Chapter 3

Methodology and Analytical Framework

3.1   Literature review

Literature on urban agriculture was explored and some information was gleaned from it. Policy documents, book chapters, research reports, academic journals, conference papers, government publications, urban agriculture magazines, *Vukani News,* journals and conference papers, NGO communiqués and Internet.

3.2   The study area

Khayelitsha was chosen as a study area because a lot of work has already been done there, it forms a serious background for further investigations on livelihood system and the role of urban agriculture. It was also chosen because of numerous 'projects' thereby pushing people to undertake some urban agriculture and moreover the practice of agriculture in urban areas is more organised in Cape Town than Gauteng province. As a Xhosa speaking person by birth, I was interested in working with my own people because Khayelitsha's population is mainly Xhosa.

The research was conducted in Khayelitsha, a poor urban township located in the Cape Flats area of the Cape Town municipality. The estimated population of Khayelitsha population is 500 000. Most of the township is located South of the N2 in the Cape Flats area. The area has extremely harsh climatic conditions, being a flattened coastal sand dune area with hardly any vegetation and receiving the full force of south eastly gales (Pearce, 1993).

The 1996 census indicates that 47% of the urban population in the Cape Town townships is poor. The unemployment rates are very high, on average 31% (23% for men and 45% for women) (Central Statistical Services, 1995), many of whom have been unemployed for many years (Rogerson, 1998). Many of the township residents live in shacks. The quality of life in the township is very poor due to very high crime rate and lack of tangible assets, such as a shortage of housing, inadequate provision of services, lack of community facilities, poor

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quality of public open space and environmental degradation (Karaan & Mohamed, 1996).

3.3   Consultations

Semi-structured interviews or consultation were conducted with variety of urban managers between November 2001 and March 2002, (see Appendix A1). The use of the key informants technique provided information on policies and practices. Opinions expressed by the respondents are interspersed in boxes to illustrate, support or rebut findings gleaned from the literature.

3.4   Introduction to the community

Abalimi Bezekhaya (environmental NGO in Khayelitsha) was used as an entry point to the community. A week was spent with them visiting community gardens around Khayelitsha and Nyanga. Abalimi Bezekhaya field-workers introduced the proposed research to the project members. Abalimi Bezekhaya gave advice on the selection of community food projects as they are widely spread in Khayelitsha. In order to be accepted by the field-workers of Abalimi Bezekhaya, the research started through some field-work undertaken with people. A project in Mitchell's Plain has been initiated with one of the tireless field workers and facilitated further investigation.

Table 2:   **Research schedule**

Activity	Schedule	Institution
Introduction to community projects/ Preliminary talks	November 2001	Abalimi Bezekhaya
Introductory field work	November 2001	Abalimi Bezekhaya
Selection of community food gardens / project schemes	November 2001	Abalimi Bezekhaya
Sampling	November 2001	Researcher
Interviews	December 2001	Researcher
Literature study	December 2001	University of Stellenbosch
Interviews	January 2002	Researcher
Literature study	January 2002	University of Stellenbosch
Interviews	February 2002	Researcher
Literature study	February 2002	University of Stellenbosch
Interviews	February 2002	Researcher

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Literature study	February 2002	University of Stellenbosch
Consultations / Informant interviews	March 2002	Tygerberg City Council
Consultations / Informant interviews	March 2002	Tygerberg City Council
Analysis	May-June 2002	UP & ARC
Report writing	June – Nov 2002	UP & ARC

3.5 Sampling procedures

The survey constituted a sample of 50 households in the formal and informal settlements of Khayelitsha. Survey sites 4, 5, 6, 7, 9, 10 and 12 are located in formal housing areas in Khayelitsha (see figure 2), whereas sites 3, 8 and 11 are informal settlements. The urban agricultural projects or community food gardens surveyed are at sites 2, 3, 4, 6, 7, 8 and 9. These urban agricultural projects were selected through the help of Abalimi Bezekhaya. The households were sampled along a transect walk across the settlement. Respondents of the transect walk can be considered as a more representative sample because most of the respondents interviewed were selected as a result of their involvement in agriculture. Stratified sampling was used. Stratified household surveys allow a clearer understanding of how the nature of local rural-urban linkages affects the livelihoods of different groups (Tacoli 1998).

