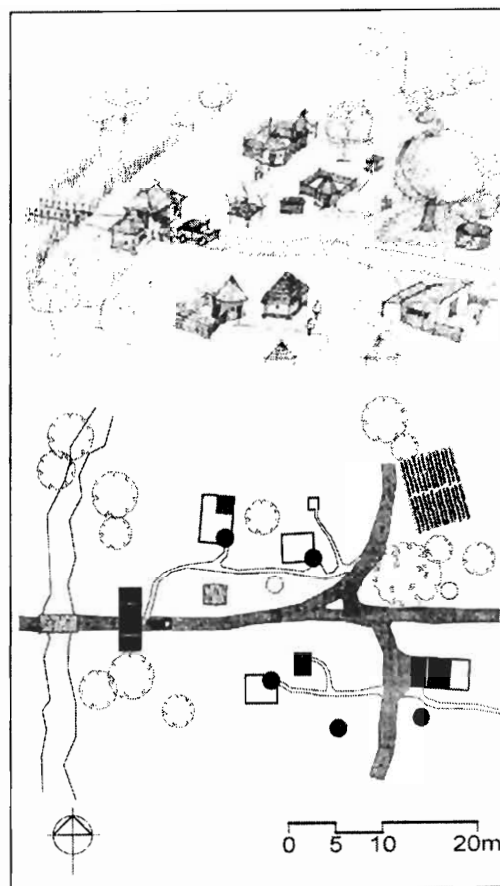


land is needed for crops and cattle. The partially dispersed settlements are vulnerable to attack and the pattern is not suitable for hostile environments (1987: 45-46).



**Figure 13**  
Plan and isometric view of the Tonga compound (Roodt)

The Banoka settlement, on the other hand, consists of a number of homesteads, arranged in a much denser but seemingly random scattered configuration (Figure 14). Once again a graphic analysis provided some insight – the homesteads tend to relate to the road, suggesting that this village is **linear**, in spite of the very irregular layout. After all, Norberg-Schulz stresses that the organising line must have a “free” curvature (1985: 41). Paul Oliver notes that linear settlements might follow a topographical feature, but more often they “grow” along roads, where they can benefit from passing trade (1987: 46).



**Figure 14**  
Plan and isometric view of part of the Banoka village (Roodt).

Most of the Banoka homesteads consist of one or more separate huts connected to a screened courtyard (Figure 16). Both Western and African authors consider the concept of individual huts around an open space as the quintessential rural African homestead pattern. The authoritative Schoenauer refers to the “typical African round-hut compound dwelling”, consisting of “a cluster of round huts facing an enclosed central courtyard” (2000: 62), while Elleh writes of the “traditional African house” and the “outdoor living space” (1997: 212).

In the African context most of the activities usually associated with the term “house” take place in this outdoor living space, called the *lapa* or *lelapa* in southern Africa. The taxonomy needs refinement and consensus, but for the purpose of this study the homes of all households are referred to as dwellings,

while the more compact configurations, which still consist of a number of huts around a courtyard but are clearly identifiable as entities, are called homesteads and those of extended families, those resembling villages, are called compounds (Figure 15). The term house then denotes a dwelling type with most of its major rooms under one roof.

