SOUTH AFRICA – Hout Bay, near Cape Town

Fire Hazard and Vulnerability in Imizamo Yethu Informal Settlement

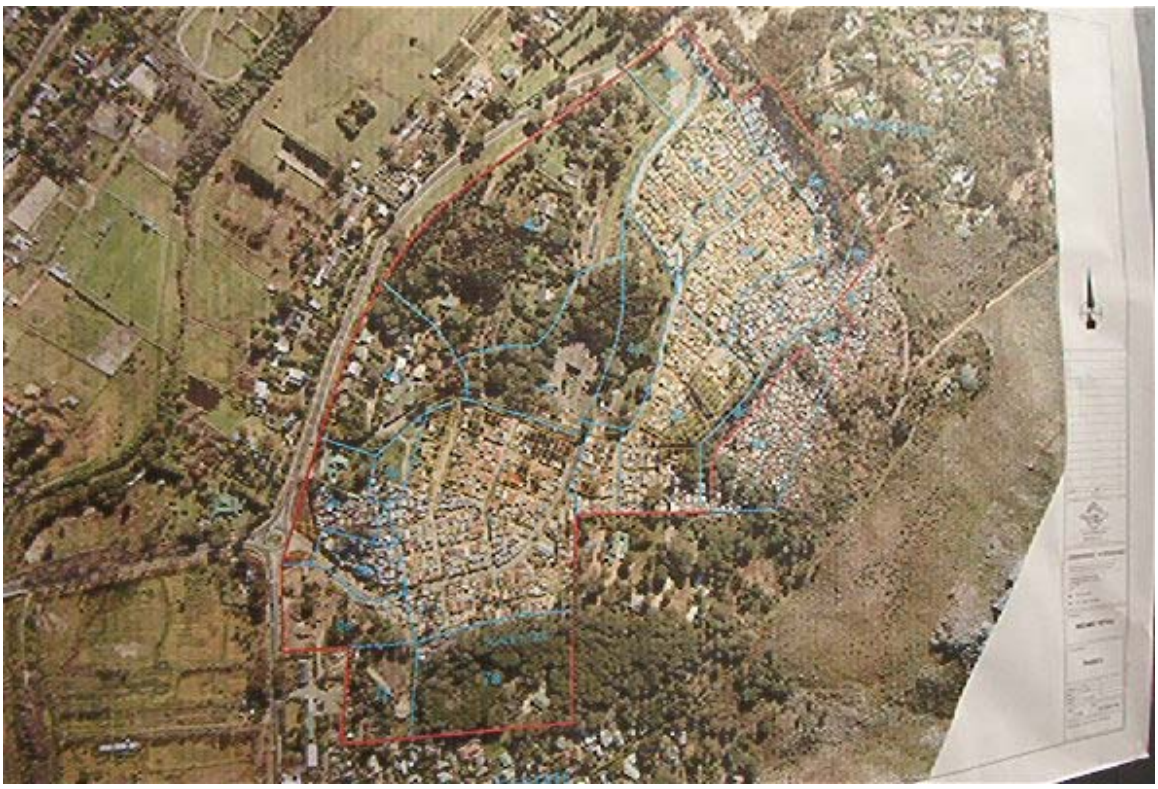
CRA Toolkit
CASE STUDY

This case study is part of a broader ProVention Consortium initiative aimed at collecting and analyzing community risk assessment cases. For more information on this project, see www.proventionconsortium.org.

Bibliographical reference: H. MacGregor, N. Bucher, C. Durham, M. Falcao, J. Morrissey, I. Silverman, H. Smith, and A. Taylor, "Hazard Profile and Vulnerability Assessment for Informal Settlements: An Imizamo Yethu Case Study with special reference to the Experience of Children". Cape Town: DiMP, University of Cape Town, March 2005.

Click-on reference to the **ReliefWeb country file for South Africa**:
http://www.reliefweb.int/rw/dbc.nsf/doc104?OpenForm&rc=1&cc=zaf.

Note:
A Guidance Note has been developed for this case study. It contains an abstract, analyzes the main findings of the study, provides contextual and strategic notes and highlights the main lessons learned from the case. The guidance note has been developed by Dr. Ben Wisner in close collaboration with the author(s) of the case study and the organization(s) involved.



HAZARD PROFILE
AND
VULNERABILITY ASSESSMENT
FOR
INFORMAL SETTLEMENTS

AN IMIZAMO YETHU CASE STUDY
WITH SPECIAL REFERENCE TO THE
EXPERIENCES OF CHILDREN

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ABBREVIATIONS

CAPFSA: Child Accident Prevention Foundation of Southern Africa

CoCT: City of Cape Town

CRC: Convention on the Rights of the Child

DAG: Development Action Group

DiMP: Disaster Mitigation for Sustainable Livelihoods Programme

EA: Enumerator area

GIS: Geographic Information System

ID field: Identification field – an identification number given to each GIS record

MANDISA: Monitoring and Mapping of Disaster Incidents in South Africa

SANCO: South African National Civic Organisation

Sinithemba: A civic association at Imizamo Yethu

UCT: University of Cape Town

PART 1

INTRODUCTION

In the early hours of Saturday 7 February 2004, a fire raged through the Imizamo Yethu informal settlement in Hout Bay outside Cape Town, destroying a reported 1200 homes and leaving approximately 5000 people homeless.

Imizamo Yethu was created in 1990 when forestry land was converted into an 18 hectare, 429 plot, site-and-service scheme to accommodate the demands for formal housing from the growing local squatter community. Meaning "through our collective struggle", Imizamo Yethu is a diverse community, composed of a coloured[1] population with an established history of residence in the area, and migrants from the Eastern Cape as well as from several African countries such as Angola, Zaire, and Namibia.[2]

Two organisations claim to represent the people of Imizamo Yethu: Sinithemba, which speaks for the original coloured residents, and SANCO (South African National Civic Organisation), representing the majority of the present community. Tensions have recently grown between these two groups over the use of 16 hectares of unutilised land, originally set aside by the local authority to be used as a community facility. Friction has also arisen between SANCO and the Hout Bay Ratepayers Association, who have their own vision for the use of the 16 hectares. This underscores the vast differences between the lifestyle of the residents of Imizamo Yethu and that of other members of Ward 74, who live in the affluent suburbs of Hout Bay, Llandudno and Camps Bay.

In response to the fire, post-graduate students from the Department of Environmental and Geographical Science at the University of Cape Town conducted research into historical patterns of fire risk and current perceptions, to determine community-based strategies for managing risk, and to make recommendations for future policies.

[1] In South Africa this term refers to people sometimes known in other contexts as 'mixed race'.
[2] www.sli.unimelb.edu.au/informal/h_bay_history.html

METHODOLOGY

Interview methodology

The main aim of the research on which this report is based was to produce recommendations to help the local authorities construct a disaster mitigation plan for informal settlement fires. Observations were made within the community itself and through an analysis of demographics and fire statistics provided by the Disaster Mitigation for Sustainable Livelihoods Programme (DiMP) (from the MANDISA[3] data base), by the Development Action Group (DAG) census and by Census '96.

The first step was to review and report on the historical fire statistics for Imizamo Yethu kept by DiMP. Next was to gain an understanding of existing community-based strategies and find out what the community saw as their major risks and vulnerabilities. The organisers of the project approached Kenny Tokwe, the acting secretary for SANCO, who chose residents of Imizamo Yethu to act as guides and translators ('facilitators'). Semi-structured interviews were held with stakeholders in the Imizamo Yethu community. These representatives were not necessarily resident in Imizamo Yethu – for example some were community housing project leaders – but were selected by the facilitators, with one of them chosen to act as a Xhosa-English translator where necessary.

Interview groups

For the purposes of the questionnaire which was to be drawn up, four different interview groups were defined, drawn from Imizamo Yethu residents. These groups were of varying sizes, usually of between 3 and 10 members and comprised:

- a 'proximity' group (people living close to the February fire event)
- people who had lived in Imizamo Yethu for more than 5 years
- people who had lived in Imizamo Yethu for less than 2 years
- the focus group.

[3] MANDISA is the programme for Monitoring and Mapping of Disaster Incidents in South Africa.

Together with the researchers, the focus group developed a set of questions which would be put to the different groups. To do this, eleven community interviews and four focus group meetings were conducted with individuals within the defined groups and with key stakeholders. Interviewees were first to be asked their names, age etc. to gain background knowledge. They were then asked a set of questions, the details of which would depend on which group they belonged to.

Proposed interview questions

The researchers initially decided that the groups interviewed would be asked the questions given below. At the actual interview stage, however, these questions were adapted and many were not asked since a natural flow in the responses gave more insight and fuller answers.

All groups:

1. What do you think causes the fires [at Imizamo Yethu]?
2. What would you change to enable you to cope better as a community?
3. Who do you think is most affected by the fires?
4. Do you know of any trained fire-fighters within the community?
5. If affected by a fire, where would you stay?

Additional questions for the proximity group:

1. Profile: Age, gender, employment history, etc?
2. When did you arrive in Hout Bay?
3. How often are there fires?
4. Where in the settlement do the fires usually occur?
5. How bad are they?
6. Have the frequencies of fires increased, stayed the same or decreased over the past few years?
7. What is your experience of the February 2004 fire?

    Prompting Questions:

    How did you become aware?

    Who warned you, if anybody?

    What was your immediate response?
8. What organisations assisted you during the February fire?

9. What do you expect the long-term consequences to be?

Additional questions for the 'more than 5 years' group:

1. How often are there fires?
2. Which are the areas in the settlement that are affected?
3. When do the fires occur in the year? And in a Week?
4. How many fires have occurred as far as you can remember? [Answer then compared with known fire statistics and interviewee asked about any differences.]
5. Has the frequency of fires increased?
6. If yes, why do you think that it has increased?
7. As a community, how did you cope with fire when you first moved here?
8. How do you cope now? Do you now take any precautions? [i.e. has your strategy changed?]
9. What has changed, if anything? [i.e. would you act differently in the event of another fire?]

Additional questions for the 'less than two years' group:

1. Why did you decide to settle here?
2. Before you came, did you know about the dangers of living here?
3. Has the community accepted you, as you have just arrived in the area?

Additional questions for the focus group

1. What are the key areas of vulnerability/risk in the settlement with regards to settlement fires?
2. How do you think vulnerabilities/risk with respect to fire could be decreased?
3. What level of urgency does your organisation attach to solving these vulnerability/ risk problems?

Additional questions for SANCO members of the focus group

1. Is there any specific strategy that SANCO have developed and want to implement to reduce the present fire risk in this community?
2. Have you started to implement any of it?
3. If so, how and where?

Holding the interviews

The respondents had no prior knowledge (that the interviewers knew of) that they were going to be interviewed. The interviews were conducted door to door either inside the respondent's home, when invited, or in one instance out in the 'street'. The interviewing involved a 'five on one' format, with the five people consisting of one primary interviewer, two or three note-takers, and one translator. The primary interviewer ran the interview but the other note-takers were welcome to interject with questions they deemed useful and appropriate. In most cases at least two copies of the interview were used in the analysis, to verify exactly what the respondent had said and to contextualise it properly. (The roles of the primary interviewer and the note takers were rotated from one interview to another.)

The semi-structured nature of the interviews was deemed to have been very useful because respondents described their experiences in story form, thus revealing a lot more than had been expected.

Demographic and statistical methodology

Demographic data was collected from the 1996 and 2001 censuses. Collecting from the 1996 census proved difficult because Imizamo Yethu had not yet been classified as a separate area, and figures were produced only for the bigger sub-areas of Hout Bay. The only way to extract the required information was by using aerial photographs and definition by enumerator area (EA), then selecting the EAs contained in the Imizamo Yethu informal settlement. (The GIS program ArcView was used for this.) The relevant data tables were then extracted from the 1996 census figures and joined with the matching identification fields.

The 2001 census data for Imizamo Yethu was easily available as it had been surveyed as a separate area. They were far more detailed than those of 1996 and had to be simplified to allow comparison. The 1996 and 2001 data was then complied into comparative bar graphs.

The researchers had intended to use in addition the 2003 independent census done by DAG (the Development Action Group) but they found major discrepancies between these figures and the trends of the 1996 and 2001 censuses. The total population given by DAG in 2003 was 188 less than that of the 2001 census, and their detailed breakdown

appeared to be even less accurate as the figures for adults and children together was less than their total population figure. The DAG dwelling count made sense for 2002 as it showed an expected increase from 2001, but their 1996 figure did not correlate with the census 1996 figure at all. A number of other discrepancies were found. The census figures are widely accepted and were collected using a standard survey method, so it was decided that the DAG 2003 figures could not be used.

The fire statistics used were obtained from DiMP (the Disaster Mitigation for Sustainable Livelihoods Programme) and from the MANDISA database[4]. Very little manipulation of the data took place and the validity of any inferences relies purely on the validity of the statistics. There is one minor inconsistency that should be noted: the Figure 9 bar graph indicates fire frequency and duration, allowing for a daytime and night time comparison – here a 07:00 to 19:00 definition of daytime has been used. The data shown in this figure may be misleading as some fires ran over midnight. Thus fires have been classified by the day on which they started, resulting in the date of occurrence possibly being a misleading statistic. The fire of 16 April 1996 occurred at 18:26, and was classified as a night time fire since activities at this hour in mid-April would be related to night time activities (cooking, lighting etc.).

The MANDISA data contained 97 records of fires in informal dwellings for the suburb of Hout Bay, but only 20 of these could be used because the others did not give the times of incidence and ending. These 20 records may, however, not be representative of the other 77 events. In addition the MANDISA data covers only the period 1990 to 1999.

In this study, the statistic 'dwellings destroyed' has frequently been used as a proxy measure for fire severity. (This statistic has not been used in any other ecological or sociological sense in this study.) In one instance, for the day/night time fire risk profile, fire duration has been used as a proxy measure for fire severity.

[4] http://www.mandisa.org.za/mandisa

LIMITATIONS OF THE STUDY

Procedural and methodological limitations

The main procedural constraints of the study were time limitations and the language barrier. (It may be said though, that had the time limitations been removed, many of the problems of language could have been overcome.). Difficulties were, as always, encountered in the translation. The translators for the groups were organised by the acting secretary for SANCO who knew that the results of the survey might be submitted to government. Given the hotly contested topic of land use in the area, they must be seen as having had a vested interest in the findings. This would have implications such as possibly biasing translations – for example long conversations between the facilitator and the respondent would be sometimes be conveyed to the interviewer in a one or two-word answer. The facilitators also determined who would be interviewed which meant that the respondents may not have been representative of the population as a whole. There is also the possibility that the respondents were 'prepped' beforehand on how to answer questions.

The researchers are aware that difficulties with translation and understanding may have compromised the data in some way, particularly since the responses were very varied. This could have been because the respondent had not understood the question or because the facilitators had asked the question incorrectly. This uncertainty made interpreting the results somewhat problematic.

Another practical concern that brings the quality of the data into question is that the research was not designed solely for gathering information about fire risk in the community, but also as a field work exercise for individuals on a course, who had no prior experience of active field work. In any research context, the role that the interviewer assumes to some extent influences the results they obtain, and in this case the problem was exacerbated by the language barrier, the interviewers' complete lack of experience and the intimidating five on one manner in which the interviews took place. The researchers said, with hindsight, that some of their questions could easily have been considered as leading them to the facts they wished to find.

The use of SANCO complicated the interpretation of the study and thus its implications for public fire risk policy. Any agenda or bias imparted by facilitators, either

through their choice of interviewees or through mistranslation (whether unintentional or not), could have had an especially strong effect because of the qualitative nature of the study.

The qualitative aspect of the fieldwork is itself problematic since good practice methods of random sampling were not employed, and the small sample might not have been representative of the community at large. The researchers are concerned that their results not be over-generalised and that the lack of rigour be taken into account in any resulting policy-making process. Nevertheless, even if the perceptions and strategies expressed in this study represent those of only a portion of the community, their concerns are valid and should be considered in the formulation of policy.

Statistical limitations

The statistics of this research lack spatial and temporal information at the micro-level, which made it almost impossible to determine spatial vulnerability within the informal settlement and to establish whether or not specific times of day presented a higher risk than others. This meant that risk and vulnerability could be broken down only to a level which was not necessarily applicable to the individual. This has limited the study, as much of disaster analysis is most effective when looking at the level of the individual, since risk and vulnerability characteristics can vary greatly at this level.

The validity of some of the fire statistics may be questionable because of they way they differed from what might have been expected. For instance the results (from MANDISA**)** showed that in almost all instances one household was living in one dwelling, which is in conflict with what the researchers' field experience revealed. This inconsistency is likely to be due to the difficulty of assessing the number of people affected by a fire through some form of registration or interview process, both of which are exceptionally challenging in the context of an informal settlement. The data on the numbers of dwellings destroyed, which was gained using aerial photography techniques, is however likely to be reliable. *[Editor's note: It is possible that there has been some confusion here regarding the definition of* household *(meaning 'those living in one dwelling') as opposed to 'family unit' of which there could clearly be more than one per dwelling.]*

ETHICAL CONSIDERATIONS

Problems arose over the researchers' use of SANCO resources. Tensions were especially high between SANCO and Sinithemba in the days immediately before the fieldwork interviews, and there were reports of violence and politically-motivated destruction of property. The researchers' decision to use SANCO resources was for purely practical reasons (only SANCO could provide facilitators and access to community members), but this was not explicitly clear to the general community of Imizamo Yethu. Consequently, the image of a large group of outsiders wearing City of Cape Town baseball caps escorted by well-known SANCO community leaders might have suggested a questionable alliance, despite the researchers' obligation – and intent – to remain a neutral party with regard to the conflict.

PART 2

HISTORICAL DEMOGRAPHIC PROFILE

Migration to urban areas

This section examines patterns of migration between urban and rural areas. The definitions of 'rural' and 'urban' areas are important, not only for conceptual purposes, but also because differences in definition can result in very different interpretations of statistics. Unfortunately a generally accepted definition has been lacking in the existing literature.

The literature discussing migration in the South African context is conflicting and much of it is inaccurate, due mainly to three factors: the lack of a formal, standard definition for both a rural and an urban area, a general lack of data on rural urban migration the South African population with regard to migration patterns for the entire period preceding 1996, and the lack of a standard methodology for capturing this data. The nature of migration and its inherent subtleties and complexities, such as the phenomenon of circular migration, increase the difficulty in analysing migration patterns in South Africa (Hart 1992). Even attaining a formal definition for rural and urban areas has been problematic and there have been numerous calls for the incorporation of some sort of middle-ground definition for 'peri-urban' areas (Kok et al. 2003). These problems have resulted in numerous definitions, with some researchers making ad hoc use of the peri-urban definition in their studies. This introduction to migratory patterns in South Africa – and more specifically in the Western Cape – will therefore be limited to a conceptual overview, rather than an in-depth study of rates of growth and/or decline.

Originally, urban migration could be attributed to the need for labour to support industry in the towns. This labour was attracted, or coerced, through the introduction of labour taxes, hut taxes and the Glen Gray Act of 1894 which imposed a ten shilling tax on all men in the Cape Colony who could not prove that they had been in wage employment for three months in every year (Du Toit,1975.). In order to pay these taxes, people were forced out of subsistence farming lifestyles to seek formal employment,

which was available only in the 'urban areas'. Those who migrated to urban areas were usually young and healthy individuals (Du Toit 1975). These migrants were initially male but were soon followed by 'illegal' women – though fewer in number. The resulting circular migratory patterns between the urban and rural settings fundamentally changed the nature of the traditional village system and led to the development of a 'felt cash need' within the rest of the village and the surrounding rural area. The two systems, urban and rural, thus came to rely on one another for their existence: the urban areas required rural labour in order to run their industries, and the rural areas required cash remittances to meet their now well-established cash need. The rural areas also offered the urban migrant a haven to which he could return in order to call on social networks in times of need (Du Toit 1975).

The most significant reasons for migration are almost always economic (Greene 1991). In South Africa, the 1913 Land Act prevented African ownership of land outside established 'reserves', which were described in 1930 by the South African Native Economic Commission as being "too small, too underdeveloped and too poor to support the populations assigned to them". Rural people were thus subject to increased population pressure due to less land being available which, in turn, led to farmland becoming infertile through long-term use without fertilizers (Du Toit 1975).

Patterns of circular migration were capitalised on and reinforced by recruiting agencies who, by offering free transport for migrants and their possessions, further fundamentally altered village routine, rural living and the wants and expectations of villagers (Du Toit 1975). These changes in values and traditions soon resulted in taxes being but one of numerous economic reasons for entering the labour market. The influence of missionaries, education, European residents and returning workers led to the desire for money overtaking the need for it.

Migration to the Hout Bay area

We now have a background upon which to examine the case of Hout Bay in its own specific context. Demographic change and change in land use is a complex relationship in any area and Hout Bay is no exception. Prior to the 1940s, the area was a small farming and fishing village, which supported a reasonably large coloured community involved in farm labour, as well as commercial and subsistence fishermen. It also supported a small white elite who either owned farms or had control of the relatively

small fishing industry. Over the next two decades the fishing industry expanded substantially and developed a large suite of secondary activities, while farming began to decline. From the 1960s Hout Bay became increasingly popular as a residential suburb, and farming started to disappear as the subdivision and sale of land became more profitable than farming. By the late 1980s, Hout Bay had become a luxury residential area, known for its natural beauty, while at the same time supporting what had been, until the 1970s, the largest fishing harbour in the country (Greene 1991).

Growth in the fishing industry absorbed the surplus of coloured labour, apparently caused by retrenchment from farm work. In addition, residential development of the area meant that African labour became required on a temporary basis in the form of construction work and more permanently as domestic labour. The need for black labour in Hout Bay thus meant that – despite segregationist policies – black migration to the area can be traced to as far back as about 1940. (Greene 1991)

Initially the white rate-payers of Hout Bay, who carried the political clout at the time, and the apartheid regime, managed to limit the availability of black housing in the area, resulting in forced removal of the coloured community to a township established near the harbour. These stringent controls and lack of formal provisions for housing resulted in squatting in the Hout Bay area. (Greene 1991)

In the early 1940s the population of Hout Bay was recorded as 357 whites, 729 coloureds and 115 Africans. (Of the 87 Africans who had their details recorded, 18 were women and ten were children.) The majority of Africans would remain in the area for periods of nine to eighteen months (Greene 1991). Although the number of black women in the area was initially kept down by apartheid legislation, by the 1970s women had started to flout the laws and were coming to Hout Bay to join their husbands, bringing their families with them. The dire lack of family housing in the area resulted in further squatting. This increased as domestic workers and gardeners, who had lived till then on their employers premises, left these lodgings, preferring to squat informally with their families rather than live away from them in formal lodgings. (Greene 1991)

The Hout Bay population had increased substantially by the mid-1970s and was largely seasonal, with the fishing population having grown from 130 in 1944 to over 2000, and swelling to as many as 5000 during the seasonal snoek catches. The growth in the fishing industry in the area during this period led to an increase in the number of factories in the area, which in turn resulted in an increase in the demand for African

labour. A reduction in the stigma attached to Africans as being unskilled and unable to fish also meant that they acquired a larger stake in the fishing industry. (Greene 1991)

This growth in the African population aroused fears in the white community that large numbers of Africans without their families and with nothing else to do would get up to 'social mischief', thus a call was made for the provision of family housing units and recreational facilities (Greene 1991). In 1986 the laws on influx control were relaxed, and the number of women and children in the informal settlement of Princess Bush increased sharply, resulting in a further decrease in the proportion of the population living in formal lodging on their employers' premises.

With the dramatic political, social and economic changes that have taken place in the country, the parameters affecting decisions of whether or not to migrate have also changed. Where labour laws had limited urbanisation, now overcrowding, unemployment and poor living conditions became the factors considered (Tomlinson 1990). Migration patterns for the country as a whole did not change substantially over the period 1970 to 1990, despite the changes taking place in the country (Kok et al. 2003).

After 1991 the informal settlement in Hout Bay moved from Princess Bush to Imizamo Yethu, which grew, and appears to continue to grow, at an alarming rate. It is, however, thought that the settlement is reaching saturation and soon its rate of growth will begin to slow. This saturation point is being determined largely by social and environmental conditions and through the shortage of empty ground on which to build. As has been mentioned, a significant area has been set aside to be used for community amenities. Whether this land should be used for recreational facilities, or whether people should be allowed to build on it, is a hotly contested topic.

DEMOGRAPHICS AND INFRASTRUCTURE OF IMIZAMO YETHU

Demographic context

The growth in the Imizamo Yethu population and the resulting increase in the number of dwellings relate directly to the level of risk the community faces from informal settlement fires, as well as to many other hazards that are common in Imizamo Yethu. The high densification that has taken place is seen to be one of the major factors increasing the community's vulnerability level.