3.6   Interviews

Interviews were conducted on the second week on community food projects or schemes and then at household level. The community food projects as well as households were studied in line with the sustainable livelihood framework. Trust was established through preliminary talks and introductory field-work. Gardeners were willing to participate and they took the researcher to individuals (backyard gardeners) who were not supported by Abalimi Bezekhaya. Fieldwork involved the use of 10 a page questionnaire, semi-structured interviews, informal interviews with the field workers and participatory observations during field visits. The observational method helps to collect data that cannot be accessed through the use of the pen such as by filling in questionnaires (Moloto, 1996).

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The gardeners were interviewed at their homes or their gardens about livelihood issues and urban agricultural activities. Structured interviews were chosen because the questions were carefully worded and followed a set order.

Standard methods of socio-economic research were used to assess the resident's livelihood activities and their attitudes to and perceptions of urban agriculture. The participatory tools include qualitative and quantitative methods such as structured interviews, transect walks, income and expenditure matrices, and informal discussions. The combined usage of these methods has the advantage that the data are gathered in both a quantitative and qualitative manner. Income and expenditure matrices were used to help quantifying the resident's sources of income and their expenditures. Semi-structured interviews, trend analysis, matrix ranking and transect walks and similar participatory tools were used to provide detailed answers to the relevant issues raised in the survey.

3.7   Data analysis

Data was analysed using the statistical programme GenStat for Windows (2000). The 50 respondents' answers to the questions were summarised in tables, according to the number of categories set up. From these counts, or frequencies, percentages were calculated.

To establish if there were any relationships between answers (the variates) to some questions, Spearman's rank correlation coefficient was calculated, as the data from the survey was discrete (categorised) and not continuous. Spearman's rank correlation coefficient is a measure of association between the ranking of two variates.

Note that this only shows the extent to which two variates are associated and does not imply any causal relationship between them (Siegel, 1956). Generally, a coefficient of about ±0.7 or more is regarded as indicating a fairly strong correlation, and in the region of ±0.9 it indicates a very strong correlation. In the region of ±0.5 the correlation is moderate, and in the range – 0.3 to +0.3 it is weak (Rayner, 1969). For example, if $r = 0.5$, even if statistically significant, the $R^2 = 25$ %. This indicates that 25 % of the variation of each variate is accounted for by the relationship between the two variates, but 75 % variation remains unexplained.

3.8   Difficulties and constraints

It is very difficult to conduct a transect walk in township like Khayelitsha or to visit the community without a person residing in that area. A community member or community based facilitator should accompany a researcher to home gardeners. A researcher has to use people from an existing project as an entry point to the community. Interviews carried out in townships during weekdays risk the bias of overrepresentation of unemployed or home-based workers, and excluding the fully employed.

It is also very difficult to get an accurate picture of the quantities and value of production from urban agriculture because production is seasonal, household members consume produce and sales are intermittent.

.3.9   Role of the researcher

During the introductory process at the beginning of each interview, the respondents were assured that their names will be anonymous and that the contents of the interviews were to be known only to my supervisor and myself.

The respondents were told during the conduct of each interview that the research was carried out for Masters research and that they can benefit from it because the findings will be shared with them through Abalimi Bezekhaya. It was also specified that the work aimed at helping poor people by alerting policy makers and government officials about their activities, problems and innovations.

3.10   Geography and environment

3.10.1 Khayelitsha

The township of Khayelitsha is situated along the northern shoreline of False Bay some 35km south-east of Cape Town. Khayelitsha is bounded on the northern side by the N2 freeway and on the southern side by Baden-Powell Drive and False Bay.

The town was established by the government of South Africa in April 1983 and announced as

