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**USING LIS IN THE DEVELOPMENT OF
LAND TENURE ARRANGEMENTS IN
COMMUNAL PROPERTY ASSOCIATIONS:
A STUDY OF ALGERIA**

MSc Thesis

By

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**Submitted to the Department of Geomatics, University of Cape Town for the
Degree of Masters in Engineering.**

**Department of Geomatics
University of Cape Town
February 2000**

DEDICATION

This thesis is dedicated to Christelle Roux.

University of Cape Town

DECLARATION

I certify that this thesis comprises only my original work except where due acknowledgement is made in the text to all other materials used.

Signature removed

L.M. Roux

February 2000

University of Cape Town

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ABSTRACT

This thesis investigates the contribution of land information systems (LIS), integrated with video evidence, to improving security of tenure during the creation of a communal property association (CPA). To this end a case study was conducted of the Algeria community, a community in the process of creating a CPA.

It is envisaged that, with the provision of a LIS, integrated with video evidence to a CPA, difficulties in adjudication and dispute resolution will be alleviated. The LIS will provide fiscal, administrative and juridical support for the process of creating a CPA.

Theory underlying the case study is derived from experiences in a nearby CPA and a review of relevant theory. The research reviews the Elandskloof CPA, a similar case study to that of the Algeria community. Theory, such as Fourie's¹ social change approach to analyse the social dynamics of informal settlements; the elements that contribute to security of tenure within a CPA; and behavioural models - such as the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model - used to analyse the video evidencing system are described. The Communal Property Associations Act (28/96) and other formal communal systems such as sectional titles, trusts, share block schemes and section 21 companies are also discussed. In addition, the information requirements of "western" LIS and LIS for informal settlements are considered. The inclusion of video evidence in a LIS for CPAs is also investigated, with respect to the requirements of using such evidence in a court of law.

It is shown in a case study of Algeria, a relatively stable community, that LIS can support the creation of a CPA. Audio-visual information in the form of video evidence proved to be a valuable addition to the bundle of evidence recorded in the LIS. The thesis concludes

¹ Fourie 1993

that LIS integrated with audio-visual technology can reduce threats to security of tenure within a CPA, with certain limitations.

The recommendations of this research are that the video evidencing and the LIS should be studied during conflict resolution and adjudication in a CPA. In addition to this the acceptance of the video evidence and LIS should be explored. The research also suggests that video evidencing may be effective in informal settlements, and should thus be considered in this context. Finally, it is also recommended that the video evidencing system should be considered in the recording of culturally sensitive areas.

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GLOSSARY of TERMS and ABBREVIATIONS

ANC	African National Congress
Buchu	A type of fynbos used for a variety of purposes, including medicinal.
Cardinality Ratio	Specifies the number of relationship instances that an entity can participate in. (Elmasri and Navathe 1989:50)
CNC	Cape Nature Conservation
CPA	Communal Property Association
DLA	Department of Land Affairs
External validity	External validity establishes the domain to which a study's findings can be generalised. (Yin 1984:33)
Fynbos	Fynbos is made up largely of wiry shrubs with small, hard, dull, evergreen leaves with a smaller number of bigger shrubs with large leaves which are also hard, dull and evergreen. (Rycroft H B, 1963 <i>Our Flower Paradise</i> Hortors Johannesburg, p.10)
GPS	Global Positioning System
Kliphoutbas	A type of treebark that is ground to obtain an orange or red powder. This powder is then used as a pigment in leather tanning. (CNC Ranger, January 2000)
Labour tenants	People who occupy land as part of their employment. (DLA 1997:7)
LIS	Land Information System
Lydende Party	Suffering Party (Afrikaans)
RDP	Reconstruction and Development Programme
Riethuise	Thatch-roofed houses.
Rooibostee	A herbal tea. (Direct translation : Redbushtea)
Shebeen	A residential house where alcohol is sold informally.
SPP	Surplus Peoples Project
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour

1. INTRODUCTION

This research develops methodological theory relating to using spatial information systems integrated with audio-visual technology to support the creation of a Communal Property Association, with the object of minimising threats to security of tenure. The research is based on the assumption that information systems can play a critical role in the management and administration of the process of creating a Communal Property Association.

1.1 PROBLEM STATEMENT

The problem to be addressed in this research is that Communal Property Associations (CPAs) are a new legal entity and that there are risks inherent in developing such a corporate entity. This thesis contributes to developing a body of knowledge based on an early experience of creating a CPA.

In 1994 the Reconstruction and Development Programme (RDP) was introduced by the South African government as a socio-economic policy framework to meet the needs of a democratic South Africa¹. This programme proposed to implement a fundamental land reform programme comprising two main strategic thrusts: a) the redistribution of land to those who need it, but cannot afford it; and b) the restitution of land to those who lost land because of apartheid laws².

As part of the new government's legislation to support the RDP, a means of formalising communal tenure forms that were not documented previously was proposed³. Communal land tenure systems were seen as having the following advantages: they accommodate a

¹ ANC 1994:1

² ANC 1994:20

³ DLA 1997:33

social structure that provides a safety net for the poor, and land cannot be sold in emergencies or foreclosed for debt⁴.

Although South African law does include highly developed group ownership systems such as companies, trusts, share block schemes and sectional title schemes, none of these can fulfil the necessary requirements outlined in the White Paper on Land Policy⁵. Thus a purpose-built institution for communities (especially those in rural areas) that want to acquire and hold land was created by the government in terms of the Communal Property Association Act 28 of 1996⁶.

In implementing the first Communal Property Association at Elandskloof⁷ in terms of the Act (No.28 of 1996), a number of problems were encountered⁸. These problems included internal conflict, the definition of membership and finalisation of the register of members. This threatened security of tenure⁹, which is the principal purpose of the Act¹⁰. Thus, based on this experience, ways of supporting the process of creating a Communal Property Association (CPA) and alleviating or reducing problems related to security of tenure are needed.

1.2 RESEARCH OBJECTIVES

This research strives to contribute to developing methods of achieving greater security of tenure in a CPA. The research reported in this thesis is thus grounded upon the following question:

⁴ DLA 1997:33

⁵ Budlender, Geoff (Director General of Land Affairs - up to January 2000) pers. com. 1998.

⁶ Budlender, pers. com. 1998.

⁷ Elandskloof is a similar settlement to Algeria, the settlement used for the case study conducted for this research. Refer to figure 4.1 (Map of the Western Cape).

⁸ Mayson *et al* 1998

⁹ Mayson *et al* 1998

¹⁰ Refer to discussion on the motivations behind creating the CPA Act (28/96), section 3.1.1.

"How can land information systems, integrated with audio-visual technology, contribute to alleviating or reducing the uncertainty of security of tenure in a Communal Property Association, during the creation of such an association?"

The primary objective of this study is to build methodological theory pertaining to the development of the land tenure arrangements in a CPA, using land information systems integrated with audio-visual technology. To achieve this, a case study was conducted of a rural community, Algeria, during the process of forming a CPA.

1.3 RESEARCH METHOD

This research was conducted using inductive logic, which is defined as postulating general laws from particular facts or examples¹¹. Observations were made in a case study and general methodological theory has been developed based upon these observations. The following methods were used to provide information to support evidence for drawing conclusions from a variety of data.

A literature review was conducted of previous work and research on CPAs, other communal ownership models, and the use of technology in land tenure.

Over an eighteen-month period (December 1997 to May 1999), a case study was conducted of the Algeria¹² community in the Cederberg. Information for the case study was gathered in various ways. An introduction to the community was obtained through the Surplus Peoples Project (SPP)¹³. The author recorded observations during the process of creating the Algeria CPA by attending various meetings and workshops, conducted by SPP, with the community. Additional data was collected through informal discussions and

¹¹ Bradbury 1969:8

¹² Refer to figure 4.1 (Map of the Western Cape).

¹³ The Surplus People Project is a non-governmental organisation working as facilitators in the fields of land reform and rural development. (SPP 1997:3)

formal open-ended interviews with members of the community. Three of these interviews were used to construct life histories of the respondents. Interviews were also conducted with the staff of the Surplus People Project (SPP), the existing manager of the property (Cape Nature Conservation), the Director-General of Land Affairs and property owners adjacent to the prospective property of the community. Information on the project and the history of the community was obtained from documents provided by SPP.

The following technology was used in the course of this research. MS Access, a database programme and ArcView3, a Geographic Information Systems programme were used to develop a Land Information System (LIS) for the Algeria CPA. A video camera was used to collect video evidence. Also, GPS and a Palm Pilot hand-held computer were used to collect spatial and attribute information for the LIS. Full details are listed in appendix II.

Information for the LIS that was created during the research was acquired during various surveys of the community. A socio-economic survey was conducted in the community¹⁴ to obtain attribute information and a Global Positioning System (GPS) survey was done to fulfil the spatial information requirements of the LIS.

Volunteers were obtained from the Algeria community to assist in the testing of the video evidencing system¹⁵. Video clips were obtained of community members delivering evidence relating to their rights in land that was included in the LIS as information for adjudication and conflict management. The behaviour of the community members towards the system was also observed. These observations were used to analyse the system in terms of behavioural models¹⁶.

¹⁴ Refer to Chapter 5.3.

¹⁵ Refer to 2.1.11, 5.1.4, 5.3.3 and 6.2.

¹⁶ Refer to discussion in section 2.2.5.

