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05 | CONTEXT

Alexander defines context[1] as anything that has influence on the form-giving activity of design. He argues that if "...form is the solution to the problem, the context defines the problem." This chapter aims to identify the factors that can not be solved by universal solutions, and to obtain a set of constraints to inform the design of a temporary shelter. The goal is not to derive a site-specific solution but rather to make an embodied proposal contextually relevant to the greater Tshwane region that can also be applied to a matrix of scenarios.

5.1 CHAPTER OVERVIEW

One of the most encompassing interpretations of disaster is given by Philip O'Keefe[2] of the Disaster Research Unit at Bradford University, UK. In his opinion "disaster is the interface between a **natural or man-made hazard** and a **vulnerable condition**".[emphasis by author]

This chapter will discuss context on the basis of this definition. First the study will look at the types of natural phenomena prevalent in the greater Tshwane region, investigate the risks associated with different areas and the likeliness of unfortunate events recurring.

A further investigation of the local climate will help to determine the environmental conditions the proposed solution would have to withstand.

A brief overview of historic references looks at the development of traditional shelters and how they have evolved into more permanent dwellings due to the changes in climate.

The thesis also refers to the 'first' shelter camps in the history of South Africa and looks at situations where large quantities of shelter was required and the living conditions that stemmed from it.

The second part of this chapter investigates the myths and realities and the resulting needs that derive from the current response methods. It considers the factors which contribute to vulnerable conditions that create the circumstances for disaster to occur. These conditions are further examined through three case studies:

(a) Diepsloot, Johannesburg

(b) Klerksoord Shelter Camp, Akasia

(c) Soweto Flash Flood, Johannesburg

1 Alexander (1964:15)
2 Davis (1978:2)

94

FIRE: GRASS/ RUBBISH 10 879 HOUSE 1 684 VEHICLE 1 414 BUILDING 1 391 SHACK 1320 OUTBUILDING 646 LAMP POLE/ TRANSFORMER 375 ELECTRICAL 385

ACCIDENTS: VEHICLE 16 600 PEDESTRIAN 5492 MOTORBIKE / BICYCLE 1453 TAXI 1038 HEAVY VEHICLE 602 DEPARTMENT VEHICLE 425 BUS 134

DISASTERS: FLOODING 203 **AMBULANCE TRAUMA:** ASSAULT 152 **STANDBY:** SPECIAL SERVICES 1244
GAS LEAK: SPECIAL SERVICES 109 **SPILLAGE:** SPECIAL SERVICES 108

07

Figure 20 List of events that Emergency Services have responded to between 1994 & 2007 **:** Department of Disaster Management (2008:5)

5.2 NATURAL AND MAN-MADE DISASTER IN THE URBAN CONTEXT

5.2.1 LOCAL DISASTERS

According to the Tshwane Department of Disaster Risk Management, the greater Tshwane region is most vulnerable to the following natural hazards:

(a) Informal settlement fires

(b) Floods (urban)

(c) Severe weather events

(d) Veld fires

(e) Sinkholes

The most recent and biggest declared disaster in the region was the outbreak of xenophobic violence in 2008. It is classified as a political disaster and the rehabilitation of the displaced persons are ongoing.

The chapter will discuss the needs of xenophobia victims only when the characteristics of this type of event serves as an example of a worst-case scenario.

5.2.2 RISK PROFILE

Each ward within greater Tshwane is analysed and assigned with a risk profile. These risk profiles provide an overview of potential disasters in each area.

Every ward profile includes an analysis of historical events based on information gleaned from sources such as Weather SA and GIS based probability analyses, and vulnerability based on socio-economic statistics such as employment, income, age and gender.

5.2.3 VULNERABLE CONDITIONS

McDonald[3] states that:

> Through the advances of the technological age, introduction and implementation of building codes and regulations man has attempted in preventing the effects of natural disasters in the built environment.

Yet it is through the same technology and science that the 'integral accident' is born. "For whatever is invented the inherent failure thereof is unconsciously invented simultaneously."[4]

Cities are the crux of this hidden landscape and accidents are unfortunate part of everyday life. Figure 21 represents the Tshwane Emergency Call Register. It indicates that fires and floods are the most prevalent types of disasters in the Tshwane region and that prevention strategies have not succeeded.

Disasters have an unforgiving influence on the built environment. The built environment must continually anticipate and adapt to prevent such tragedies.

3 McDonald (2003:1)
4 Virilio (2006:47)

Some of the main factors that contribute to the high flood and fire risks in Tshwane are:

(a) Inadequate storm water and flood management

Because the problems associated with a lack of proper storm water management[5] only present themselves when it rains, the development and upgrading of a comprehensive storm water drainage system has been neglected in Tshwane.

There is an immense need for storm water drainage master plan. Due to urban densification, outdated design criteria a large percentage of storm water drainage systems are under capacity.

(b) No master drainage plan

No integrated data on run-off peaks and volumes or digital flood lines along major watercourses were available for the CTMM area. This data is required for developing an integrated catchment management plan for both present and potential future development.

(c) No local storm water master plans

Except for the Klip-Kruisfontein area no storm water master plans exist in the northern region. The former Pretoria, Centurion and Akasia areas have local storm water master plans for most areas.

5 City of Tshwane Metropolitan Municipality (2006:86-87)

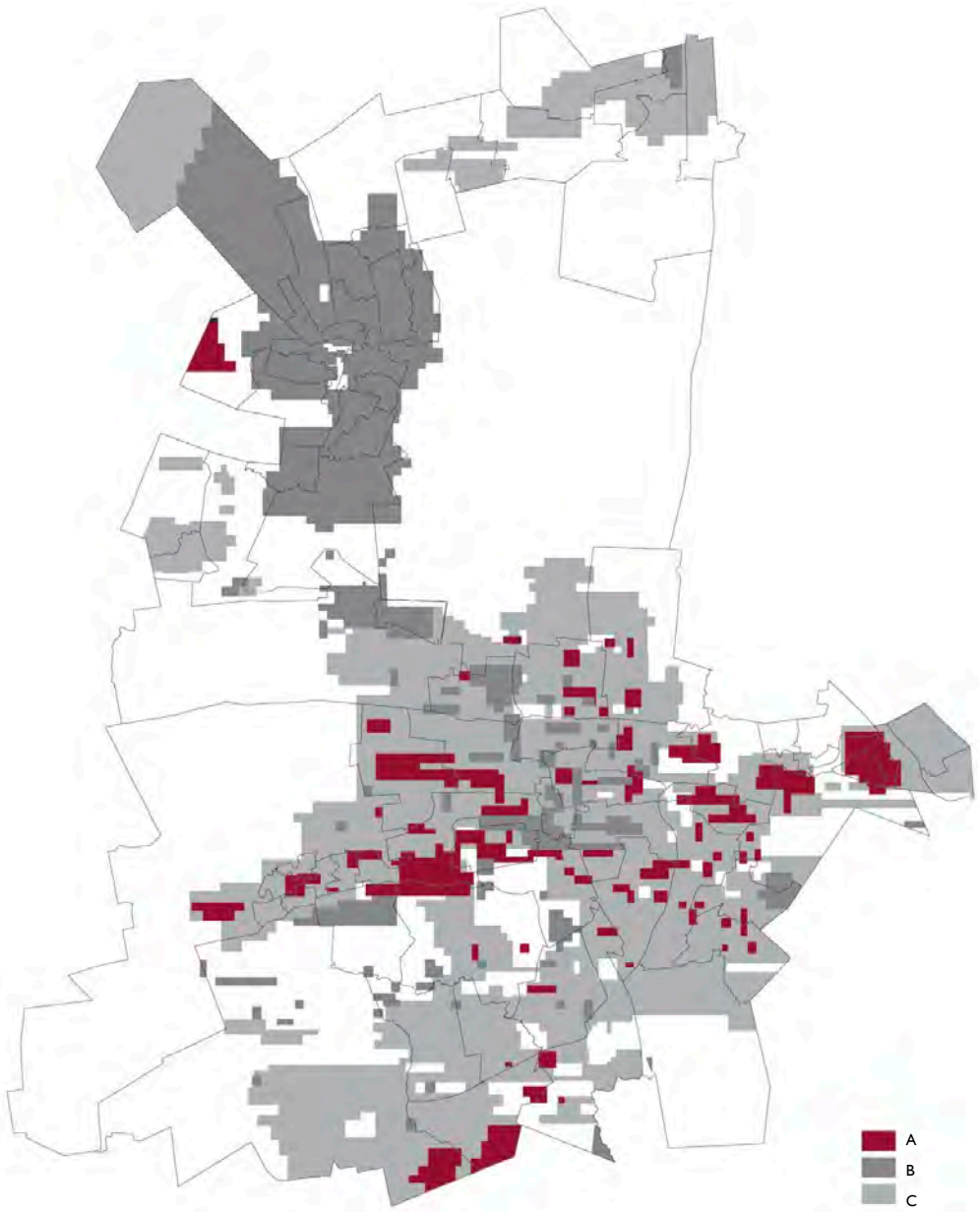


Figure 21 Map of fire risks according to classification **:** Tshwane Metropolitan Municipality (2006:113) [redrawn by author]

