

**ADAPTING TO SOCIAL TRANSFORMATION THROUGH  
ARCHITECTURE: AN INTEGRATED COMMUNITY HUB FOR  
MOSHUPA VILLAGE, BOTSWANA**

by

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Submitted in partial fulfilment of the requirements  
for the degree of Master of Architecture

at

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**DALHOUSIE UNIVERSITY**  
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## **ABSTRACT**

The thesis explores the role of Architecture in enhancing a sustainable rural livelihood in Botswana. Moshupa village is analyzed and assessed to create an alternative, self-sustainable model for rural development that can add value to the local economy, by fostering self-reliance, capacity building and empowerment.

Through the design of an Integrated Community Hub for Moshupa, the thesis attempts to embrace the changing dynamics of a village. It explores strategies that would inject life into the village making it a desirable place for younger generations and women to live, in a similar way to what is currently achievable in towns and cities. Most importantly, the design principles and guidelines of traditional building techniques are explored through studying spatial habitation and organization. Materiality of built form and study of details are examined in search for an architecture that belongs to a place, by responding to the current economic, cultural, technical and environmental challenges in Botswana.

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## 1.0 INTRODUCTION

### 1.1 Background on Botswana

#### 1.1.1 The Physical Environment

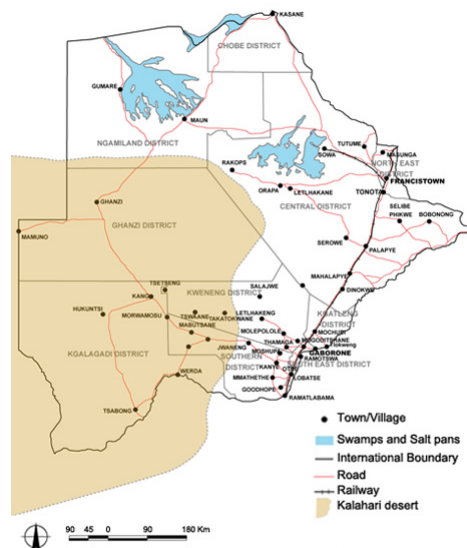
Botswana is located in the sub-tropical high pressure belt of the southern hemisphere. The country is landlocked and bordered by South Africa to the south, Namibia to the west, Zambia to the north, and Zimbabwe to the east (fig. 1). The capital city of Botswana is Gaborone. The country was never colonized; however, it attained self governance in 1965, after 80 years as a British Protectorate and became Independent on 30th September, 1966.<sup>1</sup> In terms of landmass, the country is 582 000 square kilometers, about the size of France and Kenya.<sup>2</sup> The country lies roughly between latitude 17° and 27° South, and the longitude are 20° and 30° East.

Botswana has semi-arid conditions in the middle of Southern Africa, far from oceanic influences. The country experiences high temperatures throughout the year with less, unreliable and not evenly distributed rainfall. About two-thirds of the country is covered by the Kalahari Desert (fig. 2), which provides extreme living conditions because of very hot and dry climatic conditions with high rates of evaporation. The soils of the country are mainly kalahari sands, and few alluvial sands formed from the Okavango



Base map from  
<http://www.google.ca>

fig. 1. Map of Africa



Map from Department of  
Surveys and Mapping

fig. 2. Map of Botswana

- 1 Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 2.
- 2 Department of Surveys and Mapping, *Atlas of Botswana* (Gaborone: Government Printer, 2001), 2.

lakes to the north of the country, and shallow stony soils derived from rocks to the eastern part.<sup>3</sup> The vegetation is mainly shrub savanna and tree savannah. Moreover, the country's altitude is about 900 meters above sea level, with gentle undulations and occasional rocky outcrops found mostly in the eastern part.

### **1.1.2 Population and Economic Linkages**

The country has a population of approximately 1.8 million, and most of the population still resides in rural areas. The people are called Batswana and the majority of the population are native Setswana speakers. A high proportion of the total population is represented by a youthful population. According to the 2001 Population and Housing Census, there are 732 053 young people, which accounts for about 44% of the total population. It has been noted that 28.7 % of the youth population are aged 10-14 years. Those aged 15-19 constitute 27.8%, those aged 20-24 constitute 23.3% while the remaining aged 25-29 years constitute 20.2% of the total youth population.<sup>4</sup> Of 732 053 youth, 61.2% are estimated urban dwellers, while the remaining 39.9% remain in rural areas.<sup>5</sup> However, the trend is rapidly changing as more youthful population is moving to urban centers to search for avenues that can help to sustain

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3 Department of Surveys and Mapping, *Atlas of Botswana* (Gaborone: Government Printer, 2001), 4.

4 Central Statistics Office, *Analytical Report Population and Housing Census 2001* (Gaborone: Government Printer, 2001), 269.

5 Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 21.

themselves.

Traditionally, the socio-economic pattern of rural Botswana was agriculturally based, however, the economy is now dominated by the mining industry, particularly diamonds, which have been the major force stimulating the country's economic growth since their discoveries during the early 1970's.<sup>6</sup> The country has transformed itself from being one of the poorest in the world and is now regarded as a middle income economy. The country's average economic growth over a period of 30 years from 1971-2001 is reported at 13 percent.

While the remarkable economic performance of the country, which may be attributed to several factors among them an impressive track record of good governance and political stability, has helped to improve the living standard of Botswana, the country's Infrastructure development is lagging behind unlike other African states that have hugely benefited from the colonial development. Moreover, the rapid shift of the economic base of the rural communities has affected social traditions and the village structures, hence emergence of unparalleled development challenges.

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6 Department of Town and Regional Planning, *National Settlement Policy* (Gaborone: Government Printer, 1999), 53.

## **2.0 SOCIO-ECONOMIC CONDITIONS**

### **2.1 Overview of the Constraints**

In most parts of the country, issues that affect young people are unemployment, education, health, talent development, culture, sports, leisure and recreation, youth crime and violence. Also, young people vary dramatically in their skills, experiences, lifestyles, problems, and capacities. Therefore, the Government of Botswana and the communities at large are faced with the challenge of addressing these concerns and to ensuring that young people and women are prepared to contribute to the development of the country. On that score, the socio-economic factors to be discussed sets out the thesis and provide a background on the general conditions pertaining to contemporary Botswana.

### **2.2 Limited Access to Education and Training**

Education, as the basic necessity for every society has been the major asset to address the changing dynamics of rural settlements. The needs of hopeless young generations and women have been challenged by limited opportunities, of which the Government of Botswana has not been able to keep up with. The limited number of vocational training schools disadvantage the youthful population as most of them cannot be absorbed by such centers; therefore, they end up being victims of the negative externalities of socio-economic changes. According to the 2001 Population and Housing census, only

94, 264 (13%) of the young population has received post secondary education or training of some sort at either university, technical college or college of education.<sup>7</sup> The framework for a long term vision for Botswana suggests that:

The pace of education change has lagged behind...there seems to be insufficient emphasis on technical, practical subjects, and business skills, the very skills that are most needed. As a result, the investment in education has not contributed as much as it should to the national capacity.<sup>8</sup>

Although reported figures suggested that progress in the provision of education services has remarkably improved since independence in 1966, very little attention had been archived to expansion of physical, education and social infrastructure in rural Botswana. Large proportions of people in rural areas are still illiterate and are not able to compete in their local markets. Youth have less access to means of communication and other related sources that could provide the basic educational resources. They lack “the know how” and are unable to perform in technical and professional positions due to limited on-site /job experience and developed skills. The author on the other hand think confidence, standing up tall, and the ability to perform depends on what he regard as education. Granted, the author would feel intimidated if asked to perform a task that is only to be learned in a classroom setting, but the commun-

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7 Central Statistics Office, *Analytical Report Population and Housing Census 2001* (Gaborone: Government Printer, 2001), 275.

8 Ministry of Finance and Development Planning, *A Framework for a Long Term Vision for Botswana: Presidential Task Group for a Long Term Vision for Botswana* (Gaborone: Government Printer, 1996),17.

ity can be as good as a classroom, if given the right tools.

In Schumacher's point of view,

Education being the greatest resource is the key to everything including initiatives, inventions, constructive activity.<sup>9</sup>

Basically, he calls for restoration of ethics, values and ultimately of education in our society and puts forward the position that our main task is to understand the present world we live in and make the correct choices, or else education will become an agent of destruction.<sup>10</sup>

### **2.3 Agriculture-Decline in Interest and Low Productivity**

Traditionally, agriculture has always played a meaningful role in each rural household as the major source of livelihood even before the times of Colonialism in Southern Africa, and throughout the early years of Independence. The author wonders why farmers in Botswana are unable to produce enough food, yet the people of Botswana are known to grow crops and rear animals. What could be the main problems facing agriculture in Botswana especially in rural areas? And what are possible solutions to deal with the catastrophe?

In particular, younger generations have in large numbers moved towards non-agricultural employ-

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<sup>9</sup> E. F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: Harper and Row Publishers, 1973), 57.

<sup>10</sup> Ibid., 79.

ment, and leave the old aged to manage the sector. This poses major impediments to agricultural development in terms of sustainability and transformation of the sector.<sup>11</sup> As a concerned member of the youth, the author find it very disturbing, as young people have the productive potential to bring back agriculture to life. Innovation is another aspect in which rural youth is still behind. That said, there is a need to explore new ways to make use of modern technologies to resolve the challenges to agriculture and rural life in Botswana.

Agricultural contribution to the economy has declined from 42.7% in 1966 to 4% in 1994/5. Besides people abandoning agriculture and rural villages, other factors that contribute to low performance of the sector are poor soils, unreliable rainfall, and recurring droughts.

If the war on rural poverty is to be won, there should be greater emphasis on livelihood system focusing on a variety of rural economic pursuits other than just communal arable agriculture.<sup>12</sup>

Self-reliance has been promoted by the government of Botswana since Independence through various policies and initiatives. The intention has been to focus on community development and economic diversification as a means to lessen economic vulnerability, promote employment, and alleviate poverty in rural areas. However, the efforts have largely been ineffective with little discernible impact on agricul-

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11 Ministry of Finance and Development Planning, *Revised National Policy for Rural Development* (Gaborone: Government Printer, 2002), 4.

12 Ibid., 11.

tural production.<sup>13</sup>

An approach to diversification and decentralization against any kind of negative events that creates instability within rural societies is what is needed to work on. In this regard, individuals need to take a full, optimal exploration of other avenues and what each is capable of for maximum socio-economic returns, especially in rural areas as they lag behind in socio-economic developments.

## **2.4 Mass Unemployment**

Based on the aforementioned discussions, youth and young women are the most affected by the changing dynamics of the economy. The overall unemployment rate at 17.6% in Botswana remains high, leading to socio-economic problems in the society, and contributing to poverty.<sup>14</sup> Urban areas are associated with greater opportunities offered by the formal sector, which is mainly dominated by the Government and private sectors. Moreover, lack of opportunities for youth poses a serious challenge to the nation as it increases unemployment and dependency on government assistance programmes.<sup>15</sup> The situation creates desperation which tends to push people away from their rural villages to towns and cities. The author wonders, what are the possible measures to follow in order to ensure that people

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13 Ministry of Finance and Development Planning, *Revised National Policy for Rural Development* (Gaborone: Government Printer, 2002), 5.

14 Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 44.

15 Ibid., 93.



in rural areas too can enjoy the opportunity to live in dignity like the rest of the citizens, and make meaningful contributions to a self-reliant community?

## **2.5 Worsening Poverty And Differential Inequalities**

Although the country has enjoyed high levels of economic growth since independence, records suggest that there is a much skewed income distribution in Botswana. The most recent estimates of the GINI coefficient, a commonly used measure of inequality, give a value of 0.54, on scale of zero to 1.<sup>16</sup> This value presents a relatively huge gap between the rich and the poor. The indications are that almost half the population in Botswana is poor and still vulnerable to worsening conditions, which suggest that the income difference between the rural and urban is high, and thus further stimulates mass rural-urban migration and rapid urbanization. Reported figures reveal that 23% of the Botswana's population lives under marginalized conditions and poverty datum line of \$1.25 a day.<sup>17</sup> That being the case, where is the spirit of self-reliance, sustainable development, unity and a sense of common and shared destiny that the Government could promote? The author wonders if the national principles which guide the country in its development plans will be archived before the year 2016? It is indeed hard to ignore such

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16 Ministry of Finance and Development Planning, *A Framework for a Long Term Vision for Botswana: Presidential Task Group for a Long Term Vision for Botswana* (Gaborone: Government Printer, 1996), 14.

17 Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 45.

worsening poverty which affects most of the rural communities in Botswana.

## **2.6 Mass Rural- Urban Migration**

The growing trend of population distribution away from rural areas has been a large movement of the younger generation as mentioned earlier. They would migrate to cities as they try to escape the life of misery from rural poverty, in the hope that there will be fertile quests to improve their living conditions. Consequently, these migrations do not create any work opportunities and of course no housing, resulting in rapid overcrowding in urban areas.

As a result, there is a tendency to put a strain on already limited resources in those centers. Moreover, the people relocating to towns and cities tend to denounce their culture as primitive only to adopt other people's beliefs and culture. It is quite obvious that the degree of cohesion and sense of community that everyone has in villages is something that is lacking in town and cities.

## **2.7 Rural Decay**

In this context, the decay process does not only focus on the changing patterns of living, working and organizational movement, but also looking at the growth of places, culture, and development of new social orders influenced by equality issues, empowerment, individualism vs. collective sharing.

Botswana is at an era when it wants to industrialize and improve the quality of life of the people. For example; the Government has been pushing forward ideas of moving away from subsistence farming to commercial agriculture, which they believe will make the country self-sufficient in food. Part of the strategy was to work on changing the mindset of potential new farmers, as well as the rural traditional farmers. The strategy employed was such that all could have access to Government agricultural assistance programmes, and create large business ventures that could bring large income and create employment.

Another notable aspect of decay is the uncontrolled growth of places within centres, which happens to be from the inner side-outwards. As the rural community grows, there is a tendency to encourage densification or accommodate growth through infill by the local authorities, however, the process results in haphazard, spatially uncontrolled planning and developments. As a result, formations of traditional/historical typologies slowly get eroded and tend to lose their character. In this case, it becomes even harder to manage the centers and edges of such places as the rural lifestyle that households admired is being eroded.

Additionally, people who migrate to towns and cities may still have connections with their villages, however, in a case when an individual returns to their rural area, their family expects them to build something that is more contemporary as a way to distinguish from the rest and show wealth. Hence

the traditional structures would be demolished and replaced with manufactured ones that rely on imported materials that tend to create unhealthy economic conditions. For example; under new incentives, traditional mud houses would be abandoned and housing would be constructed using concrete walled structures with high embodied energy, which become very hot during the days and nights, whereas the traditional buildings will always remain cool and take advantage of locally available materials and skills. If for some reason the family decides to retain such traditional structures, they will be restricted to building within the courtyard of the compound, therefore, destroying the traditional organizational spaces of the traditional layout. In this regard, the notion to promote cohesiveness, public space and collective sharing tends to disappear.

Indeed it is disturbing within rural communities not to preserve what is truly theirs as they tend to accept external influences, which bring about rural decay within the society.

In other terms, what is the role of Architects and Planners to help adapt to a social transformation, at the same time preserving the settlement morphology, cultural vitality, and economic vitality of such places?

## **3.0 PRINCIPLES LEARNED AS OPPORTUNITIES TO COMMUNITY ECONOMIC DEVELOPMENT**

### **3.1 Conservation And Rehabilitation; Rejuvenating Rural Hope**

What can be done to bring health and economic life outside the big cities, into small towns and villages...?<sup>18</sup>

Schumacher points out that, in order to achieve the status of a wealthy and progressive society, one needs to understand the problems and realize the possibilities to do what is best to provide the basis and foundations to a rural community. In that sense, what is actually needed to make all the ends meet for a society to become stable, active, healthy and self-reliant, in terms of both natural resource-based and non natural resource-based livelihoods? Moreover, what are the best possible measures to balance conservative objectives with the imperative to rehabilitate and enhance rural livelihoods?

### **3.2 Capacity Building and Reconciliation: Reconstructing the Rural Society**

How can rural areas be transformed into viable economic entities through harnessing their local resources and opportunities needed for stimulating sustainable economic development?

Action is required now to diversify the economy and invest in other economic activities that will

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18 E. F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: Harper and Row Publishers, 1973), 144.

sustain economic growth in the future.<sup>19</sup>

His Excellency (H.E.) the President Lieutenant General Seretse Khama Ian Khama in November 26th, 2010 State of the Nation address announced the launch of Taskforce findings on the need for greater coordination and enhanced delivery of the Remote Area Dweller Programme (RADP) and other interventions targeting rural areas. The article by Dr. Jeff Ramsay says His Excellency further observed that Government recognized that stepping RADP was a vital prerequisite for the success of its other flagship programmes for achieving Poverty Eradication and the Economic diversification through people centered development at community level. Quote from 2010 State of the Nation address by H.E. is as follows:

Government has adopted a Local Economic Development approach to promote income generation and employment creation at the local level... Our determination to end poverty is thus tied with an undertaking to create additional opportunities for employment and income generation, more especially among the youth and rural poor. We do not want a situation in this country where the rich get richer and the poor get poorer. We must rather strive as a nation to try to move up the ladder of opportunity together, not leaving others behind.<sup>20</sup>

In response to a call by the Government to address the previously discussed issues, even though it's hard to control population movements, the author believe that people need not migrate to towns and

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19 Ministry of Finance and Development Planning, *A Framework for a Long Term Vision for Botswana: Presidential Task Group for a Long Term Vision for Botswana* (Gaborone: Government Printer, 1996),16.

20 Dr. Jeff Ramsay, "2010 State of the Nation Address." *Sunday Standard (Gaborone)*, 21-27 November 2010. 4.

cities to look for opportunities as the same could be promoted in rural areas in a manner that is more pro-active and efficient, perhaps through collaboration with various community schemes in order to enhance capabilities.

### **3.3 Infrastructure and Human Development**

Addressing issues and challenges in the rural villages does not only allow the opportunity to develop life skills locally, but also promote literacy, restore culture, self determination and enable communities to exploit resources within their locality. Important subjects such as sustainability, environmental responsibilities, energy managing, settlement planning and social organization will be dealt with. Therefore, the Government and Communities will save lots of resources with less cost used to train the people to understand the economical, political, entrepreneurial, spiritual, cultural and social structures of their own communities. As a result, the improvements will attract positive agriculture, tourism and other investment opportunities to the local communities, hence bringing about a self reliant society.

There is a need to try and find alternatives to help vulnerable communities and shift focus on promoting social and economic participation in the villages. Part of the strategy is that by strengthening the capacity of already implemented initiatives, supplementing and increasing access to various technical and vocational training will help to focus on improving the rural livelihoods.

In similar terms, Schumacher identifies the problems of development and argues that the only way to address such is to think of development not in terms of creation, but should be in term of evolution, whereby things must gradually evolve to fit changing circumstances. He advocates that people must be educated, organized and disciplined if they want to have greater achievements.<sup>21</sup>

Furthermore, decentralization of production for basic needs such as adequate food and health facilities, appropriate infrastructure for education and training, could help to narrow the development gap and enable rural communities to make meaningful socio-economic development on their localities. This sort of reconciliation is highly desirable in order to eliminate social symptoms that affect people's livelihoods in the rural Botswana and to add to the country's diversification efforts.

### **3.4 Youth And Women Empowerment: Connecting The Disconnect**

Women constitute the majority of rural people and are the backbone of the rural economy. Surprisingly, the Government continues to limit opportunities to citizens while preaching the notion of privatization, diversification and decentralization, at the same time allowing congestion of services to town and cities. Women have less access and control of economic resources like land, education, agriculture, as well

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21 E. F. Schumacher, *Small is Beautiful: Economics as if People Mattered* (New York: Harper and Row Publishers, 1973), 137-139.



as limited access to employment opportunities.<sup>22</sup> Collaboration and cooperation of the government agencies, non-governmental organizations, and the private sector with rural communities at large could help change the attitude.

The continued lack of opportunities for youth poses a serious challenge to the nation, as it increases unemployment and dependency on government assistance programmes.<sup>23</sup>

It should be noted that youth and women have potential to play a major role in building a sound and a progressive society.

Globalisation and rapid change do not need to be seen as a threat, but as a challenge to young people to empower themselves by becoming self confident, self reliant and globally competitive.<sup>24</sup>

The above quote stresses the importance of providing opportunities in order to explore youth potential. They are faced with many problems and difficulties, however, given a chance, their talents, energy and resources could be of a great value to their local economies, and most importantly, to the country at large. The following key issues regarding youth and women empowerment if addressed accordingly will contribute to the economic growth and productivity of the nation:

I. Education and development-training workshops, distance learning, evening classes, etc.

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<sup>22</sup> Ministry of Finance and Development Planning, *Revised National Policy for Rural Development* (Gaborone: Government Printer, 2002), 10.

<sup>23</sup> Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 349.

<sup>24</sup> *Ibid.*, 349.

II. To provide employment and create more local jobs

III. Stop violence against children and women through-social activism, education to men, etc.

IV. Poverty eradication-venture into agriculture and provide alternatives to Government efforts.

V. Domestic rights-create awareness through career and counseling centers, gender equality, etc.

VI. Integration of women in sustainable development process as active participants

VII. Addressing issues affecting changing family structures and the gradual erosion of traditional values due to exposure to new and foreign cultures

### **3.5 An Educated And Informed Nation: A Take On Vision 2016 Pillar**

The government of Botswana has put forward a framework that aims at assisting in the development and the future of the country. The country's aspirations outline a nation that is;

Prosperous, productive and innovative; educated and informed; compassionate, just and caring; safe and secure; open, democratic and accountable; moral and tolerant; united and proud.<sup>25</sup>

The country subscribed to addressing all the aspirations of the vision, however, the thesis approach on "an educated and informed nation" is seen as a way to adapt to the changing dynamics of the coun-

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<sup>25</sup> Ministry of Finance and Development Planning, *National Development Plan 10* (Gaborone: Government Printer, 2009), 15.

try, especially if focused towards sustainable rural development. Moreover, the above stated pillar or element is seen as an important foundation and the basis for enhancement of national productivity, innovation and competitiveness.

For youth to be active in the rapidly changing global economy and social order, it is inevitable that they change if they are to take advantage of the opportunities that will be presented.

We must therefore all engage in self examination and introspection in all the level of the community, business enterprise, political, social and professional organization, and indeed as a nation to contribute for a long term vision of Botswana.<sup>26</sup>

The fundamental change stressed is challenging all citizens to actively participate in the process and better be prepared to absorb new ideas and able to take on the country's changing economic and social development, as well as to nurture competing in the global labour markets.