1.6 PLAN OF DEVELOPMENT

The thesis consists of six chapters. The first chapter provides the background to the research, the problem statement, the research objectives, the procedure followed in the research, scope and limitations of the research, and the plan of development of the thesis.

The second chapter defines core concepts used in the thesis and also reviews literature relating to theory that is relevant to this research. This review includes a discussion of Elandskloof, the first CPA to be registered in South Africa. Also, Elandskloof is considered in terms of a social change theory and then compared to Algeria. Security of tenure within a CPA is discussed as well. The theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model concludes the chapter.

Communal Property Associations and other communal ownership entities in South African law are discussed in chapter three. The discussion on Communal Property Associations includes aspects such as the motivation behind the creation of the Communal Property Associations Act (28/96), a description of the Act, the process of registering a CPA, the drafting of the constitution for a CPA and membership of the association. The discussion continues with a description of sectional title schemes, share blocks, trusts and section 21 companies in terms of the Companies Act (61/73), in terms of two issues. These issues are; a) why the government rejected these entities for the land reform programme and created the Communal Property Associations Act (28/96); and b) what guidelines can be extracted from these other entities for use in managing and administering a CPA?

The case study conducted of the Algeria community for this research is discussed in chapter 4. This includes the history of the community and the process that the community went through and is going through at the time of writing, to obtain rights of ownership.

Chapter five focuses on information in land information systems (LIS). Firstly Rakai and

Williamson's¹⁸ notion of the "western" LIS is investigated, followed by an evaluation of the information used in LIS in informal settlements in South Africa. The information needs of the LIS for the Algeria CPA are then considered. The addition of video evidence in the LIS is also discussed. The chapter continues with a description of the Algeria LIS and includes a discussion of the functionality of the Algeria LIS. Finally, the collection of socio-economic data, terrestrial data and video evidence for the creation of the Algeria LIS is then described.

Chapter six contains the analysis. First, the problems identified in the process of creating a CPA are analysed. This is followed by analysis of the video evidencing system, including analysis of the operational aspects of the system and analysis in terms of the behavioural models. The section concludes with the advantages and disadvantages of the video evidencing system. Secondly, the LIS created to support the process of creating a CPA is analysed. The development and the functionality of the LIS are discussed in this section. Thirdly, the bundle of evidence in the LIS is considered. The chapter concludes with the methodology for using LIS to support the process of creating a CPA.

Chapter seven contains a summary of the conclusions and also provides recommendations for future research.

1.7 SUMMARY

This chapter has achieved the following. The problem that this research is grounded on was stated. This was followed by a statement of the research objectives. The research method was then described. The research questions developed from the research objective were discussed, as well as the scope and limitations of this research. Finally the plan of development of the thesis was described.

¹⁸ Rakai and Williamson 1995

2. DEFINITIONS AND LITERATURE REVIEW

This chapter establishes operational definitions of the core concepts that are relevant to this research. This is followed by a review of experiences of similar projects and the problems arising therefrom. The chapter concludes with a description of existing theories that are critical to this research.

The availability of comparable published research on communal property associations is limited, mainly due to the recency of the promulgation of the Communal Property Associations Act (28/96). At the time of writing only one other case, Elandskloof, has been researched and published¹. The literature review of similar projects thus consists of a discussion on Elandskloof, focussing on issues that have a direct impact on the research reported in this thesis.

Fourie's² social change model, a theory that attempts to understand the local land tenure systems in informal settlements is then described. Elandskloof is then analysed in terms of this theory. This subsection concludes with a discussion of the relevance of Elandskloof to this research.

The elements that contribute to security of tenure in a CPA, as identified by the author from an exploration of relevant literature, are then discussed. These elements include the definition of boundaries and rights, publicity, a well-established authority, effective dispute resolution and knowledge and education.

This discussion is followed by a review of three behavioural models, the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance

¹ Mayson *et al* 1998

² Fourie 1993

model. These are used to analyse the behaviour of community members towards the video evidencing system. The relevance of these theories to this research is then discussed.

2.1 DEFINITIONS

2.1.1 Operational Definition

An investigation of relevant literature revealed that authors employ many different definitions. This is especially true for land information systems, land management, land administration, land tenure, security of tenure and local level cadastral systems.

Operational definitions are thus used in this thesis, to circumvent the difficulty of establishing precise, universal definitions. According to the Cambridge Dictionary of Philosophy³, the term operational definitions were introduced by P.W. Bridgman, who argued "that theoretical concepts be identified with the operations used to measure them"⁴. In other words, the operational definitions used by a researcher are defined in context of the experimentation or observation performed by the researcher. This also implies that operational definitions are biased by the researcher's understanding and definition of a particular situation.

Within this frame of reference, operational definitions of land information systems, ownership, land tenure, security of tenure, land management, land administration, local level cadastral systems and evidencing are established below.

³ Audi 1995

⁴ Audi 1995:548

2.1.2. Land Information Systems

A Land Information System (LIS) is an information system, which has as its main focus a system of land records. The formal definition used by the *Federation Internationale des Geometres (FIG)*⁵ and the definition that has been adopted in this research is:

“A Land Information System is a tool for legal, administrative and economic decision-making and an aid for planning and development which consists on the one hand of a database containing spatially referenced land-related data for a defined area, and on the other hand, of procedures and techniques for the systematic collection, updating, processing and distribution of data. The base of a land information system is a uniform referencing system for the data in the system, which also facilitates the linking of data within the system with other land related data.”

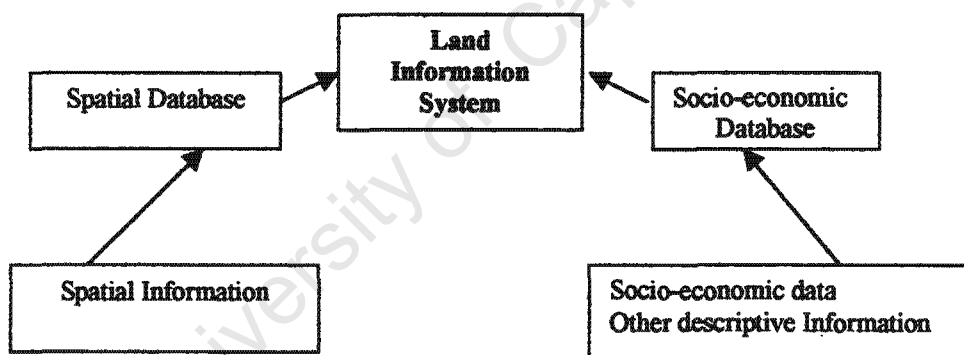


Figure 2.1: Components of the LIS

One component of the LIS, as depicted in figure 2.1, is a spatial database. For this research, a spatial information system is viewed as a system of hardware, software and procedures that form the component of the LIS used to support the capture, management, manipulation, analysis, modelling and display of spatially referenced data⁶. This spatial

⁵ Larsson 1991:2

⁶ Maguire et al 1991:10-11

information system contains the spatial database. The non-spatial (socio-economic) database component contains non-spatial or attribute data that relate to the spatial data.

A Land Information System was created for this research to investigate the support it can provide to the process of creating a communal property association and in so doing, increase security of tenure.

2.1.3 Ownership

Ownership has been defined as "a legal relation between a person and a thing which, if established to the satisfaction of the law, through proof of the necessary title, vests in the owner the fullest control, and the widest rights and powers which are conceded to anyone with respect to the thing owned"⁷. In addition, in terms of Roman-Dutch law, the owner of a thing has the right to possess it, to use and enjoy it, to destroy it and to alienate it⁸.

According to Kleyn and Borraine⁹ ownership "has a residuary character, sometimes referred to as the elasticity of ownership. This implies that no matter how many entitlements the owner disposes of, he [or she] retains a reversionary right to these entitlements, so once those entitlements are extinguished, the ownership automatically become unencumbered again".

This definition appropriately applies to the private freehold ownership of land. However, for this thesis ownership relates to the holding of rights within a communal system of holding land. In the communal system of a communal property association (CPA), ownership of the land and the incident of residuary rest in the CPA as a juristic person. Certain rights that comprise the ownership bundle are allocated to individuals¹⁰. All these

⁷ Simpson and Sweeney 1973:26

⁸ Hutchison *et al* 1991:270

⁹ Kleyn and Borraine 1993:163

¹⁰ Refer to section 3.1.2.

rights may only be exercised within the rules and constitution of the CPA. Thus the holder of a right (e.g. tillage of a piece of communal land) may possess and use and enjoy it, but the right may only be alienated with permission from the association.

The operational definition of ownership for this thesis is thus:

Ownership is the relationship - that conveys the powers of possession, use and restricted alienation of that right - between the holder of the right and the right, where the incident of residuary rests with the CPA as a juristic person.

2.1.4 Bundle of Rights

The bundle of rights is an important concept for this research, because the land information system and the video evidencing system was developed to document these rights.

Simpson¹¹ defines the bundle of rights as:

"a collection of rights pertaining to any one land parcel. The bundle of rights can vary according to the number of rights, the size (or quantum) of the rights and the duration of each right."

2.1.5 Land Tenure

Land tenure is the manner in which rights are held¹². Dorner¹³ further describes systems of land tenure as "those legal, contractual or customary arrangements whereby individuals or organisations gain access to economic or social opportunities through land. The precise form of tenure is constituted by the rules and procedures which govern the rights and

¹¹ Simpson 1976:7

¹² Dale and McLaughlin 1988:19

¹³ Dorner 1972 - Cited by Dale and McLaughlin 1988:6

responsibilities of both individuals and groups in the use and control over the basic resource of land."