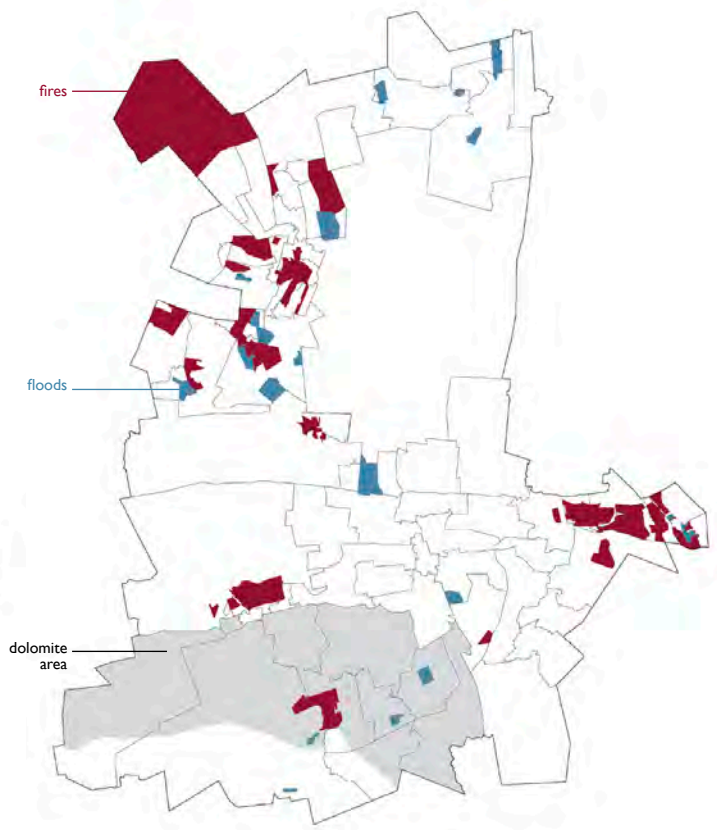


Figure 22 Map of Hazards in Tshwane for the year 2007/2008 **:** Department of Disaster management Services [compiled by author from various sources]

Table 06 Fire risk catagories **:** Tshwane Metropolitan Municipality (2006:111-112) [redrawn by author]

CLASS A HIGH RISK - URBAN	CLASS B MEDIUM RISK - URBAN	CLASS C LOW RISK – URBAN	CLASS D LOW RISK – RURAL	CLASS D1 HIGH RISK– INFORMAL	GRASS
Areas where the risk to life and property due to fire occurrence and spread is likely to be high. : Tshwane CBD, Sunnyside, etc.	Areas where the risk to life and property due to fire occurrence and spread is likely to be moderate. : Silverton	All structural hazards not included above, but excluding rural. Includes residential areas of conventional construction. : Fearie Glen, Moreleta Park, etc.	Primarily natural surroundings but also involves rural areas of limited buildings and remote from urban areas : Winterveld, Dwellings, Small, Holdings to thenorth	Predominantly densly informal housing –mostly non-brick structures. : Some areas within Mamelodi	Grass No dwelling, just grass land : Rietvlei Dam Nature Reserve **RESCUE** : Rescue Special risk class for areas with rescue sites Mine shafts, open dams, etc.

(d) Building near flood lines

Tshwane has almost 1100km of natural watercourses. Of these approximately 30% have 1-in-50 year flood lines data and 5% have 1-in-100 year flood lines data. The severe shortage in up to date flood line information results in building projects being approved in potentially hazardous areas.

Many RDP housing schemes and informal dwellings have been erected in high-risk flood areas. Ambitious building projects and unforeseen weather circumstances have accounted for the rise in the number of major incidents over recent years [Figure 25]. The often poor quality of these RDP houses is intrinsic to the damage caused, especially in the case of flash floods.

(e) shortage in bulk power supply

The analysis of the shortage in bulk power supply[6] in Tshwane shows a correlation between the income status of inhabitants and the choice of energy source used. Use of alternative energy sources over electricity is more prevalent in areas with lower incomes; this can be associated to the varying costs of each energy source.

Informal settlement fires occur because of accidents caused by paraffin or candles and the use of non-fire-resistant building materials. The close proximity of shacks rapidly increases the risk of fires spreading and difficult access to these dense areas makes it hard for fire engines to reach them in time. It is also unfortunate that some areas with high fire statistics, such as Mamelodi [Figure 24] do not have a local fire station and are dependant on the neighbouring Silverton branch.

6 Tshwane Metropolitan Municipality (2006:96)

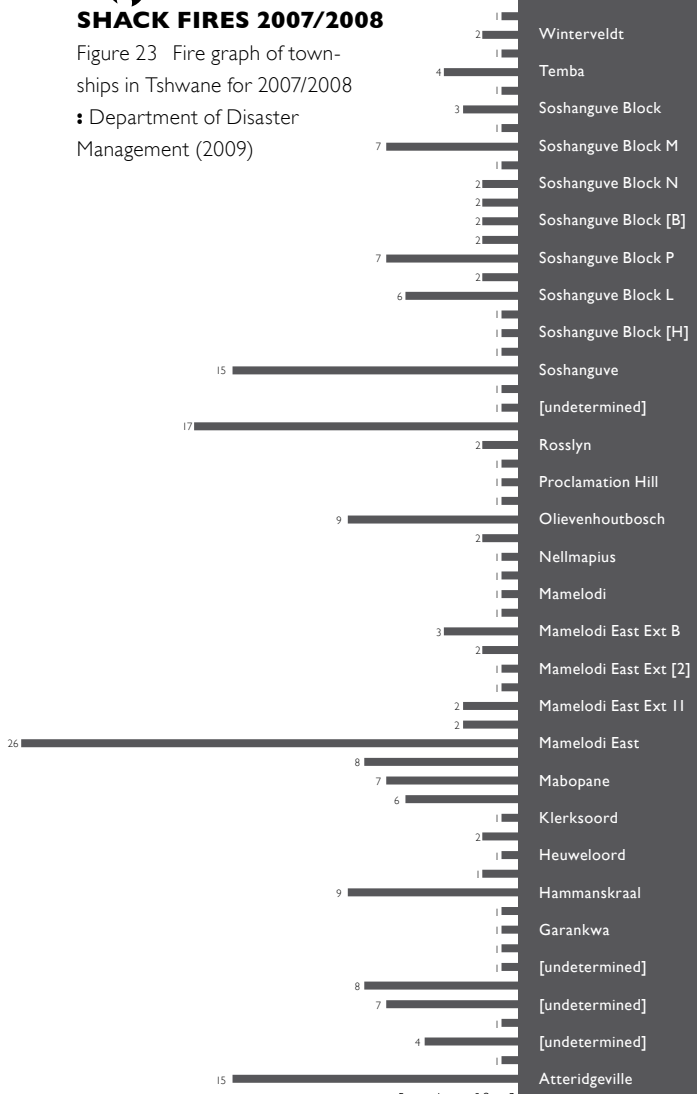
5.3 CLIMATE

Figure 29 shows the likeliness of a particular weather condition appearing at least once a year. The results are rather unnerving when shown.

The climate of a place is determined by using the collective data from 30 years or more. Where possible the climate data from three weather stations in the Tshwane region is used for the analysis. It should be

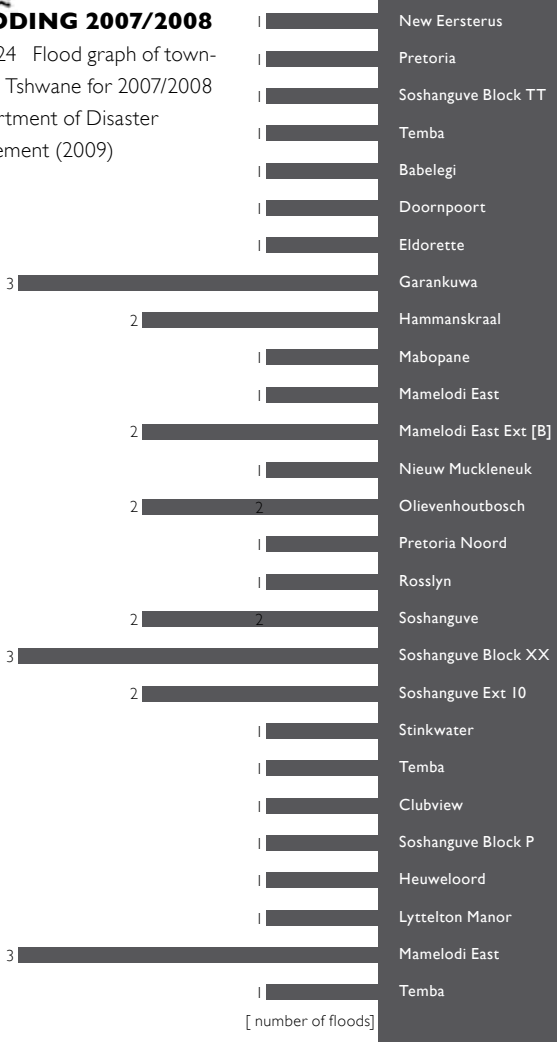
SHACK FIRES 2007/2008

Figure 23 Fire graph of townships in Tshwane for 2007/2008 : Department of Disaster Management (2009)