Government's efforts have been to balance a vision of how rural Botswana should look like in 2016; however, not so much has been archived so far to keep the vision alive. The primary goal was to enhance the quality of life of all people who live in Botswana's rural areas through implementation of policies and strategies that will optimize people's social and economic well being and strengthen their ability to live in

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26 Ministry of Finance and Development Planning, *A Framework for a Long Term Vision for Botswana: Presidential Task Group for a Long Term Vision for Botswana* (Gaborone: Government Printer, 1996), 7.

dignity and food security.<sup>27</sup>

In addition, what needs to be restored is the need to integrate indigenous knowledge, social traditions and other overlooked cultural values in the future interventions that aims at assisting to develop and diversify rural economies.

### **3.6 Environmental Sustainability, Land Use, Policy Implications and Planning Regulations**

According to the 2001 population and housing census, the dominant source of energy in households for cooking, space for heating and electricity is wood, gas and coal. Wood is reported to be used more in rural areas at 83%, as compared to urban major centers at 36%.<sup>28</sup> It is further reported that the use of energy has more than doubled due to the growing population in Botswana; hence this brings about a need to search for alternative energy sources that are more sustainable, cause no harm to the environment, while maintaining the importance of economic growth to alleviate poverty. Solar hot water heating, ground cooling, and use of appropriate local materials and building strategies would greatly reduce these energy costs to the local economy, health and environment.

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27 Ministry of Finance and Development Planning, *Revised National Policy for Rural Development* (Gaborone: Government Printer, 2002), 12.

28 Central Statistics Office, *Analytical Report Population and Housing Census 2001* (Gaborone: Government Printer, 2001), 308.

As pointed out earlier, land has always been the primary source of livelihood for the majority of rural areas for their various social and economic uses. However, not so much appears to have been achieved to bring awareness about land management measures. In Botswana, land is managed by three main tenure systems, namely: communal/tribal/customary tenure, which covers 70% of the national land area; state land covers 25%, and freehold, makes the remaining 5% of the national land area.<sup>29</sup> Of the above tenure systems, communal tenure is the oldest system and it was not until 1970's when all land allocation rights were stripped off the traditional chiefs and all the functions and mandates were transferred to land boards. It has been noted that part of the mandate was to facilitate improved administering of tribal land and to keep pace with the social and economic changes.<sup>30</sup>

The stripping off the chief's powers and the roles of allocating may have been done in good faith to regulate policies for the benefit of the general welfare of the people. However, it is now evident that the new form of Government has compromised the traditional settlement morphologies, social structures of tribes and the special character about their places. Majority of people in rural areas have been affected as there is a continually increasing shortage of land for economic and social development. Illegal transfer of land to non-deserving people, non-

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<sup>29</sup> Department of Surveys and Mapping, *Atlas of Botswana* (Gaborone: Government Printer, 2001), 6.

<sup>30</sup> Ministry of Lands and Housing, *Tribal land Act* (Gaborone: Government Printer, 1973)

citizens create more conflicts due to an outward extension of settlements into nearby arable farmlands and livestock grazing areas, which are some of the problems associated with urbanization.

## 4.0 AREA OF STUDY

### 4.1 Urbanization Process

Botswana as a nation finds itself having to address economic-political and socio-cultural changes, which are global issues that not only affect us. Nevertheless, within Botswana itself, the urbanization process, noticeably in rural areas, has accelerated the change.<sup>31</sup> Foreign cultures and rapid advances in technology are another factor contributing to the rapid social change. By definition, urban settlements in Botswana are those with a population of 5000 people or more, and with at least 75% percent of their active labour force population not engaged in agricultural activities.<sup>32</sup>

The south-eastern part has experienced a dramatic population growth from 1971-2001 since the region is suited for arable production, where climatic and soil conditions are favorable. The region is also endowed with good manufacturing industries, physical infrastructure, utilities and telecommunication services. As noted from the 2001 population and housing census, Thando D. Gwebu's report extensively studied the Urbanization process in urban villages and urban Botswana. It is reported that in 1971, only 9% of the total population was urbanized, and almost doubled to 18% in 1981. The population continued

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31 Ministry of Finance and Development Planning, *A Framework for a Long Term Vision for Botswana: Presidential Task Group for a Long Term Vision for Botswana* (Gaborone: Government Printer, 1996), 7.

32 Department of Town and Regional Planning, *National Settlement Policy* (Gaborone: Government Printer, 1999), 20.

to grow and more than doubled to 45%, and finally recorded at 56.9% in 2001 (fig. 3).<sup>33</sup>

Urbanization, as the social process of unprecedented changes did not occur as a result of Industrialization, but because people in rural areas try to escape life's miseries by migrating to towns and cities. One issue that is also disturbing is that urban workers from other towns and the city of Gaborone transform the nearby villages into dormitory settlements as they cannot afford the high cost of living in the city. According to Gwebu, people from urban centres move to peripheral settlements in desperate need for affordable accommodation and cheaper land.<sup>34</sup> However, these people do not contribute enough to the local economy of the villages as they don't buy their food, clothing, and stay for entertainment in such villages.

On the contrary, the major change taking place in rural areas is the in-migration of people from remote areas, surrounding lands and cattle-posts to nearby villages. Moreover, there is also a disposition that occurs within the villages as they experience a dramatic natural growth due to a high proportion of females in the fertility age groups. As a result, the village structures, social organizations and cultural values get affected. The above stated conditions may seem to convey contradictory scenarios, still the growing trends of the population and rapid transformation

<sup>33</sup> Central Statistics Office, *Analytical Report Population and Housing Census 2001* (Gaborone: Government Printer, 2001), 55.

<sup>34</sup> Ibid., 54.

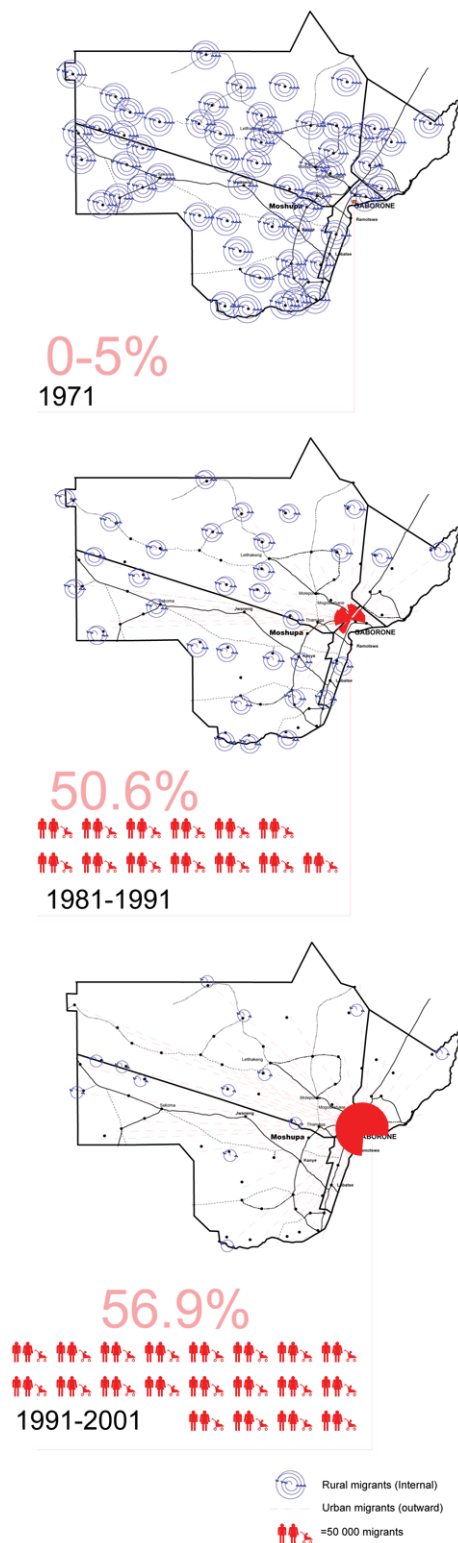


fig. 3. Rural-Urban migration trends occurs mostly in South-eastern Botswana



has created negative impact on the development process of rural areas as there is more pressure exerted on the provision of services such as water, food and electricity, available natural resources, as well as already implemented infrastructure opportunities such as education and training as discussed before. Furthermore, urbanization has created the obvious environmental problems such as deforestation, generation of waste, soil erosion, successive mining of ground water, periodic droughts and desertification.

On the positive note, lack of colonization in Botswana has benefited the country in preserving the social traditions, social structures as well as the traditional architecture of rural settlements for some years. In particular, methods of construction were preserved and passed to generations over time. However, the rapid modernization has had impact on our society, which presents disconnect in the evolution of traditional knowledge, skills and values that existed in every Tswana households.

Therefore, as the community urbanizes, what is the role of traditions and architecture in addressing modernization?

## 4.2 Socio-Cultural Traditions: Understanding Village Patterns, Settlement Forms and Structures

...we must look at the whole environment in order to understand it, and it is this sense that we must study the history of the built form.<sup>35</sup>

In Rapoport's view, if we tend to focus on the smallest part of the work in study or study the work in isolation, we will not be able to understand the importance of what we are studying, as well as there will be ignorance in grasping the complexity and subtle relationship of the vernacular matrix. Therefore, careful study is required and one needs to pay more attention on the subject of study.

### 4.2.1 The Village Structure

According to the National settlement policy, a village is any permanent settlement which has a minimum population of 500, and is at least 15 km apart from another village, with tribal authority, sustainable water resource and is capable of supporting industrial and commercial services.<sup>36</sup> Usually, the village is formed by multiple organic sized and shaped residential households, with many village wards and subwards clustered around a horseshoe formation layout around open spaces. The village characteristics are natural landscapes such as hills, or mountains, undulating rivers and meandering and countless footpaths going in all directions.

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35 Amos Rapoport, *House Form and Culture* (Englewood Cliffs: Prentice-Hall, 1969), 2.

36 Department of Town and Regional Planning, *National Settlement Policy* (Gaborone: Government Printer, 1999), 23.

Traditionally, villages were distinguished from town and cities as they were fully engaged in agriculture, which is still the main source of income for rural population. People shared resources and often systems of community interdependence were created as both farming and cattle herding were the main commodity for sustenance purposes. In a nutshell, rural population maintained a rhythm of life and work, which depended on a circular and seasonal commute between the village, the land and the cattle posts (fig. 4). Due to the changing dynamics of the socio-economic, cultural conditions of the country and external influences, the seasonal rhythm of movements between places has been disrupted. People, especially youth are now gravitating towards urban centers for non-agricultural activities and search for other alternative opportunities which resulted in weak linkages with the village, farmland and cattle post (fig. 5).

#### **4.2.2 Kgotla/The Village Ward**

Kgotla is a symbol of civic and community centre at every scale in a Tswana village. It serves various purposes for community engagement, policy formulation, collective decision making, political deliberations, economic development activities and judiciary on litigations. Many villages in Botswana trace their formations around the main Kgotla with their Chief, who is a hereditary leader of the community by virtue of birth. The chief had the roles to administer justice and socio-economic activities, but in most cases, he would consult with elders, uncles and community

January	February	March	April	May	June	July	August	September	October	November	December
AUTUMN				WINTER			SPRING			SUMMER	
<ul style="list-style-type: none"> <li>-End of ploughing season</li> <li>-Mens and hedboys travel to cattle posts, with their livestock, vaccination and deticking period</li> </ul>				<ul style="list-style-type: none"> <li>-End of harvest period</li> <li>-People return to villages with Lethafula harvests, biltongs, milk, sour milk.</li> </ul>			<ul style="list-style-type: none"> <li>-People at the village sell farm products,</li> <li>-Men start to repair fields bush fences and kraals.</li> <li>-Chief declare ploughing season in October</li> <li>-Women repair huts, decorate walls, harness skin ropes, carve bowls, spoons, yorking knives</li> </ul>			<ul style="list-style-type: none"> <li>-Ploughing and planting season begins, villagers and herdboys go to the farmland.</li> </ul>	

Seasonal changes in the demographics of a rural setting

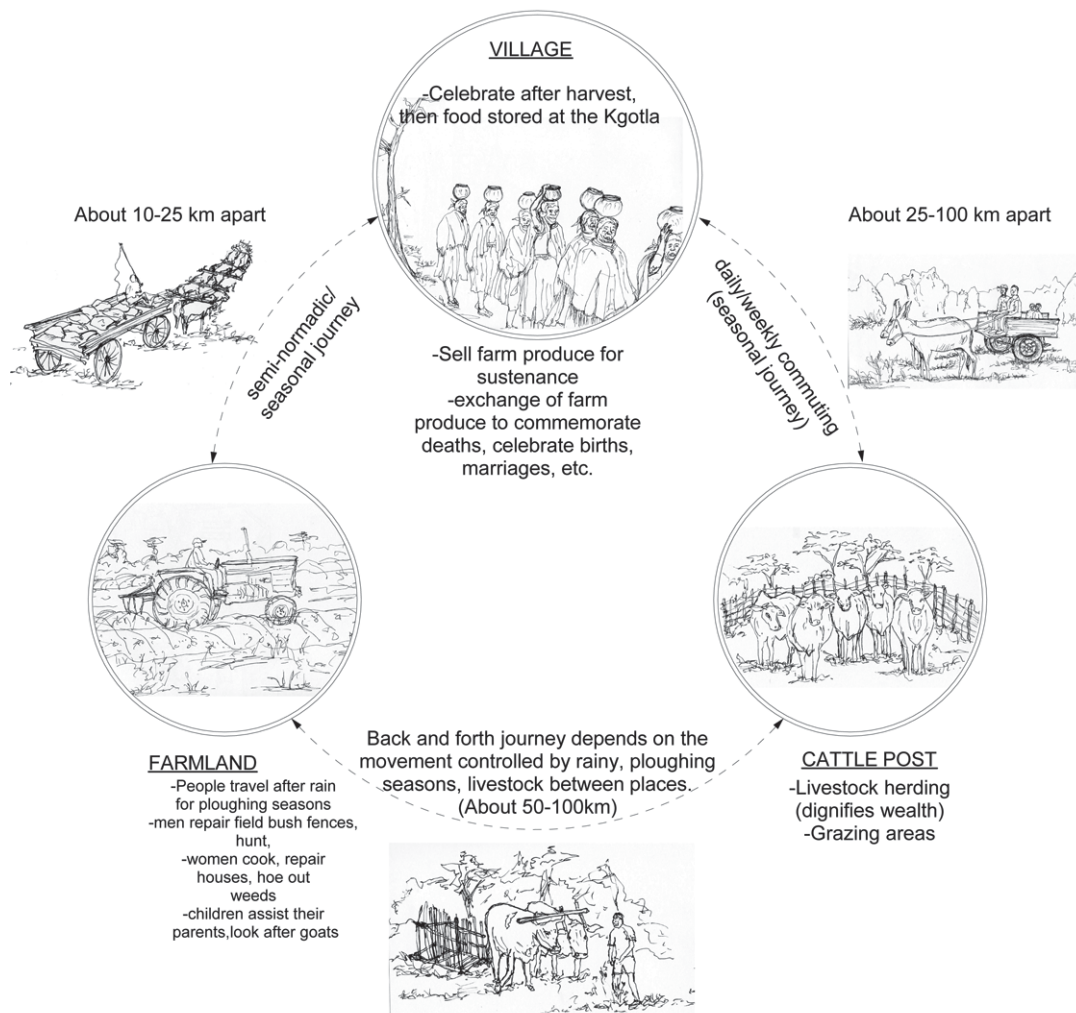


fig. 4. A generalized rural dynamic lifestyle

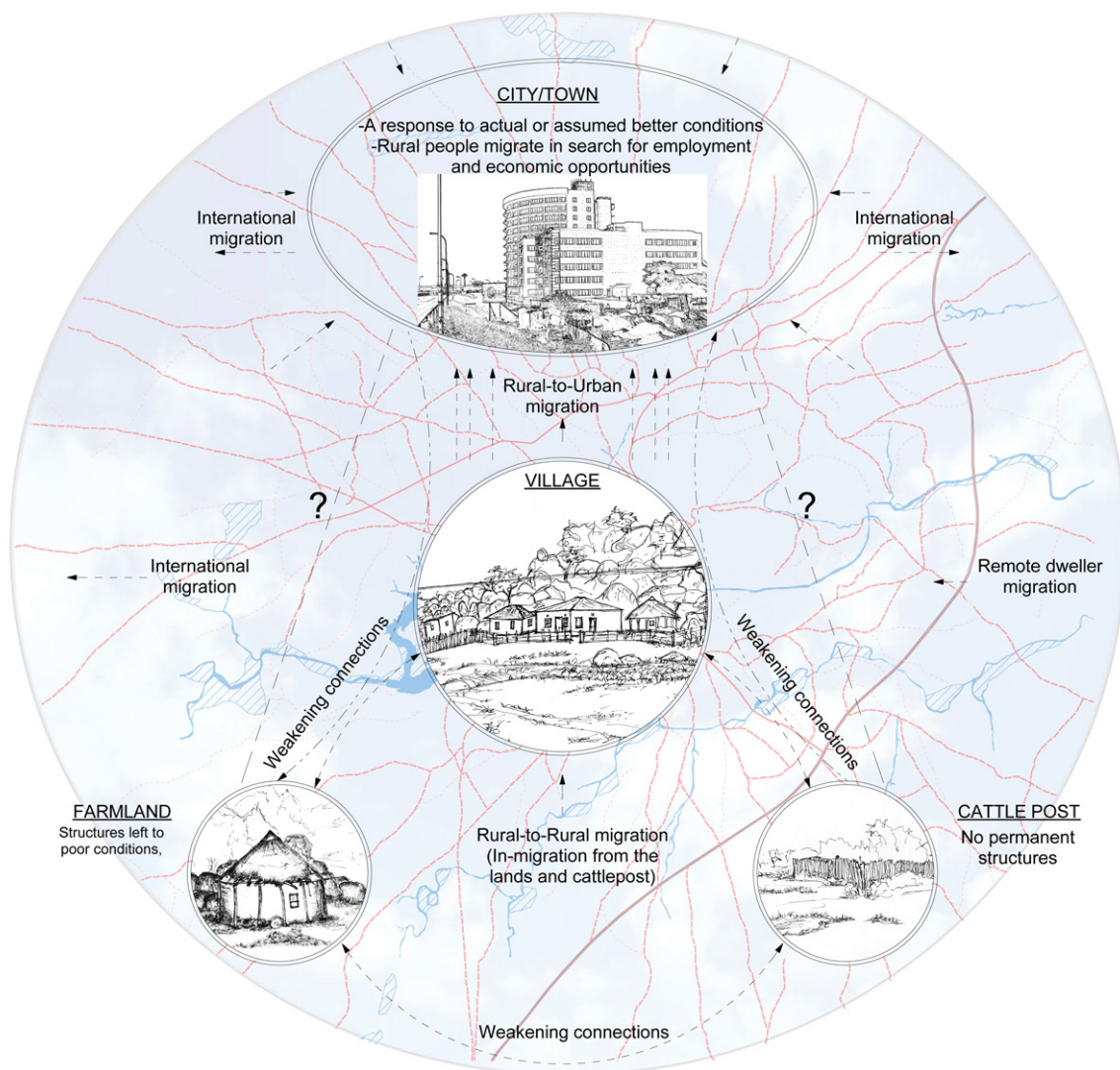


fig. 5. Dynamics of population movements between places



Vision of hope: Dynamic social equilibrium

members. The consultation process and public participation has played a major role in the development of the present form of governance. Moreover, social functions such as marriage ceremonies, death commemorations, praying for rain, cultural celebration through songs and dance, trade shows and celebrating harvest were usually held in the open courtyard of the Kgotla (fig. 6, 7 & 8). However, some of the practices are being eroded due to modernization.

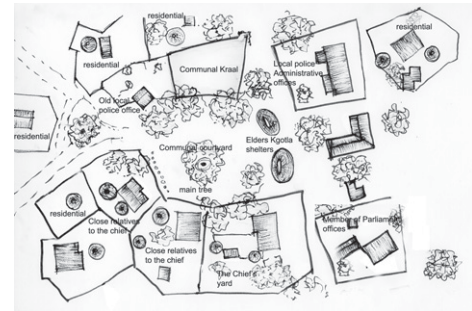


fig. 6. Moshupa Kgotla sketch drawing

In architectural terms, Kgotla structures are built in semi-circular form and made of wooden logs of about 1.8 metres high. In a macro scale, the communal Kgotla space is called “Patlelo” and it is characterized by irregular sized and shaped clusters of residential areas in a horseshoe formation layout. Usually, there will be a communal kraal made of stones or wooden logs and the kraal entrance opens into the communal space, overlooking the chief’s yard. The size of the courtyard space is about 28 to 50 metres, which gives an area of about 2465m<sup>2</sup> to 7850m<sup>2</sup> (fig. 9). The courtyard size is also attributed with the turning radius of an ox-wagon, which used to be the contemporary mode of transport before automobiles. The elder’s shelters for the chief and his sub-chiefs representing each ward in the village are elegantly built in oval shaped structures made of traditional stone or wooden logs and thatch grass (fig. 10).



fig. 7. Moshupa Kgotla model highlighting built form around the communal courtyard

A TYPICAL TSWANA KGOTLA/TW THE WARD  
 Characterized by irregular sized and shaped clusters of residential areas separated by opens communal spaces in a horse-shoe formation. The space is calle "Pallelo" and usually, most people within each ward are somehow related.