Dorner's¹⁴ definition above was adopted as it stands for the purpose of this research.

In a communal property association one of the most important issues that need to be resolved is the development of land tenure for the association. This relates to one of the aims of this thesis, to build methodological theory, using LIS, to assist in the development of land arrangements in a CPA.

2.1.6 Security of Tenure

A person has security of tenure if he or she is secure or safe in his or her holding of land¹⁵. Bruce *et al*¹⁶ elaborate on this by identifying three elements of security of tenure. The first element is the formal duration of the rights and the second is the protection of rights. The third element is the robustness of rights, that is the freedom to use and dispose of the land, free from interference of community or family.

This thesis aims to use LIS and audio-visual technology to provide greater security of tenure within a CPA. The emphasis being on the safe holding of rights, not the elements.

2.1.7 Land Management

Dale and McLaughlin¹⁷ define land management as "the process whereby the resources of land are put to good effect". Land management also incorporates matters such as:

- property conveyancing;

¹⁴ Dorner 1972 - Cited by Dale and McLaughlin 1988:6

¹⁵ Simpson 1976:8

¹⁶ Bruce, Migot-Adholla and Atherton 1994:252

¹⁷ Dale and McLaughlin 1988:3

- property assessment and valuation;
- the development and management of services and facilities;
- the management of land resources;
- the formation and implementation of land use policies;
- environmental impact assessments; and
- the monitoring of all land based activities.¹⁸

Barry¹⁹ further defines land management as a system embodying the strategic planning, policy development and policy implementation processes related to land, including land occupation, land use, the natural environment, natural resources, agriculture, transportation and utilities. This definition was adopted for the purposes of this research.

Usually, land management is exercised by institutions. In the case of a CPA, the land management will rest with the committee of the association. Land management is also one of the areas in a CPA that may greatly benefit from the support of a LIS.

2.1.8 Land Administration

"Land administration includes the functions involved in regulating the development and use of the land, gathering revenue from the land, and resolving conflicts concerning the ownership and use of the land."²⁰

Further, land administration can be defined as "comprising the sub-systems that actualise strategies to implement land policy and other policies within the land management system"²¹. These sub-systems include tenure, socio-economic, fiscal, transportation, environmental, utilities and information management²².

¹⁸ Dale and McLaughlin 1988:4,5

¹⁹ Barry 1999:53

²⁰ Dale and McLaughlin 1988:6

²¹ Barry 1999:59

²² Barry 1999:60

From the above, land administration is operationally defined as consisting of tenure, socio-economic, fiscal, transportation, environmental, utilities and information management systems that realises strategies within the land management system.

Thus, the LIS can assist in the process of creating a CPA by providing information for land management, as well as support for the implementation of these decisions at a land administration level.

2.1.9 Local Level Cadastral System

A cadastre, as defined by Larsson²³, is a "systematic description of land records within an area". Dale and McLaughlin²⁴ also state that a juridical cadastre generally has two parts. The first is the written records (or register) that contains information about each land parcel and the second, which is cross referenced to the first, that contains a detailed description of the parcel, usually in the form of a map or diagram²⁵.

Usually the cadastre is developed and maintained by centralised institutions. However, current South African government policy states that the "intention is for a decentralised land administration (management) and land reform", "that is largely based at the third tier²⁶ of government"²⁷.

Local level cadastral systems can thus be operationally defined as the systematic description of land records, developed and maintained in the area that encompasses the land parcels in the cadastral system.

²³ Larsson 1991:16

²⁴ Dale and McLaughlin 1988:25

²⁵ Dale and McLaughlin 1988:25

²⁶ Local authorities.

²⁷ Davies and Fourie 1998:243

In this research a land information system was created to manage and administer the local level cadastral system of a communal property association. In fact, the LIS is a local cadastral system.

2.1.10 Adjudication

This research includes a proposal for a video evidencing system²⁸ to provide information for adjudication. Adjudication is thus defined as follows:

‘Adjudication is the process by which all existing rights in any particular parcel of land are finally and authoritatively ascertained. It is a cardinal principle of adjudication that it does not, by itself, alter existing rights or create new ones. It merely establishes with certainty and finality what rights exist, by whom they are exercised, and to what limitation, if any they are subject.’²⁹

2.1.11 Evidencing

Evidencing is operationally defined³⁰ as the process by which all existing rights in a particular parcel of land are ascertained, thus not altering existing rights or creating new ones, but merely establishing and documenting what rights exists, by whom they are exercised, and to what limitation, if any, they are subject.

Evidencing usually consists of three components: physical evidence (monuments, boundaries), documentary evidence (titles, diagrams, mathematical descriptions, certificates, contracts) and social evidence (oral witnessing, ceremonies)³¹. All three

²⁸ Refer to section 2.1.1, 5.1.4, 5.3.3 and 6.2.

²⁹ Simpson 1976: 194-207

³⁰ The definition of evidencing was obtained by modifying the definition of adjudication as defined by Simpson (1976:194-207).

³¹ M. Barry (Senior Lecturer, Department of Geomatics, University of Cape Town) pers. com. 14 January 2000

components are used to adjudicate rights or resolve disputes. The author uses the term 'bundle of evidence' as the collective description of these three components in this thesis.

Video technology can be used as a means to gather, record and store evidence. This is referred to as video evidence in this thesis. The video evidencing system is described and analysed in chapters 5 and 6.

This concludes the definitions of terminology used in this thesis. The next section reviews literature related to this research.

2.2 LITERATURE REVIEW

This discussion includes a description of previous research that is relevant to this research, as well as a description of existing theory that are critical to this research.

The author viewed it as important to include a description of any other existing communal property associations, because this research consists of one case study, and the addition of another may increase the external validity³² of the case study. The review of previous literature thus provides additional information relating to difficulties experienced in the creation of a communal property association. This will assist in identifying areas in the process of creating a communal property association that may benefit from the support of a land information system, which is one of the research objectives mentioned in chapter 1.

The discussion starts with a short history of the Elandskloof³³ community. This is necessary, because the author believes that many differences in the problems experienced by Elandskloof and Algeria have roots in the histories and the composition of the two communities. The review also includes the difficulties experienced with the definition of

³² External validity establishes the domain to which a study's findings can be generalised. (Yin 1984:33)

³³ Refer to figure 4.2. (The Algeria Area map)

membership and the compilation of the membership register in Elandskloof. Using a land information system may alleviate these problems. This was investigated in the course of this research. The section continues with a review of the implications, as reported by Mayson *et al*³⁴, of not finalising a definition of membership³⁵. This emphasises the importance of defining membership in a communal property association.

This discussion is followed by a description of the social change model that may explain some of the difficulties experienced by Elandskloof. Elandskloof is then compared to Algeria. The elements that contribute to security of tenure in a CPA are then identified in section 2.2.4.

This research also develops and tests a video evidencing system³⁶. The introduction of this system is based on the premise that if people (community members) are aware that what they have attested to be their rights is on record (video evidence), they will be less likely to change their testimony. The literature review thus concludes by considering the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model, three behavioural models that were used to analyse the behaviour of community members towards the video evidencing system developed in this research. This analysis is important to determine if the community will accept the video system or not.

2.2.1 Elandskloof

The Elandskloof community is one example of a community that has completed the formation of a Communal Property Association. The following section includes a summarised history of the community and the creation of the CPA. This is followed by a short comparison of the Elandskloof and Algeria communities. The relevance to the

³⁴ Mayson *et al* 1998

³⁵ Refer to section 3.1.5 for a discussion on membership in a CPA.

³⁶ Practically the video evidencing entails a community member being video taped in context of the house, vegetable garden etc. that relates to the right, while affirming his/her rights in an interview. Refer to section 5.1.4 and 5.3.3.

research is that it has been assumed that issues that arose in Elandskloof may arise in Algeria. This also provides guidelines for the design of the LIS, because at the time of writing, the creation of the Algeria CPA has not been concluded, and the Elandskloof community has. The section also discusses various issues related to the formation of the CPA as raised by Mayson *et al*³⁷. These include the complications surrounding the decisions involving membership and the compilation of the membership register³⁸.

a) The History of the Elandskloof Community

The Elandskloof community in the Cederberg was the first community to receive land in terms of the Land Restitution Programme³⁹ of the government and create a Communal Property Association under the new dispensation in South Africa⁴⁰. The community was driven off the land 30 years ago after the new owner of the land issued an eviction order⁴¹. This occurred after the Church⁴², the original owners of the land, and the State jointly decided to remove a clause⁴³ in the title deed limiting the land use to missionary purposes and by doing this the Church was able to sell the land⁴⁴.

The community never lost the desire to return to Elandskloof and started to actively pursue this as early as the mid-eighties. The claim of the community was finally transferred to the Land Claims Commission with the passing of the Restitution of Land Rights Act in 1994. This resulted in a twenty-month negotiation process between the farmer, the Department of Land Affairs, the Surplus People Project (SPP) and the community with the support and

³⁷ Mayson *et al* 1998

³⁸ Mayson *et al* 1998:445

³⁹ DLA 1997

⁴⁰ Mayson *et al* 1998:444

⁴¹ Mayson *et al* 1998:445

⁴² The farm Elandskloof was originally bought by the Dutch Reformed Church in 1861 in order to set up a mission station. (Mayson *et al* 1998:446)

⁴³ Various other pressures also had an influence on the events, not least of which was the passing of the Group Areas Act. For more detail refer to Smith, H. and Anderson, M. *Voorlegging aan die Adviserende Kommissie op Grondtoewysing namens die Gemeenskap van Elandskloof* 1993, Surplus People Project, Cape Town.