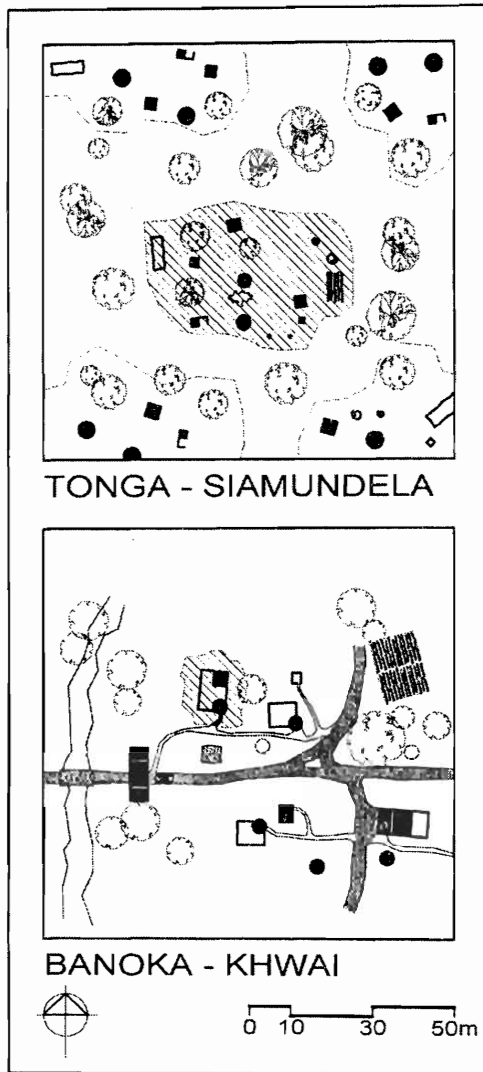


Figure 15

The concepts of "house" in the African context: the Tonga compound top, Banoka homestead, bottom (Steyn).

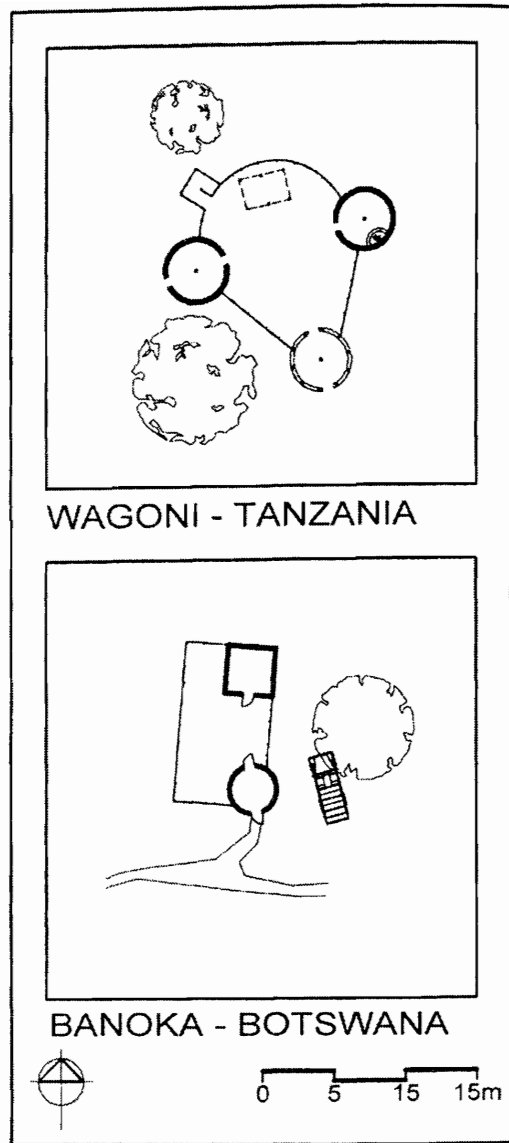


Figure 16

A typical Banoka homestead compared with a Wagoni homestead in Tanzania (Steyn)

### Settlement composition and dynamics

Stone Age man built hunting camps from light natural materials. Gradually he assumed a sedentary, or partly sedentary living, and could build a semi-permanent home base where food and grazing were reasonably available. The first were probably domes or beehive shelters. In fact, the dome was an early "standard" building, found in most areas populated by man (Wright 1985: 24).

A popular school of thought, questioned by Denyer (1978: 159), maintains that shelter originated from round units and developed through

“evolutionary improvement” into rectangular buildings. Also that shelter originated in the building of an undivided unit, the room, and developed into a configuration of a roof covering a collection of rooms (Doxiades 1972: 222). Many African societies, however, deliberately – and proudly – preserve their traditional dwellings consisting of a number of round, even domed, single-room buildings.