\*\*By definition, Kgotla is a place in many Tswana societies, which serves many purposes for policy formulation, decision making, political deliberations, economic development activities and judiciary on litigations

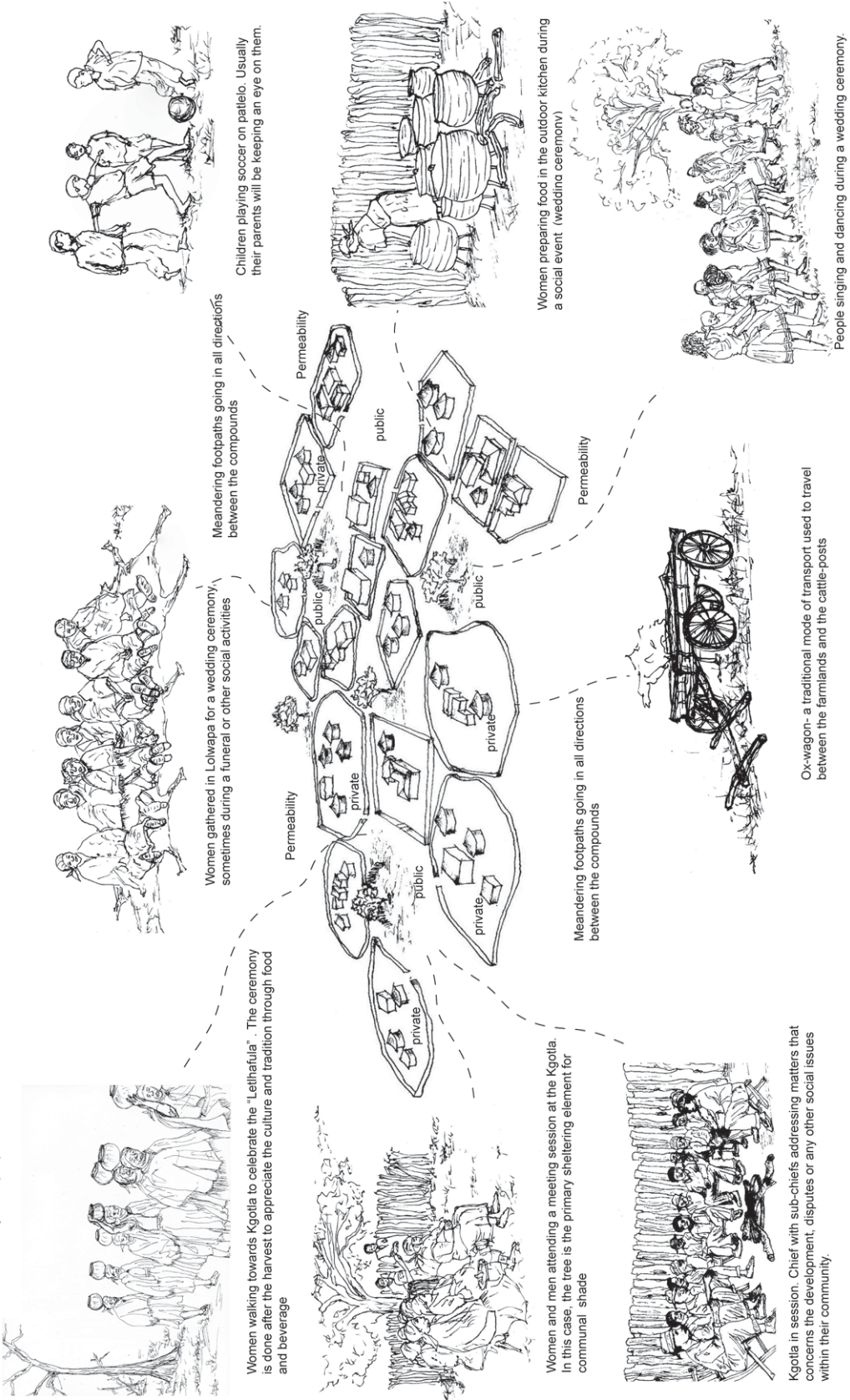


fig. 8. A typical Twana village Kgotla showing social activities and the use of space

Kgotla in session. Chief with sub-chiefs addressing matters that concerns the development, disputes or any other social issues within their community.

Ox-wagon- a traditional mode of transport used to travel between the farmlands and the cattle-posts

Meandering footpaths going in all directions between the compounds

Women gathered in Lolwapa for a wedding ceremony, sometimes during a funeral or other social activities

Women walking towards Kgote to celebrate the "Leithatula". The ceremony is done after the harvest to appreciate the culture and tradition through food and beverage

Children playing soccer on pallelo. Usually their parents will be keeping an eye on them.

Women and men attending a meeting session at the Kgote. In this case, the tree is the primary sheltering element for communal shade

Women preparing food in the outdoor kitchen during a social event (wedding ceremony)

Meandering footpaths going in all directions between the compounds

People singing and dancing during a wedding ceremony

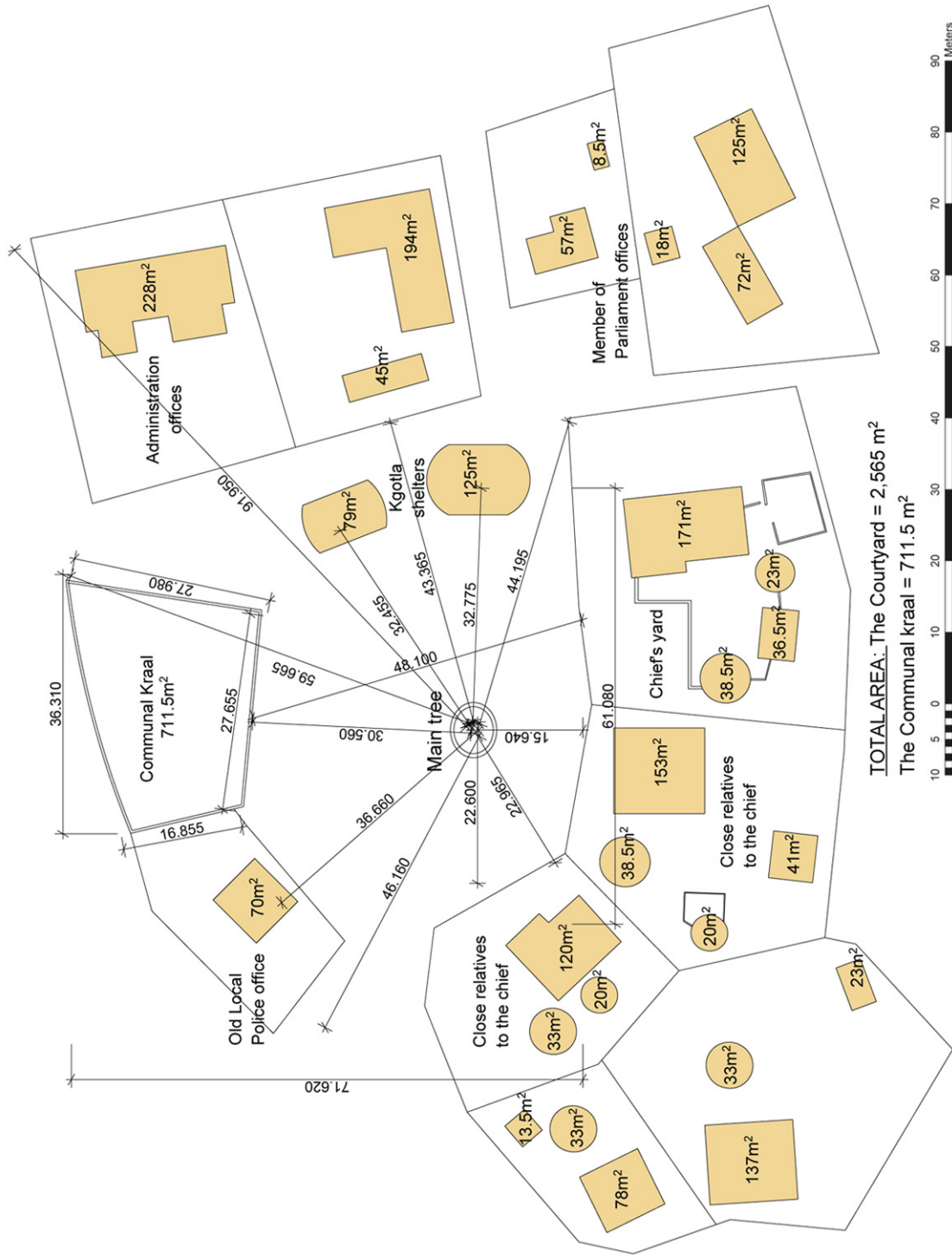


fig. 9. Moshupa Kgotla measured drawing of the existing buildings



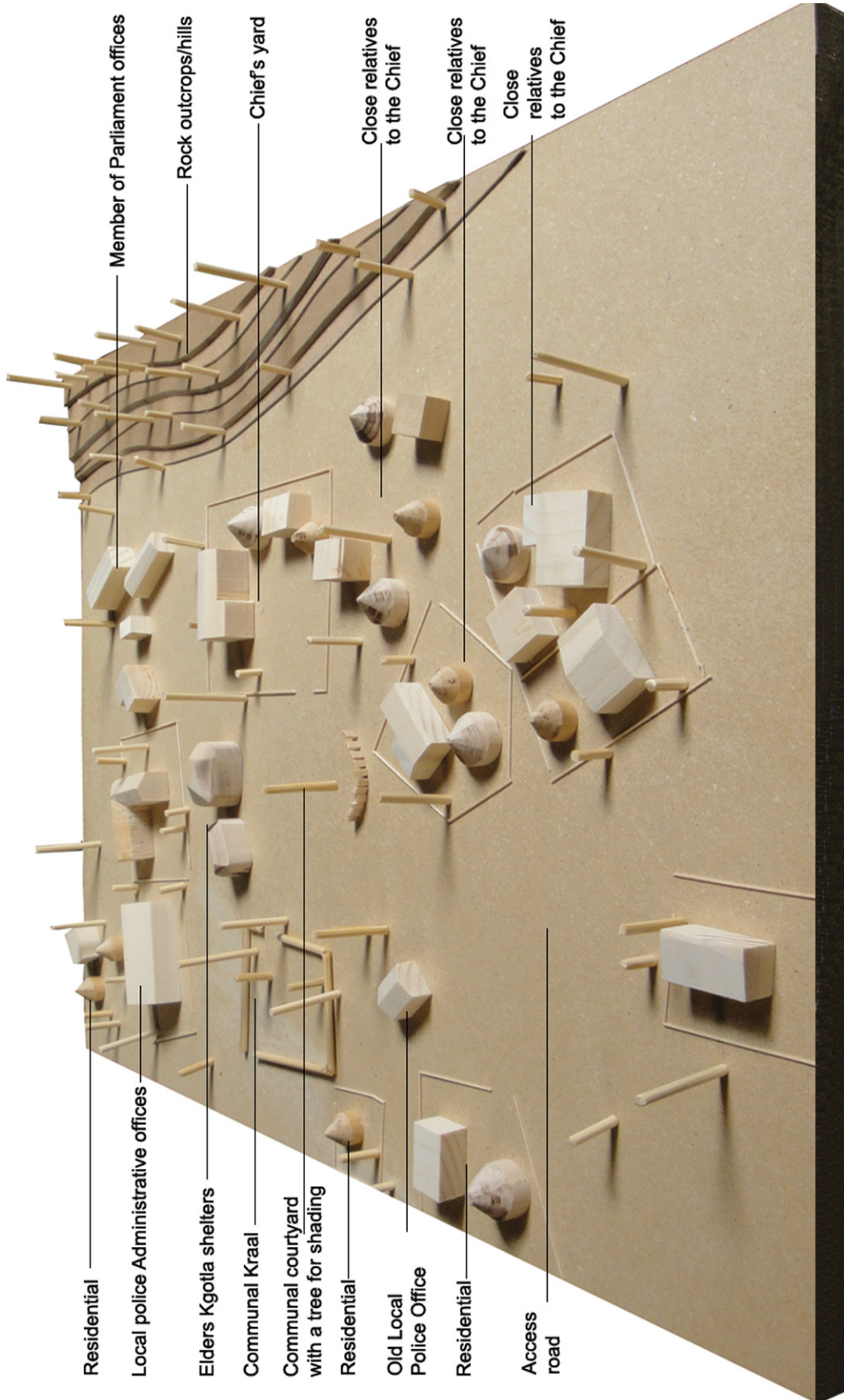


fig. 10. Moshupa Kgotla model showing spatial relations and adjacencies

### 4.2.3 Lolwapa/The Compound

At a micro scale, the compound space defined by various sized round houses form types, sometimes with a rectangular modern house is called “Lolwapa”. The doors of all houses open into Lolwapa space and the space is often defined by knee-high earthen walls. Lolwapa is the most significance space, regarded as a living room that can host various activities for extended families. The walls are built such that they ensure people’s privacy but open towards the larger compound and the neighbours. Normally “Lolwapa” is used for storytelling, performance of rituals, as children play area, social interactions (fig. 11.) and this is the first node where visitors are received and welcomed. Cooking is favoured outside the confines of the walls of lolwapa, sometimes it is integrated within the lolwapa. Other household activities such as washing, chopping firewoods, children playing are held within a residential compound, sometimes at the back of dwellings or under the trees that provides shading (fig. 11).

Women have always been taking full responsibilities of families and participating in all the households needs. Their contribution to architecture is by the way they would decorate and design Lolwapa with different shapes using mineral clays of various colours and texture, loam soil mixed with cow dung and soda ash (fig. 11).

The spaces in between houses and the compound played an important role in the general layout and use of space. It is also within the lolwapa where

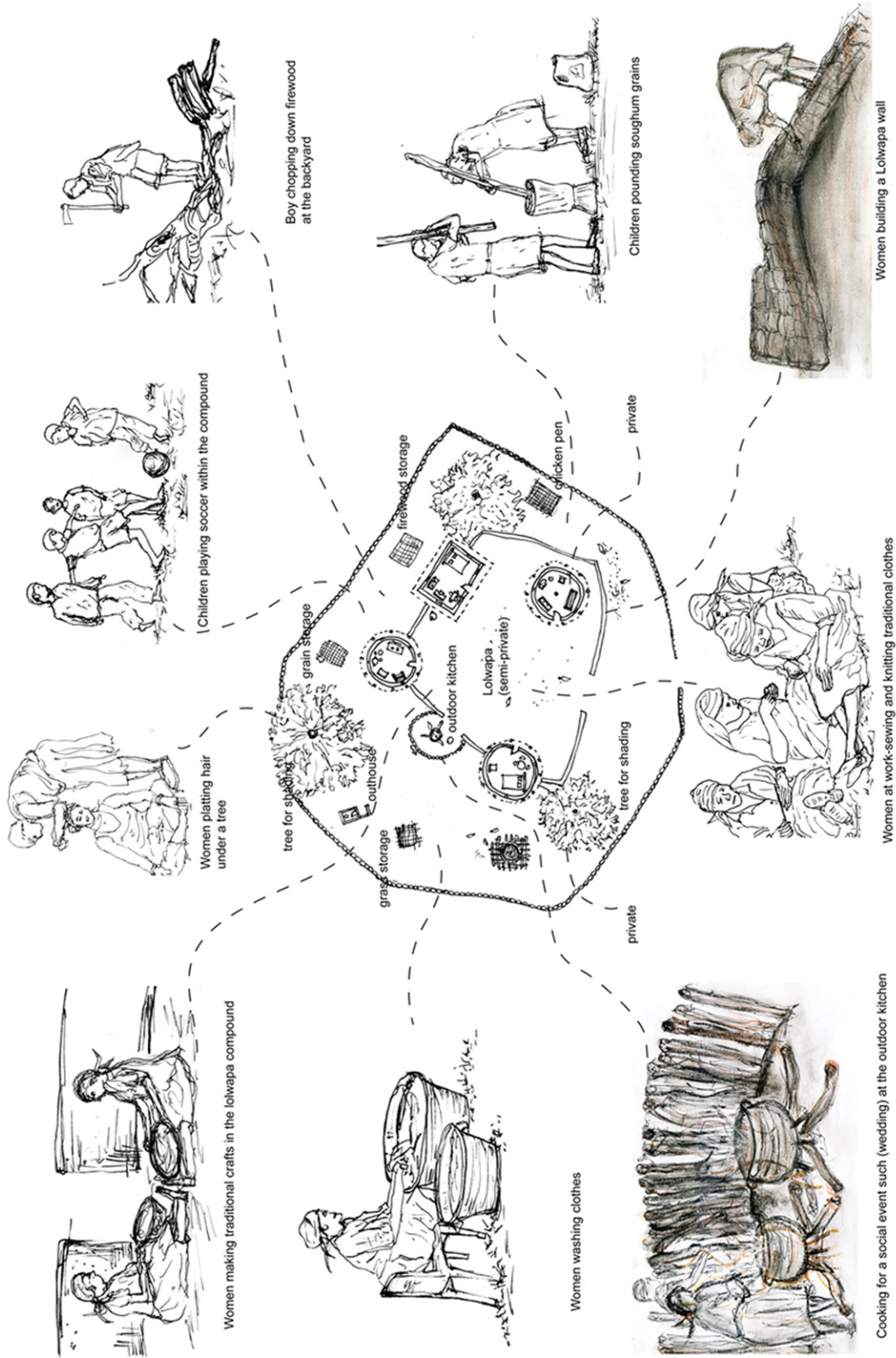


fig. 11. A typical Tswana compound plan showing different activities and the use of space

crafting activities are held and traditional furniture, chairs, tables, sculptures, animal skin carpets and household utensils such as clay cooking pots, water containers, pestles, baskets, wooden spoons and eating bowls would be used interchangeable (fig 12. & 13), however, these crafts are diminishing as most people prefer modern household furniture and utensils. At the back of the compound, there will be an outhouse, chicken pen, and storage for grains. Most importantly, an architectural expression evident in Lolwapa is the way layers of thresholds have been articulated as one traverses from public to more private dwelling spaces (fig 14).

#### 4.2.4 The Dwelling/Hut

Decorations of dwellings in clay and stone has always been a large part of a Tswana culture. The hut, being a private dwelling and intimate space for sleeping within each compound would be built to provide shelter from weather and harsh climatic conditions. In terms of construction, women would be responsible for harvesting the thatch, mining the soil and collecting cow dung while men's responsibilities were to cut down and collect stones, poles, twigs and sticks to make the roof structures, which the women would thatch. The bundles of stiff grass are spread over the battens, starting from the bottom, going upwards to the apex. The grass would be sown tightly with rope made of tree bark using a wooden needle. The stones will be laid first in circles to set for strip footings and foundations walls, and then they will be covered with mud neatly to pre-



fig. 12. Image showing local crafts



fig. 13. Traditional chair

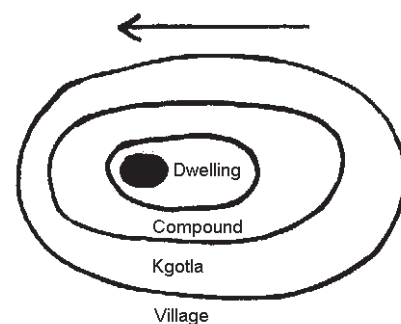


fig.14. Privacy gradient scale

pare for mud block walls to be erected. The other reason for using stones is that they are strong and they would be able to resist rain water and protect from dampness and mould. The space in between the walls and the roof would be designed such that it allows air circulation and ventilation. Also, the walls are build such that they allow reflected light to filter through the space (fig. 15).

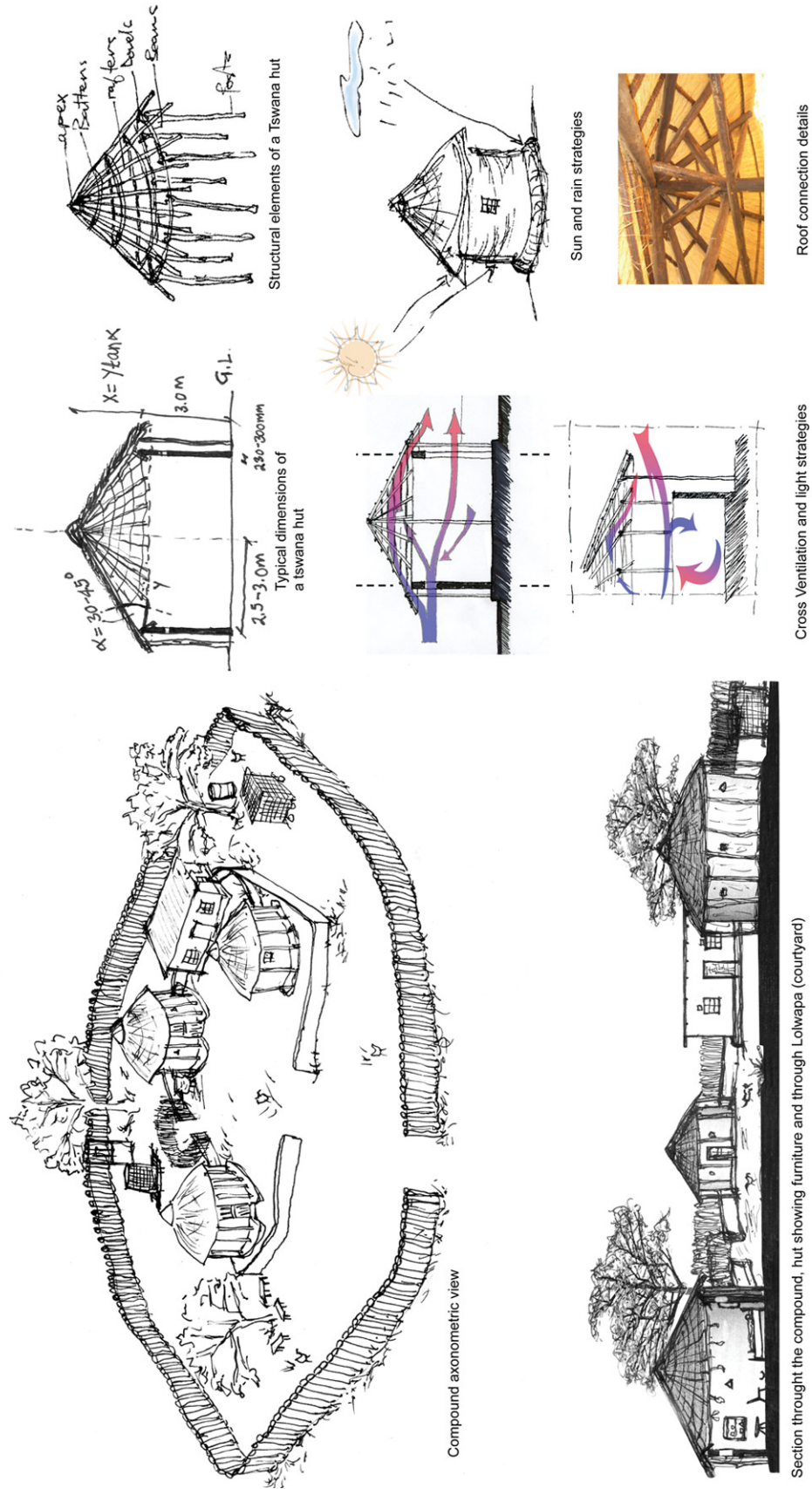


fig. 15. A typical Tswana compound showing axonometric view, section through, sustainable strategies and connection details

### 4.3 Transformation from Tradition to Modern: An Overview

...one can learn from the past, the study of the past is of value philosophically as well as in making us aware of the complexity and overlapping of things.<sup>37</sup>

Generally, people in rural areas built houses in similar ways and there have been three building techniques commonly used before modernisation took its course. They are dry mud bricks, puddle wet mud bricks, and wattle and daub technique.