Figure 1 shows the population at Imizamo Yethu increased from an estimated 4581 in 1996 to 8062 in 2001 – almost doubling over the five-year period as the mass immigration occurring in the greater Cape Town area affected the settlement.

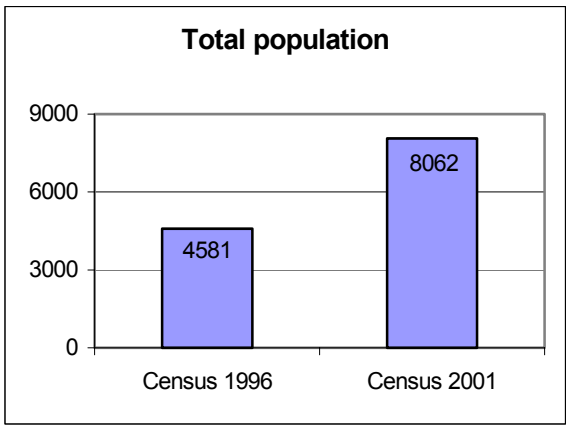

Figure 1. Population growth in Imizamo Yethu

Figure 2 shows the population increase broken down by gender. In 1996 there were 2501 males living in the area and this had increased to 4267 by 2001. The male population increased at a slightly lower rate (71% increase) than the female population, which increased from 2080 in 1996 to 3795 by 2001 (82% increase). This difference might be due to apartheid laws – women were, on the whole, expected to remain in the homeland areas. Although they did not obey these laws, the laws did hinder their migration into the urban areas, which explains the slightly higher rate of in-migration.

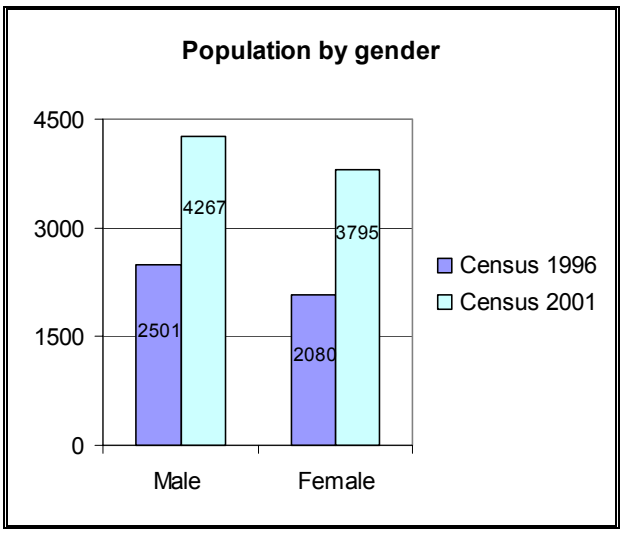

Figure 2. Imizamo Yethu population breakdown by gender

Infrastructure development and level

When dealing with the complex environment that surrounds an informal settlement, a multi-hazard approach has to be taken when reviewing the demographics. Statistics are limited and, viewed on their own, do not necessarily give a clear picture of the actual conditions. This section is intended to give a more complete demographic view and to highlight some of the vulnerabilities of Imizamo Yethu, through an analysis of the existing physical infrastructure (electricity, formal housing, running water, etc).

Figure 3 shows the number of dwellings at Imizamo Yethu, counted using aerial photography in the 1996 and 2001 censuses – in 1996 there were 1663 and this number had increased by 1127 by 2001. There is, however, a problem with using dwelling counts to analyse rates of densification, namely that one cannot be sure of the number of households [*families? Ed.*] located in each dwelling. This information should thus be seen as an indication of the strain the area is experiencing, with high increases in the number of dwellings on a limited plot of land, rather than giving the actual population density. In Imizamo Yethu the stress is immense, these figures are for an area only 18 hectares in size, and densification appears to be ongoing.

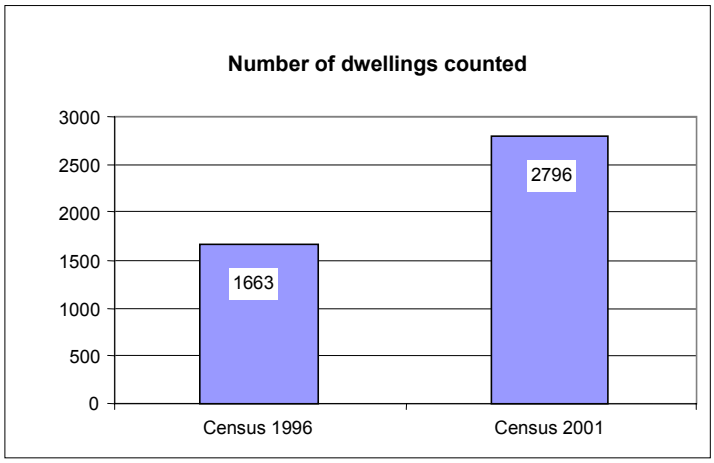

Figure 3. Imizamo Yethu dwelling count from aerial photography

Table 1 indicates the types of dwelling that dominate at Imizamo Yethu. Informal dwellings form the majority, with 1279 counted in 1996 and 1784 in 2001. An interesting trend was the increases in traditional dwellings, in backyard dwellings in the form of a flat, room or house, and in clustered semi-detached housing. This is consistent with a lack of space, and the assumption could be made that most of the people who erected these dwellings were new in the settlement and joined their dwelling onto the property of

relatives in one of these ways. The fact that these types of dwellings dominate in the settlement gives a clear indication of the lack of infrastructure and the resulting vulnerability. In many of the interviews community members stated, when discussing their risk, that this was one of the main problems (see interview transcripts, Appendix 2).

There was also an increase in formal housing at Imizamo Yethu between 1996 and 2001, with 20 new houses on separate stands being erected, but this development is relatively slow and shows that the changes are not fast enough to cope with the influx of migrants. Table 1 gives the numbers of the various types of dwellings as given in the two censuses. One of the reasons for the slow development of formal housing at Imizamo Yethu has been the inability of the people living there to afford the schemes available to them, for example the 'Irish project' run by Niall Mellon.[5]

Type of dwelling	Number in 1996	Number in 2001
House on separate stand	1	21
Traditional dwelling	0	311
Flat in block of flats	1	6
Town/cluster/semi-detached house	0	12
House/flat/room in backyard	1	21
Informal dwelling/shack in backyard	364	593
Informal dwelling/shack elsewhere	1279	1784
Room/flatlet on shared property	7	6
Caravan/tent	0	21
Unspecified/dummy	10	21

Table 1. Numbers of dwelling types in 1996 and 2001 (Census 1996; Census 2001)

The level of infrastructure development within the settlement gives an indication of whether development is occurring at a rate which can meet the needs of the people, and also whether physical vulnerability is being decreased. Vulnerability is caused by many different things but the demographic focus tends to be on increased protection from the elements, and on the health and standard of living of the people within the settlement.

Figure 4 shows the development of adequate refuse removal in Imizamo Yethu. The amount of refuse being removed through a formal service provided by the local authorities increased dramatically between 1996 and 2001. In addition, a decrease occurred in communal refusing dumping; the number of people with no refuse disposal

[5] This is a non-profit philanthropic group which subsidises house construction. Different house sizes and types are offered, with each potential owner paying according to the kind of house chosen. The remainder of the cost is covered by the Irish group.

facilities at all dropped from over 200 to near zero, and an increase in individual refuse dumps was also seen.

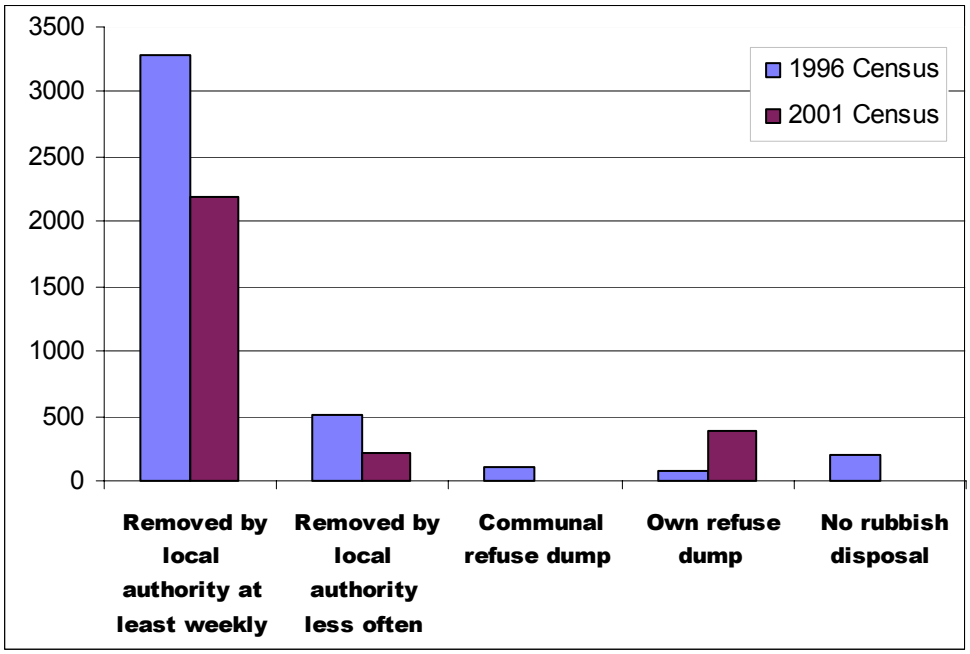

Figure 4. Refuse removal facilities in Imizamo Yethu

Sanitation is vital to the general health of the people within an informal settlement, ensuring that diseases like TB and cholera do not ravage the community. In Imizamo Yethu the number of flush and chemical toilets increased from 1996 to 2001 but there was also an increase in the number of bucket latrines during that time. Because of the high population density of this area (as seen above the present population is 8062 people), provision of sanitation is vital for the general health of the settlement and, as can be seen from Figure 5, further upgrading of the level of sanitation is necessary.

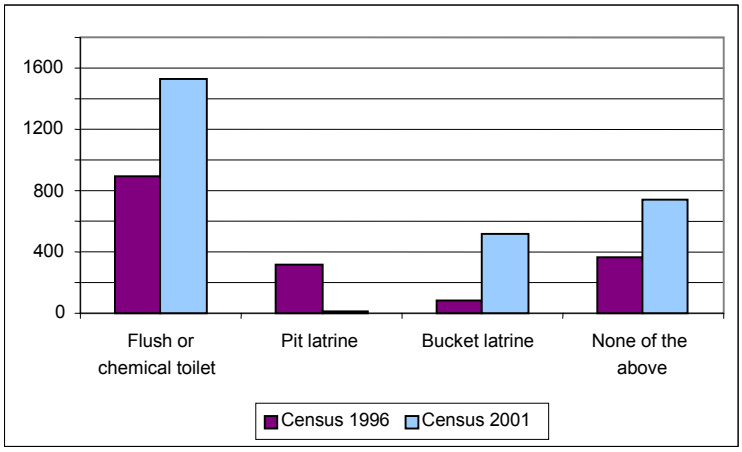

Figure 5. Toilet facilities in Imizamo Yethu

Another important area of development is the provision of water availability through formal infrastructure. Public taps are the main means of water supply in the Imizamo Yethu area, and there was an increase of over 50% in the number of such taps between 1996 and 2001 (see Table 2). The second biggest water supply type is on-site piped water (for example one tap which provides water for a number of nearby dwellings), and the third is piped water supply to individual dwellings. The increase in household water supply has thus far been minimal and needs further development.

Type of water supply	Number in 1996	Number in 2001
Piped water in dwelling	189	256
Piped water on site	673	850
Public tap	681	1318
Water-carrier/tanker	12	15
Borehole/rainwater tank/well	2	0
Dam/river/stream/spring	1	3
Other[6]	95	355
Unspecified/dummy	7	0

Table 2. Water supply types in Imizamo Yethu in 1996 and 2001 (census 1996; census 2001)

Water provision is vital to the coping mechanisms that the Imizamo Yethu community employs in fire situations – buckets are used to collect water for dousing the flames. The settlement operates on a gravity-feed system which does not always work, and there are times when the areas highest up are waterless. During the February 2004 fire there had been no water supply of any sort during the 24 hours preceding the fire. The community was therefore unable to access water to fight the fire and protect their dwellings. The supply system clearly has to be developed to provide adequate water, not only during fires but also to provide for the needs of the community on a full-time basis.

Table 3 shows the changes over the 1996-2001 period in the means of providing lighting and heating at Imizamo Yethu. Many dwellings in Imizamo Yethu have illegal electricity connections but, as can be seen, there was a major increase in the number of dwellings with legal connections: in 1996 only 579 dwellings in the area had access to formal services and this had increased to 1392 in 2001. Unfortunately not enough development has taken place to deal with the influx of people, as the use of gas, paraffin and candles also increased since 1996, though not in the same ratio.

[6] A category given by the national census.

Type	1996 Census	2001 Census
Electricity	579	1392
Gas	10	30
Paraffin	837	1034
Candles	228	282
Solar	0	6
Other	6	3

Table 3. Main sources of lighting/heating in Imizamo Yethu

The use of illegal electricity connections may be a major problem for the safety of Imizamo Yethu. Many of the interviewees said that people tapping into the electricity supply in any way possible was causing many open wire connections and was possibly one of the main triggers of fire. Domestic violence, social circumstances and the use of candles and paraffin were also cited as triggers since many of the fire incidents are recorded or were recollected by the authorities and the community as starting on weekends. The problem in these cases is attributed to fighting between partners, or drunken men, knocking over candles or other sources of flame, thus causing a fire. Many of these incidents happen in the more informal areas where there is a very high dwelling density as well as a lack of formal infrastructure, so that these fires spread quickly and probably cause the most damage (Interview, Appendix 2).

There was a significant increase in the population of Imizamo Yethu from 1996 to 2001 but the infrastructure available or being developed was not able to cope with the influx of migrants. To decrease the risk that the population of Imizamo Yethu faces, local authorities need to give serious consideration to speeding up the development of formal housing and infrastructure. This is 'easier said than done' but any plans in this regard should involve the Imizamo Yethu community as well as outside expertise.

Demographic and statistical analysis are very useful for drawing the attention of local authorities to deficiencies in infrastructure and for showing where the need for development lies. But this analysis must be used with caution as many factors in the social complexities of the settlement have been omitted or not identified. In general this kind of analysis should be used in tandem with at least a social fieldwork study.

Analyses

Historically, fire risk in Imizamo Yethu has been perceived by outside observers to be high, and this is reflected in the statistics prepared by DiMP, in that 97 incidents of fire were reported during the period 1995–2004 (DiMP, 2004 awaiting publication).

Analysis by severity

Figure 6 shows that the number of fire incidents per year shows appears stable with time, although there does appear to be a slight decreasing trend. At the same time the severity of fires in recent years appears to have increased. This statistic must, however, be viewed with caution as one large fire incident (or lack thereof) can significantly alter the pattern of fire severity. This is dramatically shown in Figure 7, which contains exactly the same information as Figure 6, but includes the 2004 fire. The increased number of dwellings destroyed over the years 2001 to 2003 could be attributable to the significant increase in the number of dwellings in the area, and the huge increase in damage done by the 2004 fire could be due to the massive increase in dwelling density.

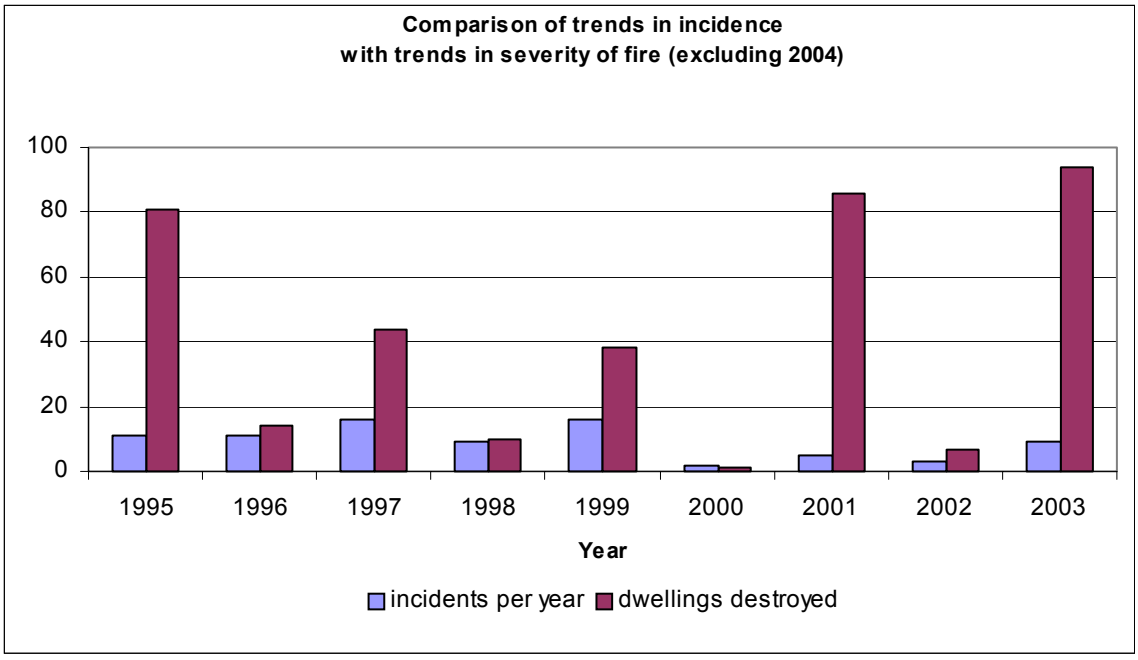

Figure 6. Graph showing the number of fires (blue) and fire severity (maroon) from 1995, but excluding the 'great fire' of 2004. (MANDISA)

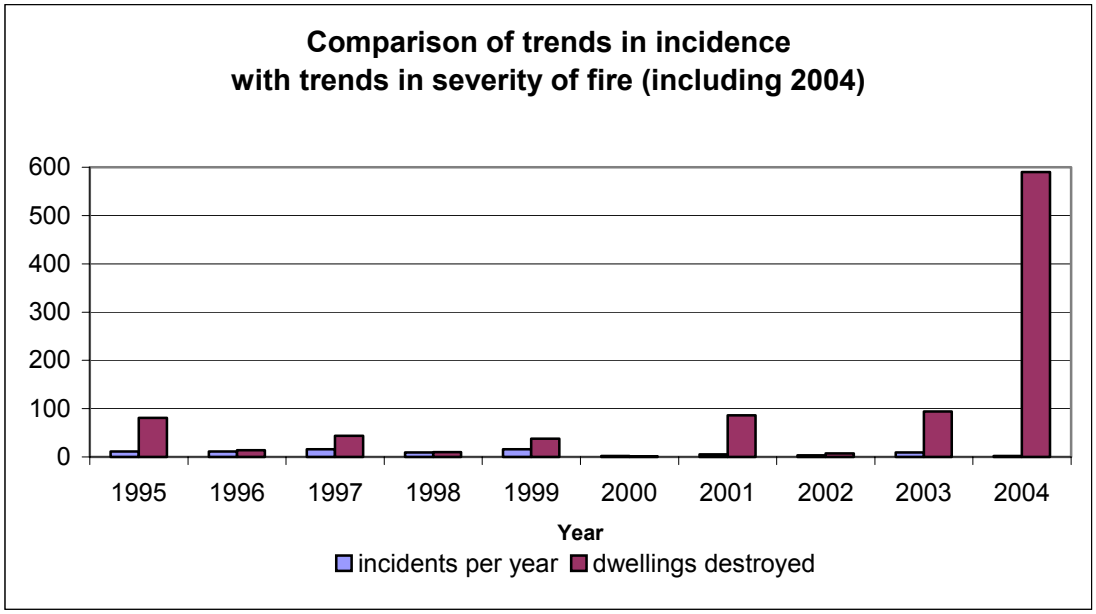

Figure 7. Graph showing the number of fires (blue) and fire severity (maroon) from 1995, including the 'great fire' of 2004. (MANDISA)

Analysis by month

The month-by-month risk profile (see Figure 8) shows that certain months display a greater risk of fire severity. However the number of fire incidents per month appears to remain fairly constant, indicating that fire incidence is to a large extent independent of the seasons. Fires that take place in the winter months appear to be less destructive. As is pointed out by a later author, this may be because the ground and housing materials are likely to be damp, thus reducing the ability of the fire to spread.

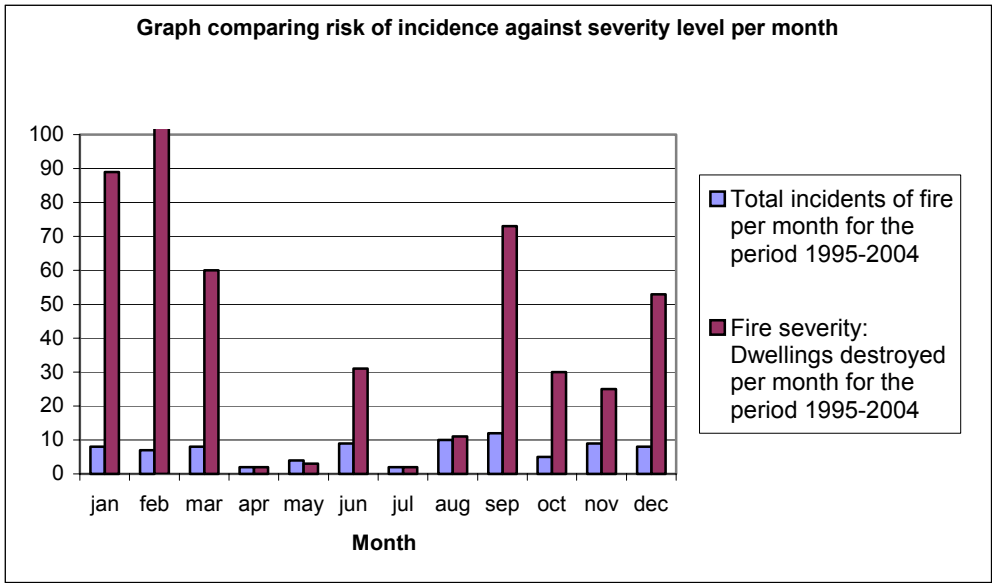

Figure 8. Graph of fire severity for each month. Note the anomalous June value. (DiMP)

Analysis by season

As might be expected, fire regimes display a relationship climate seasonality (Veblen et al. 1999), and summertime conditions, with hot temperatures and high winds, show an increase the severity of fires. This is displayed by the high numbers of dwellings destroyed for the months September through March. It can be assumed that wintertime conditions, cold temperatures and strong winds accompanied by rain, serve to reduce the severity of fire for a given incidence. This presents us with an anomaly for the month of June, which cannot be explained here and requires further investigation. June shows a high fire severity despite what are assumed to be adverse climatic conditions regarding fire.

This statistic is more robust than the one above as one extreme event will not skew the data to the same extent. The evidence points to the fact that climatic conditions have a large influence over fire severity, thus if we could forecast conditions of high risk we could go a long way to reducing fire severity. This is a relationship that needs further investigation: what is needed is an analysis of weather conditions for the days preceding a large fire as well as on the day of the fire itself, to determine whether or not it is possible to attribute high fire risk to climatic conditions, thus presenting the possibility of some form of early warning system.

Analysis by time of day

More information about times of higher risk can be obtained by breaking down the temporal scale to one of daytime and night time. Here the duration of the fire is used as a proxy measure of its intensity. Note this statistic is not very robust (see statistical methodology).

From the statistics it appears that fire frequency is greater at night time, with fifteen of the twenty fires analysed occurring at night (see Figure 9). This could be explained by a number of factors. The first is that more open flames are used at night for activities such as lighting, cooking and heating. Negligence and drunkenness could also be causes as people are more likely to fall asleep, resulting in open flames burning unattended. Fire severity, using duration as a proxy measure, appears to be slightly higher at night: the average duration of a night time fire was about 68 minutes while the average for a daytime fire was 58 minutes. This could be attributable, in part, to the fact that people may only become aware of a fire once it is large enough to wake them up. By this stage

the fire may already be out of control. If this is the case then the argument that immediate community action can serve to reduce the severity of fires is somewhat strengthened.