a 'new African city' called Khayelitsha. The original idea behind the establishment of the new African city was to move residents of other 'African' townships and squatter camps in Cape Town to this area. Rogerson, (1996: p.11) points out that Cape Town is an African city confirmed by the cattle that graze on the verge of the highways just outside the city's international airport. However, rapid urbanisation has led to a situation where most of Khayelitsha's inhabitants originate from outside the Cape Metropolitan Area (CMA). Even today many people still arrive and settle in the area in search of work. Exact figures on the population of Khayelitsha are not available. The area was set up to accommodate 250 000 people (Dewar & Watson, 1991). Wright, Kloppers & Fricke (1993) pointed out that the official figure of the population by 1990 had reached 320 000, with an expected population of some 750 000 by the turn of the century (See Figure 2).
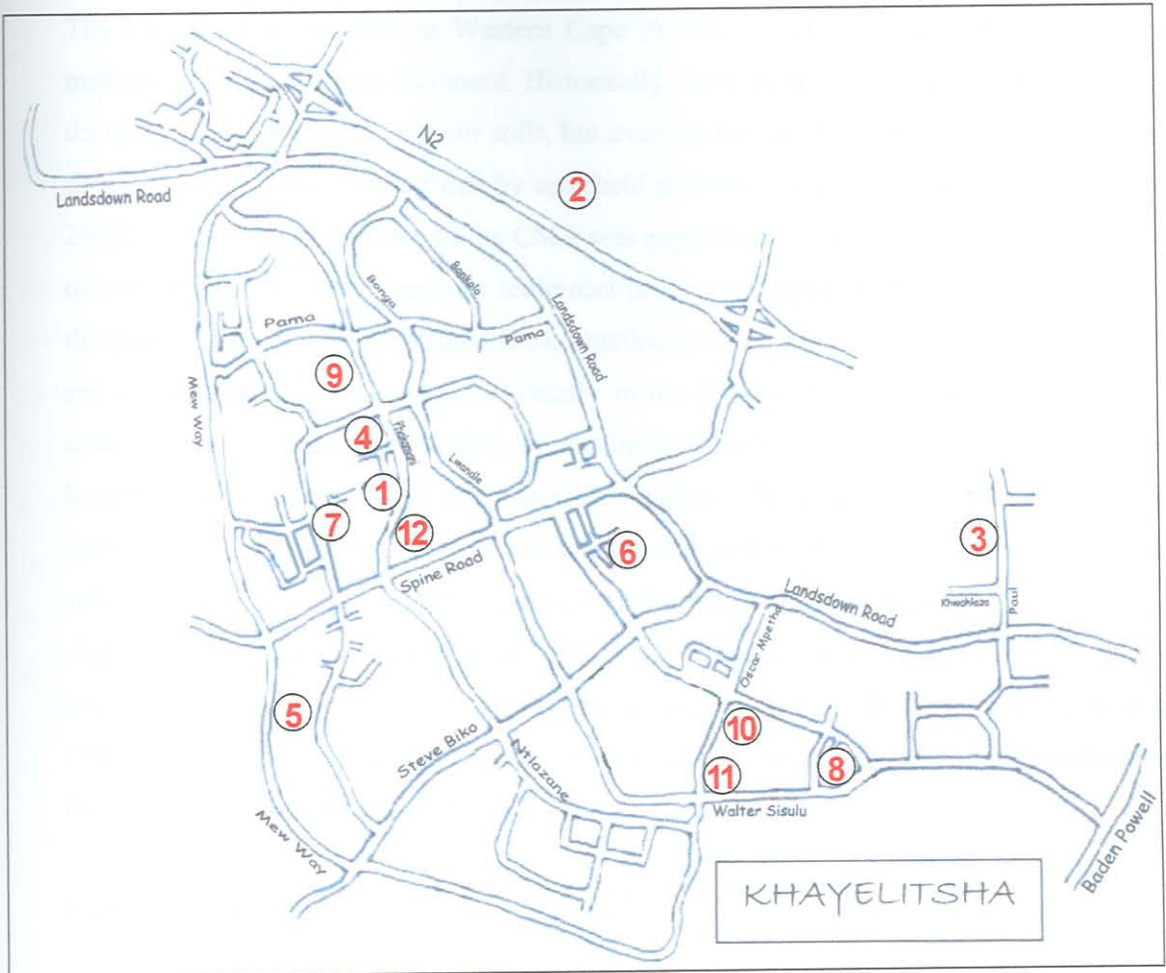
Figure 1: Areas of study in Khayelitsha

Key
1. Khayelitsha Garden Centre
2. Eden Community Garden
3. Ekum Esakha Isityu
4. Nomsa Machangwane
5. Ilitha Park
6. Masiqale Community Garden
7. Noluthando Community Garden
8. SCAGA Community Garden
9. Quaker Peace Garden
10. Kuyasa section 4
11. Macassar
12. Khayelitsha Section P

Figure 2. Areas of study in Khayelitsha

Key

1. *Khayelitsha Garden Centre*
2. *Eden Community Garden*
3. *Esam Esakho Isitiya*
4. *Nomsa Maphongwane*
5. *Ilitha Park*
6. *Manyano Community Garden*
7. *Nondyebo Community Garden*
8. *SCAGA Community Garden*
9. *Quaker Peace Garden*
10. *Kuyasa section*
11. *Maccassar*
12. *Khayelitsha Section F.*