⁴⁴ Mayson *et al* 1998:446

help of the Land Claims Commissioner. A settlement was reached and became an order of the court in October 1996. The final outcome was the possession of the land by Elandsklowers on 16 December 1996.⁴⁵

However, to hold the land the community had to form a juristic person. The community asserted very early in the process that they wanted a communal system that allowed individual access to the land. After consultations it was decided to establish a Communal Property Association, even though the Communal Property Association Act 28 of 1996 was not passed at that stage. The constitution was prepared and discussed and elections prescribed by the constitution were held in November and December 1995. With the passing of the CPA Act⁴⁶ the Elandskloof Constitution was amended and accepted by the community on 12 October 1996. The Elandskloof CPA was then registered by the Department of Land Affairs in November 1996 and enabled the community as a juristic person, to take legal transfer of the land.⁴⁷

b) Issues Surrounding Membership

The establishment of a membership register is a very important step in the creation of a CPA or for that matter any group ownership entity⁴⁸. The Elandskloof CPA took three years to resolve the question of who is eligible for inclusion in the CPA. According to Mayson *et al*⁴⁹ there were four elements that impacted on the definition of membership. These were the vocal minority, family affiliation, limited space and state subsidies. The author believes that is important to be aware of these issues, because it is likely that they may occur within other communities creating communal property associations.

⁴⁵ Mayson *et al* 1998:446

⁴⁶ CPA Act (28/96)

⁴⁷ Mayson *et al* 1998:447

⁴⁸ Mayson *et al* 1998:448

⁴⁹ Mayson *et al* 1998:449-551

i) The Vocal Minority

The Elandskloof community consisted of various groupings of people⁵⁰. One minority group, who was dispossessed in 1962, contended that only the people affected by this 1962 dispossession must be allowed to return to Elandskloof. This group (the "Lydende Party"⁵¹) was very vocal in all forums and as a result undermined many of the majority decisions made by the community. The fact that decisions were made by people that they did not view as Elandsklowers, and that these decisions were therefore invalid, was often the justification used for such behaviour.⁵²

ii) Family Affiliation

The decision making process was further complicated by family feuds. For example, the "Lydende Party" fervently opposed the chairperson, because of an old family feud. Thus discussions surrounding membership often revolved around the person stating a position, and not the merits of the position being stated.⁵³

Another issue of contention was due to the shifting definition of an Elandsklower. Some people, who were included as potential members in the beginning, found themselves excluded later in the process, because of changes in the definition of membership. This also put strain on family relations, because members of the committee had to exclude relatives. The Committee members also experienced strain when unpopular decisions had to be made.⁵⁴

⁵⁰ The groupings mainly occur according to the time of dispossession. There is thus five groupings, those who were dispossessed in 1962; those who left before 1962, because of pressure from the Church; those who left before 1962 to find better working conditions; those who were born in Elandskloof; and those with family links to any of the preceding categories. (Mayson *et al* 1998:449)

⁵¹ Afrikaans for the "suffering party".

⁵² Mayson *et al* 1998:449

⁵³ Mayson *et al* 1998:450

⁵⁴ Mayson *et al* 1998:450

iii) Limited Space

Only 10 % of the 3100 hectares of Elandskloof are suitable for agriculture and settlement. This limits the number of people who can settle in Elandskloof dramatically, and directly links the capacity of the farm to the criteria for membership. This became a strong thrust to make the membership criteria much stricter.⁵⁵

iv) State Subsidies

State Subsidies are determined by household and bulk services by the number of households that live on land parcels. Thus for the Elandsklowers it meant that the more families that settle on the farm, the more money is provided for bulk services and the more money is available from the Settlement Grants. It was thus in the favour of Elandsklowers to increase the number of households on the farm. However the long-term interest of the community - to develop a sustainable economic environment - held sway and they decided to limit numbers.⁵⁶

According to Mayson *et al*⁵⁷ these four complex issues had the effect of paralysing the Committee and making it nearly impossible to reach any decision on membership of the CPA.

Another issue that had a compounding effect on the above was the fundamental inexperience of the Committee in general administration relating to decision making and management. Also for the Committee to function effectively and efficiently the authority of the Committee had to be earned and accepted, but this was very difficult for the community since decisions could have a significant impact on their future.⁵⁸

⁵⁵ Mayson *et al* 1998:450-1

⁵⁶ Mayson *et al* 1998:451

⁵⁷ Mayson *et al* 1998:451

⁵⁸ Mayson *et al* 1998:452

c) Compiling the Membership Register

The compilation of the membership register involved a number of problems that caused more confusion surrounding the definition of membership. SPP and the Committee took responsibility for the task. The Committee members and other community members were in charge of contacting potential members and getting them to fill in application forms. These application forms were then delivered to SPP for the development of a preliminary list.⁵⁹

The first confusion arose over the different kinds of application forms. Not only was there a form for membership applications, but also for subsidies and a basic survey form. Some of the forms were for families and others for individuals. SPP thus ended with two lists, the membership applications list and the basic survey list, which did not correlate. It was also difficult to link the lists, since many community members had similar names and few were in possession of an identity number.⁶⁰

According to Mayson *et al*⁶¹, a further factor was the inexperience of SPP in the development of registers, especially for a restitution community that is spread far and wide. This had a number of effects. SPP had the approach of using community members as much as possible in the data gathering process. Linked to this was the inexperience of SPP regarding the management of research programs. This resulted in the data gathering proceeding without adequate planning or quality controls. Delays in the process could also be contributed to SPP not prioritising the final definition and ratification of membership.⁶²

The next discussion will consider the implications of the lack of decision making regarding membership. This reaffirms the importance of defining membership in a CPA.

⁵⁹ Mayson *et al* 1998:452

⁶⁰ Mayson *et al* 1998:453

⁶¹ Mayson *et al* 1998:453

⁶² Mayson *et al* 1998:453

d) Implications of the lack of decision regarding membership

The implications for the Elandskloof CPA, because of an unfinalised definition of membership, were as follows:

- The register of Elandsklowers could not be finalised.
- Final plot allocations could not be made. This delayed the building of houses by members.
- No final plans of the number of plots could be made.
- No finality regarding subsidies.
- The level of conflict in the community increased.
- The authority of the Committee was undermined.

These implications and pressure from the planning consortium and the community finally got the Committee to decide on the criteria for membership⁶³.

The importance of finalising the criteria for membership must not be underestimated.

Mayson *et al*⁶⁴ recommend that it is best to start with a narrow definition and broaden it at a later stage. Also the register of members must be given a lot of attention and planned according to accepted database management system principles⁶⁵.

The process of creation of the Elandskloof CPA reached conclusion in 1997. In 1999, a select band occupied the farm. There is still major conflict with institutions and land grabbing occurs within the community⁶⁶.

⁶³ Mayson *et al* 1998:453

⁶⁴ Mayson *et al* 1998:455

⁶⁵ Mayson *et al* 1998:455

⁶⁶ Discussion with M. Barry. Senior Lecturer, Department of Geomatics, University of Cape Town. 22 September 1999

2.2.2 The Social Change Model

Some of the behaviour of the Elandskloof community may be explained using the social change model of Fourie⁶⁷ that attempts to understand the local land tenure system in informal settlements.

Davies and Fourie⁶⁸ identified an internal dialectic that consists of two opposing tendencies within a group that are dependent on each other. These tendencies are manifested by the tendency towards fission and integration within a group. Fission is the process of individualisation and integration is the process of forming coalitions to strengthen group identity. They view the internal dialectic as an explanation for the tension between individual and group rights within informal settlements.⁶⁹

The social change model of Davies and Fourie⁷⁰ assumes that a range of different power levels, with sub-groups within the levels, exist in a given group. These different sub-groups compete horizontally and vertically for the control of resources and this results in the manipulation of the land tenure rules.

The author believes that the social change model, although developed for informal settlements, is valid for CPAs as well. This is because it is the author's opinion that the social change model can describe both rural and urban situations where substantial conflict is inherent within a community. The Elandskloof case shows this.

Although researchers have not explored the social change model in the rural context, it seems to readily describe the events at Elandskloof. The tendency towards integration, that is the process of forming coalitions to strengthen group identity, is in one instance

⁶⁷ Fourie 1993

⁶⁸ Mayson *et al* 1998:241

⁶⁹ Davies and Fourie 1998:241

⁷⁰ Davies and Fourie 1998

embodied by the "Lydende Party"⁷¹. The competition between the different sub-groups was intensified by the limited suitable space for agriculture and settlement, which translates as limited resources. The social change model could thus explain the continued land grabbing and conflict within the Elandskloof community.

In conclusion, the author views it as important to include any information relating to CPAs in the literature review. The discussion mainly contributes to the external validity of the case study conducted for this research, by considering another community that created a CPA. It can be seen that most of the problems in the Elandskloof CPA related to the collection and management of information and delayed decision making due to disputes. This argues strongly for using LIS in a CPA, because a LIS is primarily a tool for managing information. It also provides guidelines for the future development of CPAs. For this research it provides additional information for the fulfilment of the research objective mentioned in chapter one. That is, identifying areas in the process of developing a CPA that can benefit from the support of a LIS.