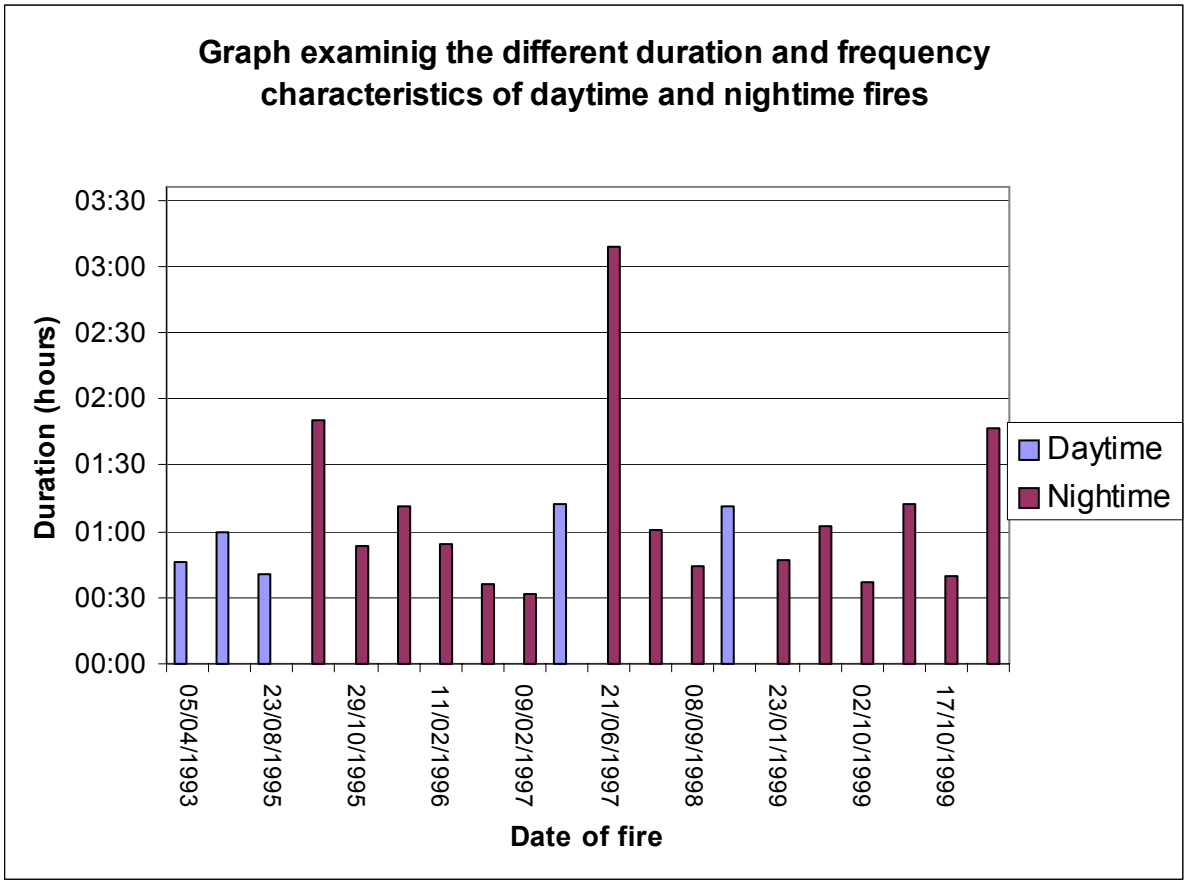

Figure 9. Graph depicting the frequency and duration of night time and daytime fires. Note the much higher frequency of night time fires and generally greater duration. (MANDISA)

Types of fire trigger

The data concerning the means by which fires started ('trigger types') backs up the above hypothesis in that the triggers that most often result in fire incidence occur most frequently at night – candle toppling and stove exploding being two. Here the unknown category is huge and this somewhat compromises the validity of the data.

Despite the above information it must be noted that the triggers in themselves may not be the primary cause of fire since social problems such domestic violence and alcohol abuse can be considered as predisposing factors for events such as candle toppling.

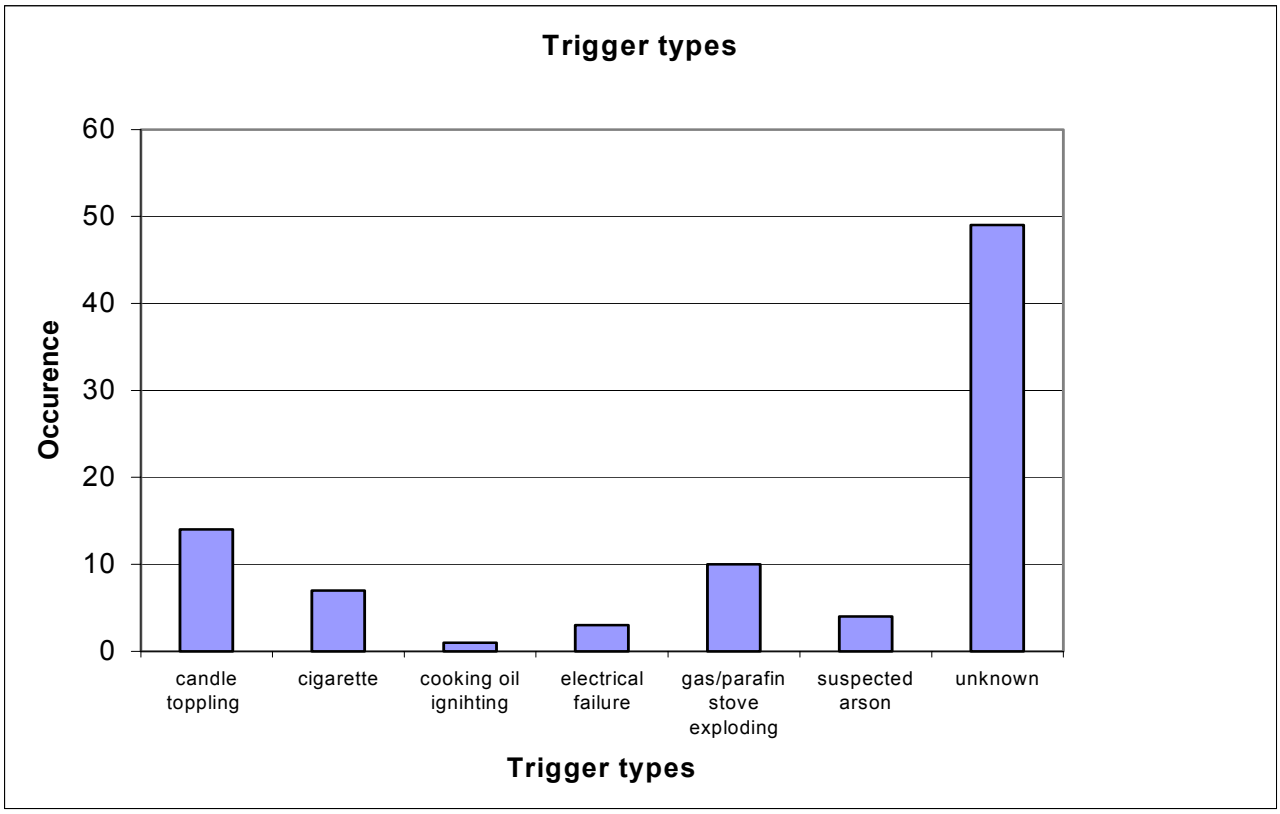

Figure 10. Different trigger types shown as a function of their occurrence in recognised fires. Note the large value in the unknown category. (DiMP)

SUMMARY

Incidence

From the above analysis it appears that the risk of fire incidence is independent of time of year, but it does appear to be heightened at night. Risk of fire incidence also appears to be independent of the density of the settlement.

Severity

Fire severity appears to display a relationship at both the seasonal and daily time scale. The relationship at the seasonal scale could be driven by an association with climatic conditions while at the daily time scale it appears to be associated with the sleeping

patterns of the community. Fire severity also appears to be influenced by dwelling density. It thus appears that fire severity might be reduced by enhancing a community's ability to respond immediately to fire, and by providing appropriate weather forecasts. Unfortunately the statistics do not investigate, or explain, how the risk of fire incidence relates to other factors – for example alcohol abuse and domestic violence. Hopefully these relationships will be made clearer through qualitative data captured in the field.

PART 3

COMMUNITY PERCEPTIONS OF RISK IN IMIZAMO YETHU

Fieldwork in Imizamo Yethu has revealed complex and dynamic perceptions of fire risk within the community. Individual perceptions were in general agreement on some issues relating to fire but displayed significant individual differences on others. It must be noted that the following representations of risk are based upon qualitative data collection methods, as explained above.

Perceptions of the severity of fire risk in Imizamo Yethu were relatively uniform in the aftermath of the February fire. In this post-event context, the community's perceptions were undoubtedly influenced by their common experience of the catastrophic fire, which served to heighten the awareness of their risk. Consequently it is not surprising that the overwhelming majority of respondents perceived an increase in their vulnerability to fire, which was reflected in their belief that the frequency and severity of fires have both increased in recent years (Interview, Appendix 2).

Despite a perception of increasing risk, most community members could actually recall relatively few fires. The most detailed description of historical fire patterns was from a long-time shebeen owner at the edge of the area affected by the February 4th fire. She recalled seven fires in the last fourteen years, two between 1990 and 2000 and five fires, including the February fire, over the next four years. Another six year resident remembered three fires during her stay in Imizamo Yethu. No other quantitative answers were obtained although general characterizations of past fires in Imizamo Yethu were consistent with these low estimates (ibid.).

There was one exception to the general community perception. One interviewee initially responded that he recalled "hundreds" of fires in the previous fourteen years. When questioned further he revised this figure "over one hundred" although this is still an order of magnitude greater than any other report (ibid.). While it is tempting to discard this outlier as non-representative we must also consider the possibility that the questions were misinterpreted either by the translators or by the interviewees themselves. Alternatively, we must somehow reconcile how such drastically varied perceptions can arise from a common fire history. One clue as to how this may arise is given by the

owner of the shebeen who cited the exceptional severity or mortality associated with the fire as the primary source of her memory. If, as this suggests, some members of the community do not take note of small fire events and other do, huge variation in perceptions of historical fire occurrence will result.

Community perceptions concerning what time of year most fires occur are highly individualised. Some emphasized the role of hot summer weather and wind in the increase of fire danger, while others cited the increase in open flames necessary for heating during winter as starting more fires. Another woman claimed that most fires occur around Easter, although she did not provide a rationale. While perceptions may have placed a slight emphasis on the summer and winter months, the general characterisation of community perceptions of seasonal fire risk is highly variable (Interview, Appendix 2).

Although perceptions of seasonal fire risk failed to show an obvious pattern, there was widespread agreement on the triggers that cause fires. Individuals emphasized various triggers, but gas stoves, illegal electricity connections, and candles were consistently identified as the primary culprits. Other triggers such as arson and cigarettes were mentioned although only in isolated cases (ibid.).

Perceptions of fire risk were not limited to proximal causes alone. However, as the perceived causes of fire become more conceptually complex, the community consensus breaks down. Many community members identified social and physical factors that indirectly affect fire risk. Alcohol abuse was identified as increasing the community's fire risk in through several mechanisms. Domestic violence (including reference to alcohol) was cited as leading to fires both through the accidental tipping of candles and through malicious acts of arson. Several interviewees described scenes of drunken men coming home, starting to cook food, falling asleep and the untended fire getting out of control. These specific scenarios were underscored by a widely-held perception that fires occurred most often on the weekends due to increased alcohol consumption and resulting drunkenness (ibid.).

Fire risk was also perceived as being largely derived from the physical environment. The February fire started in the informal area of Imizamo Yethu and the community witnessed the ease with which the fire spread from to one dwelling to another. They saw how the small or non-existent gaps between dwellings, trees, and illegal electrical connections, served to conduct the flames from one fire-prone house to another.

Problems with the built environment continued as the crowded shacks prevented the fire brigade from gaining sufficient access to combat the fire effectively. When individuals tried to fight the fire on their own they found that many of the water spigots were not operating and they were unable to draw water from sources close to the fire. So fierce and rapid was the spread of the fire that one woman likened it to "an evil spirit" consuming their homes (Interview, Appendix 2).

Perceiving the numerous ways that overcrowding and overtaxing of infrastructure aided the spread of the fire, many community members identified the densely packed informal structures that comprise a substantial portion of Imizamo Yethu as greatly increasing their fire risk. It is this, along with the other aspects of the built environment such as illegal electricity connections and insufficient water access, that the community perceives as the primary factors driving their fire risk.

The many problems with the built environment, the lack of local resources to address these problems, and the necessity to use fire in everyday life, leaves the community with a perception of risk as unavoidable and largely beyond their control. A man who lost his home in a fire in Joe Slovo informal settlement captures the perception, "What happened here on Sunday was very bad and, even though we are rebuilding now, this will happen again in the future" (Joe Slovo residents rebuild, but they say it will happen again. N. Babolo, *Cape Times*, 16 March 2004). While not expressed in as quotable a fashion in the research interviews, the same perception of risk as external was pervasive throughout Imizamo Yethu (ibid.).

What the community's perception represents is the widely held belief that their vulnerability to fire is the inevitable product of their own powerlessness and of neglect by government. Individuals consistently identified inadequacies in their rights to water, housing, and basic services as driving their fire risk. The main triggers that were identified involved open flames such as candles for lighting, paraffin stoves for cooking, and illegal electrical connections used for these everyday household tasks (ibid.). Because the community of Imizamo Yethu believes that, without government aid, they lack the resources to improve their built environment or to change the manner in which they pursue routine household tasks, fire risk is widely accepted as an unavoidable aspect of daily life.

While the common experience of the February 4th fire served to unify the community's views, perceptions of fire risk within Imizamo Yethu are also informed by

personal experience. Some individuals have lived in informal settlements in the Hout Bay area for the better part of 20 years, while others moved to Imizamo Yethu much more recently, bringing with them ideas and habits from across the greater Southern African region (Interview, Appendix 2). Obviously the fire risk profile of every area is unique and these varied profiles produce distinct perceptions.

Many recent migrants to Imizamo Yethu have come from the Eastern Cape[7]. One such community member provides an excellent example of how historically different environments and risk profiles shape perceptions of fire risk. She reported that fire was not a large problem where she had been living previously. The structures there were constructed of mud as compared with the unfinished wood and metal of structures in Imizamo Yethu and were therefore much more resistant to fires. In addition, she reported that most fires there were started by lightning strikes, which are not a common a meteorological event or fire trigger in the greater Cape Town metropolitan area. Drawing largely as upon this experience with an entirely different fire risk profile, she did not perceive fire to be a major risk in Imizamo Yethu before the morning of February 4th. While she had heard about past fires in the community she did not consider her own fire risk until she had witnessed a major fire (ibid.).

This woman's perceptions of risk show how a community composed of individuals whose personal histories differ in terms of region, country, and culture of origin, necessarily produces heterogeneous perceptions of fire risk within the community. While the post-disaster context of the interviews significantly disrupts the effects of disparate and individual histories on perceptions of fire risk, this effect will reassert itself as the community memory of the recent fire fades and the process of in-migration to Imizamo Yethu continues.

Perceptions of fire are especially instructive to policy makers where they can be shown to differ from a more rigorous statistical perspective: when community perceptions are not consistent with recorded statistics, the community is not fully aware of its own risk. This can lead to several negative effects, operating through distinct mechanisms. In regard to policy formulation, constructive action to reduce risk cannot be taken without proper community awareness. An incomplete understanding of risk can perpetuate and even increase a community's fire risk since an appropriate response is impossible without a clear idea of the level of risk and its likely origin.

Overall perceptions of fire risk in Imizamo Yethu are largely in agreement with the statistical analysis derived from census and other sources. The widespread perception of increasing fire risk is corroborated by the researchers' analysis of historical fire incidence which tentatively shows an increase in fire severity with time (see the section on statistics and demographics). Community perceptions of insufficient infrastructure are also backed up by analysis of the census data which show that the demand for services such as water, refuse removal and electricity has exceeded the capacity of the local infrastructure (see statistics and demographics).

While the perceptions of the Imizamo Yethu community are largely correct about the major issues, discrepancies arise as more detailed perceptions are compared to statistical data. Community members remember relatively few fires and generally failed to pick up on seasonal patterns of fire risk. As mentioned above, 97 incidents of fire were reported in the period between 1990 and 2004 (see MANDISA database), and Figure 8 clearly shows that a much greater number of dwellings were destroyed in the summer months (between October and March). Community members do not appear to be aware of either the severity of fires, nor of their temporal distribution, and are thus rendered less capable of taking appropriate precautionary measures for reducing their risk.

COMMUNITY MANAGEMENT OF RISK IN IMIZAMO YETHU

In the past, individual disaster events at Imizamo Yethu were seen as single, unrelated events. Coping with these events was considered to be the responsibility of government and relief agencies, who focused largely on reactive response and relief (ISDR). It was realised that through vulnerability reduction and risk management the number of disaster events occurring could be reduced, but this was still assumed to be the responsibility of organisations outside of the community. This lack of ownership of risk by the community led to inappropriate mitigation methods being put in place, which were therefore partially or even totally ineffectual (ibid.). An example of this was the 'Ukuvuka' operation: with little consultation with the community, a strategy to help prevent fires was put in place in the Joe Slovo settlement in 2000. This included giving every household a bucket for throwing water or sand onto fires, whistles for alerting the

[7] See www.sli.unimelb.edu.au/informal/h_day_history.html

settlement to the fact that there was a fire, and posters to remind people what to do in the event of a fire. In the 2002 evaluation of this programme by DiMP it was found that the buckets were relatively effective as they were multi-purpose, but the whistles had been lost or were being used as toys by the children, and the people described the posters merely as "pretty" (DiMP, 2002). In research done in Nepal it was found that this lack of empowerment of the 'victims' of an event often left them feeling fatalistic and helpless (World Disaster Report, 2002:26–27). When the community was included in the planning and implementation of risk management programmes, however, it was found that they often ended up taking their own initiative, as was seen when the involvement of village women led to 75% of the households in the Probat district obtaining toilet facilities (ibid.). It is hoped that future management plans at Imizamo Yethu will take this into consideration and involve the community to a full extent in the management of risk planning.

The term 'community' could be misleading when discussing Imizamo Yethu and their community management of risk. 'Community' implies a group of people united through a common belief or goal but, as is often the case (Marsh, 2001), there are many sectors within the Imizamo Yethu settlement. There are distinct divisions between different political groups (most visible between SANCO and Sinithemba), and there are divisions between those who have been living in the settlement from the day it was formed and those who recently moved in. So speaking of 'the community of Imizamo Yethu' is not intended to imply that those living there are unified in belief and objectives; it merely refers to those residing in the settlement and, in the broader sense, to the institutions and organisations working there.

There are certain principles which can be used when implementing community risk management. The community must own the risk. In other words outside organisations should not enforce new structures and institutions; they should rather build on what is already in place. The community must thus understand their risk and learn to manage it themselves. This would mean that programmes put in place would be understood and managed by the community and would therefore be sustainable as they could be adapted to changes that take place within the community over time. Ideally the community, local authorities, NGOs and emergency services should all participate in the design of strategies (MacGregor, 2004).

Full participation in strategy design could prove to be a problem in Imizamo Yethu as the residence of the settlement do not feel kindly towards the ward structure they find themselves in. Imizamo Yethu is part of Ward 74, along with the affluent areas of Camps Bay, Llandudno and Hout Bay. Members of the community have no faith in their ward councillor, believing that he has never even set foot in Imizamo Yethu let alone knows anything about what is actually going on within the community. A committee from the settlement is supposed to attend ward meetings but they have stopped attending as they felt unwelcome and that their needs would not be addressed.

Within Imizamo Yethu there is an authoritative structure in the form of street committees, which were put in place by SANCO. These each have authority over their designated block and control the decision-making process when a new person wants to move onto the block, as well as sorting out social disputes of those under their authority. These institutions and organisations are the channels through which the community is currently managing its risk. However problems seem to arise from the fact that a group to which not all community members are aligned put these structures in place. The street committees also do not have any real accountability, and individuals do not know to whom infrastructural problems can be reported.

The researchers' fieldwork has shown that at the household level there is a degree of household management of risk. As has already been mentioned, it is believed in the community that many fires are started by drunken men who come home hungry late at night and try and cook something to eat, often meat. Frequently they fall asleep or knock over a stove, or the fat of the meat catches alight while they are trying to cook (Interview, Appendix 2).

Date	Incidence time	Cause
08-09-1998	21:39	unknown
29-10-1995	21:57	cigarette
17-10-1999	22:07	unknown
11-02-1996	23:46	arson
18-10-1997	23:48	candle toppling
12-10-1999	23:50	arson
22-11-1999	00:33	arson
09-02-1997	01:34	candle toppling
12-11-1995	01:59	candle toppling
03-10-1995	02:33	candle toppling
23-01-1999	04:30	candle toppling

Table 4. Reasons given for most likely start of fires

The figures given in Table 4 show, however, that the most common reasons given are 'candle toppling' and 'arson'. It thus appears that residents are aware of the dangers of night time drunkenness even though they attribute the resulting fires largely to activities involving cooking. This may be indicative of complacency around the dangers of candles in informal settlements. It must however be noted that the statistics for fire triggers are not likely to be particularly robust.

The community strategy for dealing with this problem is through the street committees. If a member of the community is caught trying to cook while drunk they receive a warning from the street committee. If they do not heed this warning and repeat the dangerous practice they are eventually thrown out of the community and their dwelling is torn down. All this is done through the authority of and by the street committee. While field work was taking place the community reported that there was one person who was on their final warning and about to be thrown out (Interview, Appendix 2). It is unclear whether there are a set number of warnings before a member gets thrown out or whether there is any political, or other, bias that is in effect during this process.

A later author notes that there are three political groupings involved: two from within Imizamo Yethu, and a third from the surrounding Hout Bay residents. After the 2004 fire these groups entered into a dispute regarding the future development of the settlement, which hampered both the city council's and the residents' recovery activities.

Research done by the South African Bureau of Standards (SABS) (Ban the firebomb stoves, *Argus*, 16 March 2004, p. 1) has shown that the community may not realise how easily a fire can be started. They do not know that the majority of their paraffin stoves are below standard, and there are no government policies in place to ensure otherwise. The results of the SABS research also showed that the paraffin often contains impurities, including petrol. This will cause the stove to flare and, in some cases, explode. Three out of five types of paraffin stove failed the SABS 'leak test', which includes seeing if the stove leaks when upright, on its side or knocked over (ibid.). This is an example of an area where involving the community in the risk management process, in this case the research area, would make them more aware of their risk and so reduce their vulnerability.

Many people believe that the main reason the fires spread so quickly is the high density of the Imizamo Yethu population which has resulted in dwellings being built very

close together. To combat an increase in this density there is a procedure in place for putting up a new dwelling. After a person finds an area in which they want to build, they must go to the street committee and ask permission to build there. If the street committee approves then the person is taken to meet their potential neighbours. If they gain the approval of these neighbours they are allowed to build on the piece of land they have chosen. A problem with this, according to some members of the community, is that the street committee has the power to override the decision of the neighbours. So what is seen is that friends and family members of the street committees get to build in areas where their neighbours do not want them (Interview, Appendix 2).

When a fire breaks out people in the surrounding dwellings are alerted through the shouts and commotion coming from the dwelling that is on fire. All households have buckets of water in their dwellings for general drinking, cooking and cleaning. This water is thrown onto the fire but, according to residents, if the fire is already too big, there is no time to refill the buckets and repeat the process because the water taps are too far away. (This is indicated by the table on types of water supply in the demographics section of this paper.) People then grab their most valuable possessions and run away. Residents from other parts of the settlement often help with the removing of possessions from a burning dwelling. These possessions are stored either in friends' and families' dwellings or in the street (Interview, Appendix 2).

When asked about the fire brigade residents said that they are called as soon as it is obvious that the fire is out of control. According to Len Labuschagne of Disaster Management South Peninsula (Interview, Appendix 2), the fire in Imizamo Yethu in February 2004 started at 45 minutes past midnight but the fire services were not phoned until 1:15 a.m. According to witnesses, most of the dwellings that were burnt down by the end of the fire had been burnt down by this time. When asked by the researchers, several residents said they did not know the fire service's phone number. There is also a general misconception that the forestry fire service just below the settlement is a fire service station. A further problem was that when the fire services did arrive they could not get to many areas that were alight either because there were people's possessions in the road or because there were no roads to these areas. Witnesses claim that in those areas the fire was left to burn itself out.

The only means the community has to stop a fire from spreading is to dismantle dwellings to form a firebreak, but this method is not widely used as looting takes place as soon as a dwelling is dismantled.

The community does have a form of strategy to manage after a fire; the victims of the fire are taken into the dwellings of friends or family. In the February event halls were provided for the victims but, due to other uses of these venues, those affected could stay there for only four days. Some victims mentioned that they spent the first night out on the mountain but organised a place to stay with others in the settlement after that (Interview, Appendix 2).