Wet mud blocks are puddled to make a wall and usually mud is mixed with cow dung. The wet wall has to be left to dry before another layer is put in place. In this case, cow dung is used as a binder to provide additional strength for longer lasting of the materials. This technique is regarded as the oldest; however, it is being abandoned as it takes a long time to build the whole wall as it requires more cow-dung.

Dry mud brick is a technique often used in most of the villages. In this case, houses are built from mud bricks and the bricks are made from wet soil, often not mixed with cow dung. The bricks are sun-dried before they are stacked to make walls. The mortar used is made of cow dung and soil.

Wattle and daub is a technique, used mostly in the northern Botswana. In this technique, sticks and twigs are used as structures, then woven on both sides of poles and then covered with mud. This technique is cheap and easy to use as all the materials

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<sup>37</sup> Amos Rapoport, *House Form and Culture* (Englewood Cliffs: Prentice-Hall, 1969), 11.

are sourced from natural resources; however, it is labour intensive as more poles, twigs and sticks are needed to be used for framework. In addition, a lot of clay and cowdung has to be sourced to cover the wall frame made of poles.

Traditional and natural sourced materials are being abandoned and are consequently being replaced by modern building techniques and materials which come with Industrialization and other external influences from foreign cultures. Most of the materials are imposed in our built environment, and usually they present negative impacts as many are non-recyclable, cause more damage to the environment and not easy to repair. Due to the lure of modern dwellings, the transformation has led to most of traditional hand-made manufactured materials being abandoned. Also there is a shift in most duties for construction since they have been taken over by men, due to the construction of modern, western style houses.

The evolution of house types and form has experienced a rapid change evident from 1990 in house modernization as some of the changes have positive aspects to accept. Increase in the number of rooms, extensions and alterations of modern features such as the verandah, which creates another layer of a threshold space, some spaces have a hybridized combined version of thatched roofing and modern western roofing materials (fig. 16). In addition, some houses have walls made of cement blocks, with modern pitched roof or sometimes the roof is made



fig. 16. Hybridized use of traditional and modern materials



of corrugated iron sheets and zinc is left flat. The other notable shift observed is in the use of modern paints, doors, lights, glasses for windows, geysers, modern staircases, harvey tiles and use of bars for security (fig. 17).

Moreover, the relationship between certain elements such as: characteristics of social organization, usage of outdoor spaces and spaces in between houses, indoor spatial qualities, hierarchy and social structures has been compromised. The thesis argument is that, it is important to learn from socio-cultural traditions and come up with new approaches that can address a rapid transformation of dwellings and civic institutions to search for solutions that are available locally, either or through the use of available materials and local technology as a means to help fill the void created as the communities evolved over time while adapting to the current modern conditions.

The thesis attempts to analyze the overviews provided and hope that will inform the larger audience about different aspect of our past traditions and help provide a better understanding to integrate culture with the modern sustainable design approaches, hence the author view that as a way to adapt from tradition to modernity.



fig. 17. Integrated modern features in a cement roundavel house

#### **4.4 Summary of Lessons Learned: Adapting to a Socio-Economic Transformation**

Based on the aforementioned discussions, it is evident enough that women played a major role in the housing process and the building construction activities. However, the changing roles of women was compromised due to the introduction of widespread preference for modern western style houses and building materials, and a shift from traditional labour, market demands and the local as well as globalization.

In addition, often young generations would not understand the functionality of techniques that were passed overtime to generations by elders. Traditional ways of building are often being misunderstood and disregarded due to global influences. Also, in the making of local crafts, they would disregard the traditional forms that shaped certain crafts, while preferring imported and hybrid techniques that may be costly to make.

In terms of building materials, young generations would prefer modern materials as they believe are long lasting and comfortable to work with. Traditional building materials, if not properly maintained, are easily affected by several factors. For instance, mud walls when exposed to harsh climatic conditions, heavy rainfall will wash away the walls easily, would cause decay in the wood structure and thatch roofing materials. Ants and termites are also a concern as they eat away cow-dung in the walls, hence making the plaster loose. However, the earth and clay

as building materials has more technical, ecological and aesthetic qualities if handled properly and without compromising their properties.

It is locally available, requires few other resources, can be recycled, is easy and agreeable to work with, has good insulation properties, gives off no emissions, improves the internal climate, regulates relative air humidity, maintains comfortable surface temperatures and provide excellent sound insulation.<sup>38</sup>

The critical position in the thesis does not call to resist change but promote the resuscitation of traditional building materials by improving design and detailing. The thesis proposes to reconcile the tradition with modern, such that when executed properly, one can create a meaningful architectural expression that people can relate to.

As evidenced by the current economic, cultural, technical and environmental challenges previously discussed, there exists an opportunity for Architects and Planners to take all the development and planning issues into consideration when they design for their communities. The performance measures discussed will help to search for alternative strategies to various decision making processes, best practices, tools and projects. That will present opportunities aimed at improving the quality of life in rural areas. As a result, the findings in response to common characteristics to the conditions in Botswana could assist designers not to disregard the local culture and will assist relevant authorities in policy formulation for a sustainable rural development.

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38 Otto Kapfinger and Martin Rauch, *Rammed Earth* (Basel: Birkhauser Publishers, 2001), 13-14.

## 5.0 A CASE OF MOSHUPA VILLAGE

### 5.1 Location

Moshupa, commonly known as the “village of hanging rocks” is located in the Southern district, in the South-Eastern corridor of Botswana, where conditions are favourable for human settlement. Geographically, Moshupa lies on latitude  $24^{\circ} 57'S$ , longitude  $26^{\circ} 41'E$  of Greenwich meridian. The village is located in the north-eastern corner of Southern District. It is 60 km South-West of the capital city Gaborone, 30km North of Kanye, the headquarters of Southern district, and approximately 12km to the south-west of Thamaga.

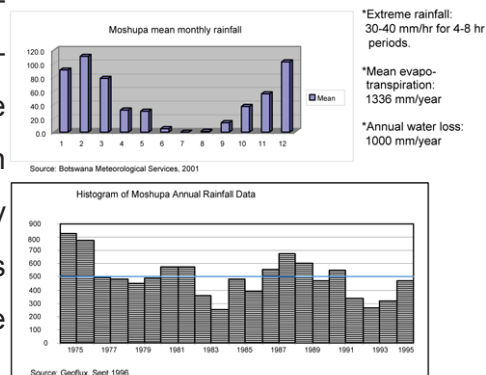


fig. 18. Rainfall data

### 5.2 Rainfall, Temperature, Wind

The altitude of the area lies at 970m above sea level, and receives an average annual rainfall of about 500mm, approximately 10% of the annual rainfall occurring in winter months (fig. 18). The village experiences an average summer daytime temperatures of  $25^{\circ}\text{C}$  and an average wintertime temperature of  $12^{\circ}\text{C}$  (fig. 19).<sup>39</sup> The predominant easterly and north easterly winds generally occur at light speed of 20 knots.

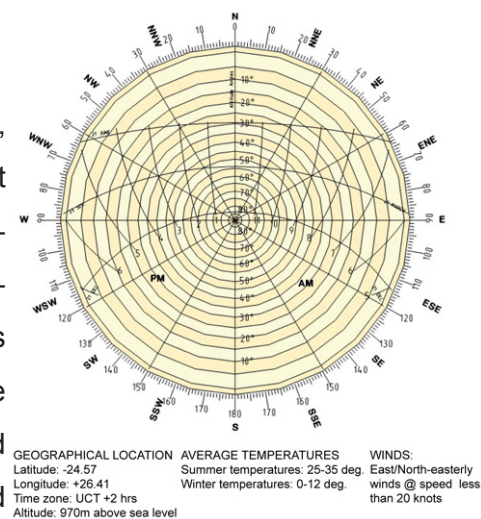


fig. 19. Sun path diagram

### 5.3 A Short History of Moshupa

The people of Moshupa are called Bakgatla-ba-ga Mmanaana and they traces their roots back in

<sup>39</sup> Department of Town and Regional Planning, *Moshupa Development Plan 2000-2024*. (Gaborone: Government Printer, 2003), 37.

1840's from central Transvaal, South Africa under Kgosi Mosielele. History reveals that they moved from place to place, fleeing the harassment of the South African Boers, and finally were granted permission to settle in the area that was belonging to Bakwena tribe of Kgosi Sechele. Some of the factors that contributed to the choice of the village are: for defensive purposes, the availability of natural resources, building materials and water resources base along the Moshupa river.

The word "Mmanaana" refers to a calf that was tied to a tree when they got separated from Bakgatla ba Kgafela in Mochudi (fig. 20). The word "Moshupa" is associated with a man who was always seen "naked" and his task was to patrol the river boundary that separated the territories of Bakwena from Bangwaketse tribe of Kgosi Gaseitsewe. The totem of Bakgatla ba-ga Mmanaana is a blue monkey. Totemism in this case had been used to ensure protection of certain species, and bringing awareness to restoration and conservation of the environment.

#### 5.4 Population and Economic Linkages

Moshupa village has a reported population of about 17 931 in 2011 . According to 2001 population and housing statistics, the population has grown from 6612 in 1981, 11444 in 1991 and 16 922 in 2001. The village has now been reclassified as a semi-urban village because of the high birth rates and im-migration of people from surrounding satellite villages. Moshupa is reported to have 44% of male and 56% female population. Youth population pro-

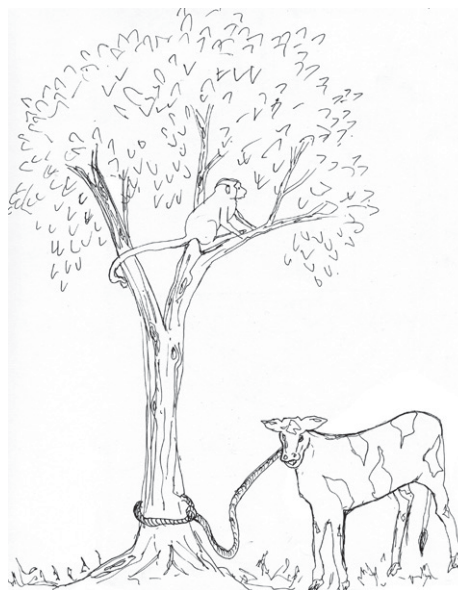


fig. 20. A symbolic identity of Bakgatla ba ga Mmanaana (a blue monkey and a calf tied to a tree)

file under the age of 30 years old contributes 72.5% to the total population, 48% younger than 15 years, and mostly are females. Moshupa is now ranked the fifth largest semi-urban village in the country.

Due to proximity to Gaborone, Lobatse, Thamaga Jwaneng and Kanye, the village has now been transformed to a dormitory settlement to serve migrant workers who commute daily to nearby urban centres. The push and pull factor to and from Moshupa village varies among social groups and mostly it affects the youth and young women who are looking for greater opportunities, better education, improved health, and prospects of earning higher wages, improved communication and entertainment, as well as better social services. As discussed earlier, the movement of people weakens their strong connections with the village. Also the rate at which the population grows exert more pressure on the existing infrastructure, social services, traditions and the local economy.

In terms of individual efforts towards contribution to the local economy, a small fraction of the population is self-employed and running their own small family enterprises, sometimes as individual proprietor or in partnerships. This group is mostly made up of women entrepreneurs. Most of the informal businesses are operated either: on open spaces by the main road, in kiosks, or small structures operated at the residential lots. However, the difficulties that affect the small enterprises is that they often clash with existing government regulations, lack managerial and skilled personnel, experience transport prob-

lems, they lack capital equipment and raw materials/intermediate inputs.

## 5.5 The Village Structures and Current Infrastructure

Moshupa village has four main constituency wards, namely North, East, South and West, which are headed by elected councilors. Within the constituency wards, there are twenty three (23) tribal wards mostly organized in a horseshoe layout formation and each ward has its own sub chief, representing a variety of ethnic groups that were incorporated into a village as it grew (fig. 21). Moreover, there are informal wards that have emerged due to growth of the village. However, most of these wards lack permanent structures that could be used to provide social services, and subsequently promote a sense of community. Majority of the developments in the village are controlled by the Sub land board and other Community organizations such as Village development Committee, as well as individual efforts. The village is mainly dominated by low-density residential areas, of which most of the settlement structure is that of a traditional Tswana village layout (fig. 21). Housing developments vary within the village fabric and can be characterized as traditional, block, institutional and modern housing (fig. 22).

Some of the Infrastructure and developments that are found in the village are, but not limited to: Government schools (6 primaries, 3 Junior and a Senior school), tarred roads (including internal road networks), clinics, 12 churches, market stores, a li-

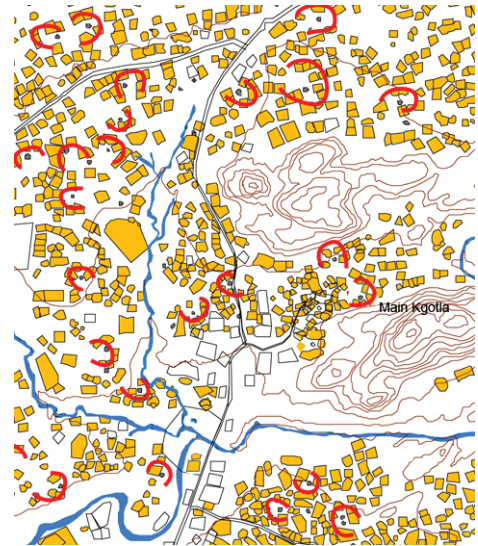


fig. 21. Part analysis of built form indicating horseshoe layout formation of wards in relation to the main Kgolla



**TRADITIONAL HOUSES:**

Cluster of one roomed rounddaveils arranged around a compound, and made of simple, cost effective and locally fetched materials that are aesthetically pleasing and eco-friendly.

Materials : Adobe, thatch, stone, wood  
Size: One roomed houses



**INSTITUTIONAL HOUSING:**

Provides formal accommodation for administrative officials, teachers, and nurses. They are situated around institutions they serve.

Materials: Face/Plastered bricks, Iron roof sheets.  
Steel window frames and doors  
Sustainability: Use of solar panels , Water harvesting, backyard gardening.  
Size: Varies between 2-4 rooms



**BLOCK HOUSING:**

Residential dwellings set around the traditional sub-ward

Materials: Cement block, corrugated iron sheets, steel windows and door frames.  
Size: Varies between 2-4 rooms



**MODERN DWELLING HOUSE TYPES:**

Privately owned detached formal house, fully serviced with water, electricity and sanitation

Materials: Varies, depending on the choice and income ownership  
Size: Varies between 2-6 rooms



**TRADITIONAL AND BLOCK HOUSING:**

A mix of traditional and modern residential dwellings

Materials: Cement block, corrugated iron sheets, steel windows and door frames, Adobe, thatch, stone, wood  
Size: Traditional=one roomed houses  
Modern=varies between 2-4 rooms

fig. 22. Sketches of built form showing existing housing typologies within the village fabric



brary, filling station, land board offices, police station, detention centre, a small commercial bank, water affairs offices, water treatment facility, Co-Op, veterinary office, post office, 2 clinics and 1 health post etc. ( fig. 23, 24 , 25 & 26)

In terms of transportation, Moshupa is linked by the main national highway and it has direct links to Kanye, Thamaga, the capital city of Gaborone, Lobatse, the mining town of Jwaneng, and finally to the Trans-Kalahari highway, which connect Botswana to Namibia nad South Africa. In most parts, the village is well electrified.

With Moshupa serving as a service and administrative centre and a focal point for the surrounding rural hinterland, as well as the growing trend of population increase, the planning implication is that existing infrastructure has become under pressure. In addition, the village morphology, housing, education, civic and community conditions, sources of livelihoods have been affected by the rapid change.

## **5.6 Emerging Issues and Their Impacts Towards Sustainable Development**

There are lot of community needs and planning issues that need to be addressed. To a large extent, the village has no civic and community facilities to serve the increased population within the community. Moreover, there is no quality sports centre, no agricultural showground, no recreational and tourism facilities, no community hall and youth centres and few day care centres, as well as an absence

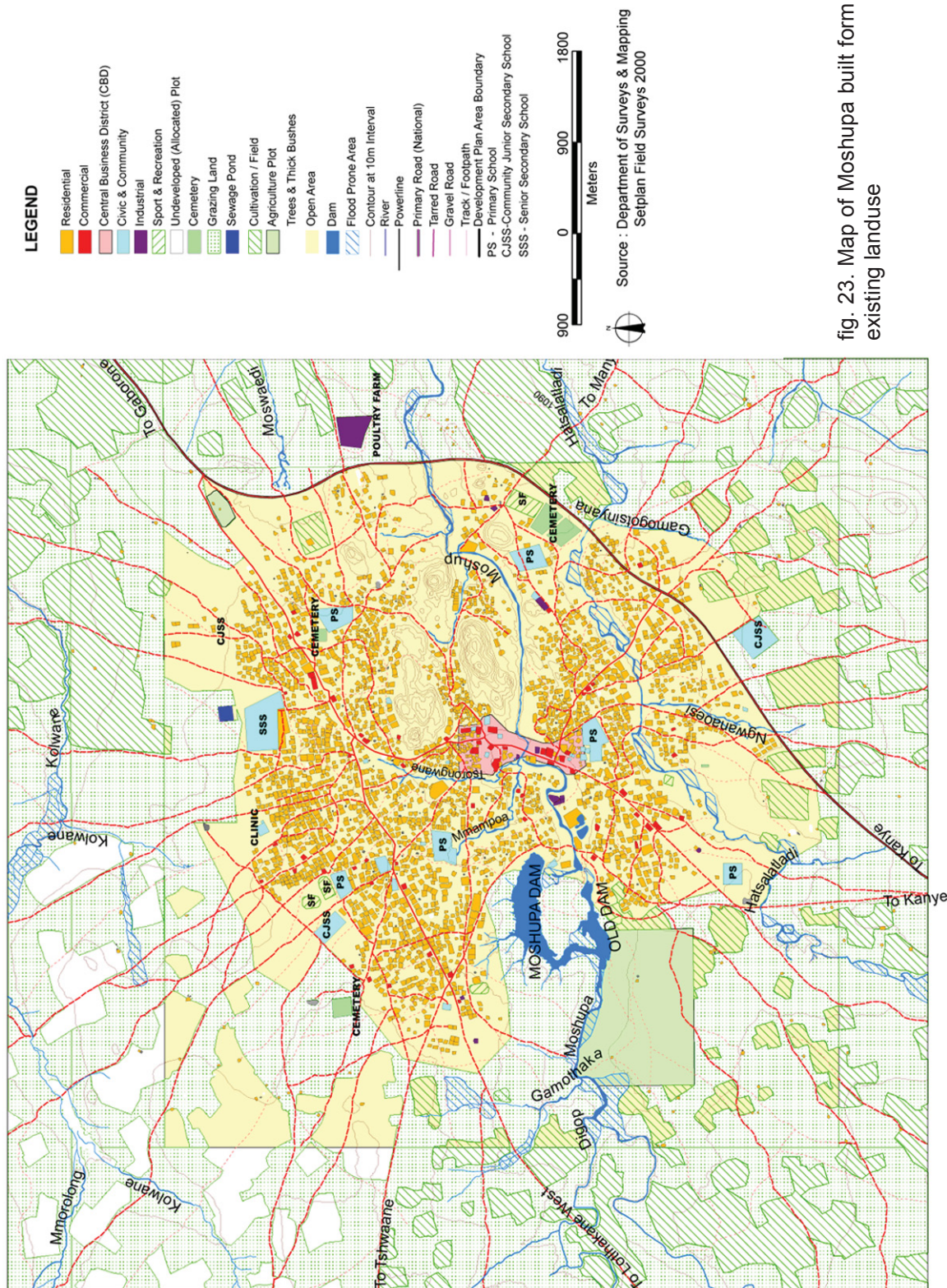


fig. 23. Map of Moshupa built form showing existing landuse

of parks and designated open spaces for passive recreation. This observation also has been pointed out in the consultation process made by the Government of Botswana in 2003, in preparations of Moshupa development plan for 2000-2024 periods.

Based on the preceding community needs and planning issues arising from the afore-mentioned conditions, the thesis attempts to weave most of the aspects of rural development from culture, socio-economic, agriculture, appropriate technologies, recreational and tourism opportunities into an integrated proposal. Moreover, the idea is to enhance a sustainable rural livelihood security and decrease some negative externalities of socio-economic development in a rural setting.

## 6.0 THESIS MOTIVATION

### 6.0.1 Strength of a Rural Economy: Right/Wrong Livelihood?

Moshupa village has continued to display the ability to welcome and embrace modernity, and yet try to preserve the essential aesthetics of its character. In contrast, the village has experienced a dramatic change over a period of 20 years, which has resulted in haphazard, spatially uncontrolled planning and development. The author find it necessary to do investigations about the undocumented, unwritten history and culture of Moshupa community as little analysis and architectural intervention has been done to address such a rapid change. Another goal of the thesis exploration is to reflect the meaning of Architecture to “Bakgatla ba ga Mmanaana” through their traditional values, principles and their history of habitation.

The motivation sorely comes from the heart as the author would one day like to see the life conditions of the people in his home village improve, especially the youth, young women, people with learning disabilities who are faced with everyday hardships of life. Moreover, community development and economic diversification as means to reduce vulnerability, promote employment, and alleviate poverty in rural areas sets the limits of the thesis approach into a framework towards improving rural Botswana into desirable economic destinations. Therefore, the thesis vision proposes an alternative community learning and training institution that can adapt to

a rapid socio-economic transformation and dynamics of rural development. The author also responds to the Government of Botswana's effort by searching for an alternative architectural intervention that can transform rural parts of the country to growing economically, while at the same time, promoting cultural revival and restoration. Additionally, the thesis explorations search for new culture within its old shell, new patterns of learning, civic and community institutions as alternative ways to harness local resources and create opportunities needed to lay a foundation for the growing younger generation.

That said, the establishment of an "Integrated Community Hub" along the Moshupa river will act as a fulcrum to reconcile the people, the place, culture, education, potential tourism and agricultural opportunities as ways to re-establish the importance of Moshupa community, without the need to compromise their cultural values and special character of their place.

The hope is that the ideal Integrated hub will be an engine of economic growth and will bring about cohesion, focus, cultural identity, will offer the environment with sustainable and energy efficient services.

## 6.1 Thesis Question

In consideration of the discussed challenges, opportunities, changing conditions, cultural traditions of Botswana, Moshupa village, emerging issues and their impact, as well as the conditions of the site, the thesis question is formulated as:

*How can Architecture draw upon local social traditions to revive economic and cultural life in rural Botswana?*

## **7.0 DESIGN**

### **7.1 The Site and Area of Influence**

The site is located in the prime spot in the centre of the village to the south of Moshupa river, which splits the village into two, almost equal halves. The strategic location of the site under study was influenced by the changing character, qualities, patterns and rhythm of a place along the main tarred road that cuts through the area zoned as the central business district (fig. 24). In addition, the choice of the site was influenced by the areas around the main Kgotla/public forum, which is nestled between numerous rock outcrops where the settlement happened to have originated.