FLOODING 2007/2008

Figure 24 Flood graph of townships in Tshwane for 2007/2008 : Department of Disaster Management (2009)



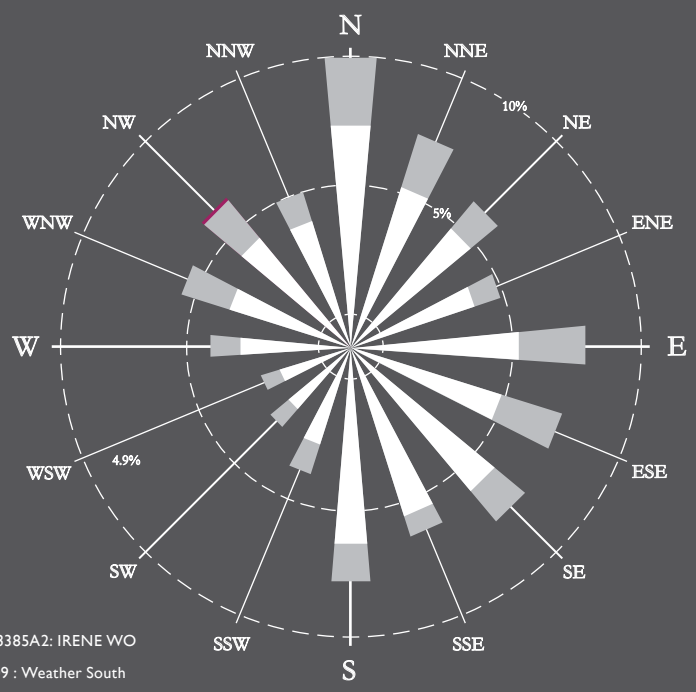


Figure 25 Irene wind rose - 0513385A2: IRENE WO YEAR AVERAGE PERIOD 1993 - 2009 : Weather South Africa (2009)

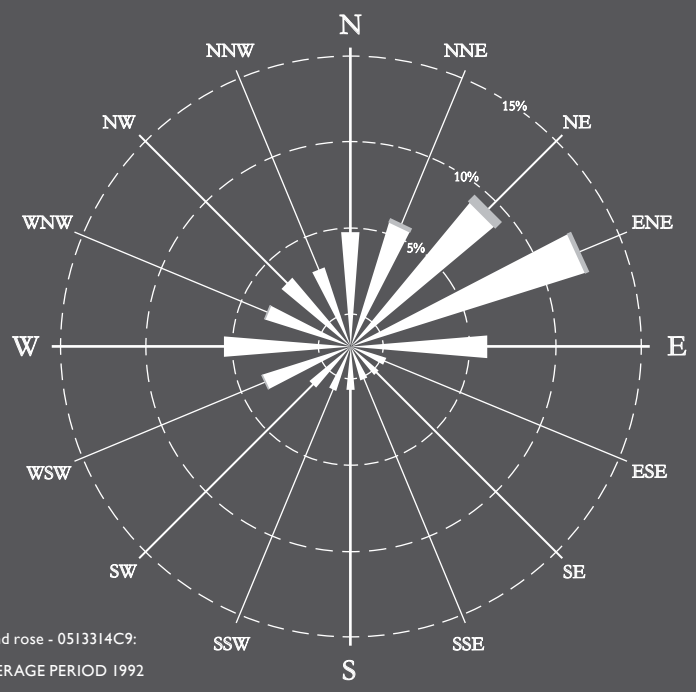


Figure 26 Pretoria Eendracht wind rose - 0513314C9: PRETORIA EENDRACHT YEAR AVERAGE PERIOD 1992 - 2009 : Weather South Africa (2009)

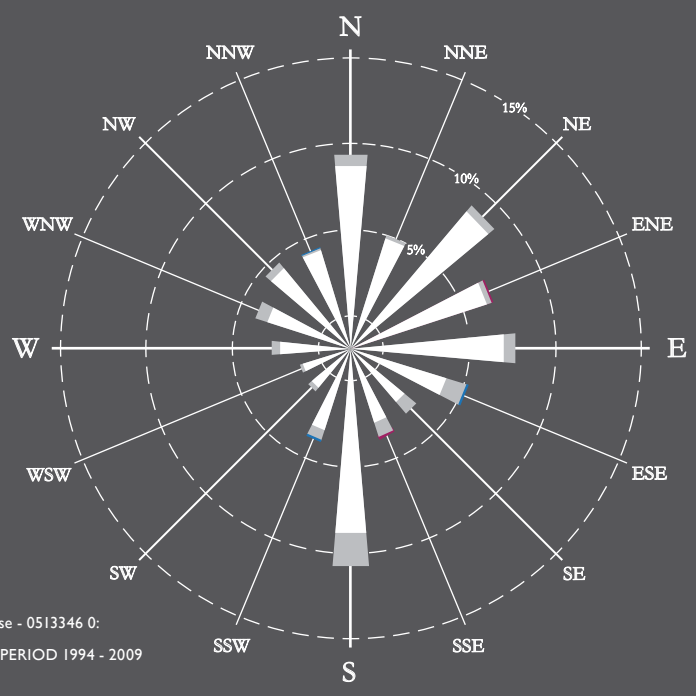


Figure 27 Pretoria Unisa wind rose - 0513346 0: PRETORIA UNISA YEAR AVERAGE PERIOD 1994 - 2009 : Weather South Africa (2009)

noted that not all of the stations opened at the same time and the introduction of new technologies also influence the readings.

The other issue is that we have changed our instrumentation over the years from thermometers to sensors. Wind speeds are never averaged, maximum and minimums remain in

Tshwane has three distinctive temperature regions that vary with within 2 degrees of the announced daily temperature.

5.3.1 CLIMATE CHANGE

Climate change is calculated using a variety of data and not just weather analysis. It is very difficult to evaluate changes in climate (a consequence of global warming) through measured data alone.

As mentioned before to establish the weather of a particular place 30 years worth of data needs to be collected. This 'cluster' of data is then compared to subsequent 30 year periods to evaluate if there are any changes. South Africa has only been measuring weather conditions for a relatively short time.

Climate models predict that the global temperature will rise by about 1.4 to 5.8°C by the year 2100. This statistic refers to global changes, therefor on a local level some places may become warmer or cooler within this range.

Local predictions estimate that by 2050 the average temperature will have risen by 2°C, the minimum winter temperature by as 3°C.[7]

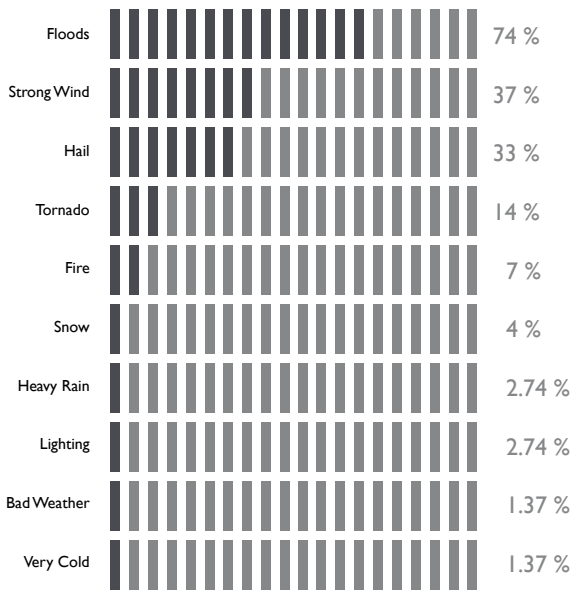


Figure 28 Likelihood that weather related events might occur at least once a year **:** Department of Disaster management (2008:5) [redrawn by author]

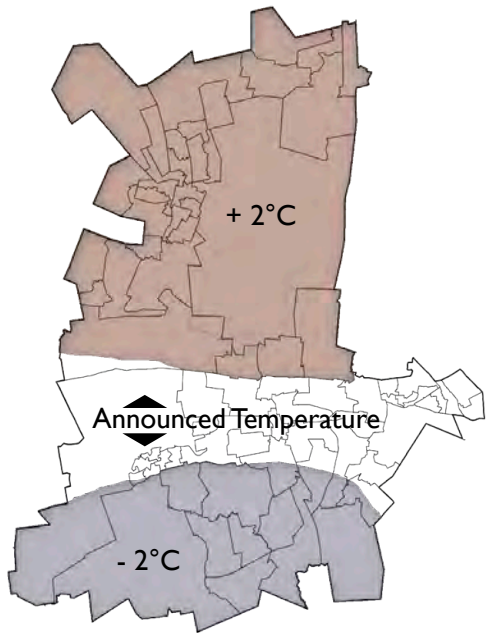


Figure 30 Climate differences in Tshwane **:** Tshwane Metropolitan Municiplality (2004:10) [redrawn by author]