It has been decided by Cape Town City Council that no building should take place in the burnt down area as this 'clearing' of the dwellings is to be used as the start of demarcation and servicing of plots in the area. Victims of the February fire thus either had to stay living in their family and friends' dwellings or rebuild on the steep slope up the mountain in an area on which is illegal to build. It is widely believed that those living with their families or friends increase the vulnerability of those households in many ways, one which is an increase in density, which leads in turn to increased chance of fire. The statistics, on the other hand, do not reflect this as there is no visible increase in the frequency of fire after a big fire event. This lack of correlation between logic and the statistics could be due to a misconception of the risk or due to the statistics not being accurate. There could be more fires started but if they are small fires, damaging only one or two dwellings, they may not be reflected in the statistics.

Beyond organising a place to stay, strategies of managing after a fire event seem to revert to the aid and relief strategy. After the February fire various groups – such as private home owners in Hout Bay, businesses, Red Cross – supplied victims with food for three days after the event, and each affected household received blankets and a mattress. In addition each household, which had a legal dwelling burnt down, received payment of R500. Many problems were encountered in distributing the R500 as there had been more than one dwelling per registered plot. The census data was not up to date, so new dwellings were not registered and dwellers could therefore not claim the compensation money. It was estimated that more than a thousand dwellings burnt down, but in the end only about 400 households received compensation (Interview, Appendix 2). There was also counselling available on the Sunday after the event but some of the victims were away at the time. As a result of being away that weekend they were not able

to save any of their possessions and did not receive counselling. They were severely traumatised, which in some cases resulted in physical illness (Interview, Appendix 2).

Summary

The researchers' fieldwork showed that there is rudimentary management of risk in Imizamo Yethu. There are also institutional and organisational structures within the settlement. These structures, however, do not seem to working together and in cases such as SANCO and Sinithemba are even working against each other.

The community does not own their risk. They are not aware of some of the factors influencing their vulnerability and they feel powerless once a fire has started as many truly believe that there is nothing that they can do to stop it. The community feels it is someone else's responsibility to manage and reduce their risk. For sustainable management of risk the community needs to have control. To do this a full Community Based Risk Management strategy needs to be put in place.

PART 4

RECOMMENDATIONS AND LESSONS LEARNT

The researchers' work within Imizamo Yethu has revealed a complex, dynamic, and divided settlement. In this context a piecemeal strategy to address fire risk does not appear to be viable. The opinion of the researchers was that a holistic risk management programme can only be undertaken by an organised community with a representative voice. Given these conclusions their recommendations centre round ways to organise the community and provide a channel through which to address the underlying causes of vulnerability through a community-based risk management programme.

The researchers now suggest a framework for strengthening community networks and forging links with provincial government. The process described should be facilitated by an independent third party such as an NGO, or a large business.

In order to achieve a realistic reduction in the frequency of fires, as well in their severity, there needs to be a degree of community ownership of risk in Imizamo Yethu. Such ownership needs to be complemented with strategic and appropriate developmental interventions. To foster this ownership of risk, as well as to ensure that developmental initiatives are appropriate and thus successful, it is vital that extensive community participation take place throughout the settlement. Thus far it appears that the community as a whole, and many of its individuals, have long been without a political voice. The February fire event has, to a degree, provided the settlement with a voice; what needs to be ensured is that this voice is representative of all of the inhabitants of the Imizamo Yethu community.

It seems evident that there are rival factions in the settlement and thus it is unlikely that one unified voice will emerge. However, antagonism from these two factions need not necessarily be destructive. Such antagonism, if discussed in the appropriate forum, could still generate constructive outcomes. What needs to be put in place in Imizamo Yethu is a forum in which antagonism can be channelled in as constructive a manner as possible. The forum would need to ensure that all members of the settlement are represented, and thus heard. This would all need to be undertaken through extensive community participation.

It is hoped that such structures and such a forum would allow for the political organisation of the settlement. This kind of organisation is the first step towards the community becoming aware of the factors that heighten its risk, which would then enable them to take risk-reduction measures. Once the voices of all individuals have been heard, the ownership of risk can be established. Incentives need to be put in place to encourage such community ownership of risk. These could take the form of service provision, for which the community can now effectively campaign, thus ensuring the appropriate provision of services, as well as ensuring that the means by which these services are put in place is appropriate and compatible with other practices current in the settlement. This would allow for the most effective uptake and use of such services.

There is a strong case that in other areas communities who have been waiting a long time for housing have had their dwellings burn so that the subsequent provision of housing has effectively moved them to the front of the housing queue. Such situations, it is argued, set a precedent in which communities appear to be rewarded for having their settlements burn. It is further argued that this does not encourage communities to manage their risk effectively, and it can in fact create incentives for communities not to manage their risk. Local authorities should thus exercise caution when responding to fires with service provision.

A policy which rewards people who fail to manage their risk, fosters an environment in which people are either unwilling or unable to manage this risk. Thus, replying to the voice of the Imizamo Yethu community with a provision of services in response to the fire might serve only to decrease their ability to cope with such fires in the future, and to limit their occurrence. The focus of any response should thus be to communicate and participate with the community, to build a full understanding around their risks and vulnerabilities, as well as to generate an culture of accountability within the settlement.

PART 5

HISTORICAL FIRE PROFILE OF IMIZAMO YETHU CONSIDERED WITH REFERENCE TO THE EXPERIENCES OF CHILDREN

Background

Since the establishment of Imizamo Yethu in the early 1990s its residents have been plagued by the threat of fire. Even during the planning stages of the settlement fire proved to be an integral part of the development process. In December 1990, during the period of negotiations surrounding the selecting of a site for the settlement and about the type of development that would take place, a fire swept through one of the existing Hout Bay squatter settlements destroying approximately 135 dwellings. This resulted in a breakdown in the consultation process, with the government halting negotiations and declaring one of the identified sites as the location of the new informal settlement, Imizamo Yethu. From this point on – due to rapid migration into the settlement and consequent densification of dwellings, the lack of basic services such as housing, water and electricity, and the prevailing socio-economic conditions – fires have been and continue to be an enduring threat.

It is essential to take a longitudinal perspective when exploring the risk associated with fire, including looking back at the historical data profile of fire events in the settlement, as collected by the UCT Disaster Mitigation for Sustainable Livelihoods Programme (DiMP), which spans the years 1995 to 2004. Certain patterns emerge, giving a degree of insight into the occurrence of fires and their persistence as a threat.

It appears from the DiMP data that the number of fire incidents has dropped slightly since 2000 as compared with the second half of the 1990s. Whether this drop can be in part attributed to the fire awareness programmes and risk reduction measures that have already been initiated in the settlement is debatable but it does seem possible. There appears nevertheless to be an increase in the severity of fires, measured by the number of dwellings destroyed, the fire of February 2004 being an extreme example. This increase in severity is likely to be attributable to the burgeoning of the Imizamo Yethu population

and the consequent densification of dwellings, facilitating the rapid spread of fires and more extensive losses. By considering the statistics showing the increase in the number of dwellings counted it becomes evident that, despite large relative growth between 1993 and 1996 (a population percentage increase of 1018% but representing an absolute growth of only 723 dwellings), there was a massive absolute growth in the number of dwellings between 1998 and 2000, an increase from 790 to 2459.

Looking within years it is difficult to distinguish any major differences in the incidence of fires between different seasons. There seems to be a consistently high incidence of fires from November through to March, i.e. during the summer. The numbers drop off in April and May, and are surprisingly low in July when might assume a higher number of occurrences due to the use of open fires for heating purposes, however August and September have the highest number of fire events.

When exploring the number of dwellings destroyed in monthly fires it appears that the largest, most damaging fires take place in the summer. This is likely to be due to the hot, dry conditions and summer winds creating an environment conducive to the rapid spreading of fires. In March 1995 two fires occurred that together destroyed 50 dwellings. In January 2001 a fire destroyed 50 dwellings and January 2004 there was another in which 30 dwelling were destroyed. The most recent and most extreme case of a summer fire is the one that swept through Imizamo Yethu in February 2004. According to DiMP statistics, 560 dwellings were destroyed, although newspapers reported this number as in excess of 1200. (This event will be discussed in slightly more detail below.) Fires that take place in the winter months appear to be less destructive, possibly because their spread is curbed by the wet conditions associated with these rainy months in Cape Town. Even if it is not raining at the time of a fire, the ground and housing materials are likely to be damp, dramatically reducing the ability of the fire to spread.

A large proportion of fires start at night and the majority occur over weekends. One would assume the importance of night-time to be related to the increased use of candles for light and open fires and paraffin stoves for cooking. Also there is likely to be more damage sustained during night-time fires because responses are likely to be slower if people are asleep. The fact that many fires occur at night over the weekends tends to imply that there might be heightened levels of carelessness and negligence during these periods and this may have connections with socialising, leaving homes – and possibly

even children – unattended, and with drunkenness: people knocking over candles or stoves, or falling asleep without extinguishing them.

With regard the triggers of fires, the data shows that in the majority of cases the source is unknown. The February 2004 fire event provides an interesting example of the controversy that surrounds the causes of these devastating fires. Despite the trigger being officially recorded as unknown, stories abound within the community. There seems to be agreement that the fire was started by a woman leaving her dwelling unattended, but the details vary considerably. Some say she was drunk at the time and left her home to return to the shebeen, others say she left to visit neighbours or a boyfriend, and some believe that she left either a child or two children unattended. Some claim that it was a candle that she left burning that started the fire while others maintain that it was a paraffin stove. It is interesting to note that, according to the principal of the Orangekloof Primary School, the reaction of the children to this fire event was one of focused anger. They felt the need to identify a culprit in order to lay blame and administer suitable punishment.

Next to 'unknowns', the most common causes of fire at Imizamo Yethu are candles toppling over and gas or paraffin stoves exploding. A particularly bizarre feature of the statistics relating to the incidence of stove explosions is that of the ten such occurrences recorded between 1995 and 2004, eight were in 1996 (and the other two in 1998). Whether this is of any significance is not clear but it might be worth investigating. Interestingly, cigarettes are the third highest of the identified causes of fires and yet very few of the Imizamo Yethu residents mentioned this to the researchers as a cause or as a concern.

According to the DiMP statistics, electrical failure is the second lowest cause of fires, yet both Imizamo Yethu residents and managers frequently refer to the risk associated with illegal electricity connections. However it is important to remember that because of the large number of unidentified triggers these trends are not by any means definitive.

We now turn to the fire event that took place in Imizamo Yethu in February 2004. This was a summer event which occurred during a period of very high temperatures and dry conditions, with a strong wind fanning the flames, increasing the severity and extent of the fire. It occurred on a weekend and at night – it was believed to have started sometime after midnight on Saturday 7 February. This links to assertions made that the cause of the fire was related to drunkenness and leaving a burning candle or stove unattended. The fact that the fire took place on a weekend night could also account for

the delayed response which led to the affected area being so large. It took more than six hours to get the blaze under control, with problems of access for fire service vehicles, limited availability of water and rising levels of panic and disorder all hampering response activities. The speed with which this fire spread meant that very few people had time to remove much in the way of possessions from their homes and most people affected lost everything. Relief assistance in the aftermath of the event was extensive with many companies, organisations, institutions and government entities donating money and necessary items and/or providing essential services, but despite this some losses were of things that could not be replaced. For example, for many children it was not just school books – which could be replaced with new books that had been donated – but all the work that they had done in those books that was lost.

Focus having shifted from relief to recovery, much contention surfaced surrounding various land and housing issues in the wake of the February 2004 fire event. Two groups from within Imizamo Yethu, and a third consisting of many of the surrounding Hout Bay residents, entered into a dispute regarding the future development of the settlement, which hampered both the city council's and the residents' recovery activities. In the area directly affected by the fire the council cleared debris and removed pine trees but insisted that affected households do not return to the land until services have been installed, and that they leave 3 metre fire breaks between all dwellings when they rebuild. Residents on the other hand were eager to get on with the task of rebuilding their dwellings and their lives.

Finally, it is important to note that although Imizamo Yethu is a unique case it nevertheless mirrors many of the problems experienced in other informal settlements in and around Cape Town. On the same weekend as Imizamo Yethu's fire, two other settlements, Polele near the Strand and Kosovo near Philippi, also experienced major fires, with residents suffering similar losses.

FIRE RISK IN URBAN INFORMAL SETTLEMENTS

Disasters occurring in the rapidly growing cities of the southern hemisphere – not all of them megacities – predominantly affect the economically weakest sections of society. Bull-Kamanga et al. underline the fact that "the impact of these disasters and their

contribution to poverty are underestimated, as is the extent to which rapidly growing and poorly managed urban development increases risks." (Bull-Kamanga, et al. 2003: 193)

Neither the variety of risks nor their often chronic threat to people's lives and development tends to be recognised and acted upon by local governance. A deeply entrenched bias from the side of governments as well as donor communities towards rural areas – regarded as being disaster-prone and at greater risk – exacerbates the situation. As the MANDISA database however reveals, in many instances trends and seasonal patterns in risk factors can be determined for different areas. Factors that have proved to drive fire risk up are dwelling density combined with population patterns, as well as lack of social cohesion. Wallacedene, an informal settlement outside Cape Town, has seen six times the average incident loss rate for all settlements studied (Holloway, 2004:5). It is significant to point out that it is regarded as one of the most heterogeneous informal settlements in the greater Cape Town area – about 29 political groupings and factions have been singled out by the Development Action Group (DAG). Factors such as the composition of a settlement's population – families vs. single households, as well as the origins of the settlement and its inhabitants, are crucial factors that can exacerbate these divisions.

Fire risk has been a social reality for some time, in South Africa as well as in other urban developing contexts, and there are indeed some similarities between these various contexts. Even though informal settlements may bear some specific local characteristics, many features are common and seem to suggest that some sort of strategy could be conceived and applied to map and reduce fire risk in informal settlements.

In some settlements strong social networks and structures can be found. These have usually grown over a significant period of time and tend to have fairly consistent demographic figures. These must serve as a basis and be built on and strengthened when introducing risk-reducing strategies. In most instances, however, urban migration means that informal settlements experience a high and constant influx of newcomers. Some of these people are attracted by family members already living in the area. This does mean that they will be integrated into an existing structure, but they will also put these structures under additional strain. The situation differs dramatically in the case of foreign immigrants and refugees, who are often greeted with hostility and struggle to become integrated. In Marconi Beam camp near Milnerton outside Cape Town, as well as at Joe Slovo informal settlement between the N2, Vanguard Drive and Langa, also outside

Cape Town, incidents of violence against immigrants from Angola and the Democratic Republic of Congo (DRC) have occurred in the past. (Centre for Conflict Resolution, 1998)

Another crucial factor to be taken into consideration in the context of fire risk is the question of ownership. While the South Africa government, in dealing with the legacy of the previous dispensation, has been trying to formalise land ownership and provide tenures, as well as housing subsidy grants (Development Action Group (DAG), 2003), this has also led to the sub-division of households and the erection of new shacks in order to increase the chances of receiving a grant. In other instances, as was observed in Joe Slovo, a significant reason for the establishment of new shacks, which increased density and further drove up fire risk, was to be put on the housing register.

What has often been singled out as the ultimately determining factor for fire risk is chronic conditions of poverty. The example of Redhill near Simonstown, however, highlights the fact that socially cohesive communities, even though poor and surrounded by alien vegetation, can be fairly resilient to fire risk and have a lower occurrence rate of fire incidents. There is then neither one single cause, nor one solution, to fire risks in informal settlements. Living conditions in many informal settlements, as well as in formal areas where back yard shacks are rented out to generate extra income, do nevertheless determine the risk patterns. The immediate triggers for these fires have been discussed in other parts of this report but have also been known to include cases of arson. The underlying root causes in these cases are highly complex, influenced by political affiliations and gender relations.

There is strong evidence that the majority of fire incidents occur on weekends. This does seem to suggest that poverty and living conditions, as well as social and communal networks or the lack thereof, are the issues in greatest need of being tackled.

METHODOLOGY

Background information on Imizamo Yethu made available by DiMP included census data as compiled by DAG in 2003, findings of previously conducted research in the settlement, as well as reports and TV footage. The latter in particular gave insight into a history of division and tension within the community which was been heightened in the

wake of the February 2004 fire. Literature dealing with children and youth in informal settlements was consulted by the researchers in order to contextualise this report within an existing body of knowledge. This included looking at such issues as tradition and modernity. Medical studies conducted on childhood burn injuries added further information. (van Niekerk et al., 2004)

The group doing this section of the research (referred to here as Group C) was divided into three sub-groups. Sub-groups C1 and C2 decided on different approaches for each focus area of their field research, including a visit to Orangekloof Primary School and to households in Imizamo Yethu, as well as interview sessions with Nelmarie du Toit, Deputy Director of the Child Accident Prevention Foundation of Southern Africa (CAPFSA) and Juliana Rogers from the Red Cross. Subgroup C1 divided the school class into three groups and gave each specific tasks, C2 split the class in two halves and gave all the same brief.

The first group of children interviewed by the C1 researchers were asked to draw their morning activities before going to school, and a second group was asked draw the things they did when they came home after school. The third group was asked to give insight into their weekend activities. A further task the children were given by C1 was to circle in red anything on their pictures that they thought might be related to fire. The subsequent discussions were then to provide information about family structures, household and dwelling circumstances, the household activities they and their siblings were expected to perform, whether they were supervised or often left alone. Once the children had started drawing their homes and adding the members of the households to it, members of the group, as well as the two facilitators engaged with the children in order to obtain extra information and explanations. Each child pointed out what source of energy in the drawing was used in their homes. While group C1 intended to discuss past fire events, particularly the February 2004 fire, and explore their knowledge of what to do in the event of a fire, C3 was concerned about the effects the fire had had on the class and in particular the children affected. With regard to these questions, the teacher (C2) proved to be the most insightful source of information.

Group C3 started the field research at Imizamo Yethu by conducting a small transect walk through the settlement. In this first step some observations were made and notes taken about the surrounding environment and here the communication with the facilitator Juliana Rodgers and a young woman called Thandi, a resident of the

settlement, proved to be a determining factor in the researchers' familiarising themselves with the place. The first destination was the area where hundreds of houses had burned down in the month of February. The site quite remarkable; the researchers found it difficult to imagine that there had ever been dwellings in the area. On the way back the group C3 researchers asked some of the residents for permission to have a look inside their houses, in particular the new solid brick houses that are being financed through the Mellon Foundation. The few public toilets and water taps were in a bad condition but were clearly being used by everyone in the settlement, although the residents of the upper side are in a particularly difficult situation because of the distance they have to walk every day to get water and have access to a toilet. Some of the organisations that the C3 group identified were the Red Cross office and the ANC office where two of the researchers went to speak and introduce themselves.

Group C3 used questionnaires in focus group interviews to interview learners at Hout Bay High School who had been affected by the recent fire, as well as educators and parents. These interviews were not without problems, particularly the problem of space – one classroom being used for simultaneous individual interviews, spread to different sides of the class, which probably had an effect on their quality. The focus group with the educators was centred around questions about students from Imizamo Yethu and their situation at school and at home. Questions were also asked about other factors that might have had an impact on the students, such as specific information about fires, their economic situation, and possible solutions.

Having completed the interviews at Hout Bay school, group C3 went to a nearby hall to interview some of the families who had lost their houses in the fire. This provided the researchers with the opportunity of seeing conditions in the hall, which was a sports centre adapted to accommodate the families – in a single common space. One of the complaints people made was that the hall did not provide any privacy. Some of the researchers had to act as translators from Afrikaans to English while others wrote in the answers. The interviews were successful but they gave the researchers a deeper appreciation of the way that language difference might act as barrier between people. The C3 researchers conducted interviews with men and women in Imizamo Yethu who were introduced by one of the community workers.

Semi-structured interviews (aimed at exploring previously identified focus areas) were conducted with single mothers and fathers, some in their homes and others in the

community hall. Children were not necessarily present during these interviews. The main focus of all questions was family and household structures, and assessing the position within the household of the child/children and his/her/their duties. A further area of enquiry centred around fire risk, what presented a risk, how this risk was conceptualised and addressed. All three groups attempted to find out whether an active transfer of knowledge around risk and risk factors from parent to child/children took place.

Similarly broad questions were prepared for a semi-structured interview held with Nelmarie du Toit. These related to the initiatives run by CAPFSA both in Imizamo Yethu and elsewhere: the level of community participation involved in developing and implementing these initiatives, the successes and shortcomings associated with various initiatives, the support services available in Imizamo Yethu for trauma prevention and post-trauma recovery, and the primary risk factors associated with children.

What transpired in the field on 16 March 2004 was quite different from what the researchers had planned. The local facilitator did not appear, so a substitute had to be found. Some translation problems were then experienced, but for the most part respondents were able to speak English. When at the school the researchers were presented with a much larger group than expected so their approach had to be altered slightly. The drawing activity was performed as planned but instead of semi-structured interviews they had to conduct a group discussion with the class, which limited the specificity of the information obtained. The semi-structured interviews with a mother and a father did not transpire so instead the researchers walked through the settlement conducting informal interviews with any men, women and children who were willing to talk. Much was learnt from direct observation during the transect walks through the settlement, at the schools and in people's homes.

A second field visit was conducted on 26 March, which involved unstructured interviews with the chairperson of the Parents Association at the Orangekloof Primary School, the primary carer at one of the crèches in Imizamo Yethu and a subsequent unstructured interview with the principal of the Orangekloof Primary School, which took place at the University of Cape Town later that afternoon.

A final visit to the school was paid on 16 April 2004, when four children – three boys and a girl aged between 12 and 15 – were available for questioning. They had all lost their homes in the February fire. The questions were semi-structured and fed off insights gained previously. The researchers wanted to gauge how far the children had managed to

adapt to the situation of displacement. To stimulate debate, the researchers showed the four children drawings done by younger learners from the school during the first visit, as well as photographs taken at each subsequent visit. The questions ranged from perceptions of fire risk to suggestions for risk reduction measures and recreational facilities. With the onset of the first winter rains, the researchers also wanted to see the conditions in the settlement and did indeed come across a few open fires in front of shacks, as well as children collecting firewood.

The primary data for this study was thus collected through a process of direct observation, transect walks, individual interviews with key informants, informal spot interviews, and group activities with children. This was combined with secondary information obtained from newspaper articles, survey data, fire statistics and relevant academic research and literature.

This report is the result of a group effort as well as individual research which focused on particular areas. Initial meetings served to establish how to proceed in terms of dividing the research topics, the structure of the report and the allocation of tasks. Although the researchers initially needed to standardise their modus operandi and pace of work, they agree that they worked well as a team, succeeded in dividing the work up in a fair manner, and allowing for each to express concerns, with no-one completely dominating the general process or outcome of the report. They all made time for additional visits to Imizamo Yethu and shared information and material. After they had each written an introduction and a methodology, aims and objectives and ethical considerations section, they split up into the various C groups. The specialist reports are the work of each individual researcher, with input from group discussion.

AIMS AND OBJECTIVES

This study follows a short course on risk reduction strategies (entitled Disasters and Development: Protecting Livelihoods) organised by DiMP in March 2004. The aim of the research was to assess the role of children in household livelihoods at Imizamo Yethu, exploring conditions of risk, with the objective of reducing risk in by reducing fire vulnerability. The researchers investigated places such as schools, as well as homes, to learn about the children's experiences. They hoped to produce an in-depth understanding of the dynamic relation between children's lives and the vulnerability context they live in,

and to provide recommendations and possible solutions to reduce the risk of fires for children.

STRUCTURE

This section of the report, which explores urban fire risk as experienced by children in Imizamo Yethu, is divided into three areas, each with its own specific research question. The first examines the context of vulnerability within which the children live, the second explores children's perceptions of fire and fire risk, and the third reviews and accesses existing resource material that has been developed in an attempt to reduce this vulnerability.

LIMITATIONS

A project of this nature has certain limitations that need to be asserted. The first is that the findings produced cannot necessarily be generalised to the whole population of the Imizamo Yethu settlement. However the methods used were qualitative and thus generalisation was not an objective. The findings could nevertheless be compared with the statistics provided by DiMP, the data from the 2001 census and the MANDISA database.

The second limitation concerns the language barrier that existed between the research group and the people interviewed. This was reduced by the use of translators, but this was itself not without problems – for example sometimes a long answer in Xhosa was translated quite briefly, meaning that the translator had reduced the response which may have caused some loss of information. In other situations the translator may have emphasised certain questions because that question seemed more relevant to him/her. The research group did not find a way of avoiding this. Sometimes there were also misinterpretations between the research group and the translator, for example one of the women interviewed said that she was reluctant to engage with community structures because of the language barrier, which surely had an impact on the report, though it was not clear what or how much this would have been.