The social change model can be used to explain the continued conflict and land grabbing that occurs within the Elandskloof community. It mainly identifies the importance of competition between group and subgroups for resources, which results in the manipulation of land tenure rules. In discussing the Algeria CPA these factors will be considered.

The next section will compare Algeria and Elandskloof cases.

2.2.3 Relevance to Research

This section first compares the histories of the Algeria and Elandskloof communities. This followed by a comparison of issues relating to the processes of creating the Algeria and Elandskloof CPAs. Chapter 4 contains a detailed description of the Algeria case study.

⁷¹ Refer to section 2.2.1(b)(i).

dispossession and that of the Algeria community corresponds more to claims made by labour-tenants⁷³ on farms⁷⁴.

Elandskloof	Algeria
<ul style="list-style-type: none"> • Removed from claimed land by dispossession in 1962. • Claim based upon dispossession of land. • Artificially recreated community. • Major divisions within community cause delays in decision making process. • Delays in process due to internal strife. Nowadays also external. • Family affiliation has an impact on major decisions. • Many people not living on the claimed land wish to return. • Limited number of people could settle on the land. 	<ul style="list-style-type: none"> • Presently occupying claimed land. • Claim based on labour-tenant relationship (similar to farm workers). • Community for more than 30 years. • Few divisions in community. These divisions had minimal impact on the decision making process. • Delays in process due to external decision structures. • Family affiliation has little or no impact on major decisions. • Few people not living on the claimed land wish to return. • All applicants can be accommodated at inception of CPA.

Figure 2.3: Main differences between Elandskloof and Algeria

The author believes that these differences may explain the differences between the difficulties experienced in the cases of Elandskloof and Algeria. This is elaborated on below.

Unlike Elandskloof, there are few major divisions within the Algeria⁷⁵ community. The author believes that this is because the members of the Elandskloof community may have the same origins as Algeria, but that the Elandskloof community is essentially an artificial construct. In contrast, the Algeria community has been functioning as a community for

⁷³ Labour-tenants are people who occupy land as part of their employment. Labour-tenants include farm workers who live on the farm, people living on state-owned land, people who live on land with the consent of the owner and people living on land which is occupied on a tribal or communal basis. (DLA 1997:7)

⁷⁴ Extension of Security of Tenure Act (62/97). The aim of this act is to give occupiers who lived on someone else's land, with permission of the owner, a secure legal right to live on and use the land. It also protects occupiers against illegal (arbitrary or unfair) eviction. The Act also provides protection for owners and sets out the rights and duties of owners and occupiers. (DLA 1997:9)

⁷⁵ Refer to section 4.2.1 (b) for a description of related issues in the Algeria community.

more than 30 years. Also, the Algeria community is stable and the Elandskloof community is volatile. This has a major impact on the creation of the CPA. It was mentioned above⁷⁶ that the divisions in the Elandskloof community caused delays in the process of creating the CPA, whereas all delays in the Algeria community were due to external factors. For example, there was a dispute between provincial and national government as to the ownership of the state land that was being claimed and the questioning of the valuation of the land by Land Affairs⁷⁷. The author believes that internal disputes in Algeria did not influence the decision making process, because of the singularity of purpose of the community. The purpose being, obtaining security of tenure.

Also, if we consider Algeria in terms of the social change model, there is less competition for resources, because during the course of this research fewer groupings were identifiable within the community.

Family affiliation does play a role in the Algeria community. But as opposed to Elandskloof, this did not influence major decisions relating to the constitution or the definition of membership. The problem of excluding family members from the CPA was also circumvented, because relative to Elandskloof there are very few people that wish to return to Algeria from neighbouring towns. This is also the reason why state subsidies did not influence the decision making process in Algeria.

Limited space played a role in Elandskloof and Algeria. In Elandskloof this limited the number of people that could settle on the land. In Algeria⁷⁸ however, it limited the number of additional houses that can be built. This issue already raised some dissatisfaction in the Algeria community, because the five proposed houses only allow for present needs and in future this will most likely become a point of contention within the community. Again, the social change model supports this prediction, because if resources become more limited,

⁷⁶ Refer to section 2.2.1 (b).

⁷⁷ Refer to section 4.2.1.

⁷⁸ Refer to section 4.2.1 (b)

the competition between groups will increase. This may lead to the manipulation of land tenure rules.

The issues of vocal minority, family affiliation, limited space and state subsidies had the effect of paralysing the Elandskloof committee, and the above analysis proposes some reasons, mainly related to the volatile nature of the Elandskloof community as opposed to the stability of Algeria, why this did not occur in Algeria. Also the issues that compounded the paralysis of the Elandskloof committee - that is, the inexperience of the committee regarding decision making and management and the establishment of the authority of the committee - had far less impact on the Algeria committee.

As mentioned before, the compilation of the membership register is one of the most important activities in the creation of a CPA. In both Elandskloof and Algeria the committee and SPP developed the register. Although Mayson *et al*⁷⁹ shows awareness of the problems in the way SPP compiled the register for Elandskloof, these problems were not remedied in Algeria⁸⁰. Yet again confusion arose relating to the different forms that had to be completed. The author believes that using one redesigned form can prevent this, and the information needed for applications for subsidies etc. could then be extracted. The author believes that this is an area where the support of a land information system can prove vital.

Less difficulty was also experienced with the compilation of the membership register in Algeria than in Elandskloof. The reasons for this are that most of the members of the Algeria CPA live in Algeria⁸¹ and the definition of membership was a less contested issue. The very active participation of the committee members also accelerated the compilation of the register⁸².

⁷⁹ Mayson *et al* 1998

⁸⁰ Refer to section 4.2.1 (c)

⁸¹ This is in contrast to Elandskloof where the community was spread over the whole of the Western Cape. (Mayson *et al* 1998:453)

⁸² Personal observation.

Only twelve people in the Algeria⁸³ community did not have identity numbers, and thus most difficulties relating to this were avoided. Many of the members of the Algeria community had similar names and SPP did experience some problems with this, but for this research the names were linked to house numbers and identity numbers, which alleviated the problem.

This concludes the comparison between Algeria and Elandskloof. Algeria will be discussed in more detail in chapter 4. The following section will describe the elements, identified by the author, that contribute to security of tenure.

2.2.4 Security of Tenure in a Communal Property Association

One of the research objectives of this thesis is to investigate the use of LIS to reduce uncertainty in security of tenure in a CPA. The author believes that through identifying the elements that contribute to security of tenure in a CPA, more effective support can be provided by the LIS. This result will be achieved if the LIS is designed with consideration of these elements. After an exploration of relevant literature⁸⁴ the author identified the following elements that may contribute to security of tenure in a CPA.

a) Definition of Boundaries

The clear definition of the physical boundaries of a right contributes to security of tenure. Claims of encroachment or invasion can be rapidly resolved if the boundaries are clearly defined.

The permanent physical demarcation of boundaries, for example a fence or hedge, augments the mathematical definition of boundaries and contributes to the definition of the

⁸³ Personal observation.

⁸⁴ Simpson (1976), Larsson (1991), Simpson and Sweeney (1973), Bruce and Migot-Adholla (1994) and Mayson *et al* (1998).

community⁸⁶, via the grapevine. There is thus great awareness of all activities within the community. Thus, because the recording of claimants will occur in the public domain, it will reaffirm the knowledge of the whole community⁸⁷ and not only that of the holder of the right. Also, if necessary, the video recording of the process can be played back and watched repeatedly.

Publicity thus contributes to security of tenure, by ensuring that the rights of others are not infringed and by reaffirming existing rights.

d) Well-Established Authority

A well-established authority contributes to security of tenure by ensuring that the rights of members are not infringed upon. It is also necessary for resolving disputes effectively. The importance of a well-established authority is also substantiated by experiences in Elandskloof⁸⁸. However, the author views this as the weakest link in a CPA. Generally, the authority that resolves disputes is an external body. In a CPA, the authority is contained in the committee⁸⁹. There may thus be conflicting interests⁹⁰, because one of the committee members may very well be involved in the dispute. The CPA Act (28/96) does however make provision for external dispute resolution.

The allocation of rights also occurs through the committee and yet again this may result in fraudulent behaviour. The author suggests that the process of allocation should be clearly stated in the constitution or rules of an association. This is especially important in CPAs

⁸⁶ It was required that community members supply surveyors with identity documents during the collection of socio-economic information. The author noted that families expected the surveyors and already had identity documents readily available. They were also precisely aware of who the surveyors were and what they were doing. (field notes 17 September 1998)

⁸⁷ Refer to 6.2.3.

⁸⁸ Refer to section 2.2.1(b).

⁸⁹ The establishment of a committee is a requirement of the CPA Act (28/96). Refer to section 3.1.2.

⁹⁰ As was the case in Elandskloof. Refer to section 2.2.1 b (ii).

where there is a limited amount of a certain right available - for example the right to occupy a house.

To conclude: a well-established authority is important for effective dispute resolution and to maintain and protect the holders of rights, and thereby greater security of tenure is obtained.

e) Effective Dispute Resolution

In the section 3.1.6 dispute resolution was mentioned as one of the functions of the committee in a CPA. To recapitulate from the detailed discussion in section 3.1 relating to the CPA Act (28/96), the committee of a CPA⁹¹ first conducts dispute resolution, according to the constitution of the CPA. If no resolution is reached, the Director-General of Land Affairs may appoint a conciliator⁹².