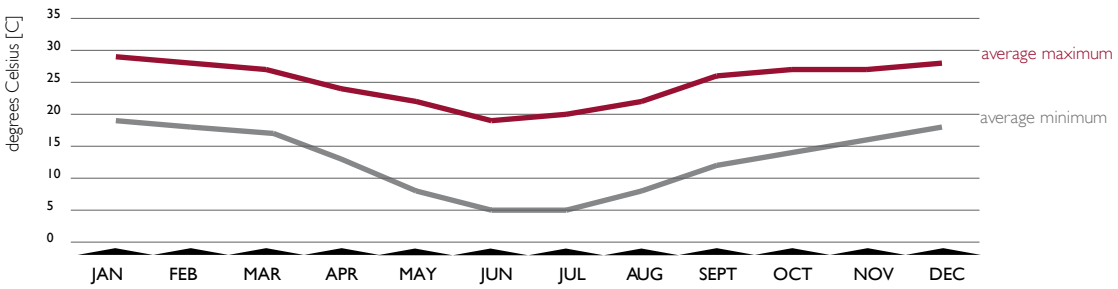


Figure 29 Average daily maximun and minimum temperatures **:** Tshwane Metropolitan Municiplality (2004:9) [redrawn by author]

5.4 HISTORIC PRECEDENTS

5.4.1 NOMADIC ROOTS

SOUTHERN AFRICAN RURAL VERNACULAR presumably derived from a generic nomadism. Predominant site conditions gave rise to the development of two distinct technologies that grew into the various typologies recognized today.[8]

These are characterized by the preferred form of construction and materials used, namely:

GRASS-ORIENTATED CONSTRUCTION seen in east Drakensberg regions where rain is prominent and many grass types are abundant

WATTLE AND DAUB CONSTRUCTION found in the drier highveld regions where rainfall is likely to erode exposed walling, and waterproofing technologies are in less demand.

The evolutionary building process and gradual adaptation of building techniques show how changes in the environment where accounted for. This proves that if a hazard for example heavy rains are prominent throughout the year building practices will adapt.

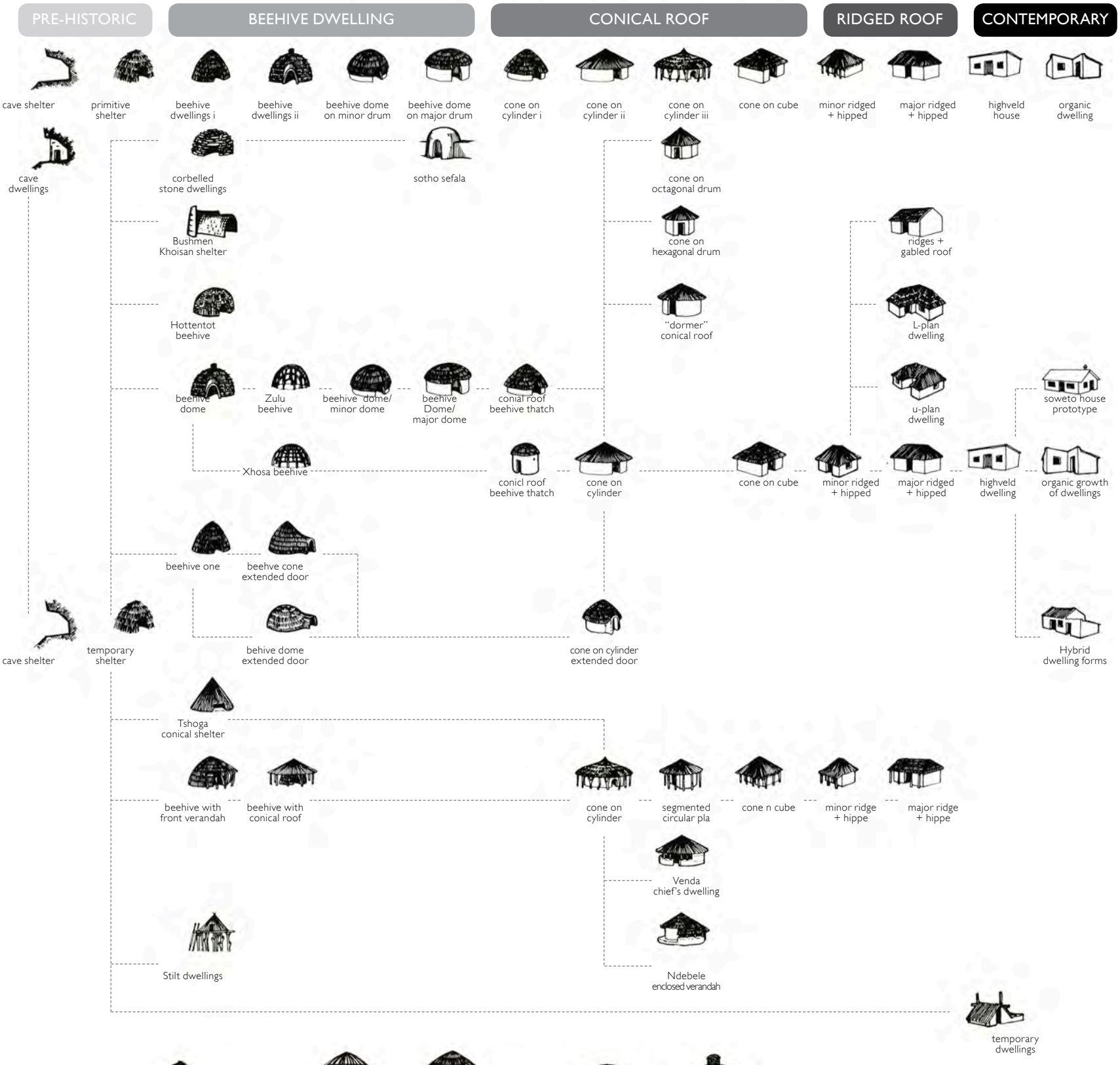
The current form of building most popular in informal settlements is corrugated iron constructions, that had their birth out of efficiency.

This type of building does not allow for a natural progression towards safer and more suitable building practices as evident in vernacular building forms.

7 Van Niekerk et al (2009:2)

8 Frescura (1981:11)

Table 07 Development of rural vernacular : Frescura (1981:20)



GRASS SHELTER

NOMADIC: Bushmen

STRUCTURE: circle of saplings bent inward to apex

COVERING: loose thatch
WALLS: nil

BEEHIVE CONE

SEMI-NOMADIC: Sotho, Tswana

STRUCTURE: circle of saplings bent inward to apex, no centre post, horizontal bracing

COVERING: sewn thatch

WALLS: nil, daga floor curved up to give raised kerb

BEEHIVE DOME

SEMI-SEDENTARY: Zulu, Nguni, Swazi, Xhosa, Herero, Thembu

STRUCTURE: circle of saplings bent inward and crossing at apex, two series of arches crossing at right angles, centre post used

COVERING: grass with hide, grass mat covering, rope network thatch

WALLS: nil, daga floor curved up to give raised kerb

GENERAL: woven semi-circular grass screens [Zulu]

BEEHIVE [BILOBIAL]

SEMI - NOMADIC: Sotho

STRUCTURE: circle of saplings bent inward to apex, no centre post

COVERING: sewn thatch

WALLS: nil to hut, raised kerb

GENERAL: verandah to front, stone + reed bilobials

CONE ON CYLINDER I

SEMI - SEDENTARY: Sotho, Tswana

STRUCTURE: doel and daga or wattle and daub, later daga and stone rubble, centre pole optional

COVERING: thatch on roof frame, prefab and lifted into place

GENERAL: verandah all round

CONE ON CYLINDER II

SEMI - SEDENTARY TO SEDENTARY

STRUCTURE: mostly stone rubble and daga, centre post

COVERING: roof span bigger, thatch on roof frame constructed in sito

GENERAL: refinement of verandah space, walls sounder

CONTEMPORARY RURAL

MOSTLY SEDENTARY

STRUCTURE: use of traditional and modern building methods, walls squared off showing western influence

COVERING: thatch roof on frame

GENERAL: introduction of western elements: doors, etc.

Figure 31 Development of two distinct technologies : Frescura (1981:12)

5.5 IRENE CONCENTRATION CAMP

LOCATION: Irene, Centurion
DATE: 1899-1902
RESPONSIBLE PARTY: British Troops
PRISONERS: Boer men, woman and children captured during the Anglo-Boer War
DESIGN: British Military
MAJOR FUNDING: British Military

No precedent[9] existed when the English first conceived the idea of encamping the Boer woman and children in an attempt to deprive the Boer Commandos from supplies and intelligence. These camps where laid out according to crude military guidelines and was operated by the troops until control was passed over to civil society. Much can be learned from the mistakes made by the English military and serves as unfortunate but very relevant precedent on shelter camps.