In Imizamo Yethu, there is no single political leader or position. Within the settlement there are different views on the problems experienced there and on what might be the best way to resolve them. Because the participants who helped conduct the assessment are associated with SANCO (South African National Civic Organisation) it is probable that this study was biased towards favouring SANCO's activities. Furthermore the nature of the questions made it difficult to identify other political stances within Imizamo Yethu.

The context of the February 2004 fire – the fact that hundreds of people were homeless, the Hout Bay ratepayers' association protest, the Sinithemba political stand together with the ratepayers' association, and also the fact that national elections were very close – needs to taken into consideration and used as far as possible in understanding the complexities of the problems that exist in this settlement. The researchers are aware that some of the interview responses might contain exaggerations and be biased, but the implications of political activities were not the focus of the study, nor the objective of their research. The researchers feel, however, that their findings might nevertheless be useful to people doing research focused on political issues, who might make use of the Imizamo Yethu example and the way it illustrates how policy is made and applied with regard to informal settlements in Cape Town and in South Africa.

ETHICAL CONSIDERATIONS

The ethical aspects of this study are seen by the researchers as being very important since without them it would not be admitted as reliable and honest. This concern was present both during the initial discussion and planning of the project and when conducting the field research. Some of the issues were seen by the researchers as being quite sensitive because they related to people's individual actions and behaviours. For example one of the findings in the study was that the occurrence of fires is often related to alcohol abuse, but the researchers could not ask who was responsible and who consumed alcohol in any particular house. In addition they decided not to enquire too deeply on political issues or on issues involving abuse. Another concern was the socio-cultural differences that existed, and a main concern was to avoid imposing the views of the research group on the people who were interviewed – something they found a constant challenge.

PART 6

CHILDREN'S VULNERABILITY TO FIRE-RELATED INJURIES AND LOSSES

That the settlement of Imizamo Yethu is an area plagued by the incidence of both small- and large-scale fire events cannot be contested. After an extreme event such as the one that occurred in February 2004 it becomes increasingly pressing to examine the context of vulnerability – both the conditions that precipitate such fire events and those that affect the scale of their impact. In addition it is important to recognise and explore how conditions of vulnerability vary within the 'community', both between households and within households.

The particular focus of this section of the report is the study of children's risk, relating to both the occurrence and the impact of shack fires and the incidence and consequences of fire-related injuries. Like all other members of the community, children are affected both by the conditions that put their own households at risk and by other factors that put the whole settlement at risk. Thus, though children have unique vulnerability characteristics, it is important to begin by examining the broader socio-economic and political circumstances that contextualize the conditions of vulnerability that exist within the settlement – all the while applying a lens that focuses on children.

COMMUNITY BACKGROUND

The notion of a homogenous, clearly-bounded community is a problematic one which has too often been applied to or assumed of demarcated geographical areas such as the settlement of Imizamo Yethu (Coetzee, 2002). Instead, there exist a number of communities within Imizamo Yethu that are likely to "shift and overlap in ongoing ways as individuals and households engage and disengage with larger groupings, move to different areas and participate in multiple formal and informal networks" (ibid.:16). Within these communities there are multi-dimensional differentiations based on economic differences, gender, age and ethnic identities (Nuijten, 1999), which create different patterns of vulnerability. This makes it important to explore how conditions of

vulnerability vary within both the community and the household (Beall & Kanji, 1999). Although children have a unique set of vulnerabilities, these differ considerably between individual children, based on their household environments. These conditions of vulnerability are at the same time constantly changing as households and individuals follow their unique developmental cycles, most notably influenced by their access to and ownership of different combinations of assets (assets here being used in the broadest sense of the word to include human capital, productive assets and social capital) (Beall & Kanji, 1999 and Coetzee, 2002).

According to the Development Action Group (DAG) survey completed in 2003, Imizamo Yethu is estimated to comprise 7874 residents, of whom 3513 (45%) are children (the term children is used broadly here to include all persons under the age of 21). The population is generally quite young, with 89% of the adult population younger than 45 years of age, and there is a fairly equal split in terms of gender, with women comprising 48% of residents and men 52%. Of the 3819 residents interviewed by DAG, 67% responded positively when asked whether they had children, however, of the total child population (3513) only 57% lived in Imizamo Yethu while the rest resided with their other parent or with relatives. There were 290 children living in the settlement with an adult who was not their biological parent. Whether this was due to the death of one or both parents or whether they were children sent from rural areas to be schooled or seek income in urban areas would be worth exploring. The largest number of children recorded in one household was eleven, but the DAG survey found that 40% of households with children had only one child. (These numbers exclude any children identified by respondents as 21 years or older.)

Approximately 78% of the total number of households in Imizamo Yethu was found to be headed by single people. This was supported by information gleaned from interviews with a sample of children living in the settlement, many of whom reported living with a single parent, most often their mother. This plays a large role in increasing the vulnerability of children in such households, an issue which will be dealt with in a later section of this report.

An important factor contributing to conditions of vulnerability of households and thus of the children within them is their economic status. Although the DAG survey shows that 72% of residents are engaged in some form of employment, the large majority are in low-skilled, low-paid jobs, and earn less than R1500 per month, males generally

earning more than females (DAG, 2003). Conditions associated with low economic status are inextricable from those of vulnerability.

Studies show that children from households of low economic status have a much higher risk of sustaining fire-related injuries (Delgado et al., 2002). In addition such households increase the risk of the occurrence of a fire and worsen the resulting impacts (factors and processes contributing to this are discussed below). It must also be noted that 4% of the DAG survey respondents are self-employed, many operating businesses from their homes, which considerably increases the potential losses sustained in a fire event, as a primary source of income may be lost if the dwelling is burnt. For example one family had run a spaza shop from their home, which was destroyed during the February fire (Interview C11).

There are visible indicators within the Imizamo Yethu community of economic inequality, for instance the different types, sizes and qualities of dwellings. Relating specifically to children, access to child-care and education is similarly a sign of better income. The primary carer at one of the crèches in Imizamo Yethu said that although the fees were only R20 per month many could not afford to send their children there (Interview C3). There were also a number of parents who had been unable to pay since the fire but Niall Mellon, an Irish philanthropist involved in the community, as well as another benefactor, had agreed to sponsor the children's fees (ibid.). As regards school-going-age children, it is clear from numerous visits to Imizamo Yethu that there are a large numbers who do not attend school and are out on the streets during school time.

Structural conditions

The issues surrounding access to land, adequate housing and the problems associated with increasing densification are particularly topical in Imizamo Yethu at present as the conflict continues over the use of a particular piece of land as yet undeveloped. According to some, this 16 hectare area should be reserved for housing, while others maintain it should be utilised for the development of amenities and facilities, as was originally intended by the City of Cape Town (*Land Fury in Hout Bay*, S. Mambato, Sunday Times, 22 February 2004). The lack of access to land, together with the desirable location and consequent influx of people into the settlement, has precipitated massive problems associated with density, both of dwellings and people. The lack of demarcated sites and the insecurity of tenure has meant that dwellings have developed side by side in

very close proximity, with people living cheek by jowl, large households inhabiting tiny dwellings, often with only two rooms. As already discussed, this creates a situation of increased fire risk.

A study conducted in Peru identified increased risk of fire-related injuries in children living in dwellings that do not contain a separate room for use as a kitchen, because of the proximity of hot objects such as fire, oil, boiling water, etc. (van Niekerk et al., 2004; Delgado et al., 2002). This is true of many of the informal dwellings in Imizamo Yethu. The notion of space relates also to the lack of recreational spaces available in the settlement, particularly those suitable for children, who are therefore more likely to spend time in and around the home where they are more exposed to fire or injury hazards.

As previously discussed, backyard shacks rented out by the owners of formal plots considerably increase the risk of both incidence and spread of fires. At the same time however, these shacks must be recognised as an important means of raising income, thereby possibly reducing the risk of these households. Different types of land users – such as owners, tenants, lodgers and backyard shack dwellers – are undoubtedly confronted with different levels of risk. The February 2004 fire event itself influenced patterns of risk in this respect: the majority of individuals displaced by the fire were absorbed into the community, moving in with friends and family until they are able to rebuild, and thus increasing overcrowding.

In informal interviews, people on the streets of Imizamo Yethu almost all identified formal housing and increased space between houses as essential measures for reducing fire risk (Interviews C3, C6 and C7). Children similarly recognised these as priorities (Interview C10). Since the fire in February 2004, the City of Cape Town has been attempting to introduce regulations regarding the distance between dwellings, instituting 3-metre wide fire breaks (City bids to curb construction, K. Kemp, *Argus*, 9 February 2004). Some residents have suggested however that this be reduced to 2 metres due to the lack of space (Tree clearing for Imizamo homeless blocked, M. Mackay, *Argus*, 18 February 2004).

Another aspect relating to structural factors that contributes to increased risk is the lack of basic services available to the community. The lack of electricity and access to water were referred to by residents in the majority of interviews.

The lack of formal electricity provision has given rise to two factors which greatly increase the risk of fire and fire-related injuries. It has led firstly to the extensive use of

illegal electrical connections, appropriately referred to locally as 'spaghetti wires' because of the number that weave over rooftops and even across the streets at ground level. The higher wires are believed by some Imizamo Yethu residents to pose a major threat as live wires rub against the metal roofs of shacks in the wind creating sparks (Interview C7). Similarly, completely exposed wires can be observed extending across roads where children walk. A tragic incident occurred near the end of February 2004 when a young boy was electrocuted on a tap due to an exposed cable, the injuries he sustained resulting in his death (Drink from electrified tap kills boy, S. Maposa, *Argus*, 24 February 2004). The second factor is the extensive use of candles, paraffin or gas stoves and open fires in lieu of electricity. These obviously provide increased opportunity for the outbreak of uncontrolled fires: as has already been mentioned, candles toppling over and paraffin/gas stoves exploding account for 61% of the known triggers of fires that occurred between 1995 and 2004 (DiMP, 2004). These incidents are also commonly associated with paediatric burns (Interview C9 & van Niekerk et al., 2003). It is important to recognise however, even when electricity is available, many households still use a combination of electricity and paraffin, which is more immediately cost effective (Interview 9).

As has already been discussed, the lack of or limited access to water increases fire related risks (Interviews 8 and 11), and limited road access impedes fire-fighting activities. Lack of access to telephones, particularly for children who may be left at home unattended, may well limit their ability to alert emergency services in the event of a fire.

Social factors

The single most recounted social factor influencing the incidence of fires appears to be alcohol abuse and drunkenness. Adults and children alike identified drunken people cooking or lighting candles and then either falling asleep or returning to the shebeen and leaving the flame unattended, as the primary cause of fires (Interviews C4, C6, C10 and C11). This drunkenness also related to children being left unattended in the home with candles burning and/or food cooking, putting them at increased risk of starting a fire or suffering a fire-related injury. In fact it is believed by some residents that drunkenness was the cause of the February 2004 fire (Interviews C10 and C11). Friday nights are identified by many as a high risk period. Domestic violence is also occasionally associated with fire-related injuries in children when they are unintentionally or intentionally used as a shield between partners (Interview C9).

Children identified drunkenness as an important factor contributing to their general, everyday vulnerability as they can be hit, sworn at or have stones thrown at them by drunk adults (Interview C10). Even more worrying were their accounts of more gruesome acts of violence including the rape and murder of women and children associated with the shebeens and drinking (ibid.). To what extent these stories are embellished it is difficult to say. The principal of Orangekloof Primary School affirmed that a large amount of alcohol abuse and child abuse takes place within the settlement and that as a result James House, a children's shelter for abused children had been established on the grounds of the school. This provides a place of safety for children to escape to in the event of abuse and provides counselling services to both the child and the parent/adult in an attempt to facilitate reconciliation.

As explained in the introduction to Part 1 of this report, considerable conflict over land issues exists between different groups within the Imizamo Yethu settlement, the dominant one at present being between the local South African National Civic Organisation (SANCO) on the one hand and Sinithemba and the Hout Bay Ratepayers Association on the other. Conflict and processes of social exclusion based on date of arrival, place of origin, ethnicity and mother tongue can also contribute to increased conditions of vulnerability. These factors also affect access to information, leading to exclusion from community meetings, or even from the distribution of relief in times of emergency. Interestingly, the four children interviewed associated particularly heinous forms of violence with foreigners, and specifically the Ovambo people from Namibia (Interview C10). According to Dodson and Oelofse (2002:125–147) there has been a history of conflict between 'locals' and foreigners, particularly the Ovambos, dating back to the inception of Imizamo Yethu in 1990. If there are Ovambo children in the settlement, they are likely to suffer relatively extreme conditions of vulnerability as a result of this conflict and exclusion. This would be interesting to explore further.

The structure of households is an exceptionally important aspect in differentially shaping the conditions of vulnerability experienced by children. There has been considerable debate surrounding the erosion of the traditional family structure. It is however exceedingly difficult to comment on such a topic without an intimate understanding of the cultural context. What is clear from the survey done and the interviews conducted is that a relatively large – and increasing – number of households are headed by single people. The exact reasons for this would have to be further explored

but what is certain is that the vulnerability of children is increased in a single-headed household as income earning capacity is reduced and the likelihood of hours spent unsupervised is increased. (In many instances working parents do not have child-care options available to them and unsupervised activities are a necessity.)

The number, age and gender of siblings are also likely to influence the resilience of a household and the specific patterns of vulnerability it. It is particularly important to recognise intra-household inequalities, specifically considering gender relations (Beall & Kanji, 1999). If the woman of the household works long hours, the responsibility of cooking and caring for younger siblings is often passed on to the older children in the household. This would expose them to new sources of risk relating to fire and especially to fire-related injuries.

Children tend to grow up particularly quickly in low-income settlements where conditions dictate that they must take on levels of responsibility often not associated with children of a similar age in more wealthy contexts (Interview C2). Some children are expected to collect firewood and tend to fires, setting them at even higher risk of injury. Parents often underestimate the need for child supervision and overestimate children's abilities to carry out tasks (Interview C9).

Finally, despite not relating to fire related risk directly, the lack of sanitation services is a contributor to the general conditions of vulnerability that exist. Refuse piles build up between dwellings and rivulets of liquid waste run down gullies in the roads creating hazardous environments in which children live and play.

It should be noted that the predominantly negative social factors discussed above are to an extent offset by positive social aspects that build household and individual resilience as well as an ability to cope with and recover from disaster events.

Institutions, organisations and networks

Both formal and informal institutions that operate within the Imizamo Yethu community are very important in increasing the resilience of households and household members, including children. The school is a particularly important formal institution in reducing children's risk while assisting them to reduce the negative impacts of fire incidents, as was the case after the February fire when the school became an important locus for the distribution of resources. The school also replaced items of uniform and books lost in

the fire, supplied the families of schoolchildren with clothes, and provided children with a cooked meal every day following the event. Local businesses, individuals and other schools donated money and goods. (Interviews C1 and C2).

More informal institutions such as networks of friends and family play an equally important role in supporting fire-affected households and children. Three specific stories illustrate this point. The first is of a boy in the primary school whose house was destroyed in the fire. Through his mother speaking to a 'sister' they were able to build a new home near this woman's dwelling (Interview C10). The second is a girl whose house was also lost in the fire and whose family consequently moved in with an aunt who also lives in Imizamo Yethu (Interview C10). The last story is an example of the reciprocal relations developed within the community which contribute greatly in reducing risk and aiding in recovery post disaster event. It came from a boy attending the high school, whose family had managed to qualify for a Mellon brick house. Before it could be built the household's existing shack had to be deconstructed, so the boy moved in with a friend and his family while building was taking place. Relatively soon after the completion of this house the friends' house burnt down and, because of the kindness they had shown, the friend and some others of his household were invited by the first boy's family to live with them in the Mellon house until new accommodation could be organised (Interview C11).

There are likely to be important ties between settlement dwellers and family members living either in other settlements or in the rural areas. Urban family members may send remittances to rural family, while rural counterparts might support urban households through the production of subsistence foodstuffs, the supplying of traditional medicines or through looking after children or elderly family members so that the middle generation can take up employment (Beall & Kanji, 1999). An example exists of a woman who lost her house and all her possessions in the February 2004 fire and as a result sent her children to Port Elizabeth to her mother (Interview C11). Although these networks do present an important aspect of risk-spreading it is important to be remember that people of low economic status tend to have social networks that are limited to others with similar economic constraints.

Other organisations such as non-governmental organisations, churches, provincial government, local council and municipal bodies, and networks of street committees, neighbourhood watches, volunteer fire-fighters, counsellors and home-based carers all

play a part in reducing the fire related risk in Imizamo Yethu. The links that have been forged with the broader, wealthy Hout Bay community, who contributed significantly to the relief and recovery process after the February 2004 fire were another helpful factor. Exclusion from these networks, for any of a number of reasons, is almost always to a household's and individual's detriment, increasing the conditions of vulnerability of those who have limited access to resources and information.

Cycles of poverty and vulnerability

There is a fundamental link between poverty and vulnerability. Conditions of poverty, such as limited access to power and resources, as well as unemployment and poor living conditions, create conditions of vulnerability. These conditions in turn increase the likelihood of risk being realised and disaster events occurring. The losses then experienced tend to lead to increased conditions of poverty and vulnerability, setting up a potentially destructive cycle.

Levels of awareness and knowledge of fire risk

From the interviews conducted with children it definitely appears that they have a good understanding and awareness of fire-related issues. They know what in the home has the potential to burn or to start a fire and for the most part they know what they should and should not do with regard to fire (Interviews C4, C10 and C11). From transect walks however there is definitely evidence that the children do either play with fire – a small child was seen poking an outdoor fire with a stick – or are expected to work with it in some form. Larger children were seen collecting firewood, and some of them said that they or their older siblings did the family cooking or at least used the stove if they wanted to cook something for themselves (Interview C1).

There may be an important distinction between children attending school who are taught about fire-related issues and those children who do not attend school, usually due to financial constraints, who are seen on the streets during the day playing with and tending to fires. If this is so, this would be a concrete example of how economic status affects children's fire-related risk.

Mrs Davis, the Orangekloof school principal, was emphatic that children were well aware of the dangers of fire, having been taught at school through exposure to a whole

variety of fire awareness programmes (Interview C2). She felt however that the problem lay mainly with the fact that what the children were learning at school was not being enforced at home; and that parents were, on the contrary, often ignorant of the dangers of fire and set bad examples to the children. Mrs Davis illustrated the point by referring to the incident mentioned above of the little boy who had been electrified by a tap, explaining that the reason that this had resulted in his death was that a woman, thinking that she was assisting, threw water over the boy. This example links to a lack of knowledge related specifically to first aid, which results in fire-related injuries often being aggravated (Interview C9). When speaking to parents in the settlement, the researchers found however that they did not seem ignorant of conditions making them vulnerable to fire risk or of the triggers of fire. Many said explicitly that they thought the education and awareness campaigns in the settlement would not be effective in reducing risk. They believed that what was needed was long-term large-scale structural changes for improving living conditions and stimulating employment opportunities (Interviews C3, C6, C7 and C8). This discrepancy in views would need to be explored further in order to understand its causes and implications.

An interesting attitude towards fire and particularly the February 2004 fire event was shown by the children. They seemed to accept fire and its impacts almost as an inevitability, as a part of life. They displayed great resilience, speaking very matter-of-factly about the impacts of this fire.

Finally, some residents do not appear to be aware of the resources available within the community, for example the fact that there are already some local volunteers trained as fire-fighters (Interview C11).

The impact of fire-related injuries on children

Minimal primary data has been collected at Imizamo Yethu regarding the incidence and impact of fire related injuries on children, so the following discussion is based primarily on studies undertaken in the broader region as well as in other parts of the world.

Burns are one of the leading causes of death among children in developing countries (Delgado et al., 2002). As has been discussed above, and as was found in a study of risk factors for burns in children undertaken in Lima, Peru, and another in Rio de Janeiro, Brazil, conditions of poverty, crowding, lack of education, the use of candles and paraffin

or gas stoves, the duties expected of children, the relationship to the head of household and position of the child in the family (i.e. first born or not), lack of adult supervision and lack of play spaces all combine to create conditions of high risk with regard to fire-related injuries for children (Delgado et al., 2002 and Werneck & Reichenheim, 1997).

There are on average between 500 and 600 paediatric burns cases received at Cape Town's Red Cross Children's Hospital each year. Of these approximately 13% are fire injuries while the rest are mainly liquid burns, often associated with knocking over pots and kettles (see also Interview C9). A young boy at the Orangekloof primary school had had his back very badly burnt when he tried to prevent his little brother from sustaining an injury and in the process knocked over a pot of boiling water, which spilled over his back (Interview C2).

Children in the Imizamo Yethu settlement are often left home unattended and are expected to perform certain duties. These include different combinations of cooking for themselves and/or siblings, lighting candles, gathering firewood, lighting fires and tending to the fire (van Niekerk et al., 2003). The combination seems to depend on a range of factors including age, gender, the number and age of siblings, and the employment and economic status of parents. There is estimated to be a 60–40 split for boys and girls with regard to burn injuries (Interview C9), with differences in risk between genders more pronounced between younger and older age groups (van Niekerk et al., 2003). This might be accounted for by different types of play, boys being more active and taking more risks (Interview C9). The proportion of burns in female children may be associated with increased exposure to gender-specific social activities (van Niekerk et al., 2003).

The home, especially the kitchen, is undoubtedly the most common scene for sustaining a burn injury – home environment risks include the use of flammable household building materials in the construction of the home, the lack of clear demarcations of cooking or washing areas, and the number of rooms (van Niekerk et al., 2003; Delgado et al., 2002). The use of portable paraffin and gas stoves, and the storage of fossil fuels for heating and lighting in the home are also associated with childhood burn injury. Easy access to cooking pots, kettles or heating equipment – often found on floors or tables – is indicated by an over-representation of burns to the lower abdomen and legs in two- and three-year old children who tend to be naturally curious (van

Niekerk et al., 2003). In children under the age of five, burn deaths are the highest external cause of death (Delgado et al., 2002, and Interview C9).

There seems to be a slightly higher incidence of burn injuries in winter, but also a concentration of cases in January, which might be related to the summer school holiday, as children are around the home more and could have increased exposure to fire hazards (van Niekerk et al., 2003, Interview C9, and Delgado et al., 2002). There is also a concentration of injury incidents in the evening (van Niekerk et al., 2003). When asked about why children sustain fire-related injuries, the children in Imizamo Yethu responded that it was because these children did not listen to their parents; but ultimately they blamed the parents because they had not taught their children to respect and listen to older people (Interview C10).

There are serious consequences related to paediatric burn injuries. With major burns there are reports of sleeping disorders, increased aggressiveness, anxiety, disturbed self-esteem and depression (Zeitlin, 1997). Burns can have profound long-term psychological impacts (Godwin et al., 1996) and studies have shown that mothers can also be emotionally affected by their children's burn injuries, with resulting overprotection and feelings of guilt. Children's later psychosocial reactions may thus be in part mediated by their mothers (Zeitlin, 1997).

Finally, it is clear that burn injuries involve many factors and should be regarded not as fortuitous events but as a sign of underlying problems (Werneck & Reichenheim, 1997).

Small-scale fire events

As was mentioned, a tremendous amount of attention has been drawn to the devastating effect of large-scale shack fires, such as the one that took place in February 2004. Equally important however are the incidences of numerous small-scale events which tend to be under-reported but are devastating for the households and individuals involved. Thus, when examining the vulnerability of children to fire-related incidents, the implications of small-scale fires, often not officially recognised as disasters, must be considered and explored. Because these events are often not reported there is no relief made available in the way that it is after large-scale fires, and this is likely to increase the severity of the impacts on household livelihoods and thus on the children involved.

Household and community strategies for reducing children's risk

There is a tendency to identify only those factors that contribute negatively to vulnerability. While this is important in planning intervention strategies, it is equally important to recognise the positive aspects that contribute to increased resilience, and the strategies engaged in by communities, households and individuals to actively lessen the risks they face. We therefore now mention some of the strategies applied in Imizamo Yethu to reduce levels of vulnerability.

Community meetings are held to disseminate information. The clearing of trees, recognised as increasing the spread of fires, and the eviction of people from the settlement – based on a community decision – in an attempt to de-densify the area, have been undertaken (Interview C11). This latter process is likely to have ripple effects, probably increasing the vulnerability of the evicted households, and possibly shifting risk to new areas where those evicted re-settle. Households keep a bucket of sand or water in their cooking area and there is an understanding that neighbours will assist bringing water in their buckets in the event of a fire breaking out. There also exists an informal early warning system of shouting when a fire gets out of control. In such an event there is a process of demolishing dwellings to form a fire break (Interview C11). During a fire, provision is made for the removal, storage and safeguarding of possessions, although theft and looting does still take place.