The Zulu is such a society. Also, some San communities in the Kalahari Desert have semi-permanent base camps consisting of a number of fairly large domes. The huts of the Banoka and the Tonga consist of both round and rectangular thatched roofs over walls in mud or vegetative materials. It is very clear, however, that the San under study – hunter-gatherers until recently when government policy prohibited a 20 000 year old way of existence – are in a state of economic and cultural change. They invariably had to change their concept of the hut to suit circumstances, a phenomenon also identified by Papanek among other San communities (1995: 134). At Khwai they adopted the thatched-roofed, plastered mud tradition of the Bantu-speaking farmers.

The Tonga also has veranda huts. Frescura regards the veranda configuration as a “definite and separate genre of house form” which emerged in Zimbabwe by about 1100 C.E. (1981: 109-111). Some verandas are deep enough for seating about the perimeter. Apart from retaining trees for shade and gazebo-type structures with open sides, the veranda is an economical way to provide open but roofed outdoor living space. The veranda is typologically identical to the loggia found in Mediterranean houses since antiquity. It protects against sun and rain, creates a transition between inside and outside and expands the area of an enclosed space.

The only permanent towns in eastern and southern Africa have been those like Lamu along the Swahili Coast.

Otherwise this part of the continent was settled with villages of mud and grass. Roland Oliver suggests that the characteristic pattern was one of evenly spread dwellings and that villages were rare (1999: 102). Villages in the European sense maybe, but as Murray explains: “Villages became therefore a collection of similar houses which in themselves were a collection of similar buildings. It is very often difficult to tell where one house ends and the other begins” (1994: 78). This is the typology of the Tonga, which is traditional for Bantu-speaking mixed farmers in this part of the world.

This settlement form might seem “haphazard” to the uninformed, but it is ecologically responsive and according to strict farming rules and cultural beliefs, which developed over centuries. These are, as Davidson put it, the essence of Africa’s “guardian institutions” (1967: 169). African communities were conservative, simply because change could threaten survival (Reader 1997: 263). As Graham Clark succinctly put it in his vintage *Archaeology and Society*: “...in primitive societies custom was king” (1957: 248). The pattern could arguably be declared “the standard” for inland Bantu-speaking pastoral sub-equatorial Africa.

Even superficial examination reveals considerable order (Figure 17). Units are certainly not randomly scattered, but organically arranged around a central space. Spaces and paths in an African village are hierarchically organised, from public through semi-private to private. Lynch describes edges as linear boundaries “of some kind” (1960: 47-48). He mentions physical boundaries such as walls, but symbolic boundaries defined by, say, a clearance in the bush, or a symbolic barrier imposed by convention and taboos must unquestionably also be recognised as edges. Because, while the Banoka retained perimeter fences as a security measure, the Tonga abandoned them,

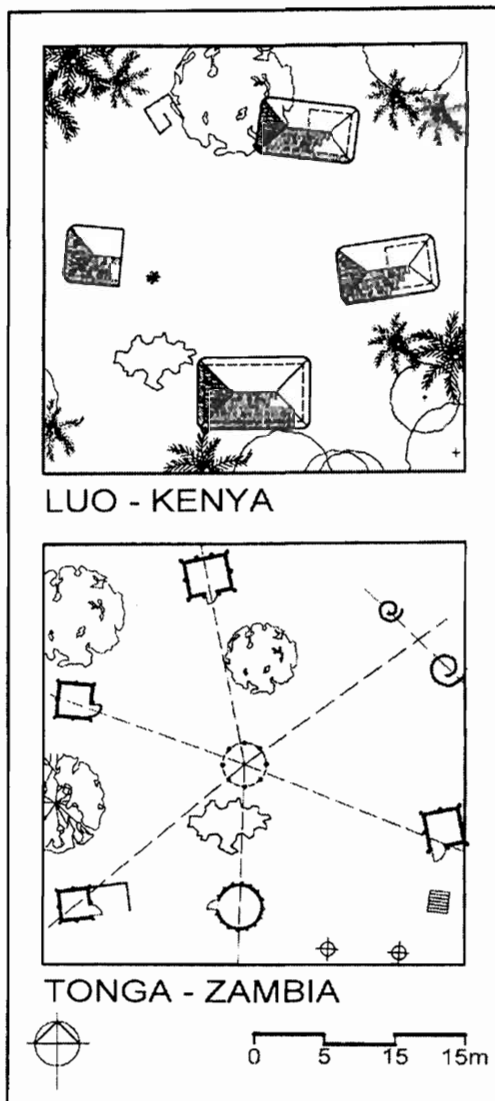
without sacrificing the spatial integrity of the dwelling.