The term 'concentration camp' derives from the concentration a large number of people in an enclosed space.

BOUNDARIES

An article in the Icon Magazine[10] suggests that barbed wire was first used to enclose human beings [as opposed to cattle] by the English troops. Although it should be noted that in this instance barbed wire was used to prevent the inhabitants from escaping, barbed wire around the xenophobia refugee shelter camps were used as a means of security to keep the ill intended out.

SHELTER

The introduction of principles such as influx management is apparent in the placement of a 'observation camp' introduced to screen new arrivals for disease before settling in the main camp.

This camps adhered to the basic amenities and its is easy to point out why this exact location was chosen. The camps was positioned close to the train station and the river for washing, bathing, cooking activities. These basic principles still apply today.

9 Hattingh (1967)

10 Wiles (2007:25)

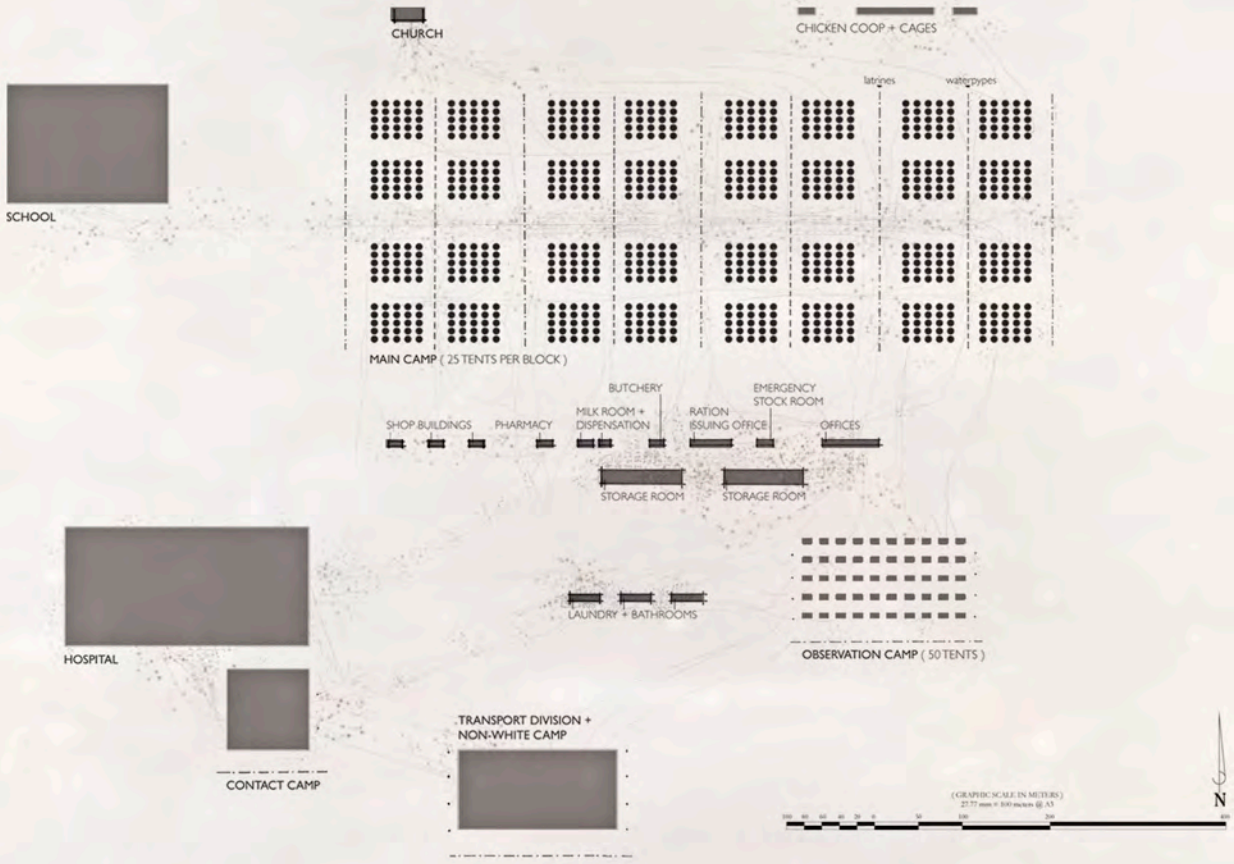


Figure 34 Typical concentration camp layout : Hattingh 1967:[n.p]) [redrawn by author]

Due to severe winters and insufficient means of shelter, disease ravaged the camp. Lack of proper dietary supplements and unhygienic habits contributed to the downward spiral of unfortunate events.

From this Fig. 35 shows how the camp layout was finally amended in an bid to prevent disease from spreading. Livestock and ablution facilities where kept separate from the main camp and an observation area was [influx management]

Figure 35 Irene Concentration camp (1902:[59of 171])

Figure 36 Nolli Map of Irene 2009

5.5 MYTHS + REALITIES

Shelter after Disaster is a comprehensive study by Ian Davis, principle lecturer of architecture at Oxford Polytechnic and expert of shelter provision. He has proven certain myths wrong surrounding the topic of shelter in the event of disaster, particularly in the developing countries.

In order to guide the development of the research text where selected to serve as a guideline in an attempt to explain elements that where not possible to experience first hand. Where possible statements are compared and justified with local scenarios.

Davis explains these myths and realities[11] in terms of the following categories.

5.6.1 VULNERABILITY

Disasters do not strike everyone equally. Disasters tend to strike the poor as can be seen from the case studies.

5.6.2 SOCIAL ATTITUDES

Despite the panic shown in the media there is no evidence to suggest that disaster victims fall into a 'state of inactivity'. Given the exception of isolated cases it has been proven that a 'strong self-preservation instinct' takes over when someone has just survived an unfortunate event. The effects of such events are further discussed in the Soweto case study.

5.6.3 SHELTER NEEDS

The perception that official shelter is preferred was proven false. It was suggested that displaced victims have the following clear preferences:

1. host families/ friends

2. improvised shelters

3. converted buildings

4. official shelter

It is therefor important that the project develops a shelter typology that has the flexibility to be used in as many of the before mentioned scenarios.

Possibly the thesis should be looking at smaller units for the flexibility required. This would enable multiple units to be used for larger families. The ability to be used on site or next to a host family, or start of an improved shelter would be advantageous. It should be able to stand alone in converted buildings (or collective centres such as community halls, gymnasiums etc.)

Communal shelters have proven to be ineffective. In the aftermath of disaster societies tend to clutch to the family unit and remain in a familiar setting/community. The premise of larger shelter units that cater for families (4-6) is challenged as demographics show [Figure 54-55] more or less an equal ratio of families versus single persons. A smaller 2 person unit is therefor suggested that can cluster to become a family sized shelter.

5.6.4 RECONSTRUCTION

It is a clear understanding that in South Africa reconstruction will commence regardless of protocol, or relocation initiatives. The crucial mistake made is that in the rush to erect shelter, the exact same mistakes will re-occur and the living conditions might even become more dangerous.

In the event that the starter kits arrive on time the quality of living it is able to provide is nothing more than the most basic sheltering of elements. No insulation, no waterproofing, no proper foundations and nothing to help in regaining a sense of home and wellbeing to counteract the severe losses that have incurred.

5.6.5 RELOCATION

Another factor in the provision of emergency shelter is the acceptance that it cannot be reclaimed once it has been issued. It is therefor required that a donor shelter typology be developed that will remain with the disaster victim and become part of the reconstruction process.

5.6.6 THE PROVISION OF AID

This section stresses the importance of a collaborative approach between the various aid entities. The Disaster Risk Management Framework contains the required analysis for determining the measure of aid and funds to be allocated in emergency situations. It is important for aid to be distributed following the proposed protocol as stipulated in the local Disaster management plan.

It helps in preventing situations where aid is provided in response to 'perceived needs'. A high influx of aid can potentially inhibit local recovery initiatives and create 'dependency relationships'.[12]

It is therefore imperative that the proposed project becomes a part of the contingency plan with clear understanding of when it should be deployed.