A number of crèches have been established in Imizamo Yethu , the majority linked to churches, in order to provide a safe, supervised space for children to play while parents are at work. Programmes have been initiated to provide both recreational activities and alternative sources of income, particularly for women. A dance class and a sewing and beading workshop have been started in Iziko Lobomi community centre. There is a shortage of safe recreational facilities for children and teenagers in Imizamo Yethu. One of the girls (Interview D11) said she would like to dance, but not the African dance offered at the community hall, but more modern, jazz dance. She also would enjoy music classes.

Numerous awareness and education programmes have been run through the schools in the hope of making children more aware of their risks, thereby reducing their vulnerability. (The materials used in these programmes are reviewed in a later section of this report in order to determine their appropriateness and effectiveness in achieving their purpose, and recommendations are made for improving or changing them.)

It is exceedingly important to recognise these strategies because they provide a locally-based starting point which could be further developed and expanded as part of an intervention measure.

Lessons and recommendations

From this report it is clear that both physical conditions and social factors play a fundamental role in determining the vulnerabilities that exist at the community level, at the household level and at the level of the individual. There is consequently a need for both macro and micro level interventions and strategies to reduce risk, running in parallel so that people take ownership of their risk. This could, ideally, allow active involvement in managing this risk while experiencing macro level changes, including increased access to services and improvement in their quality. These services could extend to education, health, housing, water and electricity, increased employment opportunities, and improved access to land.

Micro level intervention is imperative in short and medium term risk reduction and management, but this should not obscure the need to deal with the root causes of vulnerability: the prevailing conditions of poverty. Such changes could also precipitate changes in social conditions, particularly those related to alcohol abuse and violence.

Within the Imizamo Yethu settlement a process of conflict resolution needs to be initiated, aimed at breaking down existing stereotypes and communication barriers. At the same time the fallacy of a single homogenous community must be recognised, and the notion of multi-dimensional differentiation must be incorporated into any development plans or risk reduction strategies.

Ways of increasing general safety within the community must be sought. This would not only go a long way in reducing certain aspects of children's vulnerability but could progress towards realising the rights of children, which include the right to live without the threat of violence and abuse. This could possibly be achieved through strengthening existing neighbourhood watches, having people patrolling the streets at night and on the weekends – the times which children have identified as when they feel most vulnerable (Interview C10). Singling out some community members to organise youth activities would also not only improve children's living conditions but would create a platform from which they could be consulted in matters relating to them directly.

Channels of communication should be opened up between different communities within the settlement and with the local authorities, ensuring that all groups are represented. Youth representatives should be included on the local committees to voice the concerns of the young people living in Imizamo Yethu. This would facilitate the recognition, not only by authorities and residents but also by the youth themselves, that children have unique rights and special needs and vulnerabilities (Chawla, 2002). A local disaster management forum could be formed that included youth representatives and that actively forged links with the broader Hout Bay community, drawing on existing expertise and resources.

When developing strategies for reducing risk at the community level caution must be exercised, making sure that interventions do not just shift the vulnerability elsewhere or simply change the form of vulnerability. This relates closely to issues of de-densification and relocation resulting from fire losses. Affected people potentially lose their employment or the cost of reaching their places of employment is increased. Social networks and neighbourhood support systems are disrupted, children leave friends and may have to move to a new school or even have no adequate access to school in the new area, either as a result of limited finances or because of distance.

Based on comments, particularly from the principal of the Orangekloof primary school, that it was parents who need to made aware of the risks that face their children, a possible intervention, as an alternative to the distribution of fliers, might be to hold workshops involving both parents and their children. This could, for example, include first aid skills. Activities could be facilitated which enhance communication between child and parent, making parents aware of the considerable amount that children have to contribute, and the unique risks that they face. The message to parents must be one that stresses the need for the lessons learned at school to be reinforced in the home.

Informal childcare networks could be developed to benefit those mothers who work full time but cannot afford to send their children to school or crèche. They could pool money to employ someone to care for their children together at one of their homes. This would also generate employment opportunities for people within the community. Alternatively mothers could rotate their 'days off', each looking after the others' children on an in-kind basis. This would reduce the number of children left unattended in homes and thus reduce the probability of fire-related injuries occurring. Such a network, once

established, could also be used at night so that children are not left alone when parents wish to go out.

There is a desperate need in Imizamo Yethu for the creation of safe recreational spaces for children, which should be developed in consultation with children themselves. Similarly, organising activities for children, possibly through the school, including educational activities and community service activities, could make great inroads into reducing vulnerability. An example of an educational outing could be a visit to the Epping Fire House, attached to the Epping Fire Station. This consists of both a formal house and a shack fully equipped for experiential, interactive learning about the risks of fire and fire-related injury (Interview C9).

Community service activities could involve the planting of indigenous, fire-resilient plants in the settlement, which would not only reduce the potential spread of fires but also make the neighbourhoods more attractive, as well as helping to reduce erosion. (There might be scope here for a link with Ukuvuka, through which children, and even adults, could learn more about the environment.) A youth fire brigade could perhaps also be created, in collaboration with the Fire Services.

The introduction of the life orientation kit developed by CAPFSA and the Western Cape Education Department, presently being piloted, into both the primary and high schools in the Imizamo Yethu area could be of great benefit as a teaching tool (Interview C6). Also the continuation and development of the home visitation programme, initiated by CAPFSA, which trains volunteers to assess household risks and gives further guidance on how to reduce and manage such risks, could be instrumental in reducing risk on a household and individual level (Interview C9). There exists a need however, to address problems of project sustainability, most often associated with the lack of financial and human capital necessary to do follow-up work. Similar factors constrain follow-up research, and no data is currently available to measure the effectiveness of interventions – data which is needed, to draw lessons from and also to use for obtaining more funding for the extension of effective programmes.

On a completely pragmatic note, candleholders and stove stabilisers should be made readily available and stove standards made mandatory in order to reduce the number of potential fire triggers, and hence the incidence of fire-related injuries to children (Interview C9).

Finally, it is essential to recognise Imizamo Yethu as a multi-hazard environment. Although the focus of this report has been on fires, when the winter rains come, a whole host of other hazards become evident. These must be recognised in any planning and risk reduction strategies developed.

In the next section we explore children's perceptions of fire and the impact of fire on their lives. A number of the issues and factors mentioned above will be picked up on and investigated more exhaustively, from the specific viewpoint of children.

PART 7

CHILDREN AT RISK

Aim

The aim of this section of the report is to explore two interconnected questions:

What are the perceptions of the children of Imizamo Yethu of their being at risk, and how do these compare with the perspectives of adults who live in the settlement or are familiar with its context (i.e. teachers, etc.)?

How could risk for children be reduced, and in what ways could children participate in the formulation and execution of risk reduction measures?

INTRODUCTION

South Africa is a country with a violent past and is known to have created a society in which violence is an established lingua franca. On various levels, attempts are being made to overcome and compensate for the injustices of the past, but in the realm of socio-economic injustices, there still is a long way to go until the rights enshrined in the constitution as well as the Convention on the Rights of the Child (CRC) are not merely legally realised but de facto implemented and accompanied by (national) strategies. Too many children in South Africa grow up in a context in which violence is the most common form of expression, in homes which often lack love, care, support, familial structures and basic necessities (Ramphele, 2002). The legacies of past power relations manifest themselves on a daily basis, forcing children to develop coping mechanisms and become resilient.

Three out of every four children in South Africa are living in poverty. Food security is a growing concern in South African households, with approximately 30% of the country's population experiencing food insecurity. In households where children live, the

most common fuel sources for cooking and heating are wood, electricity and paraffin. (Children's Institute, 2003:4)

Most informal settlements harbour a whole array of problems: high rates of HIV/Aids, illiteracy, crime, domestic violence, sexual abuse and rape, unemployment and alcohol abuse. Jobs and housing – or rather the lack thereof – is one of the most pressing issues, closely followed by electricity, running water and ablution facilities. Living in an informal settlement involves a number of risks, most notably fire and flood risk.

Many questions arise from such a situation. What does life under these circumstances imply for children and teenagers? How do they perceive their situation, how do they make sense of the risks around them? Do they reflect on the society they have been born into and are growing up in? In how far are they aware of its shortcomings? Are they themselves able to come up with solutions? Do they make rational behaviour choices to avoid or reduce risk?

One of the greatest challenges for this report, as well as for any measures to be undertaken to reduce risk for children, is that the children of Imizamo Yethu are part of a complex communal set-up in which there are extreme contradictions: some children are safe and looked after by caring and responsible parents, but there are also irresponsible parents and adults. It is imperative therefore that any measures put in place for the benefit of children should include parents as well, and work towards promoting a generally more child-friendly environment.

BRIEF LITERATURE REVIEW

A number of researchers have in the past two decades dedicated themselves to exploring the deprived contexts into which many South African children are born and in which they must reach adulthood. For this report evidence was drawn from an array of recent and established literature, and interviews were conducted with key stakeholders. The literature consulted was predominantly academic, ranging from sections within anthropological works such as Philip Mayer's *Townsmen or Tribesmen* (1971) to publications which focused on South African children and youth (e.g. *Growing up in a Divided Society* by Burman and Reynolds, and *Childhood in Crossroads* by Reynolds, published in 1986 and 1989 respectively). Among the more recent studies focusing on children and youth at risk

is the work conducted by the Children's Institute as well as Mamphela Ramphele's book, *Steering by the Stars* and Jill Swart-Kruger's work, published in journals and as reports.

Wilson and Ramphele (1989) underline the urgency of dealing with the situation of children, notably the issues of food and education, which they rated as the most important. They see education in terms of a historical debt as 'there are not many places in the world at any time in history where children have been prepared to die in order to achieve a better education.' (Wilson and Ramphele, 1989:295). In addition to education, the authors underline the need for recreational programmes, libraries and sports facilities, as well as museums which they regard as holding great potential for both educational and cultural purposes.

Some of the issues raised in *Steering by the Stars* were probed in Imizamo Yethu. The book tells the story of sixteen teenagers from New Crossroads and stretches over a prolonged period of time. The author observes that from a young age most of the children were burdened with domestic chores which were clearly categorised according to gender roles. The researchers witnessed this when visiting the crèche at Imizamo Yethu and saw how two girls came to pick up their younger siblings and carried them away on their backs. The teachers at the crèche said that although the parents usually drop the children off in the morning, it is frequently their older sisters who take them home in the afternoon.

Ramphele also points out that, in the area of her study, child abuse, sexual violence against children as well as rape had reached more than alarming proportions. Only a few of the children managed to move out of the community, surviving social jealously and the culture of violence.

What makes politics for many South Africans a matter of life and death is not a set of false fears or unreasonable prejudices. Politics is ruthless; the stakes involved in who wins or who loses concern matters which affect people's lives in the most essential ways (Lodge in Ramphele, 2002:113).

Of great relevance for this report, as well as for further enquiries into perceptions of risk and the formulation of risk-reduction strategies, is the work conducted by Jill Swart-Kruger. She argues that 'for children in Johannesburg and other cities in South Africa, there is no single urban reality' (Swart-Kruger, 2002:85), and makes recommendations for improving the living conditions of children in Johannesburg. Her findings suggest that effective urban transformation requires goals and values to be developed and shared by

all stakeholders – including the children. Wandile Zwane (1998) also points out that children's issues are the result of macro systems and only effective group and communal work will lead to significant change.

A report compiled in 2003 by the Children's Institute attached to the University of Cape Town provides a survey of the condition of children in South Africa. The principles of the Convention on the Rights of the Child (CRC) were used as guidelines to assess the current situation, as well as government action and the NGO sector. In most areas great progress has been made from a legal point of view, but implementation has been slow, ineffective and inadequate.

Research seeking to address 'incidence and patterns of childhood burn injuries in the Western Cape' found that:

> In South Africa, the African group continues to report lower literacy rates, income levels, and overall health status, and higher levels of household crowding. In turn, socio-economic status of the family, low educational level of the mother, and psychosocial stress in the family have all been linked to an increased risk to childhood burn injuries. (van Niekerk et al., 2004:1)

Insight gained through the above-mentioned publications, as well as others taken from the Cape Town press, were contrasted with information gained through interviews conducted with key stakeholders. Among the latter group were school and crèche teachers (Interviews D1 and D2), a nurse at the clinic situated on the outskirts of Imizamo Yethu (Interview D3), community members (Interviews D4 and D5), an ANC member on election day who runs a placement agency from Iziko Lobomi hall (Interview D6), parents (Interviews D7 and D8), members of the Red Cross (Interviews D9), a member of an adjacent community familiar with the research topic and context (Interview D10), as well as children and youth themselves (Interviews D11-14).

THE ROLE OF CHILDREN IN THE INFORMAL HOUSEHOLD – CONDITIONS OF RISK

The members of the focus group chosen for this specialist report were predominantly primary school children. This was because this was the area of research the author of felt

most familiar with, as well as the fact that this group is at greater risk than high school children, although they too are mentioned. It is important to note that the primary school children did include teenagers: in all classes visited teenagers of 15, 16 and sometimes even 17 years of age were present.

The interviews conducted with the four children clearly revealed that they all had to fulfil some duties at home. Some were responsible for cooking, others for looking after their siblings or for cleaning the home. Most of the time distinctions could be made according to gender: more girls than boys responded in the affirmative when asked who cooked though one of the boys told the researchers that he sometimes prepared 'breakfast porridge'.

Most of the children were familiar with the cooking facilities in their homes. They had been told 'not to play with fire', but most of them knew where matches and paraffin were stored. Most could name hazardous materials inside their homes and come up with 'risk scenarios' such as leaving a candle unattended, burning cigarettes, illegal electrical connections, boiling water and kettles, and were aware of the danger of mistakenly drinking paraffin. All of them had heard about a boy who had died after drinking from an electrified tap. There was however a general feeling of helplessness mixed with frustration about the fact that it was not they who caused such incidents or the big fire of February 2004, but adults.

During the transect walks as well as drives through the settlement, the researchers repeatedly witnessed how children were responsible for fetching water or bringing home crates of soft drinks. With the onset of the winter rains, their duties in some instances also include collecting firewood, which often gets stacked into a shopping trolley. On one occasion, this researcher spotted a young boy of maybe four or five years, raking an open fire on a sidewalk, next to a fruit and vegetable stall, with a stick. Adults nearby did not intervene nor did they seem to mind him doing this.

Due to the working hours of parents, especially single parents, most children are used to spending time on their own after school. Most of them said they had a key to their home, or that their mother or a relative would be there when they got back. In almost all cases they seemed to have a good relationship with their immediate neighbours or some relative living in Imizamo Yethu and felt they could go there in case of an emergency, or were even left in their care at times. These informal neighbourhood support systems need to be explored further in order to conceive of a way in which they could be

formalised and extended – most importantly over weekends, the time when nearly all fires start.

THE EFFECTS OF POVERTY ON CHILDREN AT WORK AND PLAY

There clearly are great differences amongst the children in Imizamo Yethu. While the classes encountered at the primary school were large and catered for students up to 17 years of age, there were always a lot of children and teenagers playing and walking in the streets.

Despite the fact that there was a playground with swings and climbing features nearby the primary school, and these are used – especially when the children walk home from school – a lot of children come up with their own playgrounds. One of the most popular spaces noticed by the researchers was an area much closer than the formal playground, near some food stalls, set in a sort of sand pit, where the constructors of the Mellon houses had dumped sand. Children would meet there to play ball games or do gymnastics. Often when the researcher went to Imizamo Yethu, she saw children – mainly boys – jumping up and down on old mattresses, never tiring of performing back flips on them. This phenomenon of children seeking out their own playgrounds was observed by some researchers in Johannesburg as well '… even when there is apparently adequate provision of the kind of green open space children enjoy, this does not necessarily mean they will feel safe enough to use it.' (Bartlett, 2002:5) Furthermore, the point is made that 'all the children speak of their anxiety about using public space, and the girls stress their fear of rape.' (ibid.) Girls often walk around in Imizamo Yethu in groups of two or three, holding hands or singing or playing clapping games. They were also likely to have a younger sibling on their backs or holding their hand.

The is a crèche in Imizamo Yethu which charges only R20 per month, but this is too much for many parents who are unemployed or underemployed (Interview D4). Many parents also struggle to pay for their children's schooling. As a result many children do not benefit from fire risk awareness campaigns at the crèche or school. If their parents, who often themselves do not comprehend the cycles of risk, fail to inform the children about the dangers in their immediate environment, there is little chance that anybody else will enlighten them.

Many children are left unattended, play with rubbish, and are frequently exposed to potentially unhealthy and hazardous conditions. The effect an active parenting role can have on a child and his or her development, regardless of the bleakness of the context, made itself strikingly obvious one Sunday morning. The researcher writes:

> Sitting in front of the community hall, I observed two boys, approximately six years old, wrestling. While they rolled in the sand close by and into puddles, past debris and rubbish, a little boy played with an empty cooking oil plastic bottle which he repeatedly filled with sand and emptied. At the same time a woman walked past to join the congregation gathered at Iziko Lobomi. She led her son by the hand; he was well groomed for the occasion, in fact so well that it did not seem possible that he hailed from the same community. How much children desire attention, was revealed to me when the smaller of young 'wrestlers' started to lose ground and came to get some help from me, the 'mlungu'. He sat down next to me on the stairs, put his head on his knees and cried. He did that until I discovered how, hidden under his arms, he was putting his fingers in his mouth, and wetting his eyes for tears.'

This incident reveals not only that many children need more attention but also that researchers must be aware that their presence can influence the children's behaviour as well as their statements. Indeed one of the most puzzling bits of information was a response from school children when they were asked about areas within Imizamo Yethu that they were afraid to venture into. One of the girls (Interview D11) mentioned the bush area below the settlement. Not only was she worried about getting raped, but she also recounted how some people had had their breasts and ears cut. A number of explanations were considered, among these that the children were referring to true events or alternatively to 'boogieman' stories their parents had told them – to keep them away from dangerous areas. It became clear at this stage that the mere presence of researchers does create excitement and expectations. (More about such recollections and their possible interpretations is given in the next section.) On the other hand there were times when the fieldwork seemed to be met with mistrust: especially among teenagers there seemed to be uncertainty about the researchers' intentions. Teenagers gambling with dice in the streets felt uneasy in the presence of the researchers; in Hangberg, they apparently mistook this author for an undercover investigator and hurriedly put away their dice!

It is important that every child's parent or guardian receive the child grant to which they are entitled, so that they can send the child to crèche or school – a safe environment in which their social skills and knowledge would be increased.

THE EFFECTS OF FIRES ON SCHOOL CHILDREN

This section describes interviews with key informants living in Imizamo Yethu, with teachers at school and crèche, with Red Cross workers and a nurse. (See D list at the end of the Interviews section in Appendix 2.)

The researchers asked a teacher at the Orangekloof primary school about the effects of the February 2004 fire on members of her class (Interview D1). She said that all the children had been severely shocked, regardless of whether they had lost their homes and belongings or not. She said that on the Monday morning after the big fire event, which occurred on Saturday 7th February, 'the class was quiet; they didn't sleep, didn't speak much', they were 'shocked.' Three of the thirty-seven children in her class had lost their homes.

Prior to this fire, fire prevention education sessions were held at the school; once a year in the lower class. After this incident, the principal addressed the school during assembly. An appeal was launched, asking everybody to help, and parents and outside organisations donated clothes as well as food (Interview D1).

Although the teacher underlined the fact that the children were resilient to such shocks and were coping with the situation, she referred to a boy whose attendance and performance at school had dropped significantly since his family had lost their home in the fire. The situation was worsened by the fact that the home included a Spaza shop, which was the basis of their income. Prior to the fire the boy always had come to school with a generously filled lunch box, and often even brought extra food to distribute amongst his friends, but he now frequently went hungry and according to the teacher was 'unhappy'.

One of the girls started crying while the children were drawing their homes and were questioned about the fire, their knowledge of fire risk and their opinion on the causes. The children had talked a lot about the incident, during class and amongst themselves, but they had yet to overcome the shock some of them had experienced and the losses

incurred. The teacher stressed the fact that most of the children did not live with their own families – a fact that might well heighten their vulnerability even further. Knowledge of the learners' home environment, as the teacher emphasised, was crucial in order to understand and support them. She said that many of the Imizamo Yethu children lived with their grandmothers while their parents were still in the Eastern Cape – these parents assuming that their children would receive a better education in the Western Cape. She added that a significant number of the children were orphans and that a high percentage of them lived in shacks (Interview D1). Zwane states that in townships close to informal settlements children suffer a high amount of stress and often exhibit symptoms of trauma and deprivation. (Zwane, 1998:1).

A statement made by a father (Interview D8) whose children lived with their respective mothers in the Eastern Cape was corroborated later on by both the crèche teacher and a nurse at the clinic situated below The Circle[8]. He said that the so-called spaghetti lines – the illegal electricity connections – and paraffin were to him equally dangerous, adding that 'in case of fire it [electricity] can destroy so many things. It is a false sense of safety'.

This man told the researchers that there were roughly thirty-five shebeens in Imizamo Yethu and that during weekends people went out to party, which entailed a lot of heavy drinking. The researchers witnessed how on a Friday afternoon a van from a well-known Wynberg bottle store delivered one night's supply of Black Label to a certain shebeen. All in all, 130 empty crates were loaded and replaced with full ones. This happened while children were playing and watching.

This informant also said that children were at times left unattended and locked in their homes. He objected to this practice and recommended that instead of the parents locking the children inside the home, which could potentially turn into a death trap, the children should lock the door from inside so that they could escape in case of an emergency. 'Parents go out after cooking; there are no babysitters.' Besides a high prevalence of 'alcohol abuse' he also referred to a climate of 'political intolerance' and a culture in which strong ties between 'homeboys' prevailed.

There is little in the way of recreation in Imizamo Yethu. Neither local government nor communal leadership structures are visible or sufficiently involved. The ANC Youth

[8] An area of Imizamo Yethu near the large traffic circle.

League does organise meetings and workshops, but as one resident told the researchers the 'youth is not much involved'. (Opinions varied as to the age bracket the Youth League caters for: some said from age 18 to 40, others from 14 to 35.) There are local church services three times a week and a few sport events. The lack of recreational and, in particular, sporting facilities was qualified as a big drawback not only by the informants, but also by the children themselves. As one resident put it, 'Sport is more popular than politics.'

Questions regarding the prospects of a possible fire awareness programme involving the youth, and the suggestion of forming a voluntary fire ranger club were welcomed: 'plenty of people would volunteer for being trained as fire fighters', one resident assured the researchers. As has already been pointed out, there is a great need to bring together all relevant stakeholders, ranging from fire services to organisations involved in the area, in order to exchange and consolidate currently successful approaches and campaigns and, together with the community, to work on a fire prevention campaign.

The nurse, who also served on the parents' council at the primary school, said that a lot had been done to support the children affected by the February 2004 fire, and also their parents. She said that many children live in make-shift homes or stay with friends or relatives, with the result that parents lose authority over their children. In addition, people who are not usually involved in 'family matters' were now present, witnessing domestic disputes, as well as interfering with parenting. If parents lose their authority, she said, children turn this situation to their advantage: "the kids have 'freedom' to do wrong things; no morals". Some children used the fire as an 'excuse' and went begging on the main road or at petrol stations in Hout Bay. Others tried to bunk school, as they said they had no uniform, although the school had provided all of them with school uniforms. All in all, said the nurse, a lot had changed within Imizamo Yethu since the big fire. Children were now roaming about in the streets at any time of day or night. With no home to restrict them, no chores that otherwise would have to be completed, children were venturing into places where they should not have been allowed entry, in particular the shebeens and pool halls.

The implications of this new 'freedom' became fully clear only when the children were asked about their weekend activities, and about where and how they spent their spare time. While most of them seemed to watch a significant amount of television, either at home or at a friend's place, some said that they had explored the world of the

many shebeens in the settlement – although they insisted that they would be in serious trouble should their parents find out. They said they went to the shebeens to play pool or on game machines, adding that some young children were taken to shebeens by adults. They also emphasised that rape did occur in that context (Interviews D11-14). When interviewing key adult informants, the researchers had cautiously probed the issue of domestic violence in connection with alcohol abuse, but had not been able to glean much information. It was therefore astounding for them to hear all this from the children.

While some children played the exceptional situation to their advantage, others did have a difficult time accommodating to the unfamiliar context, as well as coping with their parents' predicament. Unforeseen problems arose, both great and small. One of the girls interviewed (Interview D11) said that she really disliked staying with her aunt, where her parents had been allowed to establish a temporary home. The researchers gained the impression that children staying in temporary homes frequently had no place to do their homework.