The proposed site straddles the river valley, beginning where the arm of the Moshupa river form a horse-shoe bend and converge with other two seasonal rivers and extend along the east-west direction, towards the numerous adjacent hills across from the main road, and the neighboring surroundings (fig. 24, 25 & 26).

The proximity to almost all the services within the heart of the village will allow easier access to the Integrated community hub as it is visually connected to various places within the village fabric. Moreover, the strategic location was also chosen to facilitate easier working relations with the existing workshops/trades, a vocational school and other government schools available in the village

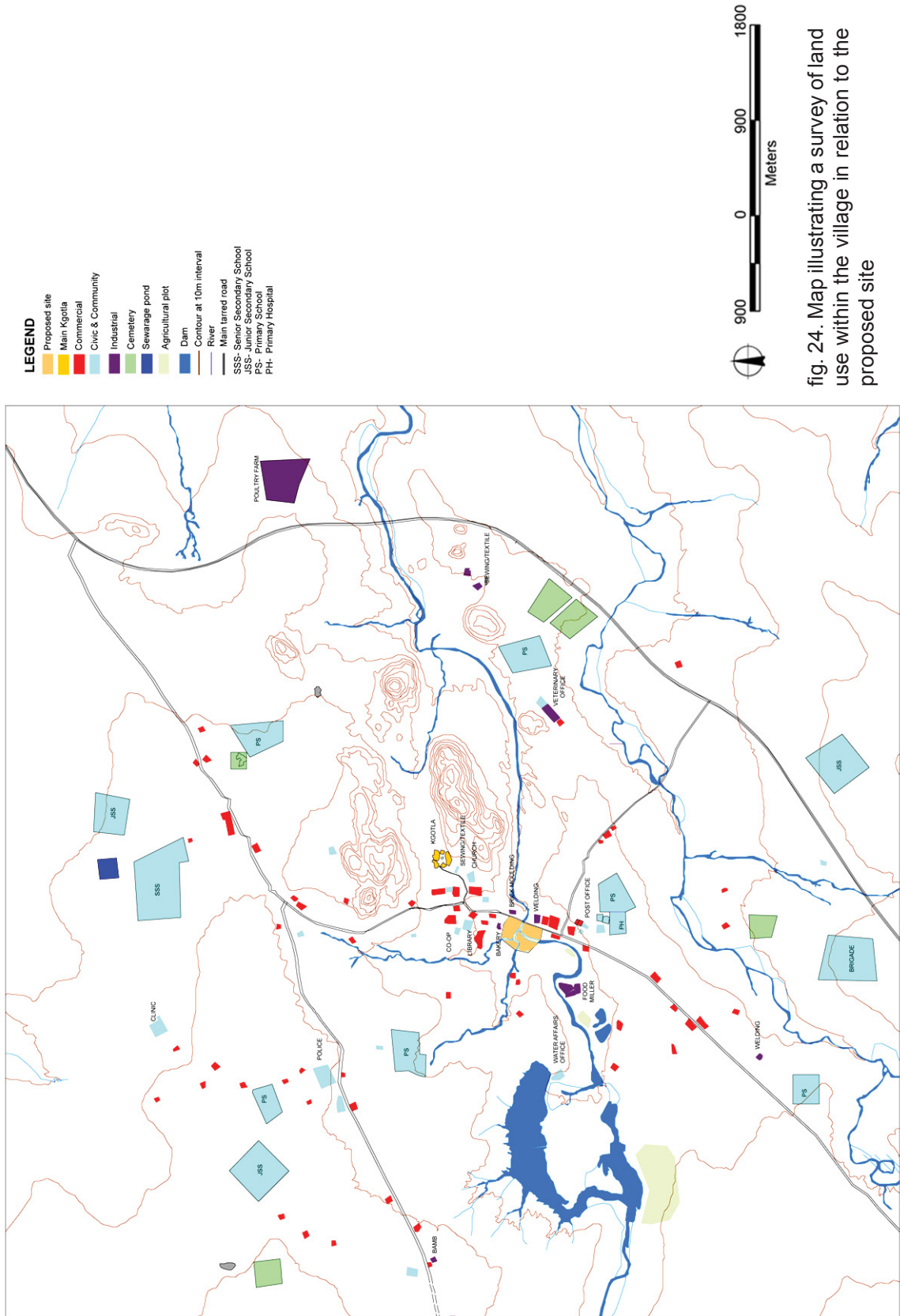


fig. 24. Map illustrating a survey of land use within the village in relation to the proposed site



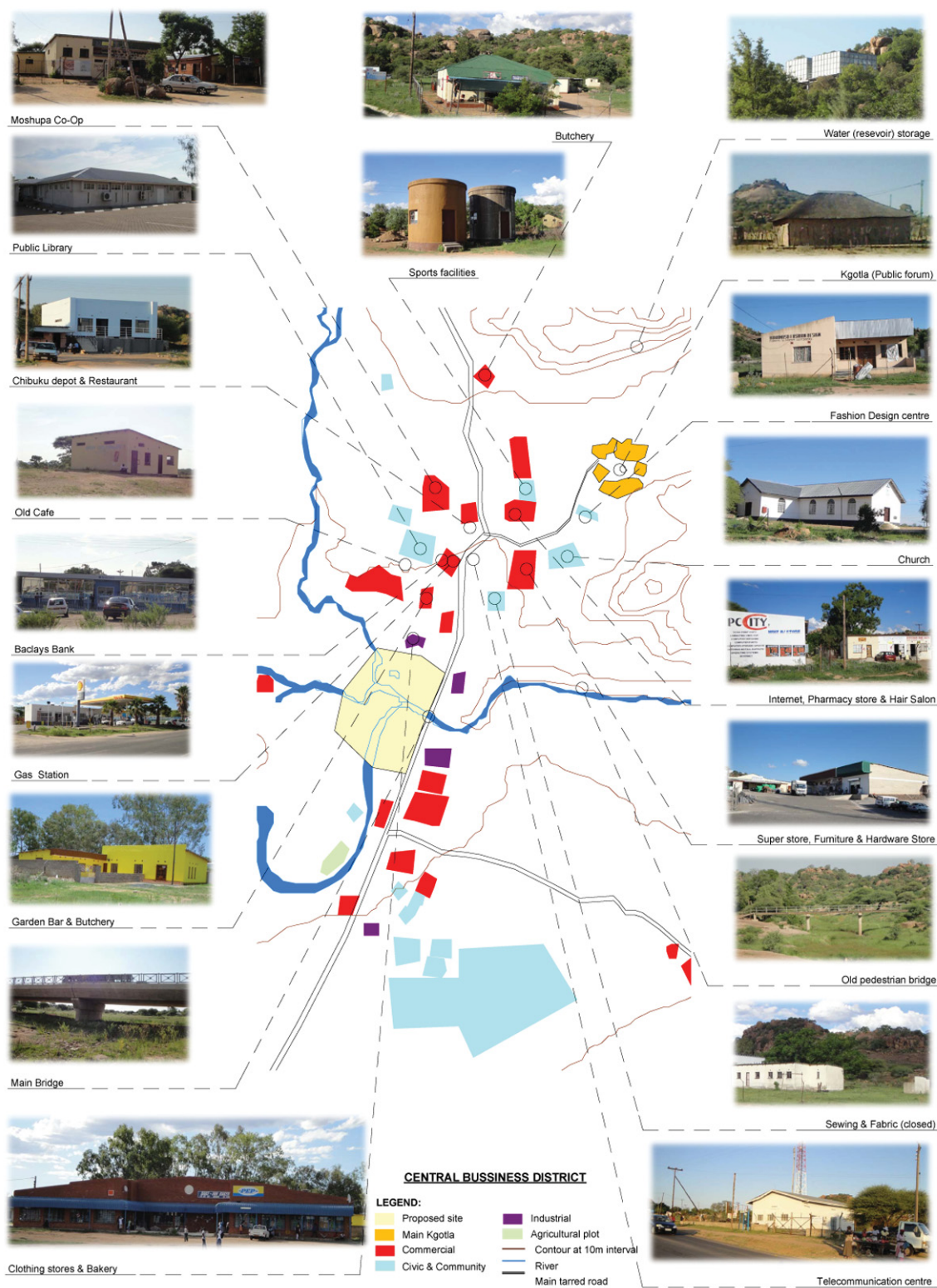


fig. 25. Map illustrating the existing infrastructure and developments along the main road, to the north side of the river in relation to the proposed site

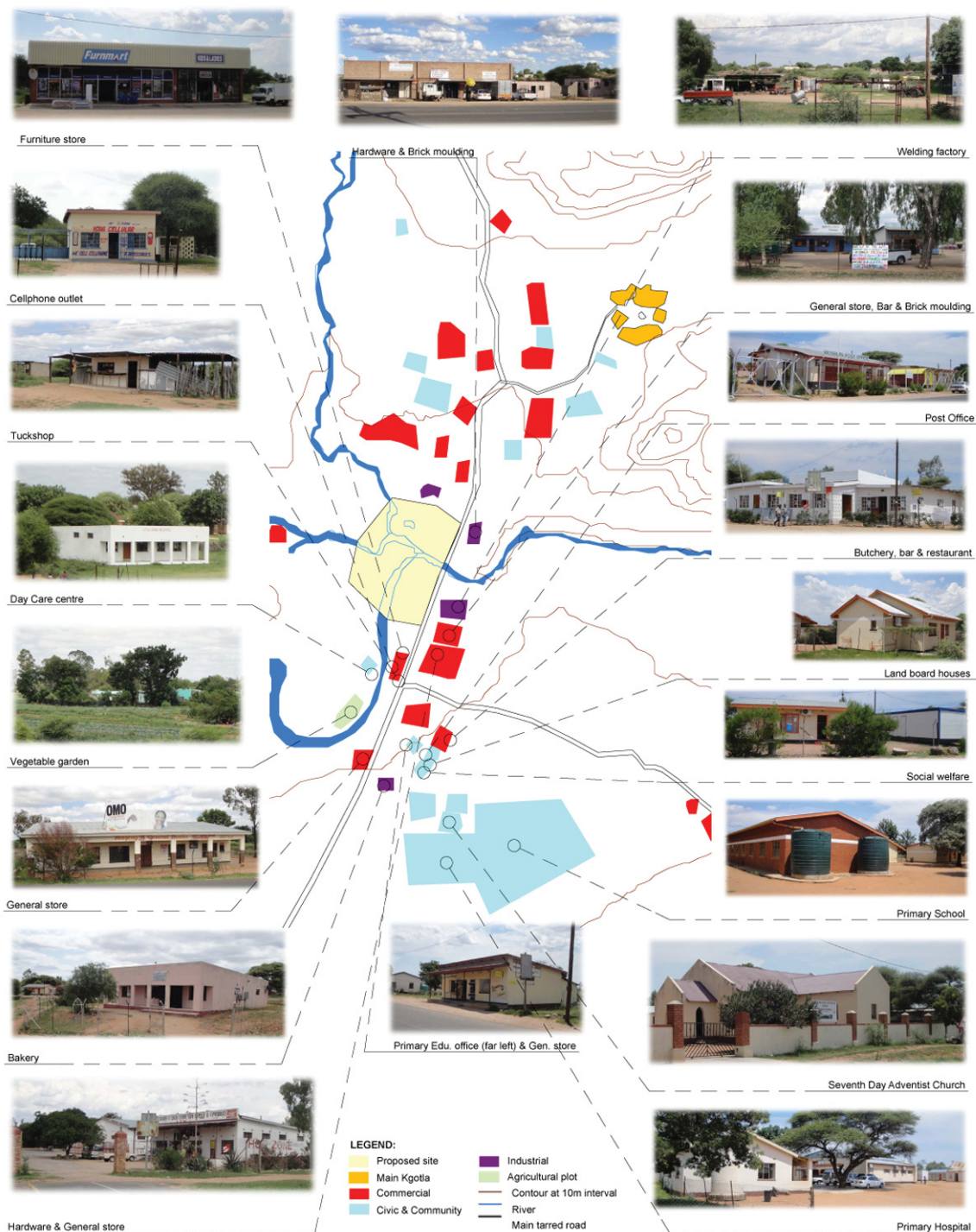


fig. 26. Map illustrating the existing infrastructure and developments along the main road, to the south side of the river in relation to the proposed site

## 7.2 Site Strategies: Applying Principles Learned to the Site

The disconnect of learning institutions to social traditions limits the integrated learning, traditional knowledge, skills and values that existed within a tswana household. Therefore, the proposed hub will reconcile and blend the traditional and modern approach to create new patterns of habitation, uses, learning and interactions within the village. Hence, brings the thesis exploration further to a question of what makes a good public space?

### 7.2.1 Overall Formal Expression

The form of the proposed design is based on the interpretation of Kgotla horseshoe layout and spatial organizations in a typical tswana compound (fig. 27). Just like within a modern tswana dwelling, spaces are to be filled with different programs according to their specialization. The spaces will allow maximum flexibility of use and could be adjusted such that each room can accommodate different specialized activities in response to the community's needs. The design approach is to restore social traditions as regulator in the emergence of Moshupa Integrated Community Hub. The overall layout does not only help to strengthen the sense of an organic community, but also will encourage rural interaction, collective decision making and sharing that existed since time immemorial in rural Botswana.

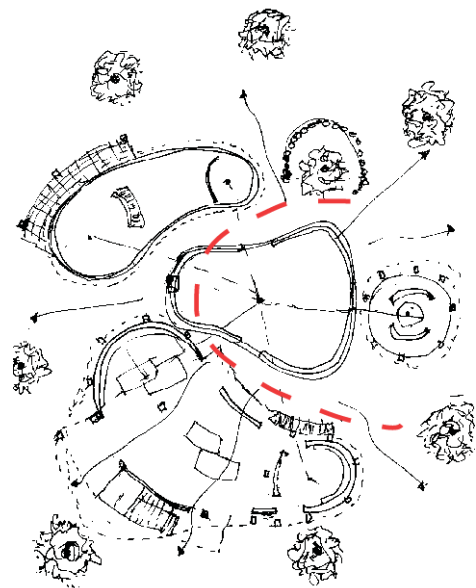


fig. 27. Partie diagram of the proposed design

### **7.2.2 Local Labour, Skills, Technology and Eco-friendly Materials**

The main strategy is to be innovative and explore ways to harvest materials locally that harmonizes the Integrated community hub with the surrounding landscape. The use of appropriate skills, local labour and tools, while integrating self-help building techniques are the main objective of the development for the benefit of the community. Therefore public participation and volunteerism, especially youth and women will be encouraged towards the success of the project. In that way, individual skills are shared and passed onto other participants.

Soil excavated from the site will be reused to make hand-made, pressed and sun-dried adobe block walls or rammed earth walls. Stone will be harvested on the near-by hills for foundations and structural support columns. The near-by local welding factory, brick moldings manufacturing, volunteers from the village and also potential suppliers of materials and support needed during the construction of the Hub.

### **7.2.3 Hierarchical Spaces, Permeability and Dynamic Thresholds**

The hierarchy exists within the public spaces according to their importance and the spatial functions. Also procession through the space is to be experienced through from the main road towards the pavilion, to the courtyard, past the fire place and finally into the buildings. The level of articulation is inspired by multiple thresholds and filtered permeability that exist in a Tswana compound and the spaces

around houses, and thus helps to create some sort of choreographic experience as one traverse from more public to semi-private, and finally to more private and enclosed spaces.

#### **7.2.4 Elevated Built Form**

The main idea to elevate the floors is due to economy of land use, as well as to reduce the building footprint and impact on the natural environment. Additionally, to address issues related to village sprawl. Also the strategy is to accommodate future growth over time, to mark the landscape so that the proposed Hub becomes like a beacon in the centre of the village. However, cautious attention for vertical expansion has been carefully considered not to create much contrast and competence with the existing village fabric.

#### **7.2.5 The Roof Strategy**

The main aim to use traditional thatch grass as primary building material is to revive the cultural life, skills and values, appreciation of its ecological and aesthetic qualities as discussed earlier. The undulating roof levels are envisioned to reflect the adjacent hills that appear to be floating, while creating a balance with the village fabric and the changing slopes of the landscape.

The design of the roof has always tended to be a major concern in Botswana's climate. The improved design and detailing in the roof structures will be explored through the use of scissor trusses. The scis-

scissor trusses will carry the tensile forces in the lower members, with maximum allowance for the deflection under load. The scissor trusses will also be allowed to slide slightly in order to avoid thrust. The use of ring beams in the building structures will also help to allow even distribution of vertical loads downward from the weight of the roof to embedded stone columns on the rammed earth walls and to evenly spread the points loads.

Moreover, other possibility to be explored is the use of clay-tile vaulting technique. The technique is used as an experiment for an alternative roof construction material in one of the buildings. The technique presents various advantages over the use of corrugated metal sheets. The advantages are; their thermal mass and greater heights help to cool the space, light and air are easily discharged through openings, maintenance free and requires less materials, fireproof resistance and the vaults provides pleasing and calming effect. In addition, the roof will act as a “water collector”, and the water could be used for irrigation, for consumption or to rebalance the ecosystem along the river.

The thesis exploration puts further emphasis on the very principles of architecture that evolved since the ancient times can still be appreciated in modern architecture, depending on how one integrates the tradition with the modern techniques.

### **7.3 Design Philosophy: Proposed Development and Building Programs**

The programmatic elements being brought into the design of an Integrated Community Hub creates a summary of all aspects based on the community needs to create an alternative model for rural development, from culture, socio-economic, agriculture, appropriate technologies, recreational and tourism opportunities into an integrated proposal. (fig. 28, 29 & 30).

The project design will start with the the two main workshop and administration buildings, the lowered integrated courtyard, public pavilion, productive gardens, on-site caretaker house, water tower, reservoir, borehole and finally an outdoor kitchen area (fig. 31, 32, 33, 34, 35 & 36).



fig. 28. 2D-exploration map showing the proposed Integrated Community Hub in relation to context



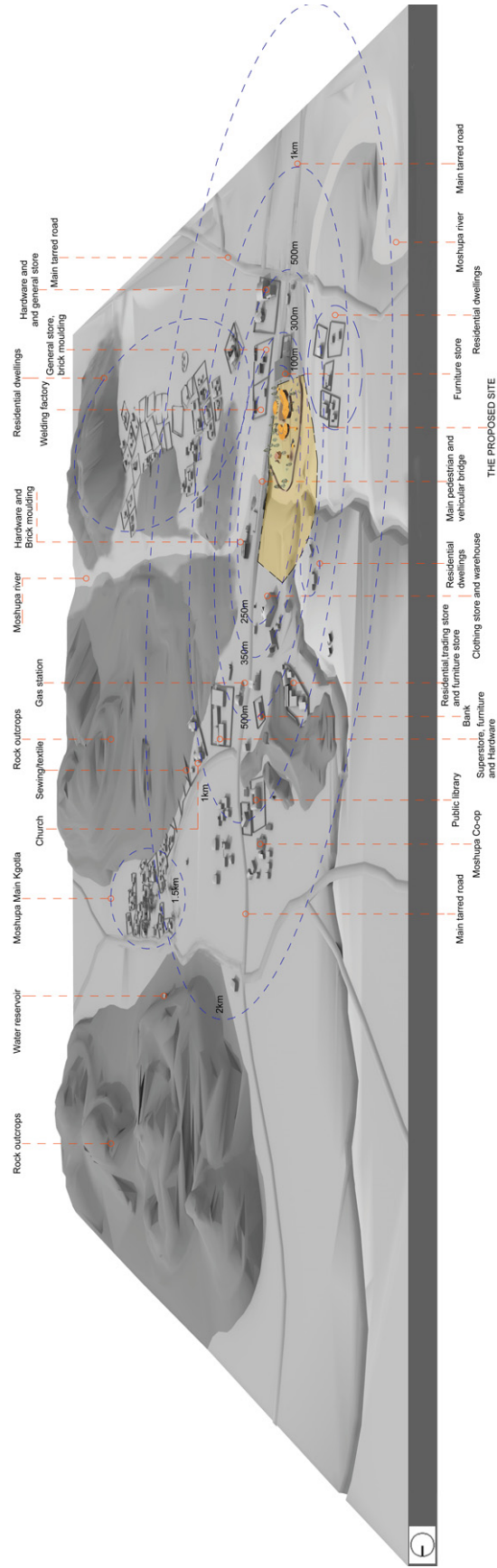


fig. 29. 3D-exploration map showing the proposed Integrated Community Hub and context

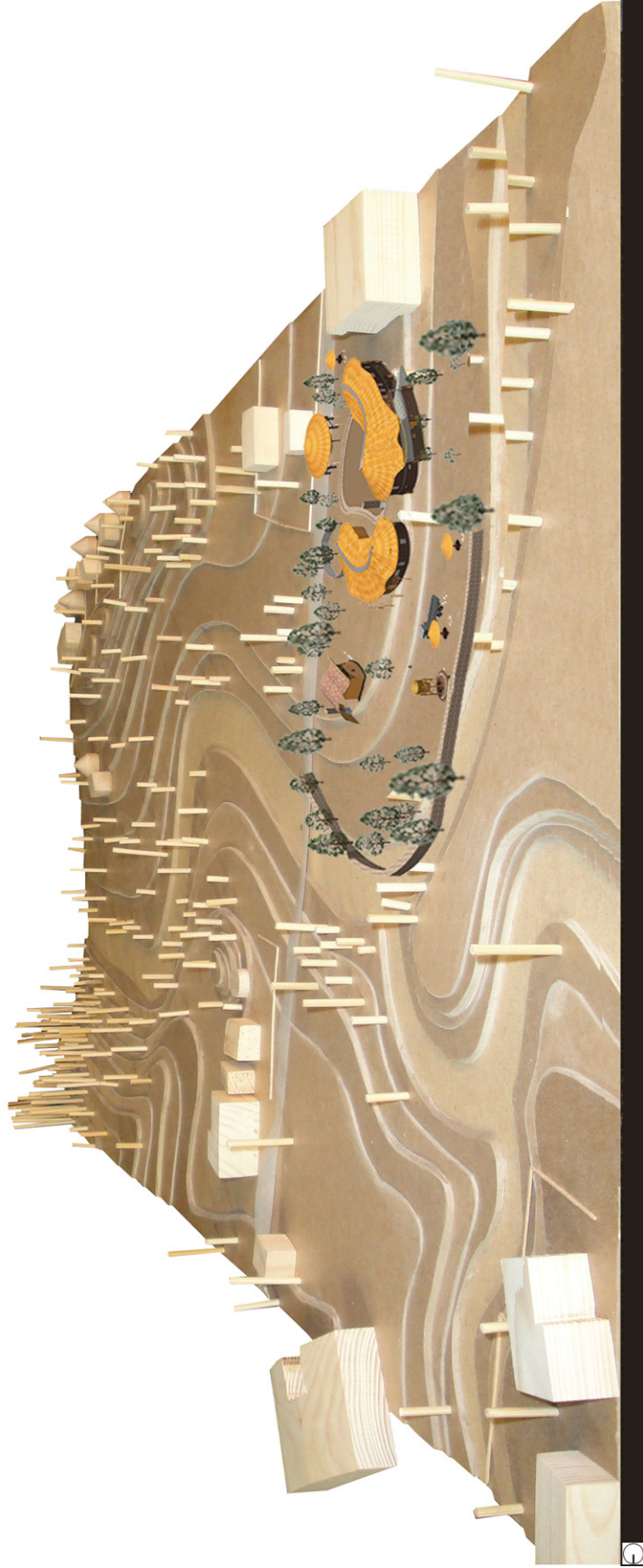


fig. 30. Close-site plan view of the proposed Integrated Community Hub in relation to context