average maximum daily temperatures in January in excess of 30 degrees Celsius. This ensures that the areas under study are well suited to year-round outdoor living.

There can be no doubt that most traditional African dwellings are fundamentally courtyard types (Kostof 1987: 185). This configuration is found all over the Mediterranean, Middle East and Africa; regions where the climate allows outdoor living. Schoenauer (2000: 98) and Brower (1996: 74) both recognise a relationship between Middle Eastern and African dwellings – based on the shared concept of courtyards.

But whereas houses in the Middle East became more compact with many rooms aggregated around courtyards, Africa retained a pattern of a number of separate single room units around an open living space. Also, Middle Eastern houses were clustered on narrow, winding streets that ultimately created dense urban precincts, while African dwellings are only loosely related to communal paths. Both types of settlements grow organically and incrementally, and significantly; they developed over centuries and are particularly responsive to the extreme climates in which they exist. As a matter of fact, while Rapoport suggests that climate is a modifying rather than form determining factor (1969), Talib argues that climate, rather than culture was the dominating influence in both Arab and African settlement initially (1984).

The dense Middle Eastern settlement provides protection against the sun and dust in a hot-dry climate, while courtyards allow airflow and daylight. In hot-humid climates, however, cross-ventilation is the major concern and the African dwelling consists of a scattered layout of separate huts around an open living space (Talib 1984), and a village a scattered layout of such dwellings, sometimes with an enclosure wall. In both climates, however, courtyards are the settings for outdoor activities –

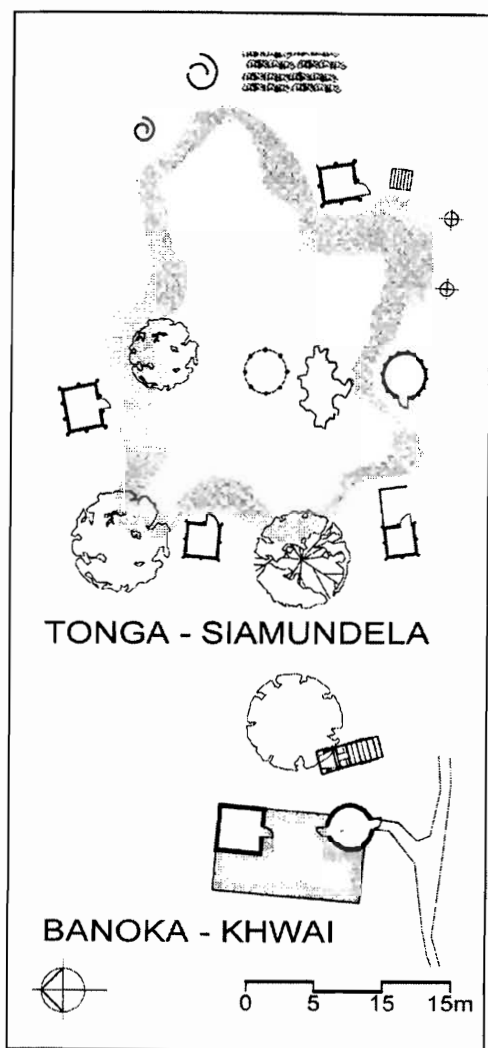


**Figure 17**  
A comparison between the Tonga compound and a traditional homestead near Gedi on the Kenya Coast, right (Steyn).