Questioned about the things they feared living at Imizamo Yethu (Interviews D11-14), the children said that they were scared at night as it was dark, and drunk people were out in the streets who would often swear at them and even beat them up or worse: 'At night it is too dangerous', said one of the children. Others added that 'people can throw stones at you. People is drunk.' They 'hit you for nothing when they're drunk; swear at us.' 'People drink wine, *brandewyn*, *umqoboti*. Lots of people.' While there were a number of issues about which they disagreed with each other, from the way the children talked the researchers did gain new information. The children said that some residents of the settlement do not go home once they have been paid on Fridays, but proceed straight to a shebeen. 'They don't even go home to wash, they go straight to the jukebox; play pool at the shebeen.'

The extra information given by the children is a remarkable example of the lucid understanding of the situation that the children do have. On the issue of the cutting of breasts and ears, another key informant – from outside but familiar with Imizamo Yethu – suggested that it was more than just a coincidence that the children had mentioned the bush, their fears of being cut and the 'amakwerekwere' all at one time. One boy who, unlike the others, did not think that the foreigners should leave, said that the Ovambos had come because of 'suffering' (Interview 13).

By mentioning the Ovambos, the children pointed to the most vulnerable link within the community of Imizamo Yethu. Fears of losing jobs to foreigners who work for less and social jealousy have fuelled xenophobic sentiments. As the viewpoints of the children reflect, bringing these 'foreigners' together with the rest of the community is indeed necessary but it would be immensely challenging. A community conflict mediator and peace educators for the children could be the way forward with regard to this issue.

The findings of this research show that there is a significant awareness on the part of the Imizamo Yethu children of the dangers that exist there. They see fire risk as being associated with alcohol, candles, adults and lack of electricity. Another message that came across was that children have access to all appliances in the household. Another message was that the service emergency number 107 was 'inaccessible'.

From a livelihoods perspective the daily struggle that the people of Imizamo Yethu face to continue with their lives, even in areas such as studying, became very clear to the researchers. The children's capacity to continue trying to improve their future by going to school in the face of extremely vulnerable conditions at home is an example of how resilient people can be in the face of adversity.

RECOMMENDATIONS

As this report highlights, it is very important to take into account the children's perceptions of risk – in this case of risk in Imizamo Yethu. This is not only because the children deserve to grow up in a safe and healthy environment, but because often their insights – either accidentally or consciously – fill the gaps left by adults:

'Children and youth are not only a population with special needs but also one with special energies and insights that they can bring to the process of human settlements development.' (Bartlett, 2002:6) Any risk assessment and any risk reduction measures should therefore take into account the effects these might have on the child population. Their perceptions should be probed, and they should be allowed to participate actively. Men were found to dominate the leadership structures encountered by the researchers. Diversification in terms of gender and age composition of these structures would therefore be an important and necessary undertaking to reach more community members and to serve them best.

Young people and children should be included in community-based early warning systems and in fire prevention and awareness campaigns. In particular the design of safe spaces and recreational areas should be considered. To take a holistic approach, research would need to be conducted into local governance and government structures, as well as community-based organisations actively involved in Imizamo Yethu. Their concerted efforts should be geared towards detecting possible areas of co-operation and creating mechanisms which include the voice of the children. As Bartlett says, 'Most officials … pay only token attention to their young constituents and shrug off advocacy for children as not requiring their special attention.' (ibid.) Measures taken in this direction will however bear fruit only if parents and guardians can successfully be drawn into the process and take their role seriously. Since it is the complacency, negligence, attitudes and ignorance of adults, and not children, which cause the fires, it is imperative that concerned groups, such as parents or parenting adults, should be taking ownership.

Fire prevention training courses should include the working out of escape routes, which should be inspected and tried out once every quarter in order to avoid the blocking up of escape routes and reduce panic in case of a real event. The example of Japan and how children there are drilled for the event of an earthquake in some ways is not appropriate, seeing that it compares highly industrialised metropoles with an informal settlement and a very hierarchically structured society with one that often adopts a broad concept of family. It should however be possible, given the great fact that both these societies value the family, to work toward the safeguarding of their most prized asset - their offspring and future!

Community networks should be formalised into a childminding network, so that no child would be left alone at night.

To allow children to express their needs and aspirations (two of the boys in the last interview focus group wanted to become pilots for SAA) regular forums should be held, during which children could showcase their talents and communicate their ideas and opinions to adults in their own ways.

Finally, with regard to structural changes which continually happen in Imizamo Yethu due to building projects: it might be more practical in terms of space management and of creating safe and practical environments for single parents, to develop complexes of flats with child-friendly central courtyards, instead of building single houses.

Poverty, crime, abuse, food shortage, alcohol abuse, power struggles and unemployment are the big issues that need to be tackled at Imizamo Yethu. Solving these problems will take a long, long time, but it should be imperative right now to mobilise enough support to work together with parents and communities to improve the situation for children, and specifically to reduce their being at risk.

PART 8

EVALUATION OF RESOURCE MATERIALS

This section discusses the usefulness of certain resource and educational materials designed to help people protect themselves from fire hazards provoked by different causes. The materials (eight in total) are almost all published by the City of Cape Town Fire and Emergency Services, and one is from the Child Accident Prevention Foundation of Southern Africa (CAPSFA). These materials are part of the programmes used in Cape Town schools. They are available in informal settlements and in other institutions and are also obtainable by the general public. Two videos that are part of the disaster management and risk reduction campaigns of CAPSFA, and the City of Cape Town (CoCT) Emergency Services are also reviewed briefly.

The content of the educational material varies since they have different targets and messages but there are some persistent themes regarding hazards that affect people in Cape Town, and this report focuses on reduction of risk to fire hazards.

As has already been explained, several interviews were held – with Imizamo Yethu residents as well as other people concerned. These included Thembela, a worker from the clinic near Imizamo Yethu, the principal of Orangekloof primary school, and a worker from the Gospel Outreach Ministry educare centre. Sean Smith from Ottery Fire Services was also interviewed and information from a interview with Nelmarie du Toit was provided by a colleague of this researcher. After describing the resource material, the author therefore uses some of the insights gained through key interviews and discusses the usefulness of the various methods, and how each might be improved. Finally there is a comparison of risk reduction through educational resource materials with the Fire and Life Safety Programme run by the City of Cape Town Fire Services.

RESOURCE MATERIALS

The materials themselves

The resource material examined in this study consists of nine pamphlets of varying size, content, structure, etc. The departments involved in producing and financing them are CoCT (City of Cape Town) Emergency Services, Dial 107, and the CoCT Disaster Management. Details of the materials are now given.

1. LEARN FOR LIFE: FIRE AND LIFE SAFETY STARTS AT HOME

This illustrated pamphlet consists of eight A5 pages. It is written entirely in English. It is addressed to children and should be easy for them to relate to since the text and drawings are simple and straightforward. It has questions to check if each warning has been understood. The messages in the pamphlet tell the reader how to act to prevent fires, what to do in case of fires, planning actions before a fire, how to react in case of burns and it also gives information on who should be called for help (phone 107).

2. FIRE AND LIFE SAFETY: HOME CHECKLIST

This pamphlet consists of eight A5 pages with no drawings except for a picture of a burning house in the cover page. It is written only in English. It is best suited for adults. It references emergency number 107 and the cellphone equivalent, 021-480-7700. The body of the text is conceptualized as a check list divide into nine sections, some of them subdivided as well.

The sections are:

1 - fire detection and fire-fighting (subdivisions: smoke alarms and fire extinguishers)
2 - emergency procedures and escape plans
3 - escaping from fire
4 - preventing the fire: heat and fuel. (subdivisions: liquid petroleum gas (LPG), heaters, cooking and fireplaces)
5 - preventing the fire: electrical safety
6 - preventing the fire: safe practices
7 - hot water hazards and pool safety
8 - safe storage
9 - outside safety

3. PROTECT YOURSELF FROM FLOODS

This small leaflet consists of an A4 page folded into three, printed on both sides with illustrations as well as text translated into three languages (Xhosa, English and Afrikaans). The messages teach people what to do and where to go in case of floods. The text also briefs one on how to protect one's house and also on health and safety issues concerning floods. Children and especially teenagers should find this leaflet attractive and accessible because of the way it is structured, and the familiarity of the illustrations. Reference is made to 107 as the emergency number. The cell phone emergency number given in this leaflet (021-480-7715) differs from that given in the pamphlet *Fire and Life Safety: Home Checklist* (021-480-7700). There is also reference to a 'report flooding' number. [Editor's note: From the next entry it appears that the 7715 number is the flooding report number.]

4. PROTECT YOURSELF FROM FLOODS AND FIRE

This large pamphlet consists of an A3 page folded into three, printed on both sides with illustrations as well text, only in English. It should be useful to children, teenagers and adults. Reference is made to 107 land line, cell phone 021 480 7700 (emergencies) and 021 424 7715 (report flooding). The messages contained in the text teach people how to protect themselves from fires and from floods, how to plan and prevent, and also what to do in case of emergency.

5. EMERGENCY: MAKE THE RIGHT CALL 107

This brochure consists of an A4 page folded into three, printed from both sides mainly with text, and one picture and two illustrations of 'WALLY 107', the mascot of the emergency service number 107. The text is written in three languages (English, Afrikaans and Xhosa). The information provides details about the service number 107 in the form of 'What?', 'How?' questions. This brochure is more formal and so adults and teenagers would probably find it more useful than younger children would.

6. EMERGENCY PREPAREDNESS: IF YOU FAIL TO PLAN, YOU PLAN TO FAIL

This small leaflet is folded into several sides in different ways with different messages as you unfold it. The main objective is to publicise the emergency service number 107 as well as the Disaster Management Centre from the City of Cape Town (CoCT). The text is written only in English. It explains and provides contact numbers for the CoCT Disaster Management Training Centre programmes in training emergency preparedness. The leaflet is covered with pictures and illustrations but it does not seem likely to be useful to young children or teenagers.

7. PREVENTION AND HANDLING OF EMERGENCIES

This small book is a guide for schools teachers use to teach learners about preventing and dealing with emergencies. The text is centred around the emergency service number 107 and how to teach young learners how to use this service. It is available only in English and it does not contain illustrations. This guide is designed to be used together with the showing of a video and other materials.

8. WALLY 107 ACTIVITY BOOK

This is an activity book where children can read and also colour in or paint the drawings inside. The text contains small lessons on the 'WALLY 107' mascot, what constitutes an emergency, what services are available, how to react in case of fires, how to avoid crime, how to use a bicycle, how to avoid abuse, and what information do you need to provide when phoning to 107. In the last pages there are two short illustrated stories that focus on the themes of the book.

9. SANLAM TAKALANI SESAME: BURNS

This pamphlet was prepared by the Child Accident Prevention Foundation of Southern Africa (CAPSFA). It consists of an A4 page folded into three, printed on both sides with illustrations and text. It is written only in English and the messages inside tell the reader what types of burns exist, how to prevent burns and fires, and how to react in case of a fire. They include a First Aid section. It appears to be useful to all ages.

These resource materials were produced with the intention of improving people's lives. However the effectiveness of this method needs to be assessed to try to establish a relation between the use of resource materials and the frequency of fire hazards.

PERSONAL INTERVIEWS REGARDING THE RESOURCE MATERIALS

The researchers held a number of interviews with various people who were involved with the production or the use of the resource materials. Details of some of these interviews are now given.

Fire Services interview

There are a whole range of factors and situations behind fires that cannot be addressed completely by the resource material described above. This is the opinion of Sean Smith

from Fire Services from Ottery in Cape Town who was interviewed by one of the researchers. He considers that fires such as the recent one in Imizamo Yethu are 'totally avoidable', but for that to become reality more needs to be done. He said that use of resource materials is not enough and in the current form they are "an absolute waste of time" because of the 'knock and drop' way in which they are distributed. This consists of handing out the resource materials and nothing more; it is not incorporated with other solutions, and thus is failing to change risk behaviours. There is a need for more community assessments and strategies such as the one based at Imizamo Yethu where the Disaster Risk Science class participated. Smith called for more networking between organisations working in the field of prevention and mitigation of disasters and accidents, since at present "everyone is still doing their own thing in isolation".

The resource materials developed before the last twelve to eighteen months were, according to Sean Smith, "absolute rubbish" because they were racially charged and inappropriate. In comparison, he said, the new material is "good". However Smith emphasised that the new material must be accompanied with other actions such as networking between organisations, community empowerment, community actions to address the socio-economic factors that determine and underlie the problems and the situations of fires hazards.

As the interview went on Sean Smith said that there needs to be a "100% success rate in fire education and this is not happening; even a 99% success rate is not enough, because that 1% can be the start of a runway fire." This last point proves that any actions aimed at preventing or mitigating fires need to incorporate a range of organisations and initiatives as well as economic empowerment; they cannot rely solely on education, particularly within the context of informal settlements.

Clinic worker interview

The opinion that resource materials are not enough to assist with the problem was shared by Thembela, a nurse from the clinic close to Imizamo Yethu. She mentioned that the pamphlets described above are "boring" and said that people do not feel that they relate to them. She made the point that it is important therefore to look for alternative ways to reduce risk in informal settlements.

Educare teacher interview

Miss Bongi, the educare teacher of the Gospel Outreach Ministry told the researcher that there are five educare centres at Imizamo Yethu. At this particular centre children aged two to eight come for educational and recreational activities. The centre provides a space where children are safe and are taken care of by educators. It also functions as a way to reduce fire risk, particularly the risk that comes from leaving children unattended. (This opinion was also expressed in some of the interviews conducted with Imizamo Yethu residents who had been affected by the February 2004 fire.)

Miss Bongi also mentioned that Kenny Tokwe from SANCO had provided some pamphlets about risk prevention in relation to fires and added that she also teaches the children about those risks. She said that pamphlets were useful. In a context similar to this one at the educare centre, resource materials can make a difference and improve children's knowledge and awareness of reducing fire risk in their homes. Examples of institutions such as schools and educare centres collaborating in the dissemination of the content of educational resource materials characterise the work that CAPSFA has been doing at Imizamo Yethu.

Interview with Nelmarie du Toit

Two years ago, CAPSFA (Child Accident Prevention Foundation of Southern Africa) initiated a project for Imizamo Yethu according to Nelmarie du Toit, the deputy director of the organisation. One of the things they did was to communicate knowledge about injuries to Orangekloof primary school. In this exercise teachers were also trained and there was a once-off adult education session for the parents. CAPSFA has also developed a 'life orientation' kit which is now being piloted in association with the Western Cape Education Department. One of the modules of this kit focuses on burns. This programme will be part of schools' life orientation classes, according to du Toit.

Another CAPSFA initiative was to produce a video about burns. This is part of a programme for people working in the field who get together in a workshop or class to watch the video. During this session there are pauses to permit questions and interaction about the content of the video. In other words the video needs to be incorporated in a joint participating session and not be shown only in a viewing session (although after watching the video the researcher was impressed with the amount of information and messages contained in it).

Other initiatives are a home visitation programme for injury prevention and subsequent training of volunteers to assess household risk and provide further training. CAPSFA is also putting in place a 'fire house' attached to Epping Fire Station, to which children can be taken on field trips and be shown in a realistic and interactive way the causes and dangers of household fires.

Recommendations concerning resource materials

Some recommendations come out of these findings. The first is the production of resource materials that correlate alcohol abuse with fire risk – this does not appear in the present materials. Secondly, new context materials should take into consideration the fact that children do have access to potential fire triggers like stoves. Finally, and importantly, there should be more multilingual material. More recommendations are made in the last section of this document, based on other interviews and information.

PART 9

FINAL REMARKS AND RECOMMENDATIONS

According to Gillham and Thomson (1996:5) the idea that children need to be taught because they do not have the knowledge to avoid risk situations in their daily lives is not useful. It should be discarded in favour of initiatives and projects that emphasise real life situations and transmit effective 'know-how' and 'skills' in the face of those risks.

The need for practical skills is acute, particularly for young children, and thus simulations that focus on fire hazards such as those occurring at Imizamo Yethu are probably the most effective way to reduce the risk of fires. For instance, in addition to having leaflets and pamphlets telling children how to react in case of an emergency, permanent risk reduction exercises and possibly role-playing exercises could be implemented and would go further in changing actual behaviour. Photo-novels can also be useful in teaching a group of people about a specific theme, especially if they themselves are engaged in the production of the material (Mantle et al., 1982).

The relation between knowledge, attitudes and behaviour is far from being a linear one. A practical example based on one of the pamphlets described above can be extrapolated here. The range of tactics and exercises to escape a burning household like 'roll instead of crawl', call for help, check if appliances like gas and electricity are off, would be better explained with the use of a simulation focusing on know-how and skills transmission, which is far more effective in changing behaviour – as Gillham and Thomson argue. Resource materials such as pamphlets and leaflets only touch the surface, they do not get to the root of the problem. That is why initiatives such as the ones by CAPSFA are so important and need to be continued.

This point was also emphasised by Sean Smith from fire services Ottery. The fire brigade goes to Orangekloof Primary School every year to conduct an educational exercise. It would interesting to know more about this initiative and what it consists of – for instance whether it is based on the Fire and Life Safety Programme – and try to improve it if possible.

The Fire and Life Safety Programme aims to promote knowledge and change attitudes, and thus have an impact on behaviour that can prevent or mitigate the impact of fires in informal settlements, in households and in society generally. The programme, which was unofficially launched in 2001, uses participatory learning and involves a range of individuals from professional backgrounds interacting through practical exercises with children from primary schools. It employs a multifaceted approach in dealing with fire prevention and education. The evaluation conducted by DiMP has shown that children remember more of the safety and prevention messages after a session from this programme. It is thus a public service that must be continued and hopefully be made available to all schools, public institutions and especially to high risk residential areas such as informal settlements.

Among the solutions that the C3 group found useful and important were: to include teachers, to get training for elderly and younger people, to provide more counselling, to minimize the language barrier, to promote voluntary fire fighters, to find ways to empower children, to provide incentives for most the needy children to 'keep them going', to have community responsibility and continuous interaction with community leaders, to have in place neighbourhood watch strategies. Another possible activity would be to run a community-based radio programme on risk reduction to fires.

A slightly different approach that could be used to complement other projects relates to the livelihoods of households. According to Roberts et al. (1995: 60), one can make a shift in the question regarding accidents involving children. Instead of asking why are there so many of these accidents, Roberts argues that one needs to ask 'Why, given the dangers of the environment in which most children grow up, are there so few (accidents)?'.

Roberts says that there is not sufficient knowledge about the strategies that parents and children use on a daily basis to stay safe and avoid disasters. There needs to be further investigation of the livelihoods of people who have greater exposure to disasters because of their high vulnerability, so that the information thus gained can be used in the production of new resource materials. This must be a continuous process.

CONCLUSION

In this report an attempt has been made to explore and investigate the issues of fire risk as experienced by the children of Imizamo Yethu. We began by considering the broad context of fire risk, applying a lens related specifically to children, then took it down to the level of the child, specifically focusing on children's perceptions of fire risk and the impact of fire on children's lives, and ended with a review of relevant resource material. Each section concludes with lessons gleaned while engaged in the research, and puts forward recommendations based on these lessons.

From the research it became apparent that children do indeed have a unique set of vulnerabilities that have to be considered if intervention aimed at reducing and managing risk is to be truly effective, but at the same time these unique conditions must be considered within the broader context of vulnerability, as many aspects of risk can be extrapolated to the household unit and ultimately to the 'community'. Important issues surfaced, relating to socio-economic factors as well as to physical conditions, which are essential in understanding the context of children's vulnerability. Lastly it was found that potential exists within the latest resource material created, although these can be effectively utilised only if administered with the correct support, and informed by the findings of this report.

APPENDIX: THE INTERVIEWS

TRANSCRIBED INTERVIEWS: GROUP 1

Interviews A1 & A2 (both more than 5 years at Imizamo Yethu)

Name: Headman	Name: Patricia
Age: 47	Age: 41
Gender: Male	Gender: Female
Arrived: 1986	Arrived: 1990

Settlement environment:

These two people were man and wife and living in the settlement in the area where they had fire on either side of them. They originated from the Eastern Cape and came to Hout Bay in the early 1980s, settling in Princess Bush and then moving in the 1990s to Imizamo Yethu. They have found it tough with few employment opportunities and bad living conditions as well as the multi-hazard environment that exists.

February fire experience:

No water available through the day; fire started in the middle of the night and still no water available to fight it. Strong winds made the fire spread quickly and the trees above the informal area allowed the fire to jump and destroy more of the area. There was a good social network which emerged during the fire event. People started to help remove victims' belongings and keep them safe although some belongings were stolen as looting took place.

Triggers identified:

Unserviced areas, illegal connections, flame stoves, candles, no water, development taking place under trees which are highly flammable, densely populated settlement, little access to water, domestic violence.

Community strategies:

Calling out to surrounding neighbours was a strategy used often to warn the community of the situation. Using buckets already in the dwellings to fetch water and put the fire out and destroying shacks in the path of the fire to create a fire break.

Fire history remembered:

Fires have decreased to our knowledge and Imizamo Yethu is far better than living in Princess Bush as the fires were worse there.

Potential improvements:

Training of community fire fighters as there are none at present, improving housing conditions, increased infrastructure to alert emergencies services at the start of an event, improving water provision, removal of gum trees, more patrolling of the area and evicting people who are not in the right area, stopping illegal [electricity] connections and taking them down.

Local community structures:

People keep on moving into the settlement and the committees don't stop them. Street committees are good as they expel people who start fires and disturb the peace.

Interview A2

Name: Zoko Mtabeki

Age: 26

Gender: Male

Arrived: 2002 from the Eastern Cape looking for employment

Settlement environment:

Has not felt welcome and found the living conditions so much more difficult to live in with all the hazards like fires occurring. Has had little employment and has almost no money. Says that he would return to the E Cape if he had the money to do so because the standard of living is higher than here.

February fire:

This was his first fire experience and he couldn't find water to put it out. Informal shack was burnt down by the fire and he moved into a container. Wants to move back and rebuild in the fire area but says that the community has told him not to and he doesn't understand and thinks that they are trying to get rid of him.

Community strategies:

Community checked shacks and woke people up that were sleeping and warned them. Trees were cut down and huts were taken down.

Triggers identified:

Community is using open flame and paraffin stoves, and candles, and this causes the fires, along with the people fighting and not being responsible.

Potential improvements:

Providing more housing and infrastructure and providing more land so that some people can be relocated.

Interviews A4 & A5

Name: Zwelitsha Mpokwana Name: Nosakele Mthala

Age: 48 Age: 36

Gender: Male Gender: Female

Arrived: 1999 Arrived: 1991

Settlement environment:

He works in the harbour. She has a formal house built in 2003. This couple's house was located immediately adjacent to the fire and had they to leave during the fire because they thought that it threatened their lives – it was dangerous for them to stay.

February fire:

The fire started at night and people started to bring their belonging for her to look after in the house. Fires like this are very common on the weekend and mostly in the evenings. This fire was very bad and no water the whole day and during the fire made it worse.

Triggers identified:

Flame stoves, open flames like candles, illegal connections, trees which spread fire, violence which leads to fires. Fires mainly start in the informal areas, and not the formal areas.

Community strategies:

Demolishing shacks in the path of the fire, using buckets of water and sand, calling and shouting to make sure all know there is a fire.

Potential improvements:

Government should provide more land, relocate people and do away with informal areas as well as create more formal infrastructure and services. Must find a solution to people moving in and way that people can be stopped moving into the settlement and taking up the space belonging to others.

Employment:

Most people they know of have employment in the harbour, with the fishing industry. Many of the women in the community have employment as domestic workers in areas like Wynberg, Constantia and Hout Bay as well as some of the other surrounding areas.

FOCUS GROUP

Interview A6

Name: Malibongwe [family name not given] (SANCO)

Age: 33

Gender: Male

Arrived: 1990 – from Princess Bush

Settlement environment:

Came to Hout Bay to find employment. Employment available for some but mostly part time jobs. Crime is around but it goes up and down in severity. Sense of community is split as not all are with SANCO. The biggest risk facing the community is health as sanitation is lacking and causes many communicable diseases as well as the fires experienced.

Triggers identified:

High densities, alcoholism, surrounding vegetation, domestic violence. Wind is a major problem when fires start as the settlement is on a hillside and is very open. And some shacks are actually built over the fire hydrants which prevents the emergency people from getting to the needed water sources during a fire event. Trees need to be removed by the Unicity as they cause fires.