Effective dispute resolution contributes to security of tenure by reaffirming rights and by reassuring other holders of rights - not only by reaffirmation of the authority of the committee, but also by the reassurance of the protection afforded to them.

f) Knowledge and Education

In the author's opinion, knowledge is the single greatest contributor to the reduction of uncertainty in security of tenure. If thorough knowledge exists of matters relating to land, uncertainty will be reduced. This is supported by experiences in the Elandskloof CPA⁹³, where opportunities for land grabbing emerged as a result of people not understanding the land tenure rules.

⁹¹ Refer to section 3.1 for a detailed discussion on the CPA Act (28/96).

⁹² CPA Act (28/96), s. 10 (3)

⁹³ M. Barry. pers. com. 22 September 1999.

Some of this knowledge can only be obtained by education through publicity, especially in the case of rights of members in a CPA. Also, publicity ensures the continued maintenance of this knowledge.

Two pools of knowledge can be identified. The information contained within the LIS and social knowledge. The LIS provides documentary, mathematical and video evidence of ownership and other matters germane to it. Social knowledge is a more elusive concept. As mentioned in section 2.2.4(c), the author observed that information spreads very fast in the Algeria community, via the grapevine. Hence there is great awareness of all activities within the community. The author believes that this community pool of knowledge will contribute to security of tenure by the application of social pressure. Thus, because all or most members of the community will be aware of their own rights and those of others, any change will immediately be noted. If this change is perceived as detrimental to the community as a whole, or as a threat to other individual rights, social pressure will come into play. This is, however, a matter for further research, since no observation of this could be made during this research.

The discussion above described elements that reduce uncertainty in security of tenure in a CPA, incorporating those that relate to the LIS, as identified by the author from a review of relevant literature. These elements included the clear definition of boundaries, the clear definition of rights, publicity, well-established authority, effective dispute resolution and knowledge and education. The contribution of these elements is diagrammatically shown in figure 2.4. The relationships between the elements are also indicated.

It can be seen in figure 2.4 that the clear definition of boundaries and rights supports effective dispute resolution and contributes to knowledge. A well-established authority is more likely to exercise effective dispute resolution. Also if effective dispute resolution does occur, the authority of the committee in a CPA will be reaffirmed. Finally, publicity contributes to the pool of knowledge.

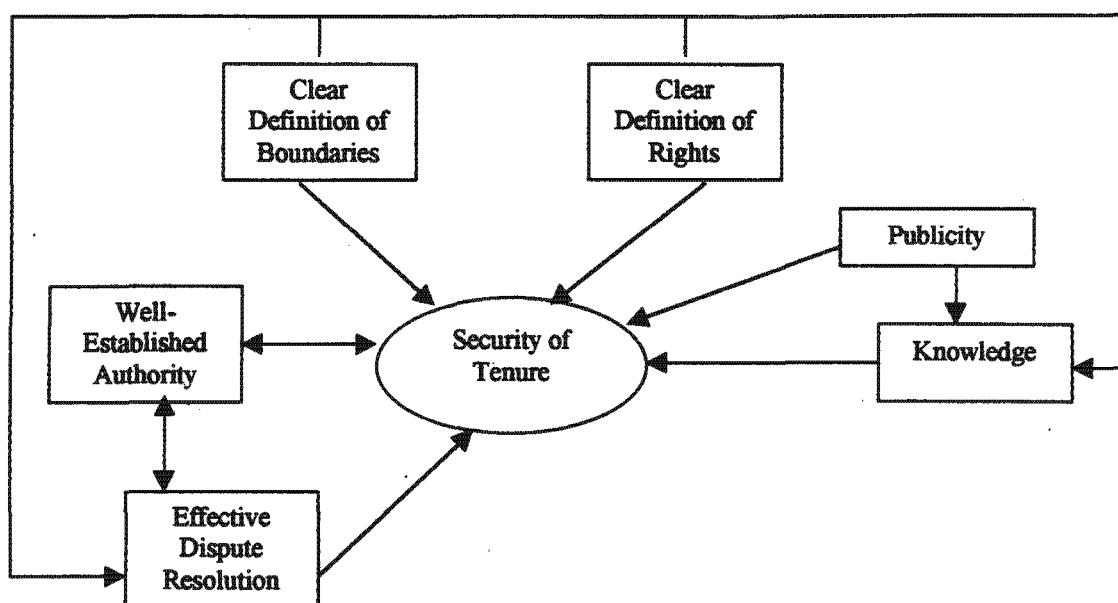


Figure 2.4: Elements that contribute to security of tenure in a CPA

In chapter 6 these elements will be revisited, and it will be shown how they contributed to the design of the land information system and to the research objective. That is, to build methodological theory pertaining to developing land tenure arrangements in a CPA, using LIS.

The following section discusses the three behavioural models used in this research to analyse the behaviour of community members towards the video evidencing system developed in this research.

2.2.5 Behavioural Models

The above discussion highlighted the difficulties experienced by the Elandsloof CPA, including continued land grabbing and conflict within the community. This behaviour constitutes a threat to the security of tenure of community members. The author believes that the addition of video evidence to the bundle of evidence⁹⁴ will assist with adjudication and dispute resolution. The premise behind the development of the video evidencing

⁹⁴ See section 2.1.11.

system is that if people are aware that what they have affirmed to be their rights is on record, they would be less likely to change this testimony.

However, it is important to determine the response of the community members towards the system, to determine if the community will participate. The author used three behavioural models to analyse the behaviour of the community towards the system. These are the theory of planned behaviour, technology acceptance model and the augmented technology acceptance model.

a) **The Theory of Planned Behaviour (TPB)**

The theory of planned behaviour⁹⁵ (TPB) predicts behaviour by determining the intention to perform the behaviour and has been used in information systems research to predict and explain whether an information system will be used or not⁹⁶. Intention is predicted by three factors. Attitude towards the behaviour, subjective norms (the individual's perception of social pressure to perform the behaviour) and perceived behavioural control (the individual's perception of his or her control over the performance of the behaviour).

Attitude towards the behaviour, subjective norms and perceived behavioural control are in turn determined by their respective beliefs. See figure 2.5.

Perceived behavioural control refers to the perceived ease or difficulty of performing the behaviour. It is also assumed that this factor reflects past experience as well as anticipated impediments and obstacles. The theory of planned behaviour does not deal directly with the amount of control a person actually has in a given situation; instead it contemplates the possible effects of perceived behavioural control on achievement of behavioural controls.⁹⁷

⁹⁵ Ajzen 1988:132

⁹⁶ Taylor and Todd 1995:561

⁹⁷ Ajzen 1988:132-133

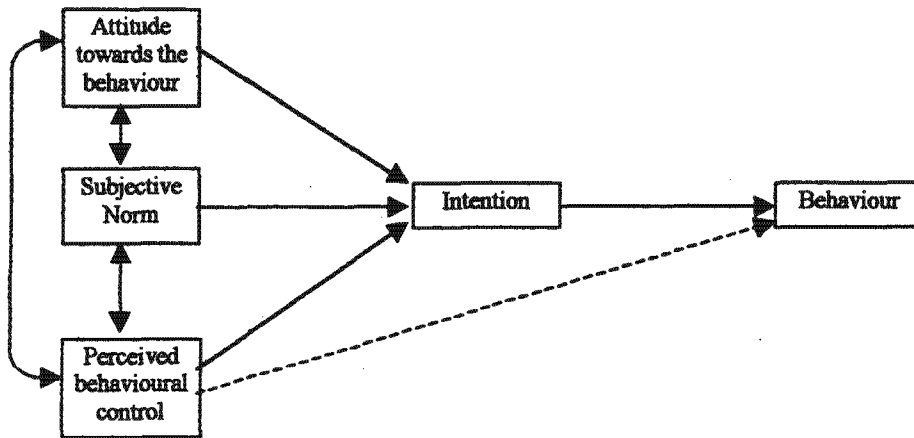


Figure 2.5: The Theory of Planned Behaviour⁹⁸

The above structural model shows two important features of the theory of planned behaviour. The first is that the theory assumes that perceived behavioural control has motivational implications for intentions. In other words, if a person believes that he/she does not have resources or the opportunity to perform certain behaviours, it will be unlikely that he/she will form strong behavioural intentions⁹⁹. An association between perceived behavioural control and intention that is not mediated by attitude and subjective norm can thus be expected. The arrow between perceived behavioural control and intention indicates this.¹⁰⁰

The second feature of the theory of planned behaviour is the possibility of a direct link between perceived behavioural control and behaviour. The performance of a behaviour often depends on the motivation to do so and on adequate control over the behaviour. It follows that perceived behavioural control could help predict goal attainment without considering behavioural intention. Thus behavioural control can influence behaviour indirectly through intentions, and it can also be used to predict behaviour.¹⁰¹

⁹⁸ Ajzen 1988:133

⁹⁹ This may be despite a favourable attitude or approval of referents.