11 Davis (1987:26-30)

12 Davis (1987:30)

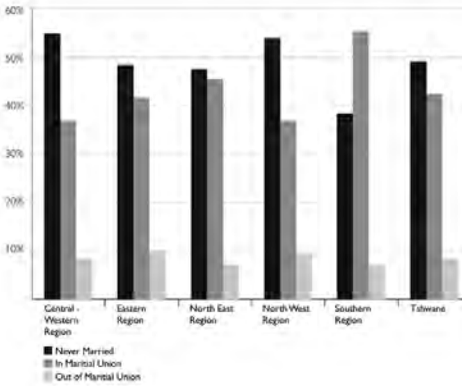
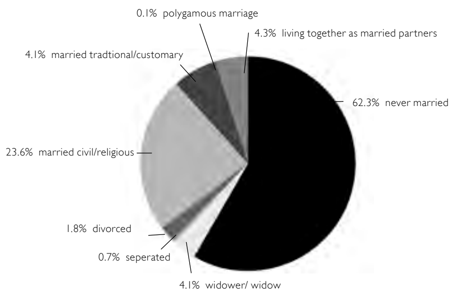
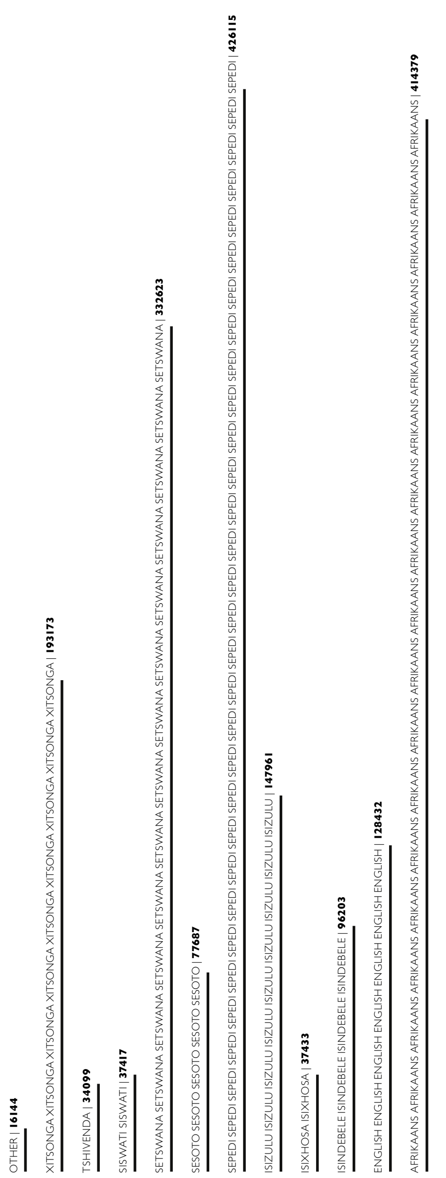


Figure 54 Percentage distribution of people 16 years old and over by marital status and regions : Tshwane Metropolitan Municipality (2008:23)



MARITAL STATUS IN TSHWANE

Figure 55 Percentages of people co-habitating or living together in Tshwane : Tshwane Metropolitan Municipality (2004:44)[redrawn by author]



HOME LANGUAGES IN TSHWANE

Figure 56 Home languages spoken in Tshwane : Tshwane Metropolitan Municiplaity (2004:44) [redrawn by author]

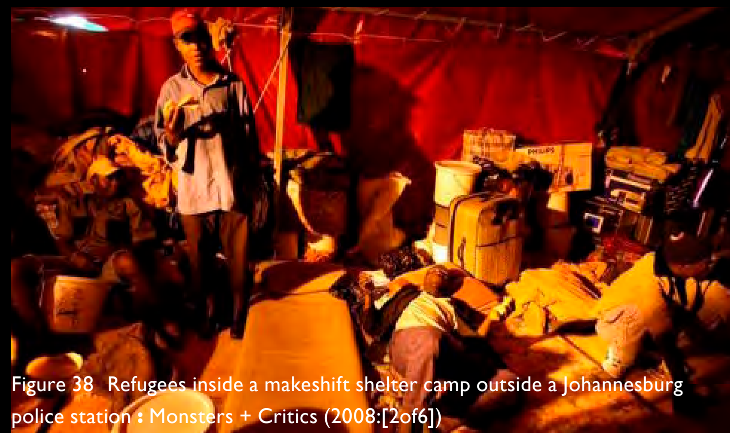


Figure 38 Refugees inside a makeshift shelter camp outside a Johannesburg police station : Monsters + Critics (2008:[2of6])


Figure 39 Man waiting for transport outside camp : Krog (2008:[14of14])

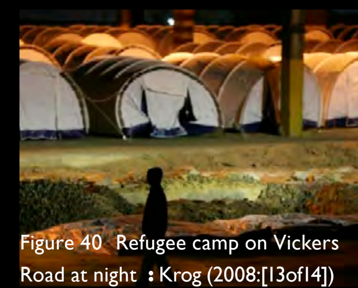


Figure 40 Refugee camp on Vickers Road at night : Krog (2008:[13of14])


Figure 41 Interior scene at the Central Methodist Church, Braamfontein Johannesburg : Farrell (2008:16of24])

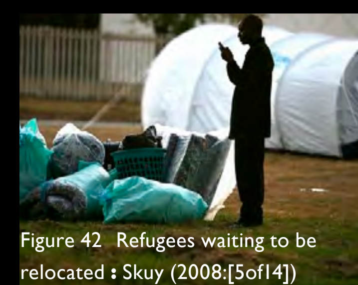


Figure 42 Refugees waiting to be relocated : Skuy (2008:[5of14])


Figure 43 Child sleeping in the open air in Musina camp : Delay (2008:[22of24])


Figure 44 Refugees sleeping in the stairwell : Austen (2009:[22of22])


Figure 45 Woman sleeping in the open air in Musina camp : Delay (2008:[22of24])

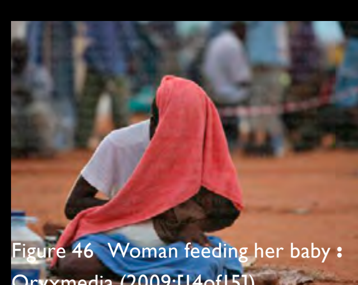


Figure 46 Woman feeding her baby : Oryxmedia (2009:[14of15])


Figure 47 Child hiding in a cupboard at Methodist Church : Born (2008:[13of24])


Figure 50 Man washing clothes : Oryxmedia (2009:[13of15])

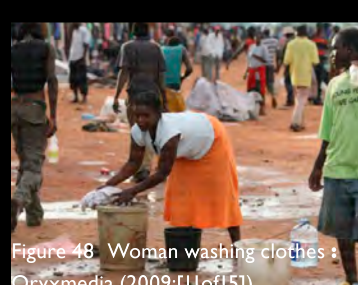


Figure 48 Woman washing clothes : Oryxmedia (2009:[11of15])

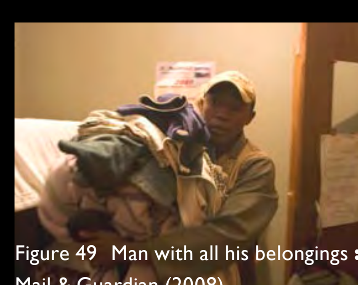


Figure 49 Man with all his belongings : Mail & Guardian (2008)

Figure 51 Laundry hanging on the security fence : Mashiloane (2008:[8of14])

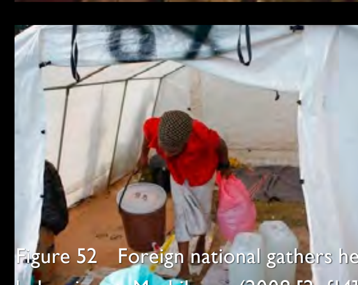


Figure 52 Foreign national gathers her belongings : Mashiloane (2008:[2of14])

Figure 53 Foreign national get ready to be move : Mashiloane (2008:[2of14])

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CASE STUDY

5.7 DIEPSLOOT, JOHANNESBURG

Diepsloot[13] was established in 1995 and is today home to around 150 000 residents. It was initially intended to be a temporary transit camp for 7 000 families. Due to rapid urbanization the sprawling township has a severe lack of infrastructure and formalized housing. It is estimated that nearly 16 000 families live in informal dwellings consisting of ad hoc materials.

Housing is constructed by occupants themselves most commonly using corrugated iron sheets. Whilst this type of building material is affordable, easy to transport, and quick to assemble, the disadvantages of this type of constructions are a lack of thermal insulation and energy efficiency.[14]

Figure 57 Locality Map of Diepsloot

5.7.1 VULNERABLE CONDITIONS:

Two observations made by Davis[15] can be understood in the context of Diepsloot:

"First, people build their homes in response to their everyday needs - their occupations, their wealth, their traditional construction techniques and their cultural patterns."

"Secondly, the return period of most forms of disaster is so infrequent that it has no influence whatsoever on local construction techniques or sitting of settlements."

It is well known that the urban poor tend to inhabit the worst land in the densest and most dangerous part of the city such as building near riverbanks in areas with high flood vulnerability.

Failure in understanding how and why certain circumstances are hazardous. Inhabitants need education in potentially dangerous locations.

5.7.2 STRATEGIES FOR IMPROVEMENT

Initiatives such as Global Studio have shown that there is great opportunity for education and training in the affected areas. Communities are eager to be involved.

Global Studio Johannesburg started a Shack and Housing improvement initiative. The initiative trains people to improve amongst other things the thermal quality of their dwellings through low cost methods.

Leaking drains and fetid water in the streets are a health hazard, a problem which some local residents were trained to address themselves; as well cleaning up garbage in and around the dwellings to mitigate fire spreading [figure 64-66].