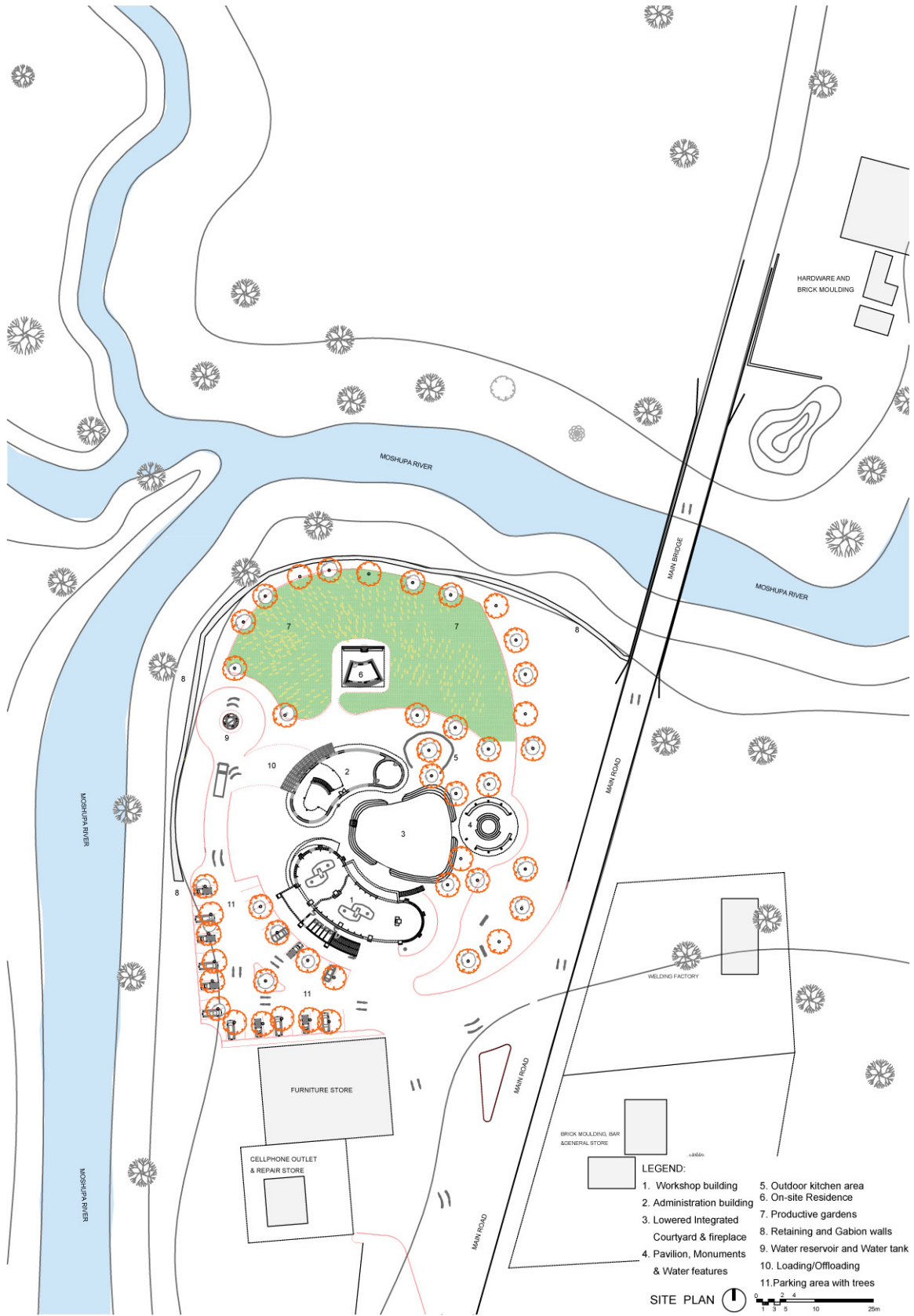


fig. 31. Site plan in relation to existing context

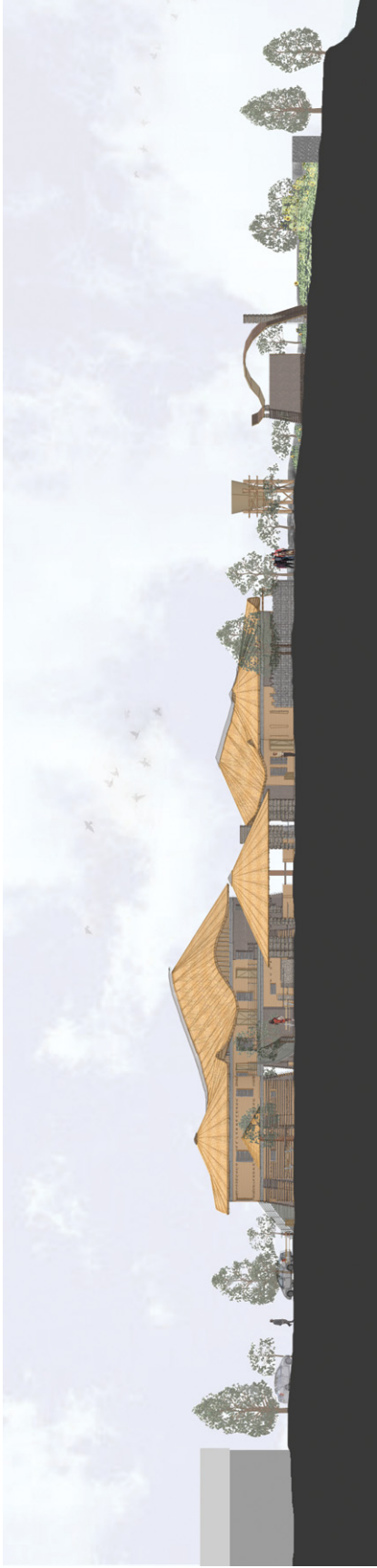


fig. 32. Front Elevation along south-north direction

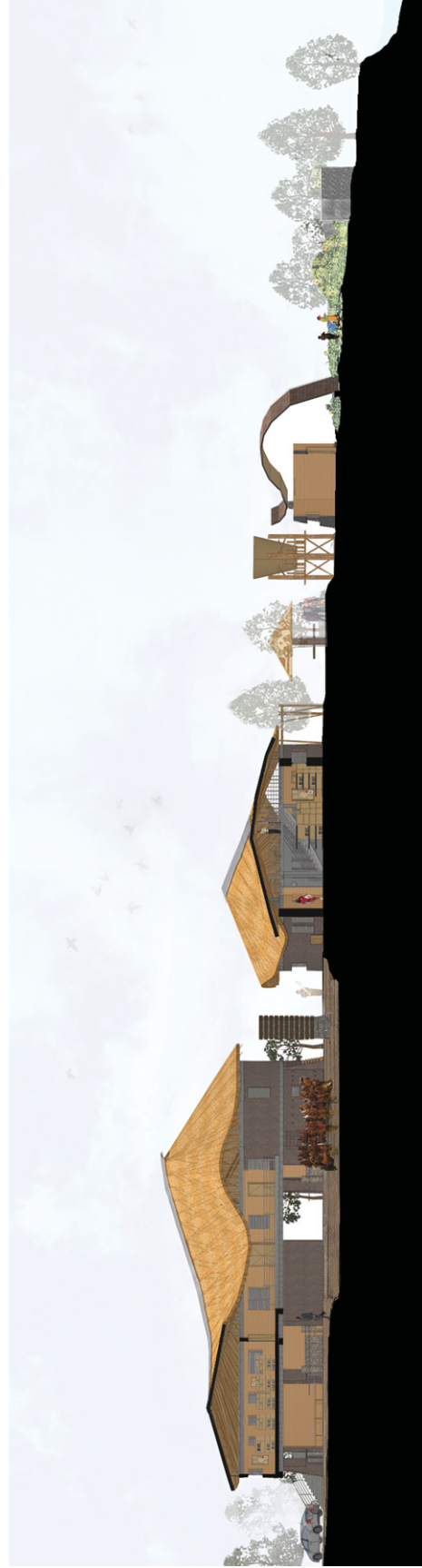


fig. 33. Section through the Hub along south-north orientation



fig. 34. An approach view from the main bridge showing the Hub in relation to context



fig. 35. View from main road to the Hub in relation to context



fig. 36. View from the back in relation to the main road and hills

## **7.4 Workshop Building**

The main structure is a double storey workshop building and it will be utilized as (fig. 37, 38 & 39):

The ground level is made up of: Workshops and tool bank resource, worktop tables, meeting spaces with seating benches, ventilated latrines, habitable staircase and machine storage on the underside of the habitable staircase that connects to the second level.

The second level consist of: three classrooms spaces made of movable dry /screen walled partitions, workshop library and an exhibition gallery space, covered and non-covered balconies, and a media and communication centre. Additional classroom spaces will be built in phase 2 as a third level, and accessed through a staircase.

### **7.4.1 Workshop Areas and Classrooms Spaces**

The subjects of studies are practical, therefore, there is need to allocate spaces that will further development of individual skills, small and medium sized enterprises. As a result, the workshops areas are provided to help the unprivileged youth and women to develop their technical and entrepreneurial skills. The spaces will also help broadens the knowledge about culture and cultural exchange programs which plays a major part in education for development. Furniture will be designed and be used within the Hub, and some will be sold to the community at large. Moreover, classroom spaces may function on weekends as bookable rooms for private weddings,

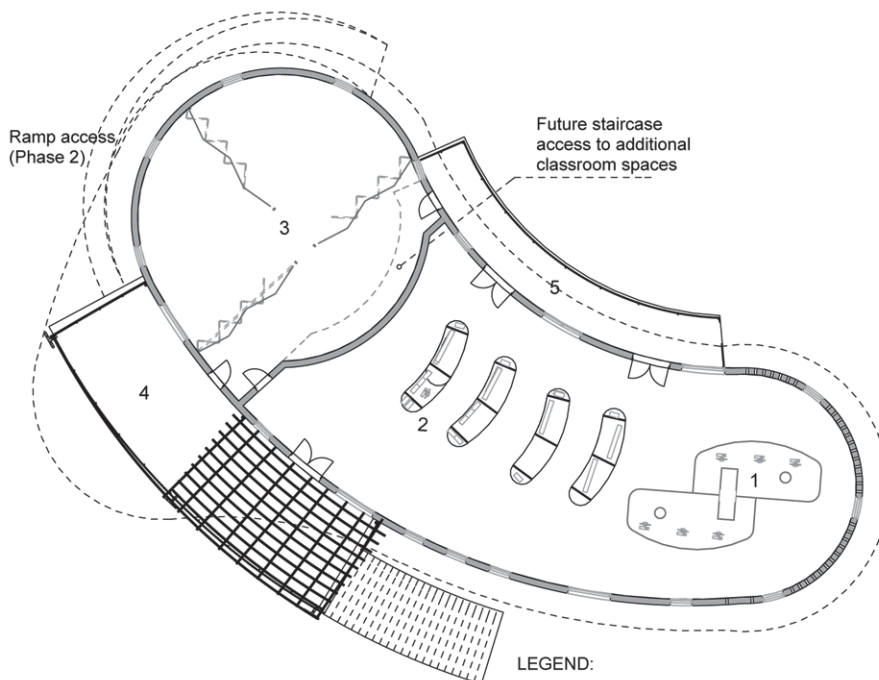
meetings and conferences (fig. 40 & 41).

#### **7.4.2 The Media and Communication Centre**

The provision of Information services through the media of communication, especially digital services (sound, projection and internet) will help develop the technological capacity needed for rural development in the Botswana, as well as increasing the information flow that may bring about a radical change in the community of Moshupa village (fig. 42).

#### **7.4.3 Exhibition, Gallery and Workshop Library**

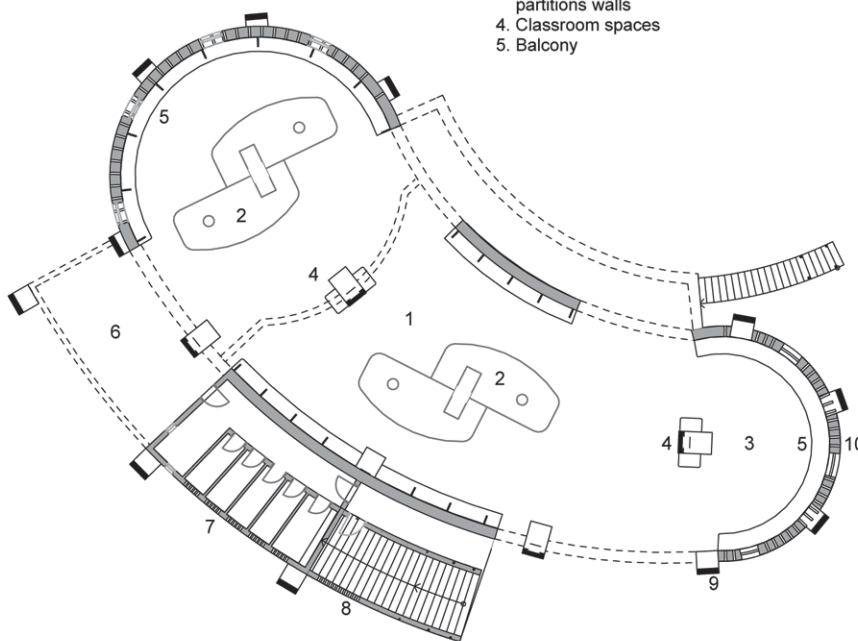
The intended enclosed spaces will be used to showcase the student's skills, resources, dedication and energy while making profit from the products designed in the workshops by students to the public. The space will also be used to accommodate some of the artifacts for showcasing from the community. The library will have books that could be used for research about different trades, tools and all kinds of practical-related subjects such as workshop tools, welding, fabrication, draughting, and machinery manuals (fig. 42).



FIRST FLOOR PLAN  
Enclosed Area=450 m<sup>2</sup>

LEGEND:

- 1. Media and Communication centre
- 2. Workshop library & exhibition gallery
- 3. Classroom with dry wall/ reed screen partitions walls
- 4. Classroom spaces
- 5. Balcony



GROUND FLOOR PLAN  
Enclosed Area=525 m<sup>2</sup>

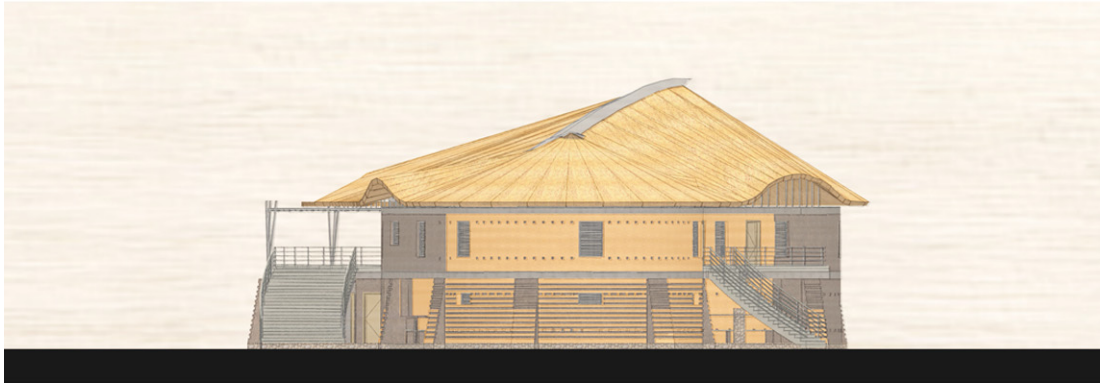
LEGEND:

- 1. Workshop area
- 2. Worktop tables
- 3. Meeting space
- 4. Toolbank resource built in structural columns
- 5. Seating benches
- 6. Welding area
- 7. Washrooms/ Ventilated outhouses
- 8. Habitable staircase, workshop storage on underside
- 9. Structural columns
- 10. Air vented walls