Vulnerabilities/community leadership:

Bad domestic violence which causes fires causes the community to tell the people involved in the incident to leave the settlement as they are increasing the risk experienced by the community as they could trigger a fire. Community leaders have to sometimes step in if there is extreme tension, and force the people to leave

Fire history remembered:

People don't remember all the fires that have occurred because only the big ones affect a large amount of the population. There have been many small fires that only affected a small number of shacks. Fires occur mainly around Easter, small ones throughout the year, mostly weekend and evenings have high risk of fires.

Land questions:

The SAPS must become more involved in evicting people who are building in the 3 metre zone between dwellings as well as enforcing the law about illegal connections.

The authorities should also provide more land so that people can be relocated and so that fire tracks can be created. Proper fire tracks would decrease the chance of a fire reaching more of the settlement.

People should be stopped from entering the settlement – most of them have relatives within the settlement and therefore want to be with them. The Court Interdict needs to be reversed so that people can move onto the 16 hectare piece of land.

Constantia residents are being asked whether they have land for the domestic workers who have jobs with them to settle in, and hopefully decrease the number of people in the [Imizamo Yethu] settlement.

No RDP housing has been built as yet – only the Irish Project housing.

TRANSCRIBED INTERVIEWS: GROUP 2

Interview B1

Name: [not given]
Age: Over 35 years old
Gender: Female
Arrived: Has been in Imizamo Yethu for 9 years

Settlement environment:

Used to live with her cousin at the bottom of the settlement then was in the fire area, now lives at the top. The biggest problems she has living in Imizamo Yethu are:

(i) water: dirty water flows close to her house all the time (from the top down the slope). It would come through her house but they have dug furrows.
(ii) No electricity: they have to use a paraffin stove and candles – not safe.
To get a piece of land you first look for a space you think is suitable. Go to the street committee and ask them if you can have it, if they approve then they'll take you to the neighbours and ask them if they want you there. If the neighbours approve then you can build a shack there to live.

February fire experience:
It started across the road (on the left of the road as you look up the hill). She and her neighbours realised it was either the house where they get their electricity or near to that house, so they decided to try to help. They were trying to get everyone's stuff out of the houses when someone came running from their side of the road to tell them that the fire had jumped the road and their own dwellings had all burnt down. So they didn't get anything out of their own dwellings.

Interview B2

Name: [not given]
Age: 30s
Gender: Male
Arrived: Has been in Imizamo Yethu for 9 years

Settlement environment:
Was in Khayelitsha in 1994, moved to Imizamo Yethu in 1995. Had to live with his brother when he first arrived. Living on the slope just above the burnt out area. (His house is a sturdy-looking one built out of what seem to be pieces of pre-fab. Inside it is cluttered *full* of belongings.)

He says the biggest problem living in Imizamo Yethu is the high unemployment. To make money people 'make a plan' e.g. they buy a pack of cigarettes and sell them as singles, chop wood from the hill above and sell it on the road, collect scraps to sell.

February fire experience:

Was in the fire. Belongings in the street during fire.

Triggers identified:
The main cause of fire is paraffin stoves and using candles for light.

Community strategies:

If his house caught on fire he would shout 'Fire!', then all the neighbours would come out with the buckets of water (which they keep for use in their houses). They would throw the water on the fire but by the time they had refilled their buckets to do it again it would be too late – the tap is too far away. So they would run. The people of Imizamo Yethu have very little themselves so they can't really help each other after a fire.

Vulnerabilities:

The biggest fire hazard is the lack of space: no fire breaks. There is no one particular group which is more affected by fire, it seems to be random. There are no systems in place to prevent fires. There has been no evaluation of the situation.

Fire history remembered:

He remembers there being more than 100 fires in Imizamo Yethu since he's lived here.

Things that could improve:

To minimise fires in Imizamo Yethu water is needed and bigger roads. There must be tap water easily available.

Post-fire activities :

Some victims went to stay with relatives while others stayed in halls allocated by the CoCT. They could only stay in these buildings for three days so afterwards many moved up the hill. They had to be careful doing this because if the police saw you putting up a shack they pulled it down. The solution to this: 'they' were going to put up tents on the field across the way but politics got in the way.

Aftermath:

Some of the victims are still sick, traumatised [at the time of the interviewing i.e. about two months after the fire]. Help from outside organisations is very important after an event like this. The victims received counselling on the day after the fire (i.e. on Sunday 8th February), by local Hout Bay residents. Some of the victims were away.

External aid:

Each household was given R500 but some did not get it because others used the wrong house number and got their number. Maybe they were confused because of the fire or just wanted the money. (The researchers were told by an observer that if the victims had not received their R500 they would now get R850. This new informant seemed to have some kind of authority in the community.)

Local community structures:

A section of housing is assigned to a street. Street committees have the power to allocate land and demarcate an area for each family. They make sure that everyone is happy, if two parties/people argue the street com are the ones who address the conflict. If there is any structural damage the people must go to council, not to the street committee.

Politics:

There are no apparent political parties active in Imizamo Yethu. (A younger bystander disagreed, saying that there were three main groups, SANCO, the civic group (Sinithemba) and a third 'underlying' force (he did not know its name). He said that there are 'no fires caused by politics', adding 'If you don't want to belong to any group you don't have to.')

Land questions:

The number of people living in Imizamo Yethu is still increasing. This is a big problem. A solution to more people coming in is to officially allocate numbers to all the houses. There must then be an official last number. If anyone has a house numbered higher than this, you know they don't belong.

Even if the 'neighbourhood' doesn't want more people, the street committee can overrule their decision and put the people there anyway. So if you are a friend/relative of a street committee member you are guaranteed a house. There is no one to report the street committee to. You don't want to have bad relations with the street committee.

The foreigners in the area are from Namibia, Angola, Mozambique and Zimbabwe. There is no control of who comes in. There used to be conflict but it was 'solved' by saying that *anyone* who had lived in Imizamo Yethu for more than five years was a local. The foreigners are too many now to have conflict with. Many have obtained citizenship through relationships and by having children. They mustn't be sent back to their homelands because then who will look after the children.

Interview B3

Name: [not given]

Age: 30s

Gender: Female

Arrived: Has been in Imizamo Yethu for 3 years

Settlement environment:

Originally from Krugersdorp, Gauteng; left because her husband was unemployed. The biggest problem living in Imizamo Yethu is that the water is so far from her house. They have to fetch it every morning and evening – it's too hot to fetch water during the middle of the day.

Fire experience:

She feels that fires don't really affect her as she is has never been in a fire and is up country a lot. Fires occur mostly at night on the weekends.

Triggers identified:

Fires are started by men who have been drinking. They come home, hungry from the drink and try to cook meat. They pass out and the meat catches alight. There is one particular man who insists on cooking drunk. The street committee have told him that if he's caught doing it again he will be thrown out and his dwelling will be torn down.

Community strategies:

She feels that there is nothing she could do if her house caught alight: the fire department can't get to the area where she lives. When people's houses get burnt down everyone helps each other to get away. If they don't have a place to stay they sleep on the side of the mountain. (One of the women sitting listening to the interview had her house burnt down in the February fire and ended up sleeping in the open, on the side of the mountain. She is in her sixties.)

Fire history remembered:

She remembers two fires: the huge fire in February and the small fire afterwards that affected five huts at the top of the settlement.

Vulnerabilities:

Overcrowding results in there being no breaks between the houses makes them more prone to fires. Another factor is that the water source is so far away and there are so few of them. There are trees around her house that she says will catch alight quickly and easily causing the fire to spread rapidly. As long as they live in shacks there is no way that they can prevent the fires.

Aftermath:

Some of victims are still traumatised by the fire – they don't have anything left, let alone systems in place to help prevent fires.

External aid:

The victims of the fire were supposed to receive R500 per household, clothes, food, mattresses (one per family) but not blankets.

After the February fire there was the 'Ukuvku' program which was a workshop for the victims of the fire where they were taught to throw sand on fires and to crawl. They were also given leaflets, she still has one in a box under her bed.

Potential improvements:

If there was money spent on the area it should be spent on houses, proper streets, sanitation and water pipes.

Interview B4

Name: [not given]

Age: – [child]

Gender: Female

Arrived: –

Settlement environment:

The main problem is basic services: housing, toilets, electrification, water, etc. She worries about fire; is always cautious. She feels that the community worries about fire.

Triggers identified:

Illegal connections, unattended flames (e.g. open fires for heating when it is cold). Fires almost always caused by adults leaving cooking/lighting fires unattended. Drunkenness leads to falling asleep and leaving fires unattended.

Community strategies:

Call fire brigade, remove belongings – but this is a problem because there are no safe places for belongings. Demolishing houses to create fire breaks – but looting sometimes happens, so fear of looting sometimes prevents people from pursuing this strategy. The only community strategy is bucket brigades, but water supplies are 500 metres from some structures. There is no community warning system. "Nothing to do in the case of another fire."

Vulnerabilities:

Density of dwellings. There was no water in the communities' pipes.

Fire history remembered:

She remembers seven fires (fires where many structures were burnt, or there was a death). Fires are getting more frequent. Most common in January and in June. Most common in winter on the weekends.

Possible improvements:

The govt needs to create streets and gaps between the homes, provide basic services. The only solution is to electrify; you cannot stop people from drinking. Fire fighters need access (there are no [proper] roads).

Community responsibilities:

People need to supervise cooking fires (especially paraffin stoves) and also candles (used for lighting).

Local community structures:

People who cause fires can be expelled from the community by the block committees. There should be block meetings each week to share strategies, lobby government for basic services such as electricity. SANCO is the executive who carries out the requests of block committees.

Interview B5

Name: [not given]

Age: –

Gender: Female

Arrived: May 2003

Settlement environment:

She came from a township in the Eastern Cape near Umtata to live with her parents. She feels comfortable and likes Imizamo Yethu because there are a lot of people (especially relatives) from the Eastern Cape area near where she is from.

Fire experience:

In her home she makes extensive use of fire: paraffin stove, candles for lighting, open fire for heating. After the February fire she became aware of the dangers of fire even though her dwelling has not yet been affected. Prior to the February fire she did not consider fire a major risk.

Triggers identified:

The main cause of fire is from stoves and candles at night.

Community strategies:

Buckets of water and sand are the best community strategy. She was not aware of any other community strategies concerning fire risk. She was also not aware of the number to contact the fire brigade.

Fire history remembered:

She believes that most fires are in December and a primary cause for this is long work hours and fatigue, leading to negligence concerning open flames and cooking at night. There were far fewer fires in her last community (Eastern Cape) due in large part to the fact that the dwellings are constructed out of more fire-resistant materials (mud). Most fires there start because of lightning.

Potential improvements:

The only way to prevent fires is through electrification. She had problems answering the question of what her most urgent needs were, but eventually talked about basic services. It became clear that she did not feel that she had access to local government.

Local community structures:

She does not attend the block meetings but her husband does.

INTERVIEW WITH THE CO-ORDINATOR OF DISASTER MANAGEMENT, SOUTH PENINSULA

The February fire at Imizamo Yethu started at 00:45 but the fire service was only called at 01:15. The Disaster Co-ordinator was called at 01:30. This fire was considered a large situation but there was a bush fire happening at the same time. It is estimated that the fire affected 1500 people. At 04:00 South Peninsula Disaster Management started organising halls for the people to sleep in, as well as blankets and mattresses. The fire was put out between 06:00 and 07:30.

Registration points were set up so that victims could register their losses. Five halls were organised for housing the victims. About 50 people were housed in the halls. One of the halls, in Helderberg, was out of walking distance so a bus was organised to transport the victims there. The community leaders were told to spread the word about

the halls and the bus. Initially nine people went to the hall in Helderberg, but as word spread about the good conditions there, the numbers increased.

For the first and second days after the fire, food was provided for 2500 people – the estimated number of victims. For these two days there was a surplus of food. On the third day food was provided for 1000 people and there was very little left over.

On the Monday after the fire contractors were brought in to cut down the trees. It was estimated that 1200 dwellings burnt down. At the registration points 800 dwellings were registered by victims as having been burnt down. After the registers had been sorted out, it was found that only 400 of the dwellings had been there legally. The illegal backyard dwellings were registered under the numbers of the legal dwellings to which they were attached.

The Disaster Co-ordinator believes that fire awareness programmes will not improve the situation. He feels that the social problems need to be dealt with and that infrastructure, such as proper roads, need to be put in place. Education is needed so that people do not build in the roads. Another problem he sees are that there are households being run by children – some as young as nine years old.

Interview with the Niall Mellon Foundation representative

Niall Mellon is an Irish philanthropist involved building low-cost housing in Imizamo Yethu. What follows comes from an interview held with one of his representatives.

The Niall Mellon Foundation only builds houses that follow government housing codes: 2 metres apart, title deed owned, electrified, etc. They have plans for double story units as well as townhouse-style dwellings in the future.

There is a risk when shacks are erected on the site during the building process – afterwards they are often used as a source of income (rented to lodgers).

Because Niall only provides loans (interest free) and his houses are expensive (R47 000 rand), built to resist the conditions of the site, income and land tenure are major obstacles to the construction of additional units. The recovery of funds has been a problem, although there is a 72% recovery rate at present time.

Local labour is used whenever possible although, because the houses are expensive and local skills are often lacking, some of the positions must be filled by outsiders (the homeowners expect high quality) .

He sees the next phase of the project as local capacity-building, but this would require a partnership with local government.

UNTRANSCRIBED INTERVIEWS: GROUP 3

C1. Thembelo – Main Road Clinic; member of the Parents Association at Orange Kloof School (26 March 2004)

C2. Mrs Enid Davis – principal of Orange Kloof Primary School (26 March 2004)

C3. Bongi – woman informant who runs the Gospel Outreach Ministry crèche (26 March 2004)

C4. Interviews with children at the Orange Kloof Primary School (Grade 5, aged 10-12) (16 March 2004)

C5. Busisiwe – local facilitator (16 March 2004)

C6. Nandipha – female informant sitting at a vegetable stall with young child (16 March 2004)

C7. Vusi – male informant living in shack next to one that had just burnt down (16 March 2004)

C8. Thandi – female informant living in shack next to one burnt down (16 March 2004)

C9. Nelmarie du Toit – Child Accident Prevention Foundation for Southern Africa (16 March 2004)

C10. Focus group of four children at Orange Kloof Primary School (16 April 2004)

a) Victoria, aged 12
b) Thulani, aged 15
c) Malusi, aged 16
d) Phumlisa, aged 14

C11. Interviews conducted by other groups shared during feedback sessions (16 March 2004)

C12. Kenny Tokwe, resident and local SANCO leader (15 March 2004)

UNTRANSCRIBED INTERVIEWS: GROUP 4

D1: Patricia: school teacher at Orangekloof Primary School, Imizamo Yethu

D2: Bongi: crèche teacher, Gospel Outreach Ministry

D3: Thembela: nurse, clinic and head of parents' association, Orangekloof Primary School,

D4: Mavis: mother, facilitator

D5: Sheila: mother, founder of crèche

D6: Grahame Graham-Parker, ANC, CEI job placement agency, Iziko Lobomi

D7: Thobeka: mother of two, lives with her boyfriend

D8: Kavi: father of two, lives with his girlfriend and her two children

D9: Juliana and Moeketsi, Red Cross

D10: Donovan, youth facilitator, resident of Hangberg

D11: Victoria, age 12, Orangekloof Primary School (16 April 2004)

D12: Thulani, age 15, Orangekloof Primary School (16 April 2004)

D13: Malusi, age 16, Orangekloof Primary School (16 April 2004)

D14: Phumlisa, age 14, Orangekloof Primary School (16 April 2004)

REFERENCES

Bartlett, Sheridan. 2002. 'Building Better Cities with Children and Youth', *Environment & Urbanization*, Vol 14, No 2, pp 3–10.

Beall, J. & Kanji, N. 1999. 'Households, livelihoods and urban poverty', Theme Paper 3, *Urban Governance, Partnership and Poverty Series*. Department for International Development.

Bull-Kamanga, L., Diagne, K., Lavell, A. et al. 2003. From everyday hazards to disasters: the accumulation of risk in urban areas, *Environment & Urbanization*, Vol 15, No 1, p 193.

Burman, Sandra & Reynolds, Pamela. 1986. *Growing Up in a Divided Society – the Contexts of Childhood in South Africa*. Ravan Press, Johannesburg.

Census 1996. South African Census, 1996. www.statssa.gov.za/

Census 2001. South African Census, 2001. www.statssa.gov.za/

Centre for Conflict Resolution (CCR). 1998. *Track Two, Constructive Approaches to Community and Political Conflict*, Vol 7, No 3.

Chawla, Louise. 2002 'Insights, creativity and thoughts on the environment: integrating children and youth into human settlement development', *Environment and Urbanization*, Vol 14, No 2, pp 11–21.

Children's Institute 2003. *The situation of children in South Africa*. Children's Institute, Rapid Assessments, University of Cape Town

Coetzee, E. 2002. Urban vulnerability: A conceptual framework, in C. Nomdo & E. Coetzee (eds.) *Urban Vulnerability: Perspectives from Southern Africa*. PeriPeri Publications, DiMP, University of Cape Town.

Delgado, J., Ramirez-Cardich, M.E., Gilam, R.H, et al. 2002. Risk factors for burns in children: crowding poverty and poor maternal education, *Injury Prevention*, Vol 8, No 1, pp 38–41.

Development Action Group (DAG), 2003. *Imizamo Yethu Survey 2003*. DAG, Cape Town.

DiMP: see Disaster Mitigation for Sustainable Livelihoods Programme.

Disaster Mitigation for Sustainable Livelihoods Programme (DiMP). 2002. *Evaluation of the fire prevention awareness campaign in Joe Slovo; a Cape Argus/SANTAM Ukuvuka Operation Firestop Funded Initiative*. DiMP, University of Cape Town.

Disaster Mitigation for Sustainable Livelihoods Programme (DiMP). 2004. *Fire Statistics for Imizamo Yethu from 1995 to 2004*. DiMP, University of Cape Town.

Dodson, B. & Oelofse, C. 2002. 'Shades of Xenophobia: In-migrants and Immigrants in Imizamo Yethu, Cape Town', in J. Crush and D.A. McDonald, *Transnationalism and new African immigration to South Africa*. Southern African Migration Project (SAMP) & Canadian Association of African Studies (CAAS), Toronto.

Du Toit, B. 1975. 'A decision-making model for the study of migration', in B. du Toit & H. Safa (eds.) *Migration and urbanization: models and adaptive strategies*. Mouton Publishers, The Hague and Paris.

Gillham, B. & Thomson, James A. (eds.). 1996. *Child Safety: problem and prevention from preschool to adolescence*. Routledge, London and New York.

Godwin, Y., Hudson, D.A. & Bloch, C.E. 1996. Shack fires: a consequence of urban migration, *Burns*, Vol 23, No 2, pp 151–153.

Greene, Caroline. 1991. *The origins and development of informal settlement in the Hout Bay area 1940–1986*. Unpublished BA (Hons) thesis. Dept. of Economic History, University of Cape Town.

Hart, T. 1992. 'Informal Housing in South Africa: an Overview', In *South Africa in transition: urban and rural perspectives on squatting and informal settlement in environmental context*. University of South Africa (Unisa), Pretoria.

Holloway, A. 2004. Unpublished proposal: *Monitoring and Analysis of Structural Fire Risk in the Cape Town Metropolitan Area 1995–2003*. Disaster Mitigation for Sustainable Livelihoods Programme (DiMP), University of Cape Town.

ISDR: see United Nations.

Kok, P., O'Donovan, M., Bouare, O. & van Zyl, J. 2003. *Post-apartheid patterns of internal migration in South Africa*. Human Sciences Research Council (HSRC), Cape Town.

MacGregor, H. 2004. Lecture notes from *A Short Course on Disasters and Development; Protecting Livelihoods*. Disaster Mitigation for Sustainable Livelihoods Programme (DiMP), University of Cape Town.

MANDISA: see Monitoring and Mapping of Disaster Incidents in South Africa.

Mantle, A. et al.,1982. *ESL and Community Groups Create Learning Materials: Four Case Studies*. Participatory Research Group, Toronto.

Marsh, Graham. 2001. Community: The concept of community in the risk and emergency management context, *Australian Journal of Emergency Management*, Vol 16, No 1, pp 5–7.

Mattera, Don. 1987. *Memory is the Weapon*. Ravan Press, Johannesburg.

Mayer, Philip. 1971. *Townsmen or Tribesmen: Conservatism and the Process of Urbanization in a South African City*. Oxford University Press, Cape Town.

Monitoring and Mapping of Disaster Incidents in South Africa (MANDISA). 2004. Database: www.mandisa.org.za/mandisa

Nuijten, M. 1999. *Institutions and organising practices: Conceptual discussion*. Sustainable Development Department of the United Nations Food and Agriculture Organisation.

Ramphele, Mamphela. 2002. *Steering by the Stars: Being young in South Africa*. Tafelberg, Cape Town.

Reynolds, Pamela. 1989. Childhood in Crossroads, Cognition and Society in South Africa. David Philip, Cape Town and Johannesburg.

Roberts, H., Smith, S.J. & Bryce, C. 1995. *Children at Risk? Safety as a social value*. Open University, Buckingham, UK.

Swart-Kruger, Jill & Chawla, Louise. 2002. ' "We know something someone doesn't know": children speak out on local conditions in Johannesburg', Environment & Urbanization, Vol 14, No 2, pp 85–96.

Swart-Kruger, Jill. 2000. 'Growing up in Canaansland: Children's Recommendations on Improving a Squatter Camp Environment', in J.L. Marais & M. Bosman, (eds.) *Growing up in Cities*, UNESCO Most Programme site report. HSRC, Pretoria.

Tomlinson, R. 1990. *Urbanization in post-Apartheid South Africa*. Unwin Hyman Ltd., London.

United Nations International Strategy for Disaster Reduction (UNISDR). 2003. *Mobilising local communities in reducing disasters*. UNISDR, Geneva.

University of Melbourne. 2004. *Hout Bay–Imizamo Yethu Settlement*. www.sli.unimelb.edu.au/informal/h_day_history.html

Van Niekerk, A., Rode, H. & Laflamme, L. 2004. 'Incidence and patterns of childhood burn injuries in the Western Cape, Southern Africa', *Burns*, Vol 30, No 4, pp 341–347 .

Veblen, T., Kitzberger, T. & Villalba, R. 1999. 'Fire history in northern Patagonia: the role of humans and climate variation', *Ecological Monographs,* Vol 69, No 1, pp 47–67.

Werneck, G.L. & Reichenheim, M.E. 1997. 'Paediatric burns and associated risk factors in Rio de Janeiro, Brazil', *Burns*, Vol 23, No 6, pp 478–83.

Wilson, Francis & Ramphele, Mamphela. 1989. 'Uprooting Poverty: The South African Challenge'. Report for *Second Carnegie Inquiry into Poverty and Development in Southern Africa*. David Philip, Cape Town & Johannesburg.

World Disaster Report. 2002. 'Community based preparedness in Nepal', *World Disaster Report*. American Red Cross, Washington, DC.

Young, Elspeth. 1998. 'Dealing with hazards and disasters: risk perception and community participation in management', *Australian Journal of Emergency Management*. Vol 13, No 2, pp 14–16.

Zeitlin, R.E.K. 1997. Long-term psychosocidal sequelae of pediatric burns, *Burns*, Vol 23, No 6, pp 467–462.

Zwane, Wandile. 1998. *The challenge is to change ourselves*. www.csvr.org.za/articles/artzwane.htm

Additional bibliography

Davel, C.J. (ed.). 1999. 'Children's rights in a transitional society', proceedings of 1998 conference: *Centre for Child Law*. Protea Book House, Pretoria.

Disaster Mitigation for Sustainable Livelihoods Programme (DiMP). 2002. *Evaluation of the Fire and Life Safety Programme*. DiMP, University of Cape Town.

Grolnick, W., Cole, R., Laurenitis, L. & Schwartman, P. 1990. 'Playing with fire: A Developmental Assessment of Children's Fire Understanding and Experience', *Journal of Clinical Child Psychology*, Vol 19, No 2, pp 128–135.

Minuijn, A., Vandemoortele, J. & Delamonica, E. 2002. 'Economic growth, poverty and children', *Environment & Urbanization*, Vol 14, No 2, pp 23–43.

Oelofse, C. 2002. 'Dimensions of urban environmental risk', in C. Nomdo & E. Coetzee, (eds.), *Urban Vulnerability: Perspectives from Southern Africa*, PeriPeri Publications, DiMP, University of Cape Town.

Wisner, Ben. 2002. *Disaster Risk Reduction in Megacities: Making the Most of Human and Social Capital*. World Bank Disaster Management Facility, Washington, DC.