Initiatives to further educate inhabitants in modifying building techniques to be safer.

5.7.3 CARDBOARD INSULATION

Davis[16] recognises "...that these unfortunate events target the very poor members of our society it is necessary to reflect that it may cost 15% more to construct a safe house."

It may initially require higher capital cost to amend these construction methods just enough to prevent and mitigate the effects of disasters.

A recent study about the energy efficiency of ultra low cost housing in Pretoria has shown the potential of inexpensive modifications to have significant effects on the temperature extremes experienced in corrugated iron dwellings.

It was found that "[t]he people who can least afford it have to pay the highest percentage of their earnings to make their lodgings habitable." [17]

Cardboard insulation showed the most potential from an economic and energy efficient point of view.

A study was conducted looking at the amount of energy consumed by homes from different building materials. Corrugated iron proved to be the least efficient building material when used without any type of thermal insulation [Table 09].

It was found that by adding 20mm of cardboard insulation the total energy consumption during the winter months would decrease by as much as 75% [Table 10].

13 Global Studio (2007:113)
14 Mathews et al. (1995: 427-432)
15 Davis (1978:6)
16 Davis (1987:10)
17 Mathews et al. (1995:427)

CARDBOARD COST + SAVINGS

Table 09 Simulated energy consumption for different building materials and concepts (heating season **:** Matthews et al (1995:429)

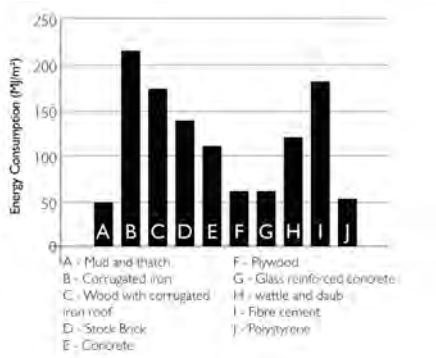

Table 08 Simulated energy consumption for different insulation materails **:** Matthews et al (1995:430)

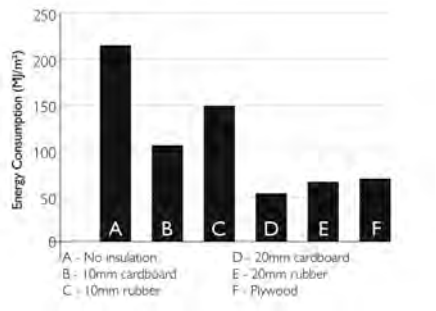

Table 10 Material cost and yearly savings for different cardboard insulation materials **:** Matthews et al (1995:430)

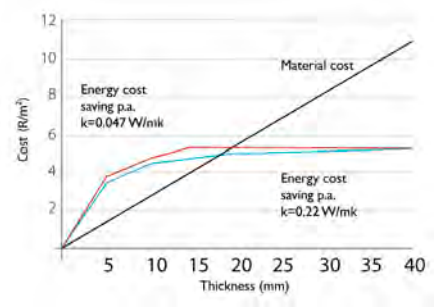

Figure 58 Debris on roof that conribute to hazardous conditions : Global Studio (2007:14)

Figure 59 Installing cardboard insulation : Global Studio (2007:84)

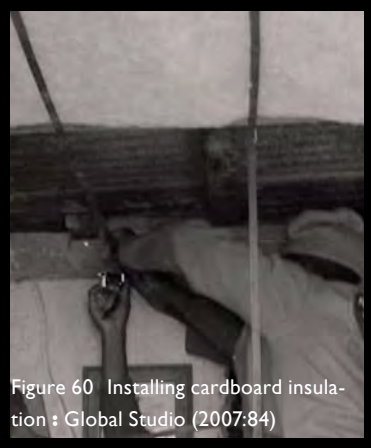

Figure 60 Installing cardboard insulation **:** Global Studio (2007:84)

Figure 61 Residents waterproofing a roof of a dwelling **:** Global Studio (2007:83)

Figure 62 Cheerful resident after instalation **:** Global Studio (2007:84)

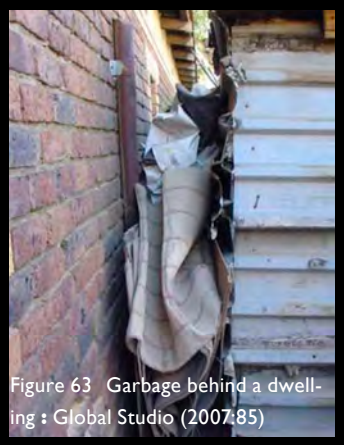

Figure 63 Garbage behind a dwelling **:** Global Studio (2007:85)

Figure 64 owner clearing garbage behind dwelling **:** Global Studio (2007:85)

Figure 65 Safer environment **:** Global Studio (2007:85)

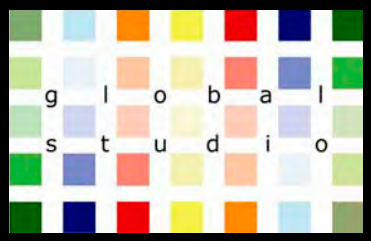

Figure 66 Residents cutting cardboard for insulation : Global Studio (2007:83)

Figure 67 Residents help improve their own homes : Global Studio(2007:83)

Figure 68 Aerial photo of Klerksoord, Akasia : Googlemaps (2009a) [compiled and edited by author]

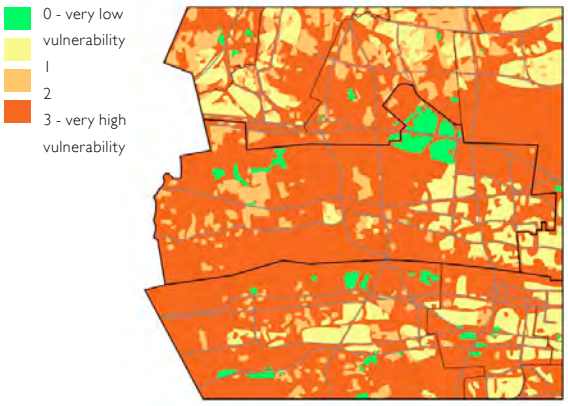

Figure 69 Environmental Vulnerability map : Department of Disaster Management Services (2008:4)

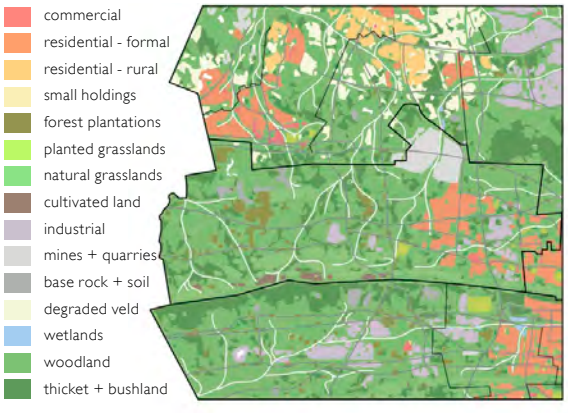

Figure 70 Landuse map : Department of Disaster Management Services (2008:4)

CASE STUDY

5.8 KLERKSOORD SHELTER CAMP

TEMPORARY SHELTER CAMP, AKASIA

Figure 71 Locality Map of Klerksoord, Ward 4, Akasia

The outbreak Xenophobic violence during May 2008 caused wide scale displacement of foreign nationals within various regions in South Africa. When temporary collective centres exceeded their capacity to contain the situation the government announced that Centres of Safe Shelter [CoSS] were to be established to mitigate the situation. On 26 May 2008 some 500 internally displaced people [IDP] were effectively relocated on to a site in Klerksoord, Akasia.

Reports[18] state that the residents were initially provided with two tents, 15 blankets [but no bedding], five toilets, two water points, 100 cans of food. From here on aid was predominantly provided by small NGO's, religious groups and individual volunteers.

In June, 56 military canvas tents were supplied by the municipality to accommodate the influx of people from the closure of two other sites.

The camp was to be closed in October 2008. But after failed attempts to convince the inhabitants to leave, they were forcefully removed in March 2009.

5.8.1 OBSERVATIONS

The Klerksoord shelter camp was located an environmentally sensitive area that was systematically being damaged as residents salvaged materials for shelter.

Risks associated with the area include environmental vulnerability, risk of veld fires due to a significant proportion of the area being grasslands and industrial hazards:

Notes on refugee situations:

Refugee situations have a different set of characteristics and shelter camps for this purpose are designed to keep refugees separate from the host population. Both internal and external security threats have to be taken into consideration.

Shelters are designed to encourage people to return home and not to settle permanently. Isolated locations prevent refugees from instigating their own livelihoods and dependency relationships are purposefully created.

From the recent xenophobic event it is clear that South Africa has very little experience in the provision of shelter camps. This is partly due to the fact that the country does not currently maintain any refugee camps.[19]

It should be noted that South African government policy advocates reintegration and that the much denied emergence of 'shelter camps' was a result of unprecedented political events, an immense backlog in asylum grants, severe poverty, lack of planning and the failure to provide and implement proper reintegration guidelines.