¹⁰⁰ Ajzen 1988:133-134

¹⁰¹ Ajzen 1988:134

However in some situations perceived behavioural control is not very realistic. These situations usually occur when the person has little information about the behaviour, the requirements or available resources have changed, or new and unfamiliar elements have entered the situation. Under these conditions the measure of perceived behavioural control adds little to the accuracy of the behavioural prediction. The broken arrow in figure 2.5 indicates that the link between perceived behavioural control and behaviour only emerge when there is some agreement between the perceptions of control and the person's actual control over the behaviour.¹⁰²

The theory of planned behaviour recognises the fact that many behaviours are not under complete volitional control and introduces the concept of perceived behavioural control to account for these behaviours¹⁰³.

The theory of planned behaviour will be used in the analysis of the behaviour of the community towards the video evidencing system in section 6.2.2. The relevance of TPB will become clear in section 2.2.6. The next section discusses the technology acceptance model and the augmented technology acceptance model.

b) The Technology Acceptance Model (TAM)

This discussion relates to the analysis done in chapter 6. The technology acceptance model (TAM) was used to analyse the acceptance of the video evidencing system by community members.

The technology acceptance model (TAM) was introduced by Davis *et al*¹⁰⁴ as an adaptation of the Theory of Reasoned Action¹⁰⁵ (TRA), and is specifically aimed at

¹⁰² Ajzen 1988:134

¹⁰³ Ajzen 1988:136

¹⁰⁴ Davis *et al* 1989:983

explaining computer usage behaviour. TAM uses TRA as a theoretical basis for specifying the causal linkages between perceived usefulness and perceived ease of use; and user's attitudes, intentions and actual computer adoption behaviour¹⁰⁶.

Perceived ease of use is according to Davis *et al*¹⁰⁷, "the degree to which the prospective user expects the target system to be free of effort", and perceived usefulness is defined as "the prospective user's subjective probability that using a specific application system will increase his or her job performance within a organisational context".

Perceived usefulness is influenced by perceived ease of use¹⁰⁸, as can be seen in figure 2.6. Both perceived usefulness and ease of use predict attitude towards using the system¹⁰⁹. The behavioural intention to use the system is jointly determined by perceived usefulness and attitude toward using the system¹¹⁰. Actual use of the system is predicted in turn by the behavioural intention to use¹¹¹.

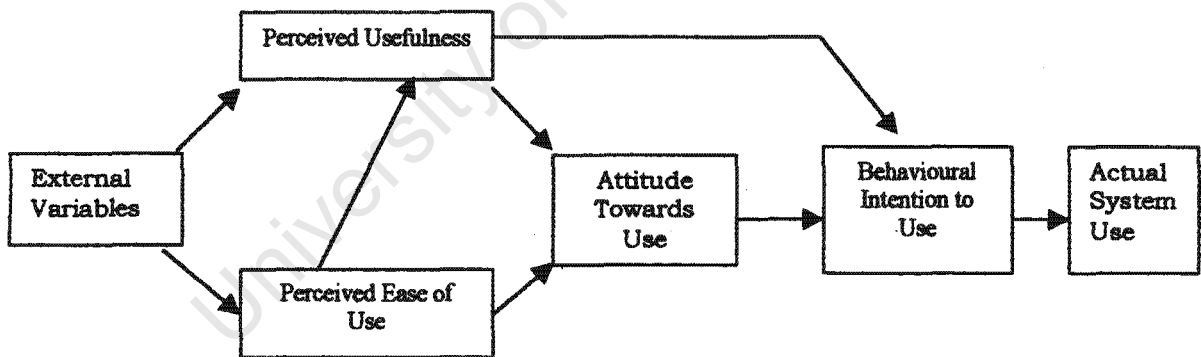


Figure 2.6: The Technology Acceptance Model¹¹²

¹⁰⁵ Refer to I. Ajzen (1988) *Attitudes, Personality and Behaviour* for a description of the theory of reasoned action. The theory of planned behaviour is a special case of the theory of reasoned action. TRA assumes volitional control over behaviour.

¹⁰⁶ Davis *et al* 1989:983

¹⁰⁷ Davis *et al* 1989:985

¹⁰⁸ Davis *et al* 1989:987

¹⁰⁹ Mathieson 1991:175

¹¹⁰ Davis *et al* 1989:988

¹¹¹ Davis *et al* 1989:987-988

¹¹² Davis *et al* 1989:985

TAM does not include the influence of social and behavioural control factors. These factors have been found to have significant influence on Information Technology (IT) usage behaviour according to Taylor and Todd¹¹³. They included subjective norm and perceived behavioural control in their augmented TAM.

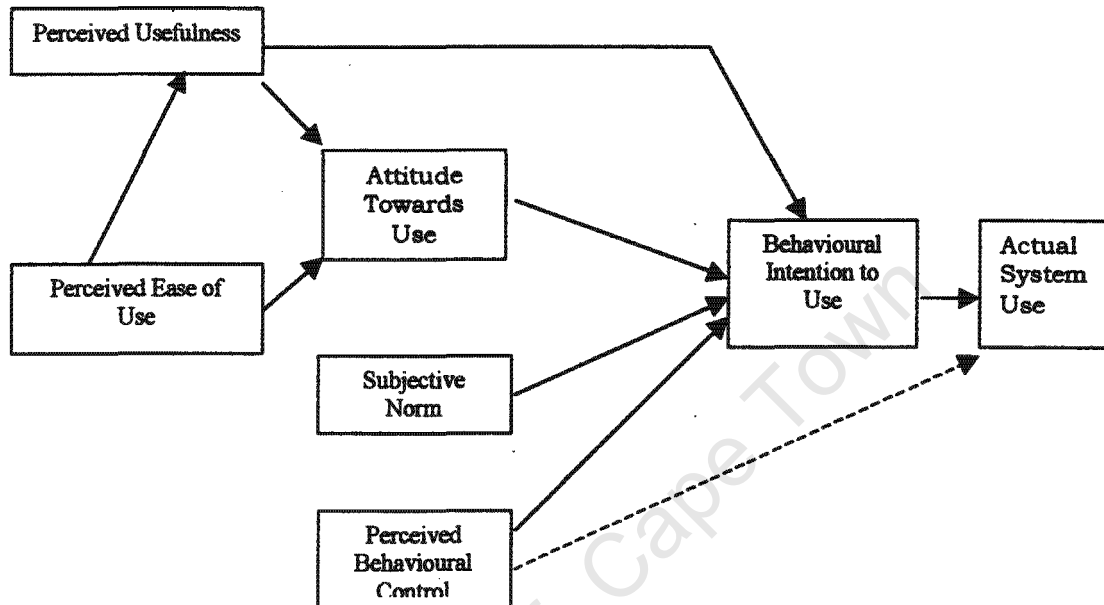


Figure 2.8: Taylor and Todd's Augmented TAM

This concludes the discussion on the behavioural models employed in the analysis section of this research. The following section discusses the relevance of the three behavioural models in this research.

2.2.6 Relevance to Research

As mentioned in the introduction of section 2.2.5, it was necessary to analyse the behaviour of community members towards the video evidencing system, to determine their acceptance of the system. To this end the TPB and TAM were used. The validity of using TAM is self-evident since it predicts behaviour towards technology, i.e. video evidencing. A few adaptations in the terminology of the model to better suit the video evidencing

¹¹³ Taylor and Todd 1995:526

system is discussed below. It was decided to include TPB and the augmented TAM, because the TAM does not include subjective norm as a behavioural control. The author believes that subjective norm, the individual's perception of social pressure to perform the behaviour, plays an important role in a community¹¹⁴ and is a factor that can be manipulated to ensure that the entire community participate in video evidencing. This is discussed in section 6.2.2.

Although the TAM was developed to explain computer usage behaviour, the model can be adapted to explain the acceptance of the video evidencing system by a community¹¹⁵. In the case of the video evidencing system, perceived ease of use can be defined as the degree to which the claimant expects the system to be free of effort and perceived usefulness as the claimant's subjective probability that delivering evidence while being video recorded will be of advantage to him or her. These two components determine the attitude of the claimant towards the video evidencing and in turn determines the claimant's behavioural intention of participating.

The technology acceptance model, the theory of planned behaviour and the augmented technology acceptance model will be discussed in the analysis in section 6.2.2.

The next chapter will discuss the CPA Act (28/96) and other communal entities in South African law.

2.3 SUMMARY

This chapter achieved the following. Section 2.1.1 of chapter 2 defined various terms that were employed in this thesis. The operational definitions included land information

¹¹⁴ This is supported by the observations noted in the discussion of the Algeria case study in chapter 4. This relates to the group in the community that did not want to join the process of creating a CPA, but eventually did, because of social pressures from the farmer and the rest of the community.

¹¹⁵ Refer to section 6.2.2.

systems, ownership, bundle of rights, land tenure, security of tenure, land management, land administration and local level cadastral system. Adjudication, evidencing and video evidencing were also defined in this section.

This was followed by a description of Elandskloof, the first finalised communal property association. The history of the Elandskloof community was reviewed first and compared to that of Algeria, the community that was used as a case study for this research. A discussion of Fourie's¹¹⁶ social change model followed, and Elandskloof was considered within the context of this theory. Then Elandskloof and Algeria were compared.

The literature review provides support for the introduction of a LIS to support the creation of CPAs, guidelines for future attempts and information for the development of the LIS created during this research. Also, the inclusion of Elandskloof provides some external validity for the Algeria case study.

This section was followed by a description of the various elements that contribute to security of tenure within a CPA. The three behavioural models - the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model - employed in the analysis of the behaviour of the community members towards the video evidencing system, were then discussed.