fig. 37. Workshop building floor plans

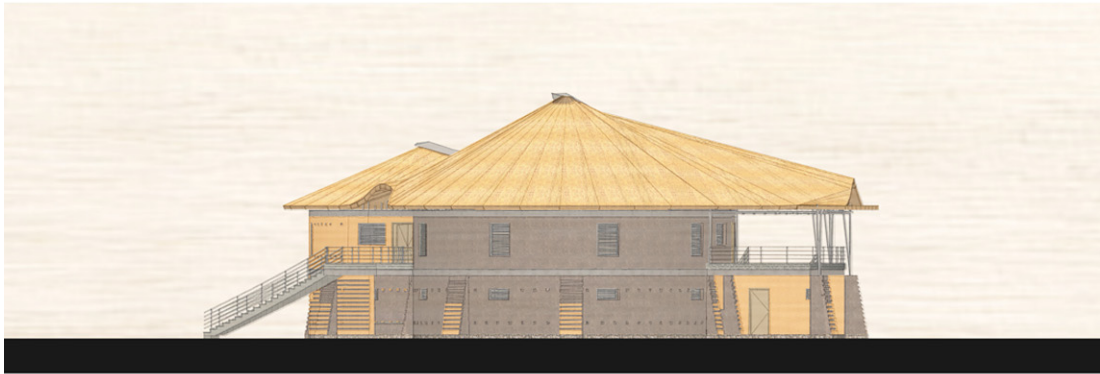




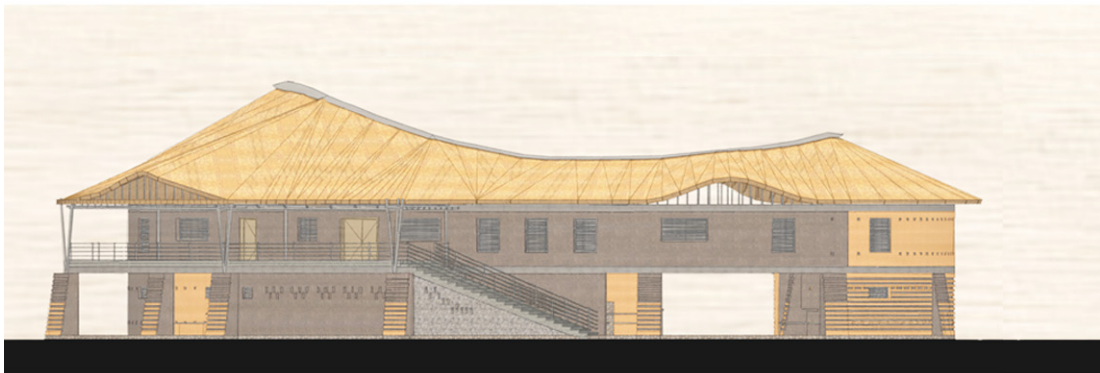
SOUTH EAST ELEVATION



NORTH EAST ELEVATION



NORTH WEST ELEVATION



SOUTH WEST ELEVATION

fig. 38. Workshop building Elevations



fig. 39. Section through workshop area, media and gallery and classroom spaces



fig. 40. View to the workshop welding area



fig. 41. View from worktop tables inside workshop spaces



fig. 42. View within the workshop library, media and communication

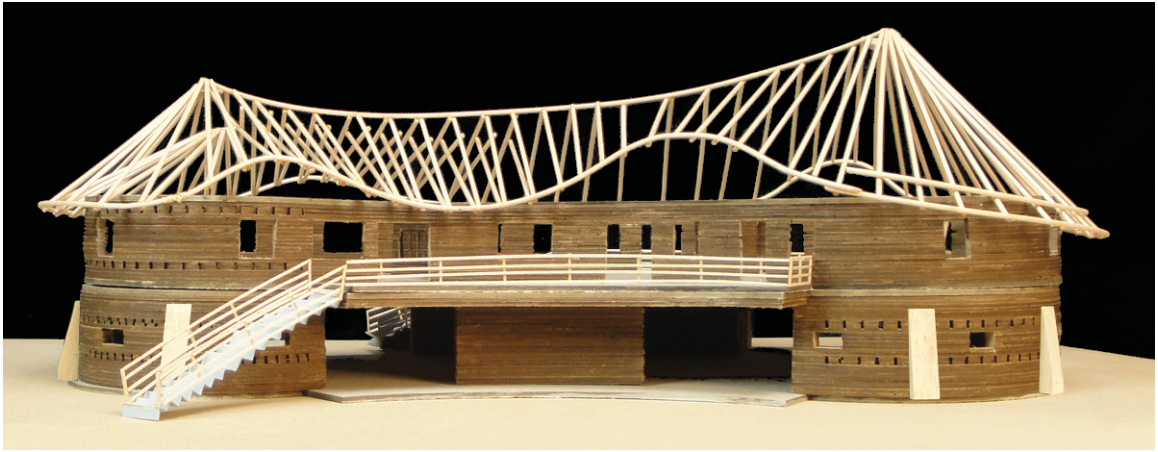


fig. 43. Workshop building physical model

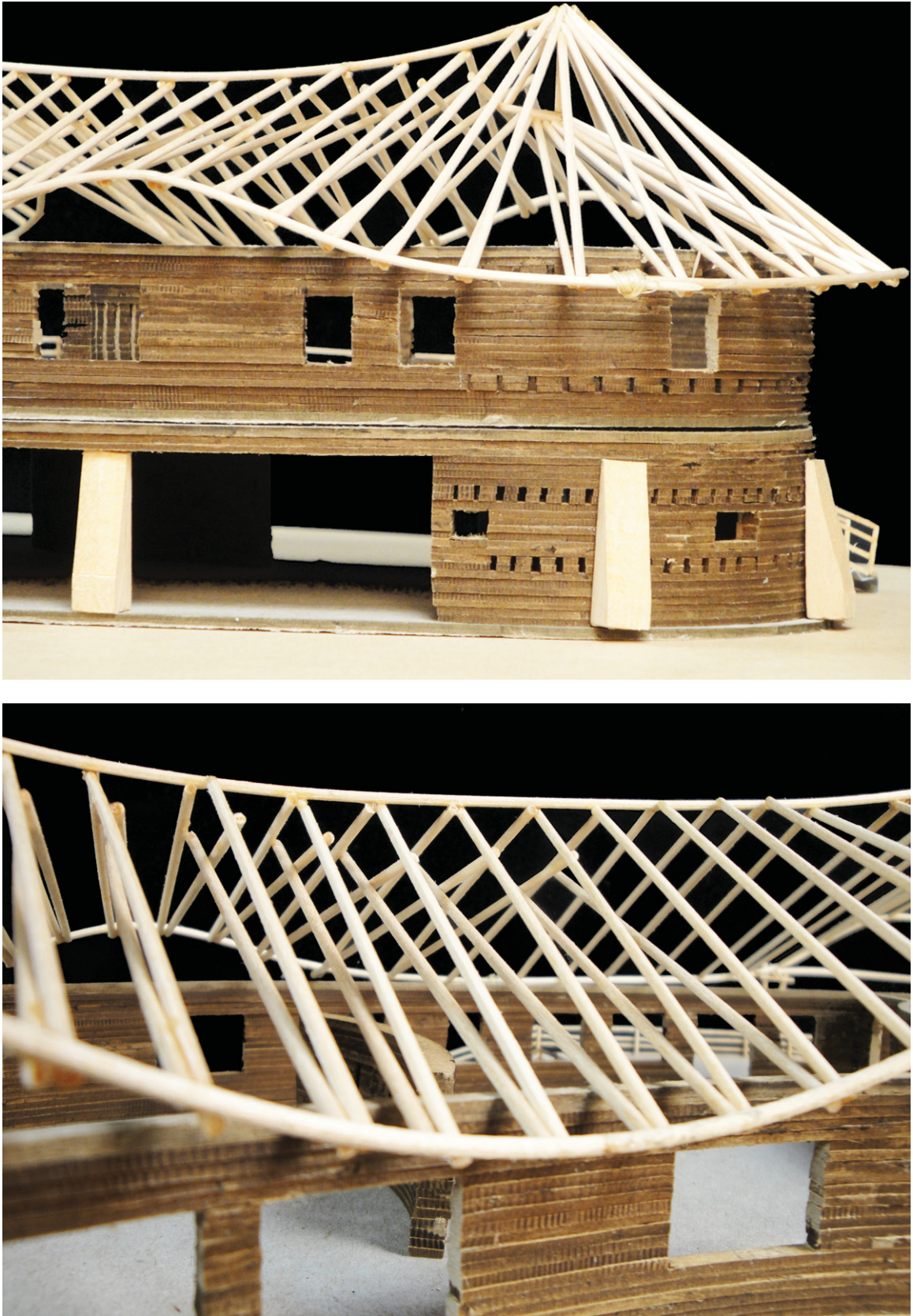


fig. 44. Workshop building showing wall details and scissor truss roof structure

## **7.5 Administration Building**

The administration building is made of; an administrative offices, career and counselling, information centre, special collection library, enclosed kitchen food storage space, and outdoor shaded area (fig. 45, 46 & 47).

### **7.5.1 Administration, Information Centre and Supporting Facilities**

Main purpose is to create an administering and system management spaces that serves the Integrated hub, as well as to play a vital role to assist with the functions related to the community's needs.

The information guide corner will be used to provide visitors to get a full introduction to the Integrated hub. To a large extent, information and a brief overview about the Moshupa community and their scenic experience, natural features and potential heritage sites. For example, the adventurous that enjoy rock climbing and bird watching will be greeted first at the Hub, before they proceed with their attractions.

### **7.5.2 Special Collection Library**

To house specialized business related skills such as: sewing and knitting, managerial/marketing, book-keeping, financial, and public administration.

### **7.5.3 Career and Psychological Counseling**

The space will be used to give career guidance and advice to young women, families and dispersed teachers who are psychologically affected. For in-

stance: to motivate, give guidance, and as well as to help promote behavioural change as follows:

i. Young women who become mothers at an early age but lack responsibilities to raise their families. Improving their literacy levels will help in subjects related to childbirth, child maintenance and other related family responsibilities.

ii. Dispersed teachers who might need additional advice on issues relating to social behavior, cultural skills, values and conduct. Moreover, they are to be provided with stress-relief programmes that could encourage them to deliver within their localities.

## **7.6 The Lowered Integrated Courtyard**

The integrated courtyard will be used to provide shelter and warmth. The space could be used as a communal space for social interaction, friendships, communication and for multi-functional purposes. In particular, the space is designed to be a host venue for various outdoor activities such as: public meetings, conferences, gatherings, cultural performances, youth entertainment, and for weekend community market shows (fig. 48 & 49).

In addition, the courtyard could be used as a day-care experience space to supplement a limited number of the existing day-care facilities within the village and accommodate the growing number of children. This in itself presents a critical approach to promote early childhood care and education within the village. The multipurpose courtyard is envisioned as an outward

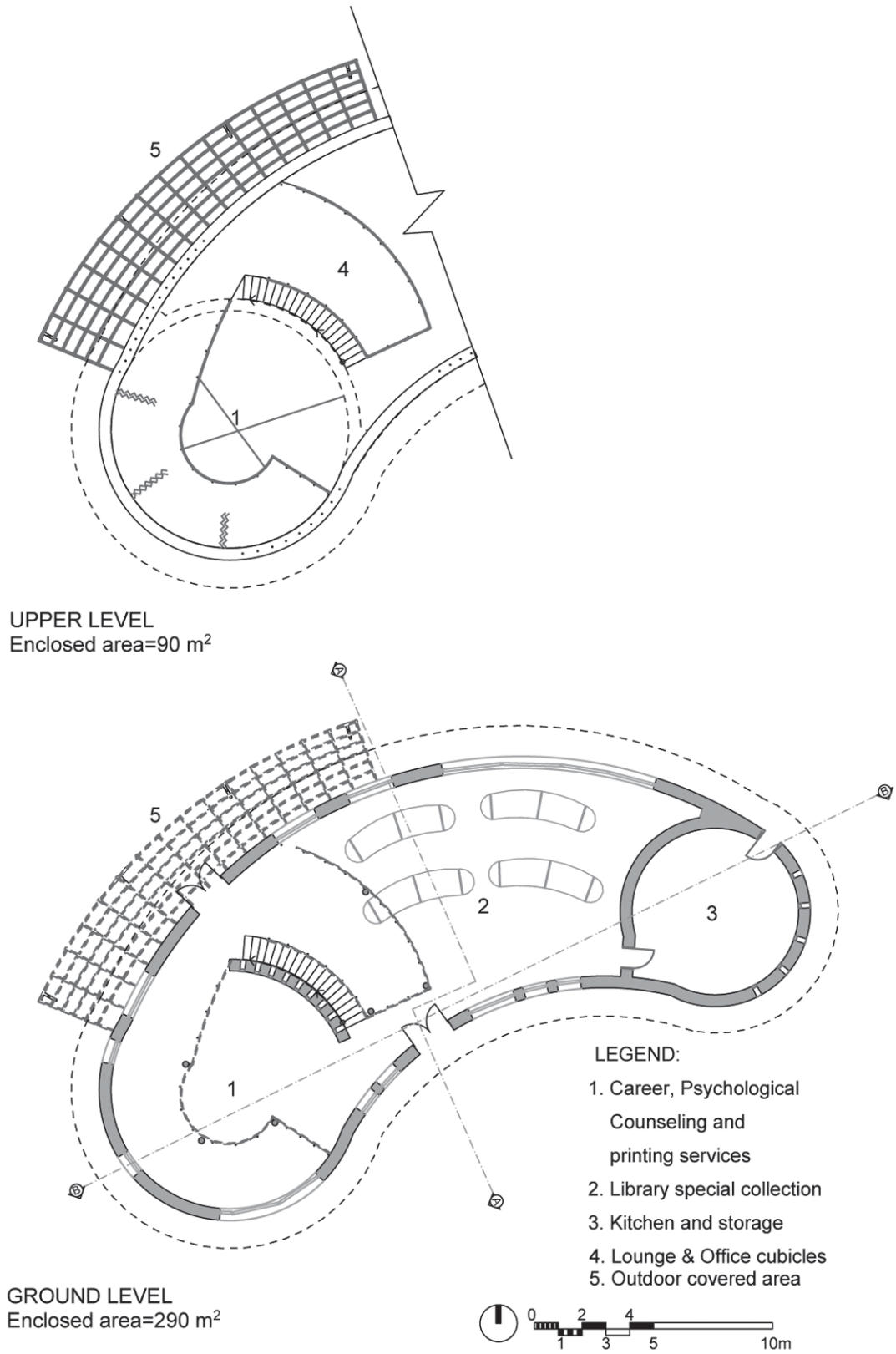
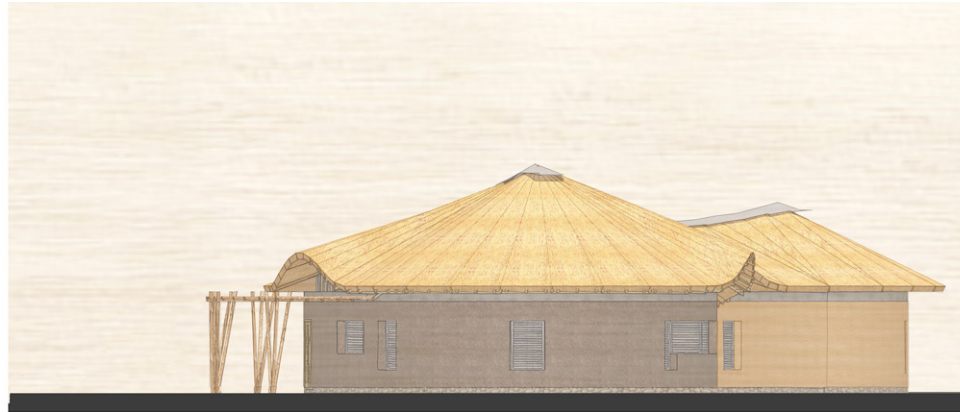


fig. 45. Administration building floor plans





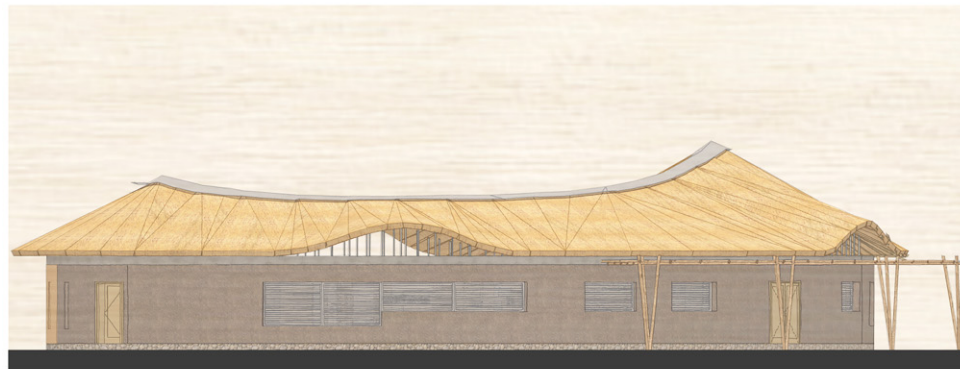
SOUTH WEST ELEVATION



NORTH EAST ELEVATION

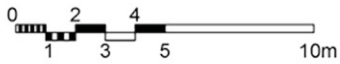
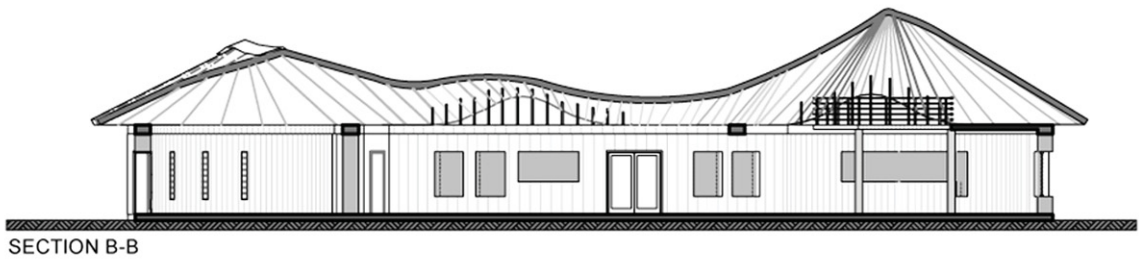
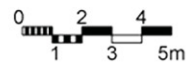
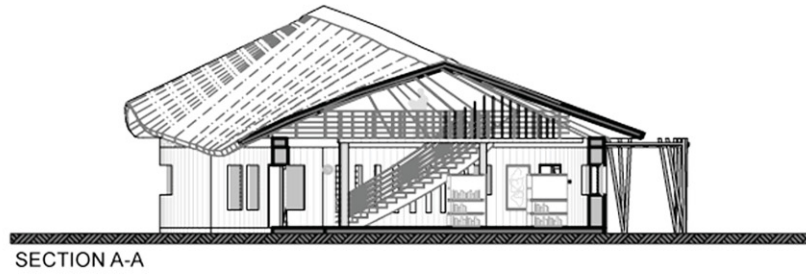


SOUTH EAST ELEVATION



NORTH WEST ELEVATION

fig. 46. Administration building Elevations



SECTION A-A

fig. 47. Sections through Administration building

extension of the Integrated community hub by creating a strong link with the central business district, thereby will extend and eventually dissolves into the larger community.



fig. 48. View towards the courtyard space



fig. 49. View from the courtyard showing social activities

## 7.7 Productive Community Gardens & Retaining Walls

Gardening along the river will increase the level of food production in order to contribute to the local economy, will promote the idea of collective responsibility and sharing within the community hub. To ensure safety of crops in the wake of river flooding, stone retaining walls and gabion walls are to be built towards the horse-shoe bend of the river, and will extend to the foot of the main bridge. The walls could also be used as communal seating and social spaces to allow closer interaction with Moshupa river (fig. 50).

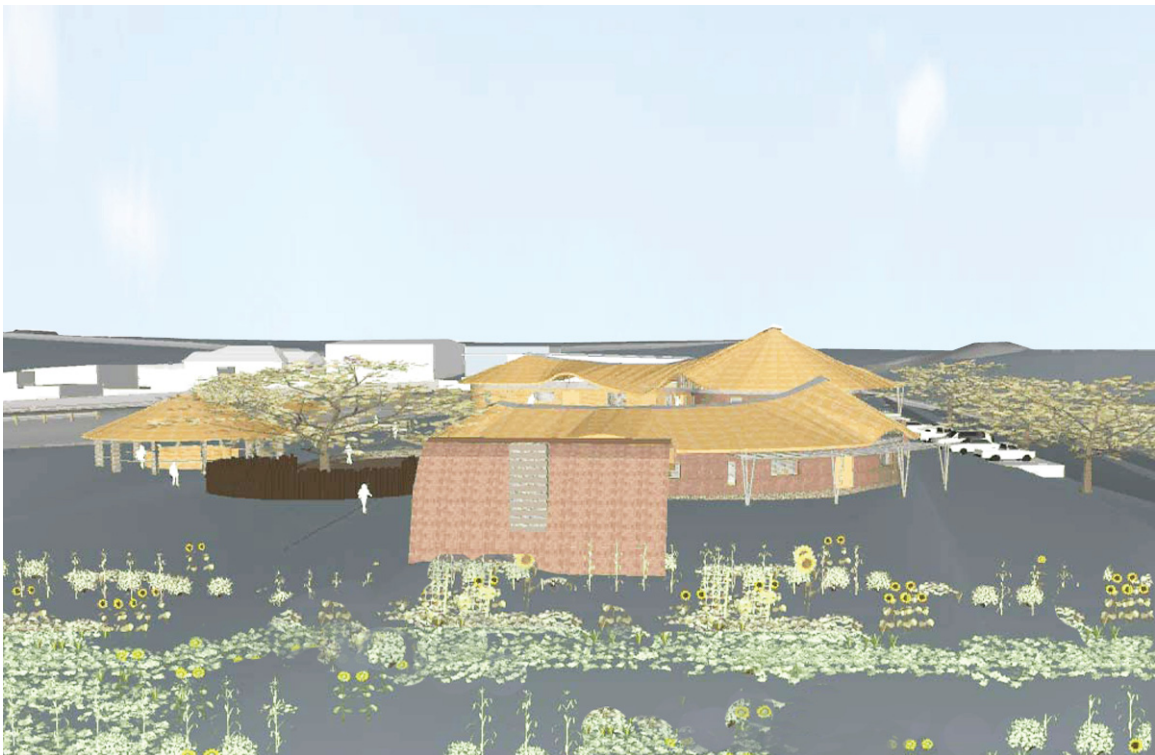


fig. 50. View from gardens to the Integrated hub

## **7.8 Pavilion for Monuments and Water Features**

A place where various forms of historical markers, commemorating significant people, totem, or any animal or any sculpture related to Bakgatla бага Mmanaana was a necessity to provide. The key sculptural design will be an abstraction of a monkey climbing the tree sculpture, and a bull tied to a tree sculpture to share the history that explains the totemic elements and the symbolic meaning of a place. Therefore, the sculpture as a symbol of growth will not only explain success about the community, but will complement the continual existence of Bakgatla ba-ga Mmanaana community (fig. 51).

## **7.9 Onsite-Care Taker Residence**

The onsite residence building is built by the productive gardens for safety and protection of the hub. The structure also utilizes the use of local skills, materials and simple, but yet appropriate construction techniques and details. In this case, clay tile-vaulting technique is explored in the design of the residential shell roof structure as discussed (fig. 52 & 53).

From the structural point of view, the shell structure is anchored to the ground for stability and strength. This will allow the roof structure to contain lateral forces and horizontal thrust pushing outward. Moreover, buttressed walls are used to neutralize lateral loads by those imposed by winds.

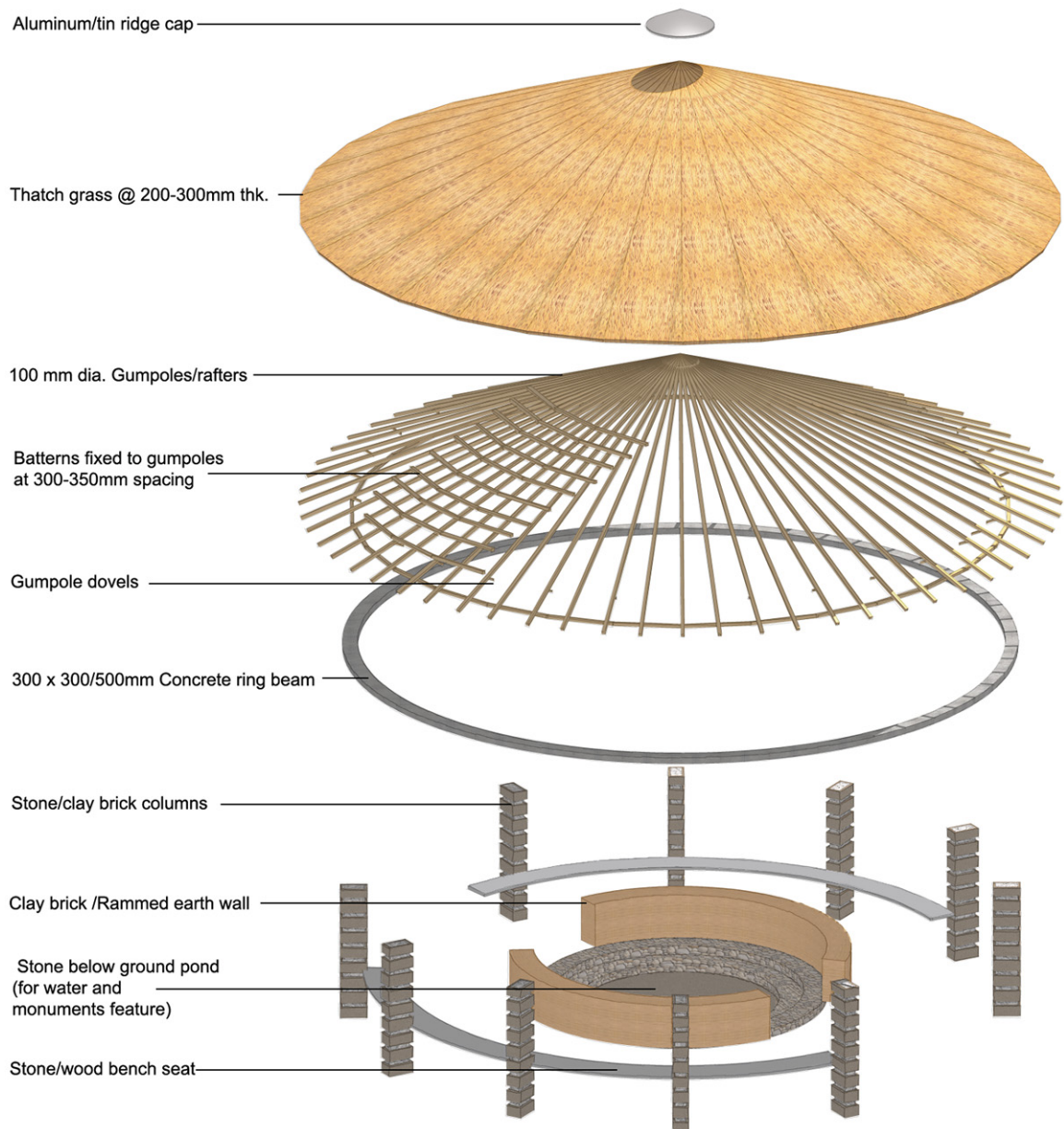


fig. 51. Pavilion axonometric projection showing structural members (Roof construction typical for Workshop and Administration buildings)