18 CoRMSA (2008: 13)

19 CoRMSA, (2008:28)

TIME LINE OF REFUGEES STATUS IN SOUTH AFRICA

1993

SA recognises refugees for the first time

1994

First speculation of Xenophobic attacks

1998

Refugee Act governing the admission of asylum seekers was passed

2000

Refugee Act becomes affective

MAY 2008

First Xenophobia attacks

26 May - Klerksoord opened

OCTOBER 2008

UNCHF pulls out

06 OCT 2008

Klerksoord camp dismantled by RED ANTS

08 OCT 2008

Inhabitants refuse to leave

19 OCT 2008

800 inhabitants remains

08 FEB 2009

600 inhabitants remains

03 MAR 2009

Klerksoord camp demolished

and inhabitants forcefully removed

Figure 72 Messages written on military canvas tents by refugees at the Klerksoord camp : Pretorius (2008)

Figure 73 Man washing [illegible] Pretorius (2008)

Figure 74 Children playing : Pretorius (2008)

Figure 75 Drying clothes providing much needed colour : Pretorius (2008)

Figure 76 Make shift shelter from the sun : Pretorius (2008)

Figure 77 Woman waiting for transport outside camp : Pretorius (2008)

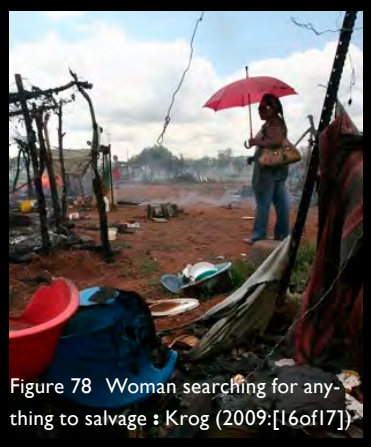

Figure 78 Woman searching for anything to salvage : Krog (2009:[16of17])

Figure 79 Temporary place of worship Klerksoord, Akasia : Pretorius (2008)

Figure 80 Red Ants dismantling temporary shelters : Mashiloane (2009:[10 of 17])

Figure 81 Red Ants burning shelters : Mashiloane (2009:[8 of 17])

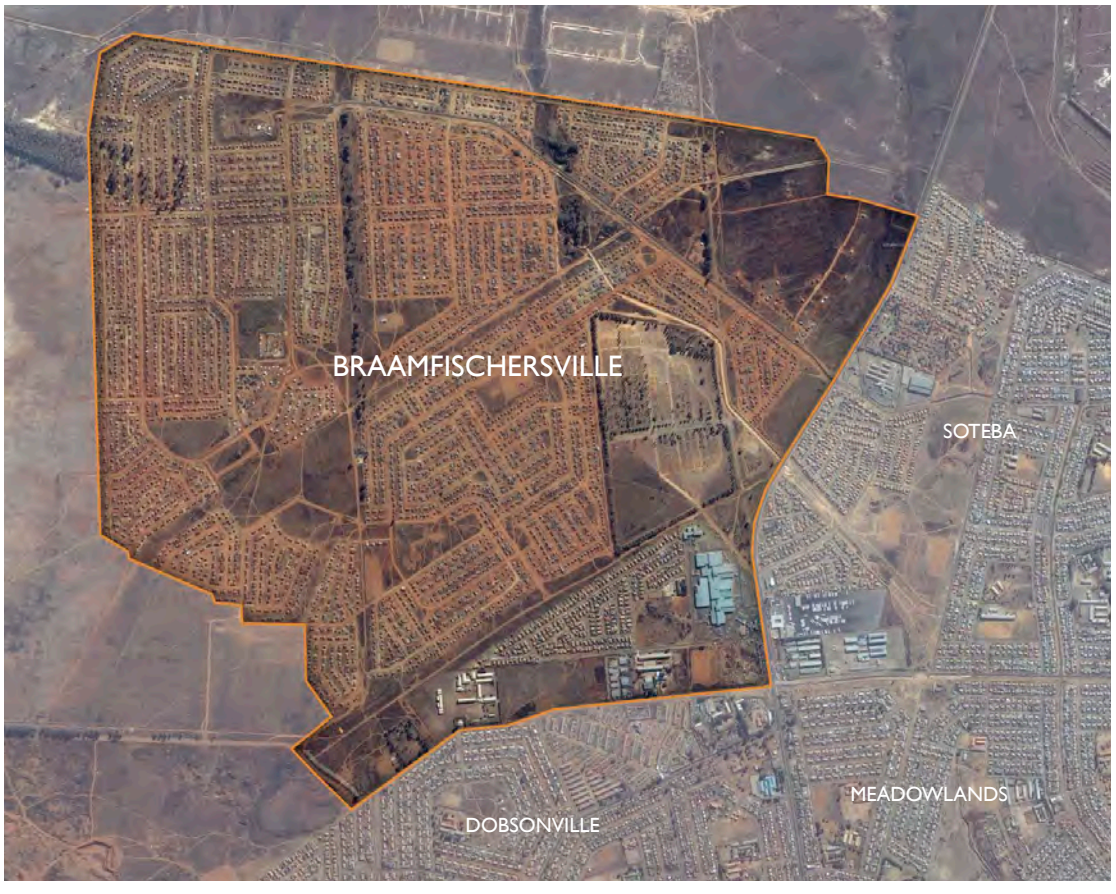

Figure 83 Aerial photo of Braamfischersville, Soweto : Googlemaps (2009b) [compiled and edited by author]

CASE STUDY

5.9 SOWETO FLASH FLOOD, 2009

BRAAMFISCHERSVILLE, SOWETO

Figure 84 Locality Map of Braamfischersville, Soweto, Ward 44, 49 & 50, Region C, City of Johannesburg

Around 200 families[20] from Braamfischersville, Mercy Park, Dube, Dobsonville, Mofolo, Meadowlands and Dlamini had to be temporarily evacuated after a fierce storm broke out on the afternoon of the 26th of February 2009. Heavy rains caused severe damage to infrastructure and private property, claiming the lives of two people.

Gauteng premier mr. Paul Mashatile declared the area a disaster zone[21] after damage assessment was completed four days later.

A site visit to the affected areas in Braamfischersville provided much needed insight into the differences in actual needs, versus the perceived needs proliferated by the media.

Kronenburg[22] attains that the misconceptions posted by the media are one of the main reasons for the mismatch between proposed solutions and the problems involved in designing for disaster relief.

It was interesting to compare the differences in articles written on the day of the event as compared to a week afterwards.

In speaking with the volunteers from the Soweto Red Cross they described that victims were keen to return to there homes and that reconstruction commenced as early as the next day.

Residents where very angry at City Parks maintaining that the damage caused by the flooding river was exacerbated by uncleared debris from tree cutting the day before, which had blocked culverts.

A team of volunteers and government officials assisted residents with the task of cleaning dirt filled and damaged houses.

Although the disaster did not render anyone homeless the extent of the damage in terms of household items, electrical appliances and sewerage was quite severe.

5.9.1 OBSERVATIONS

(a) Interior

The apparent lack of shelving and wall mounted storage increased the extent of domestic losses.

Important items such as birth certificates were destroyed which makes one wonder what height is 'safe' for storing important documentation.

In such areas where seasonal flooding is a possibility water outlets should be incorporated into walls that can be opened if the alarm is raised [figure 83]

Developments in high risk areas would benefit from raised platforms. Temporary container structures in the flood area survived with minimal damage because they are raised 400mm above ground level [figure 91].

(b) Exterior

It was also noted that most of the building failures can be attributed to poor soil conditions and improper foundations [figure 84-86]. Again one sees that people construct their homes to meet their everyday needs and not for the event of a disaster.

The risk of immediate reconstruction [being the desired response] is that in most cases people rebuild using the exact same techniques thereby increasing the risk of the disaster being repeated.

20 Thakali (2009:[front page])
21 Fourie (2009:7)
22 Kronenburg (2002:101)

FLOOD LINE DAMAGES

3.000mm

2.500mm

2.000mm

1.5000mm

1.000mm

important documents

photos

food

clothes

cars

< 500mm

> 500mm

0.500mm

damage to furniture

damage to wet services

> 300mm

almost electrical appliances:

fridge, tv, radio,

> 0.000mm

need to replace all floor surfaces

internal doors rot

0.000mm

Figure 85 Community member assisting in rebuilding a wall of one of the victims

Figure 95 Temporary structures raised on platforms survived flood

Figure 86 Temporary drain dug to mitigate flood water away from property

Figure 87 Ventilation grill broken out to drain water in one of the homes

Figure 88 Temporary shuttering erected whilst reconstruction commences

Figure 89 Temporary shuttering erected whilst reconstruction commences

Figure 90 View of building failure due to poor construction methods

Figure 91 Inside the bedroom of a victims house clearly showing the water level of the flood

Figure 92 Resident's possessions laid out to dry

Figure 93 Flood level in bathroom

Figure 94 Flood level in the hallway