### Spatial response to climate

The vegetation of the Okavango Delta is best described as tropical grassland savanna, and that of the Siamundela region as tropical woodland savanna. These areas both have rainy seasons in summer. From December to February the monthly rainfall in the Delta is about 80mm and that of southern Zambia occasionally more than 130mm. These are consistently warm to hot areas, with

where children plays, food is prepared and guests entertained (Figure 18). It is this courtyard that establishes a commonality – the courtyard that has, since ancient times, served an “inner world” of the private dwelling (Norberg-Schulz 1985: 98).



**Figure 18**  
The courtyard configurations (Steyn).

### Flexibility

Ki-Zerbo writes that (1990: 317) “One of the striking things about Africa is the fact that many communities have pursued the same way of life, without interruption, since the very earliest times”. This is a popular view and tends to obscure the adaptability of African cultures and places. Banoka and Tonga dwellings consist of separate huts around

an open space. This quintessential African pattern is remarkably flexible and open-ended, growing organically one hut at a time as the household expands, and this additive quality is characteristic of most vernacular architecture (Rapoport 1969: 6). In addition, African dwellings can generally respond easily to changing social circumstances (Murray 1994: 78).

While, at Siamundela and Khwai, the mud and thatch architecture is still being implemented in a relative pure form, it simultaneously accommodates cultural ways that have been under pressure for the last few decades. The Tonga maintains a traditional subsistence lifestyle, even though they are aware of Western ways and artefacts. The !Kung Banoka, however, was forced to abandon a hunter-gatherer lifestyle dating from prehistoric times. The apparent ease with which the community embraced alternative economic activities, within its customary seasonal nomadic excursions, is truly remarkable. Equally significant is the adoption of the mud and thatch technology associated with the settled Bantu speakers of the region.

### Conclusions

The spectacular historical kingdoms – such as Kanem-Bornu, Mali, Songhai and Benin – tend to dominate African studies. But it was at village level that African society achieved its greatest accomplishment – a set of indigenous technologies in the fields of construction, medicine and agriculture that relied on limited, but mostly renewable resources, and that has endured since antiquity. The greatest achievement of African village society was arguably that everyone had a home. Although dwellings in a village were generally similar, people were proud to live in them because it affirmed their community identity.

African villages, exemplified here by the Tonga and Banoka settlements,

generally follow the ground rules for sustainability that are currently so avidly debated – good holistic practice including respect for site and users, working with climate, and use of renewable and recyclable materials.

The children of these settlements are not growing up in ignorance. All Tonga children attend a nearby village school up to grade seven. Thereafter they are sent to schools with dormitories in the nearest towns. Tuition is in English. The government provides free transport to, and free schooling and boarding for Banoka children in Maun. School attendance is compulsory. In primary school the language of tuition is Setswana and in secondary school English. Monitoring the effect of Western-style urban education on the inhabitants of the settlements under study, and the consequent impact on the settlements, could offer valuable insight into the dynamics of traditional African architecture.

Finally, settlements such as these are part of Africa's rapidly diminishing social and technological heritage. Cultural tourism is an accepted way of improving the economic situation of a community, but to what extent could the integrity of a community be preserved without turning it into an open-air museum? The resilience of traditional African settlements must not be underestimated – this study clearly shows that the physical configuration has the inherent capability to respond to, and accommodate a wide range of environmental and cultural contexts.

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## Notes

<sup>1</sup> See [www.icomos.org](http://www.icomos.org) for the agenda of the 14<sup>th</sup> GENERAL ASSEMBLY AND SCIENTIFIC SYMPOSIUM of the International Council on Monuments and Sites (ICOMOS) entitled "Place - Memory - Meaning: Preserving Intangible Values in Monuments and Sites", scheduled for 27 to 31 October 2003 at Victoria Falls, Zimbabwe.

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