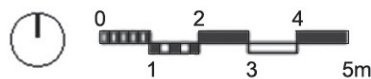
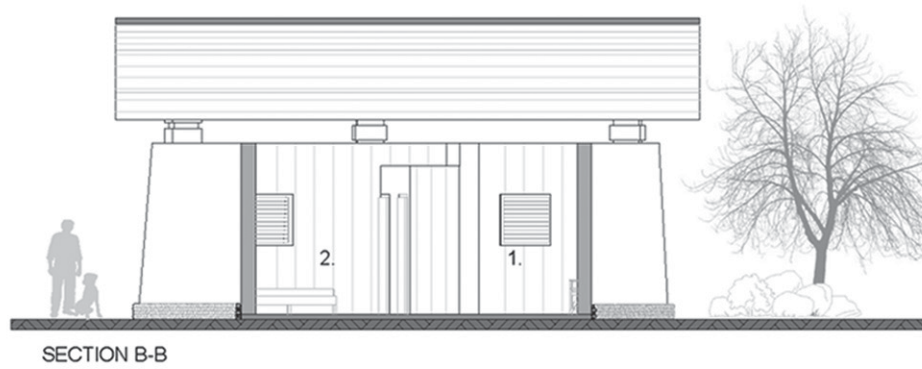
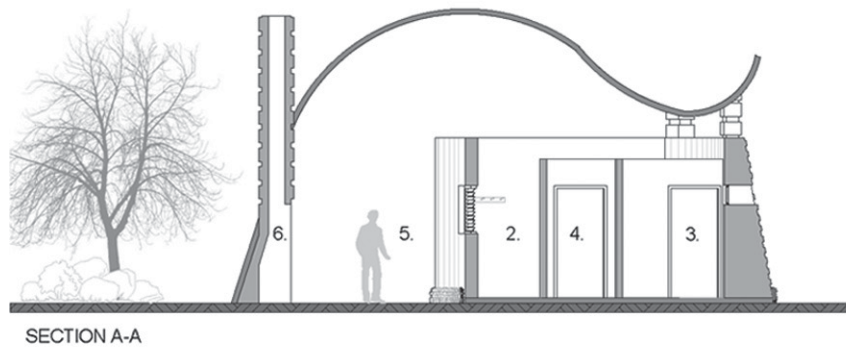
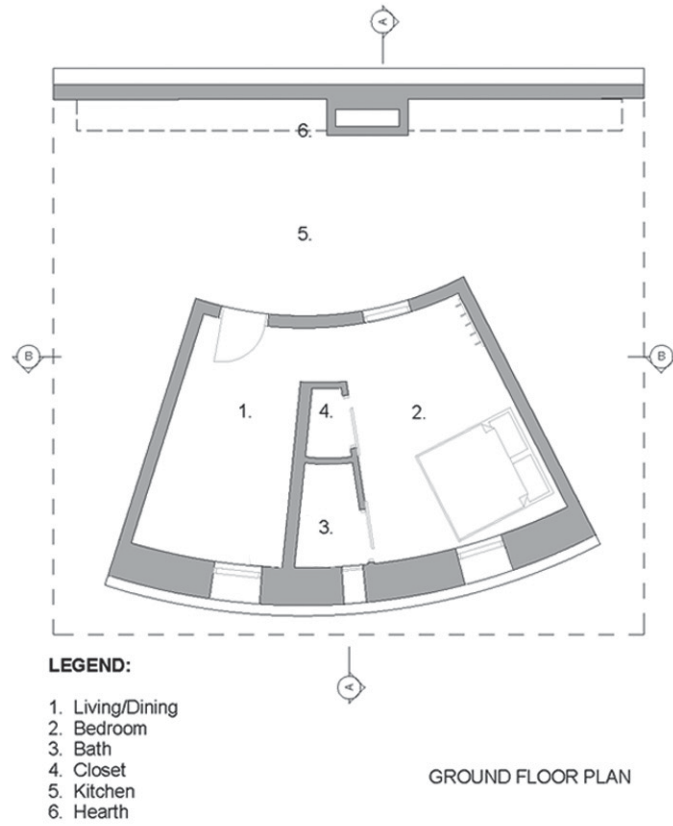


fig. 52. Care-taker residence plan and sections

### 7.9.1 Chain Experiment-Freely Suspended Chain under Gravity

The extruded geometry of the overall roof and single shell were derived from hanging chain on the wall to help determine the distribution of natural load transfer on the inverted catenary curve, then tracing over the large inverted catenary curve formed by the chain, and smaller curve was inverted to determine the section of the self-supporting channel (fig. 54).

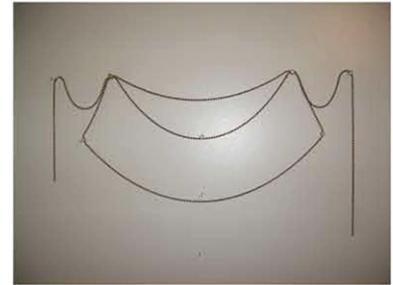
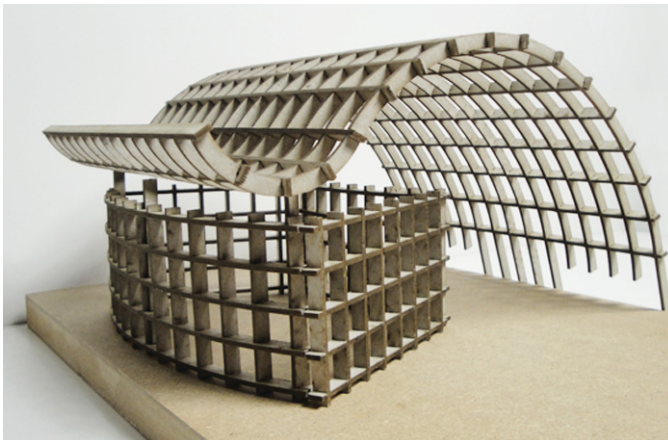


fig. 54. Form finding experiment



fig. 53. Models showing geometry of the Vaulted roof forms

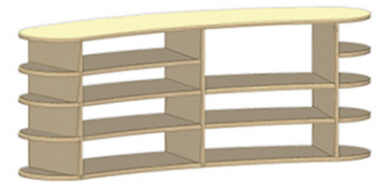


## 8.0 INNOVATION AND SUSTAINABLE STRATEGIES

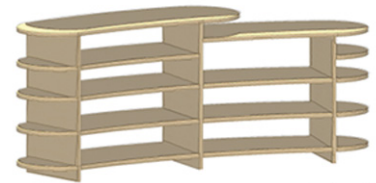
### 8.1 Furniture Design, Tool Bank Resource

The Toolbank columns are designed not only to act as structural supports, but also to provide extra storage rooms for small workshop tools. Moreover, the worktop tables and seatings are provided to create enough room for working, meeting and resting. The workshop tools will be available for use by the community as a tool bank resource whereby they could be some measures put in place for registering, landing and returning of the tools (fi. 56 & 57).

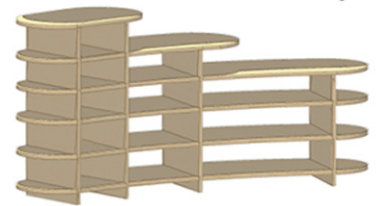
Recycled wood is used to make library bookshelves, while recycled steel rods and reinforcing bars are harvested from the nearby welding factory to be used for stair rails and roof frame supports (fig. 55).



Design 1



Design 2



Design 3



Design 4

fig. 55. Bookshelves design

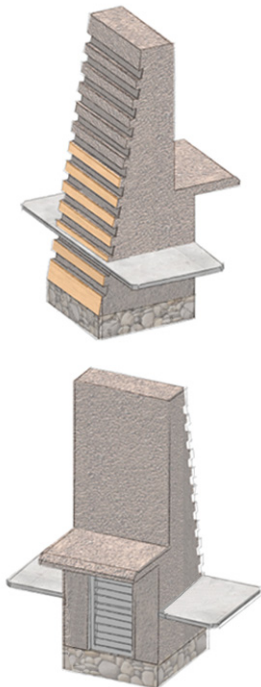


fig. 56. Toolbank storage columns and seating



fig. 57. Workshop worktop tables

## **8.2 Sustainable Design Strategies**

### **8.2.1 Orientation, Light and Solar Strategy**

The optimal orientation of the Integrated Community hub is mainly along south east-north west direction, with the courtyard facing due east. The strategic placement will help reduce direct solar gain but allows ambient light during summer periods since heat comes from north and west; hence less energy will be wasted to cool the hub. During winter periods, maximizing orientation will help the Hub to gather as much sun's energy to be stored in high thermal mass walls and be released at night time. Passive shading is the economical way to keep the Hub cool, therefore large roof overhangs, shaded pergolas are built and trees are planted for extra shading and to free the walls from rain damage (fig. 58).

### **8.2.2 Ventilation and Wind Strategy**

The overall placement and geometry of the hub maximizes the natural breeze blown from the river valley formation, which will help bring some relief during windless days. In that case, emphasis is put on openness of spaces to allow undisrupted, continuous flow of air circulation and natural ventilation. The lowered courtyard and elevated floor level, air vented walls will capture the north-easterly breeze coming from the river valley for effective passive cooling (fig. 58).

The cool air will be directed to flow through the buildings. The walls have vents openings and are positioned such that the lower part of the opening is

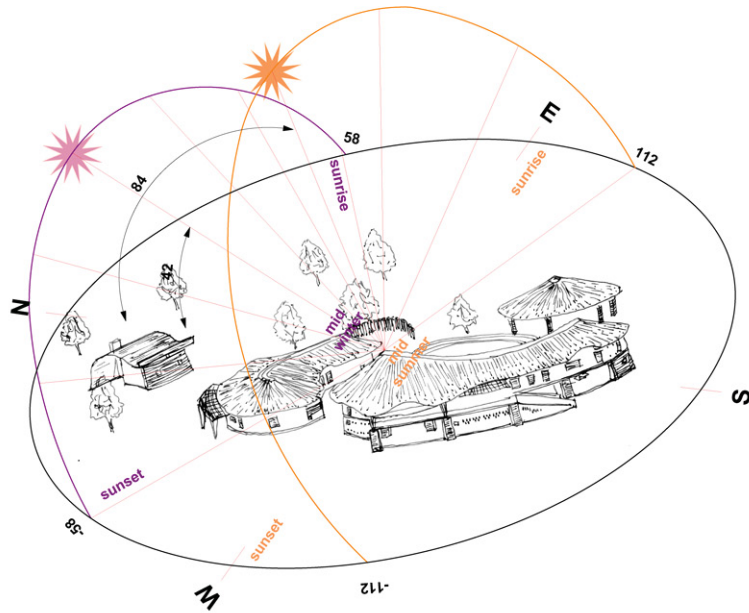
inclined outward from inside to prevent water penetration. The water features at the monuments pavilion will also act as a “cooler breeze” to help cool the air before it is distributed through the lowered courtyard as a way to maximize natural ventilation.

The roof form makes a perfect shape as a shield protecting the building from both sun and wind, and sloped such that it captures the wind to cool the inside of the building. Small openings are made at the upper ends near the apex of the roof to improve ventilation, and the openings are partly closed with louvers or lathes, angled outward to prevent rain penetration. Additional trees are planted around the site to provide extra shading, to act as wind breakers around the hub and the productive gardens, and to create a buffer zone between the hub and vehicular noise coming from the main road.

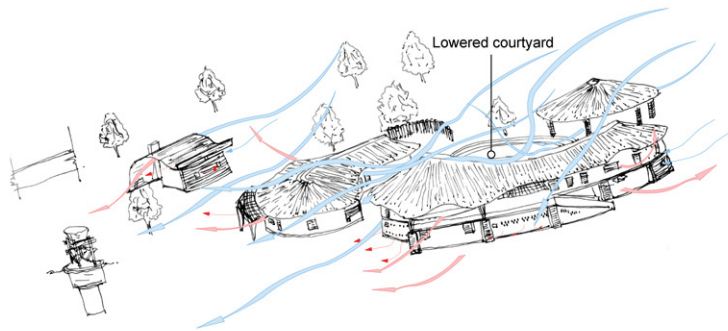
### **8.2.3 Water Harvesting and Rain Strategy**

There is scarcity of water in Moshupa village, therefore, water will be kept on the underground reservoir and then will be pumped, filtered and purified for human consumption purposes. The borehole will be drilled near the river since the water table is near the ground level.

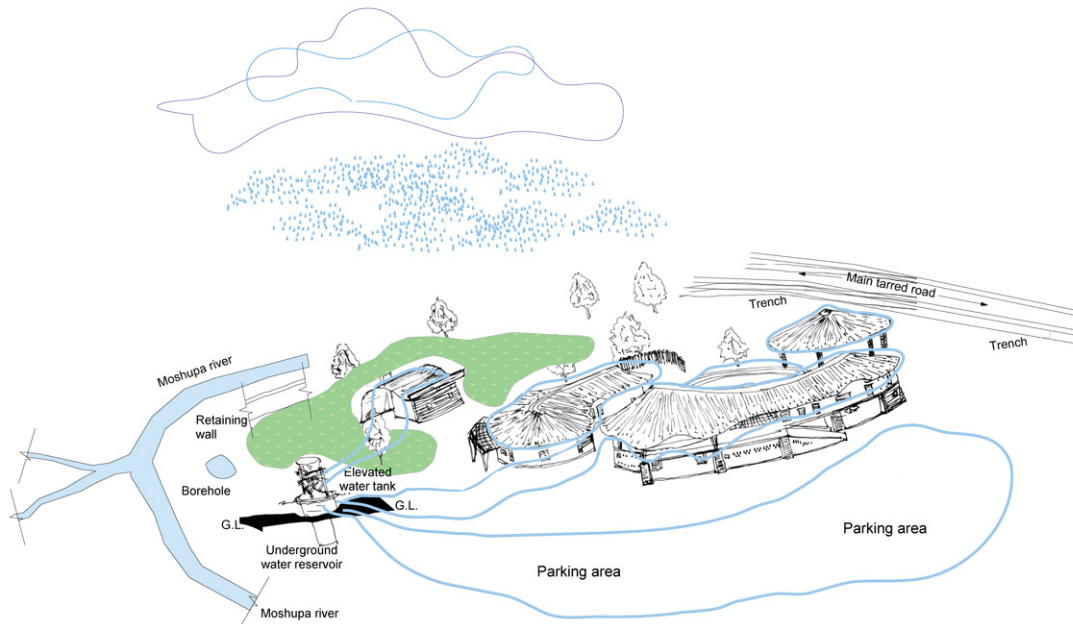
Rainwater catchment tanks will be used as a back-up during dry periods for irrigation and for rebalancing the ecosystem along the river. The courtyard will also act as a water collector, and will be slightly inclined to help direct water run-off down the slope to the reservoir tanks. Additionally, a trench will be



SUN PATH DIAGRAM



VENTILATION, WIND STRATEGY



WATER HARVESTING, RAIN STRATEGY

fig. 58. Sustainable design diagrams

built to direct storm-water to the river. Grey water from the Hub will be run through planters, then filtered and reused to irrigate productive gardens and for rebalancing the impaired ecosystem along the river (fig. 58).

#### **8.2.4 Garbage Recycling and Sewage Strategy**

In order to counter for water pollution due to disposal of waste, a garbage recycling programme will be devised on site. The organic waste could be composed to make fertilizers for the productive gardens while inorganic waste could be separated, stored and be collected by the council trucks for recycling.

#### **8.2.5 Sanitation Strategy**

Composting ventilated latrines will be used as they do not pollute portable water, contaminate soil and the river. In turn, the humus produced will be used as fertilizers. Methane digesters are proposed on site instead of sewage system which will be expensive to maintain and service.

#### **8.2.6 Electricity and Lighting Strategy**

Window opening options are: wooden blinds or louvers, with the possibility of using tree branches, plants or slats. There will be dependency on reflected natural lighting during the day times. At night, the generator station will be put in place and will use waste collected from a group of houses in the community to generate electricity or the processor could be built to convert animal manure (cowdung) into gas to power fluorescent light bulbs and the Hub.

## **9.0 CONCLUSION**

Of course it is impossible to address a generalized socio-economic transformation about one village representing other rural and semi-urban villages in Botswana. That is to say, the thesis is not trying to solve all the socio-economic and cultural issues of the country, however, the hope in the thesis exploration is that an in-depth assessment and analysis could be made. Architects, Planners, Engineers, Policy makers and other stakeholders should be positioned to contribute towards addressing issues related to the development process and impact of urbanization in rural places, as ways to provide alternative models that can respond and adapt to any sort of socio-economic transformation faced by rural communities in modern Botswana. The author concludes that the following observations may provide lessons towards a rural development livelihood as outlined:

### **9.1 Potential Growth and Future Development**

After a successful implementation of the primary project, potential income sources will be proposed to provide an extra support to allow for future expansion of the Hub. The vision for phase two development is to provide classrooms, staff housing and residential accommodation for students from remote areas, and some disadvantaged people from the community. The project will be developed across to the north arm of the river. The hope is that the development will extend along the river, thereby

building a walk towards the adjacent rocky outcrops. Additionally, crossing points and links across the river and the whole complex could be proposed in future, for example: pedestrian bridge made of stone supported structures.

## **9.2 An Opportunity for Innovation and Tourism Development in Moshupa Village**

On one hand, it may be concluded that Moshupa riverside has a potential to accommodate the infrastructure for diverse rural livelihoods and various innovative enterprises, which could be utilized and be diversified to provide opportunities for income sources, hence adding value to the local economy. On the other, there is a huge development gap between current growths along the main road that cuts through the river versus the expansion of developments along the river, relative to the original site where the village started. The rocky outcrops/incelbergs that are to the east of the proposed site limit the expansion of developments, and due to the fact that the Moshupa river splits the village into almost halves presents a costly and challenging constraint for provision of services in that area. For example, the provision of energy and water to the proposed site from the main power and waterline that feeds the village could become costly and expensive to maintain, which prompted the author to search for self-regulating systems, by using appropriate technologies that are sustainable.

Moreover, it is possible to argue that the physical landscape within the village presents a potential opportunity that hasn't been explored yet for the benefit of the community; therefore the proposed developments will bring awareness about the natural landscape, the river and the rocky outcrops that can be exploited for potential tourism, leisure and recreational developments.

### **9.3 Re-thinking Rural and National Development Approach?**

A nation without a past is a lost nation, and a people without a past is a people without a soul.<sup>1</sup>

The above quote by the first President of Botswana's Sir Seretse Khama in 1970, was a call for Africans to write their own history, and not to wait for people from elsewhere to do it for them.

The motivational words requested all Batswana to introspect and contemplate on their own history. Settlement planning and development, particularly in rural and semi-urban villages in Botswana are now guided by the use of development plans. The goal was to put in place structures that would monitor growth and developments of settlements, as well as to provide infrastructure in the most effective manner.

However, the author wonders whether the policies outlined and objectives shaping the future of rural

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40 University of Botswana, "A Nation without a past is a lost Nation," University of Botswana History Department, <http://www.thuto.org/ubh/bw/skquote1.htm#f1>.



developments in Botswana may be perhaps devised based on lessons from external influences or elsewhere. For instance, the adoption of a linear, grid pattern layout which promotes individualism, rather than organic layout of a typical horseshoe orientation pattern of a typical Tswana village, which suggest a sense of collective ownership, communal life and a cohesive community.

It may be obvious that adoption of the linear grid infrastructure may have the benefits on the basis of economizing on: service provision, cost maintenance, control village sprawl, land use management. The thesis does not solely call for imposing the traditional layout of settlement and compound strategy on every planning level. However, the author wonders whether it's the right time to raise such questions and sets a platform for an in-depth study on effective ways to enhance and incorporate traditional settlement planning approaches and guard against erosion of culture-oriented solutions? Hopefully, the thesis explorations will serve as the basis for understanding of the social traditions and village structures that the author feels may have been compromised upon reaching the goals and objectives of settlement planning on the future developments of Moshupa village. The study could also open avenues to assist scholars at the University of Botswana, School of Architecture to look into their future work and research further about the particular subject of interest.

#### **9.4 Making all Ends Meet: Inclusion of Youthful Populace at All Levels**

An opportunity to include young people affected by the effects of Urbanization need to be re-checked as they are aware of the conditions and challenges they are faced with. If given a chance to actively participate either in policy formulation or in the visionary development process of their rural settlements, towns and cities, the author is convinced that will help empower and emulate the youth capabilities. As discussed earlier, the thesis encourages the need to address emerging planning and development issues to provide alternative models that could be tested elsewhere in any rural Botswana setting, based on the study of the settlement, physical location and a geographical influence of a place. Overall, the thesis approach was to provide a better understanding of rural economic strength and the author is convinced that it has a potential to provide fresh ideas to contemporary thinkers, scholars, researchers, NGO's, policy makers, program evaluators and developers in Botswana to some of the most critical social, cultural and economic challenges currently facing the Nation and navigate the way forward, and towards a constructive re- approach to address the discussed challenges.

That said, each region or district in rural Botswana does not necessarily have to expect the Government to always provide social welfare and services for them. However, just like attempts made in the thesis exploration, communities should try to figure out how to empower and enhance self-reliance

among the growing youthful population and the rest of their communities. As a result, the resemblance will provide a place to remember the past, celebrate the present and build the future for rural places that are continuously changing, and thus will help generate a new kind of local civic and community architecture of Botswana that can adapt to modernization.

### **9.5 Engaging Architects in a Larger Discourse**

Finally, the thesis exploration further presents a platform to challenge the roles played by Architects, Engineers, Planners and other respected disciplines across all Nations to step back, engage and participate in daily issues related to the social welfare of their people. In Botswana, Planners only focus on planning, Architects and Engineers only do designs and construction, Artists do artistic paintings and sculptures which only limit them to their specialties and there is no strong connections and cooperation with people from other disciplines on a daily basis. Therefore, the author find it very critical for the raised issues to be addressed within Botswana and this in itself present lessons for other developing countries, faced by a rapid social transformation in the modern context.

As highlighted before, the relationship between urbanization, social traditions and architecture presents a framework/platform of common interest and there is still an opportunity for all stakeholders, including Architects, Planners, Economists, Policy makers and other stakeholders to collaborate and

participate in broader subjects that demand skills, energy, dedication and thorough research beyond architectural studies. The design decision that Architects usually make have more impact on both the built and un-built environment. The extreme challenges in the subjects of study does not require instant answers, however, a greater understanding of the complex interrelationship between people's needs, culture and development, as well as their application on the larger discussion of the discourse could help provide solutions to emulate the capacity and potential strength of rural societies within their localities in developing world. A collective approach based on shared values, input and involvement of the broad youthful populace in research and evaluation, and having a better understanding of community's needs may lead Nations to create an everlasting, self regulating, sustainable development and poverty free world, thereby a better place for human nature.

Furthermore, the author calls for a relaxation of prescribed building codes and standards to ensure that development needs for rural Botswana are addressed, but affirms that the sort of reconciliation should be done in good faith without compromising the quality of the design. Therefore, that will present a room for affordability of social housing, supportive infrastructure, education, training services, and subsequently, create employment opportunities and rural sustainability of the broad populace.

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