3.10.2 Cape Flats settlement history and socio-economic characteristics

The Cape Flats is situated in Western Cape Province, and are part of the southern-most metropolis on the African continent. Historically, settlement on the Cape Flats was avoided due to its exposed aspect and poor soils, but over the past 60-70 years it has undergone urban development, a growth influenced by apartheid policies and population pressure (Meadows, 2000). In 1996 the population of the CMA was approximately 2.56 million. The Cape Flats is one of the areas under the greatest settlement pressure. Despite its economic status as one of the most favoured areas in South Africa, practical problems such poverty and unemployment are widespread in Cape Town, particularly in the Cape Flats townships, which almost the entire African population is settled within the low-income category. There are particularly inequalities in unemployment and access to services. The distinctive patterns of residential settlement inherited from the apartheid era are featured by the segregation of Africans and coloureds into separate peri-urban areas, which continue to proliferate due to the influx of migrants from rural areas, particularly from the former Ciskei and Transkei. Movement between townships and informal settlements accounted for over half the movements within CMA, particularly the township areas of Crossroads, Nyanga, Gugulethu, Browns Farm and Philippi (Cross, Bekker & Eva 1999).

3.10.3 Climate

The average annual rainfall of the Cape Flats area ranges from 500 to 800mm, which is less than the other parts of Peninsula, which receive between 500 and 2600mm annually (Meadows 2000: p.22). The most rain occurs in winter and result into flooding. The general climate is characterised by wet winters and hot dry summers. In summer the winds blow from the South-easterly or South-westerly winds. The latter is the prevailing wind in Cape Town.

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3.10.4 Soil

The terrain and soil investigation by the Department of Soil and Water Science of the University of Stellenbosch in the Driftsands area next to the N2 road opposite Khayelitsha shows that soil quality is extremely poor for the whole Driftsands area (Kleynhans & Myburgh, 1992: p.2). Wright (1995) state that in Khayelitsha a feature of the sediments is the presence of shelly material over the most of the area. The sand body is generally stratified horizontally and several lithostratigraphic units can be recognised. The main units are the Langebaan, the Witzand and the Springfontein formation. In the Langebaan formations calcite layers can be found. These layers are very irregular in shape and thickness and are often at the surface. They are found at places within the Scaga garden, surveyed site 8 in figure 2. The high calcite content of the soil results in very high pH values (pH 8-9). These soils are very poor (low nutrient content, low CEC). This is especially true in those areas where natural vegetation has been sparse or where the original topsoil (with a higher organic matter content) has been eroded.

The majority of surveyed respondents mentioned that the soil is very sandy and problematic.
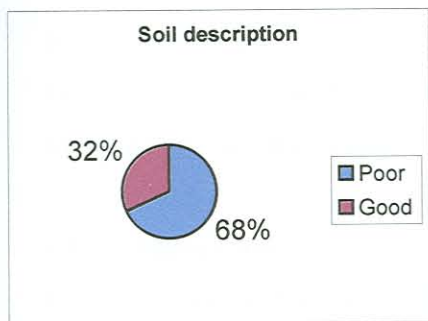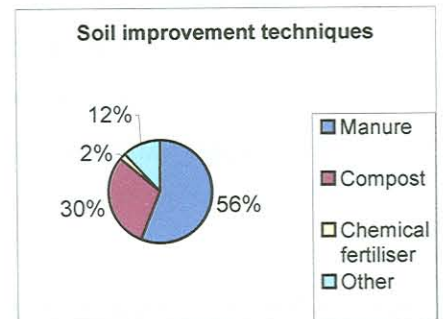

Figure 3.

Figure 4.

The most common opinion expressed by the gardeners about the soil condition is that it is poor (68%). A total of 32% describe their soil to be good and fertile. Soil fertility is low and 56% of the gardeners are using organic manure, 26% make use of compost while 4% are using lawn grass and crop residues and 12% are using other methods such as manure from intestines of slaughtered animals and by-products of homemade beer. Only 2% of the respondents make use of inorganic fertilizer to improve soil condition. Manure is obtained from the local people who have livestock and the Khayelitsha Garden Center is selling a plastic bag of manure for R2.50.