The topics raised relating to the process of creating a CPA in chapter 2 will be explored in more detail in chapter 4 (The Algeria Case Study). In chapter 6 the analysis obtained from the behavioural models is discussed. Chapter 2 also provided information that assists in the fulfilment of the research objectives of identifying areas in a CPA that can benefit from the support of a LIS and contributing to the methodology of giving support to the creation of a CPA by using LIS.

¹¹⁶ Fourie 1993

3. LEGAL COMMUNAL LAND TENURE ENTITIES

This chapter discusses CPAs and other South African communal land tenure entities. The chapter consists of two parts. The first part deals with communal property associations. This includes a discussion on the process a community has to go through to register the CPA, the constitution, membership and rights in the CPA. This discussion assists in identifying the areas in the process of creating a CPA that can benefit from the support of a LIS. These areas fall into three categories, that is, juridical¹, fiscal and administration².

The second part of the discussion considers other communal holding systems and the guidelines that these systems may provide for the creation, management and administration of a CPA. This part also includes a discussion on reasons behind the rejection of these communal holding systems in favour of the CPA Act (28/96). The motivation behind the government's rejection of these entities is also considered.

3.1 COMMUNAL PROPERTY ASSOCIATIONS

As mentioned in section 1.1, the Communal Property Associations Act No.28 of 1996 established a new form of legal body through which communities can collectively acquire, hold and manage land according to a written constitution. The discussion starts by considering the motivations behind the creation of the CPA Act (28/96) in terms of the guiding principles of the land policy development process, as suggested in the White Paper on Land Policy³.

This is followed by general description of the CPA Act (28/96). The process of registering a CPA is then examined, followed by a discussion on matters related to the constitution of the CPA. Membership in the CPA, an issue of intrinsic difficulty which was discussed in

¹ In this research, the juridical area mainly relates to adjudication.

² Refer to section 6.3.2.

³ DLA 1997

section 2.2.1(b), is then investigated. The three above issues, that is the creation of the CPA, the constitution and the definition of membership, contribute to the fulfilment of the research objective of identifying areas in the process of creating a CPA that may benefit from the support of LIS and audio-visual technology.

3.1.1 Motivations behind the creation of the CPA Act

The Communal Property Associations Act needs to be seen in context of the South African land policy as set out in the White Paper on Land Policy⁴. The White Paper⁵ states that the following principles must guide the policy development process and the programme of action:

- '- tenure reform must move towards rights and away from permits;
- tenure reform must build a unitary non-racial system of land rights for all South Africans;
- tenure reform must allow people to choose the tenure system which is appropriate to their circumstances;
- all the tenure systems must be consistent with the Constitution's commitment to basic human rights and equality;
- a rights based approach and adjudicatory principles have to be adopted which recognise and accommodate *de facto* vested rights (i.e. those which exist on the ground);
- new tenure systems and laws should be brought in to line with the situation as it exists on the ground and in practice. '

The following discussion relates the above principles to the CPA Act. It is in the author's view that it is important to understand the principles behind the CPA Act (28/96), to ensure that they are maintained down to the operational level.

⁴ DLA 1997

⁵ DLA 1997:viii

The first and second principles, mentioned earlier in this section, embody the driving force and vision of the land policy, that of conferring rights to persons who historically had none and building a system of land rights that are inclusive of all South Africans. The fourth principle of ensuring that the tenure system is consistent with the Constitution's commitment to basic human rights and equality embodies the basic human right of security of tenure, but also acknowledges the fact that people may be excluded due to discrimination other than that of race. For example, in a number of countries women have been discriminated against under a variety of tenure types⁶. Not only did they not have rights of ownership (and thus precarious tenure security), but they were also excluded from the management structures⁷. One of the focus areas of the tenure reform was thus to obtain rights for women by moving away from the conventional head of household ownership. This is supported by the principle of equality of membership, as stated in section 9 (1)(b) of the CPA Act (28/96).

On the practical level, it was recognised in the White Paper⁸ that new tenure arrangements cannot be forced on a community, but that the system must conform to their needs. This is a well-researched area, where the final conclusion has always been that if a system is forced on a community, it will be rejected or modified in practice⁹. The new legislation thus had to be flexible enough to model *de facto* rights while ensuring the sustainability of the tenure system. This concept is supported by the CPA Act¹⁰, that states "different classes shall not lead to different rights to land or resources among those members of the community who occupy the land, where no such differentiation existed previously."

To allow people to choose a tenure system appropriate to their situation, the necessary legislation had to be provided. Individual ownership is a very well developed tenure

⁶ Fortmann 1998:148

⁷ Fortmann 1998:151

⁸ DLA 1997:viii

⁹ Cross C. *Structuring Land tenure in a New Society: The Property Rights Question in Rural African Land Systems* Photocopy, Unpublished mimeo (Law Short Loan Library, University of Cape Town, 2)

¹⁰ CPA Act (28/96), s. 9(1)(b)(ii)(bb)

system in South Africa and legally documented communal systems do exist, for example in terms of the Sectional Titles Act (95/86). However, the White Paper on Land Policy¹¹ states that these systems do not necessarily satisfy the needs of communities that may consider adopting a communal system. The reason for the inadequacy of existing communal legislation will be discussed in section 3.2.

Overall, the new law had to accommodate the situation on the ground, while protecting the rights of all concerned and assuring security of tenure. The Communal Property Associations Act (28/96) was thus drafted with these principles in mind. For this research, the principles were employed in the development of the technical support for the creation process of the Algeria CPA¹².

3.1.2 The Communal Property Associations Act No. 28 of 1996

The primary function of a CPA is to hold property and to perform administrative functions within the association¹³. A body (the committee) is created to deal with the running of the CPA and all constitutional matters are decided at general meetings¹⁴. A set of rules¹⁵, conforming to the constitution of the CPA can also be created by the community, and can include all issues outside the constitution or the refinement of points in the constitution. For example, the rules¹⁶ can include matters of general management in the settlement, prohibiting littering, the lighting of fires without permission or any action that may intrude upon the rights of neighbours, e.g. loud music, etc.

¹¹ DLA 1997:63

¹² Refer to the discussion on land information systems in section 5.2 and 6.3.

¹³ CPA Act 28/1996: Preamble

¹⁴ CPA Act 28/1996: s 5(2)(e)

¹⁵ CPA Act 28/1996: s 9(1)(b)(i)

¹⁶ Notes on Workshop, 24 July 1998.

The acquisition and management of the property is decided through a democratic process according to the constitution of the CPA¹⁷. All members have voting rights and principles of equality and non-discrimination are followed¹⁸.

The CPA Act (28/96) does confer rights to a community, although ownership rests in the juristic person of the association and individuals in the community are entitled to various use rights by their membership¹⁹. A member may have the right to live in a house or the right to cultivate part of the property. The use rights of the members are not stipulated in the CPA Act (28/96), and the only mention in connection with this is that classes of membership²⁰ can be used to allocate use rights.

The CPA Act (28/96) also stresses the importance of recognising existing rights. No one may be deprived of (informal) rights that existed before the creation of the CPA. This is stated clearly in the CPA Act: 'where different classes of membership are created... and a community already occupies land, different classes shall not lead to different rights to land or resources among those members of the community who occupy the land, where no such differentiation existed previously;'²¹. The CPA Act (28/96) thus ensures that the *de facto* situation is recognised²².

The drafting and adoption of the constitution must be done democratically and the DLA supplies officers to ensure that this occurs and that no one is unfairly excluded from the process²³.

The above discussion is a general description of the CPA Act (28/96). This base of information will assist in the comprehension of the discussion on the registration process

¹⁷ CPA Act 28/1996: s 8(6)(c)

¹⁸ CPA Act 28/1996: s 9(1)(a) & (b)

¹⁹ CPA Act 28/1996: s 9(1)(c)

²⁰ CPA Act 28/1996: s 9(1)(b)(ii)

²¹ CPA Act 28/1996: s 9(1)(b)(i)(bb)

²² Refer to section 3.1.1

²³ CPA Act 28/1996: s 7(2)

and membership of a CPA. It also assists in the discussion on other South African communal entities, in section 3.2, and the case study in chapter 4.

The following sub-section describes the registration processes that a community will have to go through to use the CPA model. This provides further guidelines for the contributions to the methodological theory of using LIS for the creation of a CPA²⁴. These guidelines relate mainly to the appropriate moments for data collection for the LIS in the registration process.

3.1.3 Registering a CPA

Before a community embarks on the process of creating a CPA, they must first determine if they comply with the directives of the CPA Act (28/96). There are four instances where the CPA Act (28/96) applies and all of them allow the acquisition, donation or restitution of property or rights in land, but on the condition that a CPA is formed²⁵.

As set out in the CPA Act²⁶, the Act applies to:

- “- a community who has been dispossessed, but is entitled to restitution under the Restitution of Land Rights Act (22/1994).
- a community who is entitled to or is receiving property or other assistance from the State.
- a community who received property by donation or acquisition or through some other means. In this case the Minister of Land Affairs needs to be satisfied that the community is disadvantaged and that the formation of the CPA will be in the public interest.

²⁴ Refer to discussion on the methodological theory developed in this research in section 6.5.

²⁵ CPA Act 28/1996: s 2(1)

²⁶ CPA Act 28/1996: s 2(1)

- A community that acquired land or rights to land. With the condition that the Minister must approve the formation of the CPA, after being convinced that the community is disadvantaged, and that it is in the public interest.”

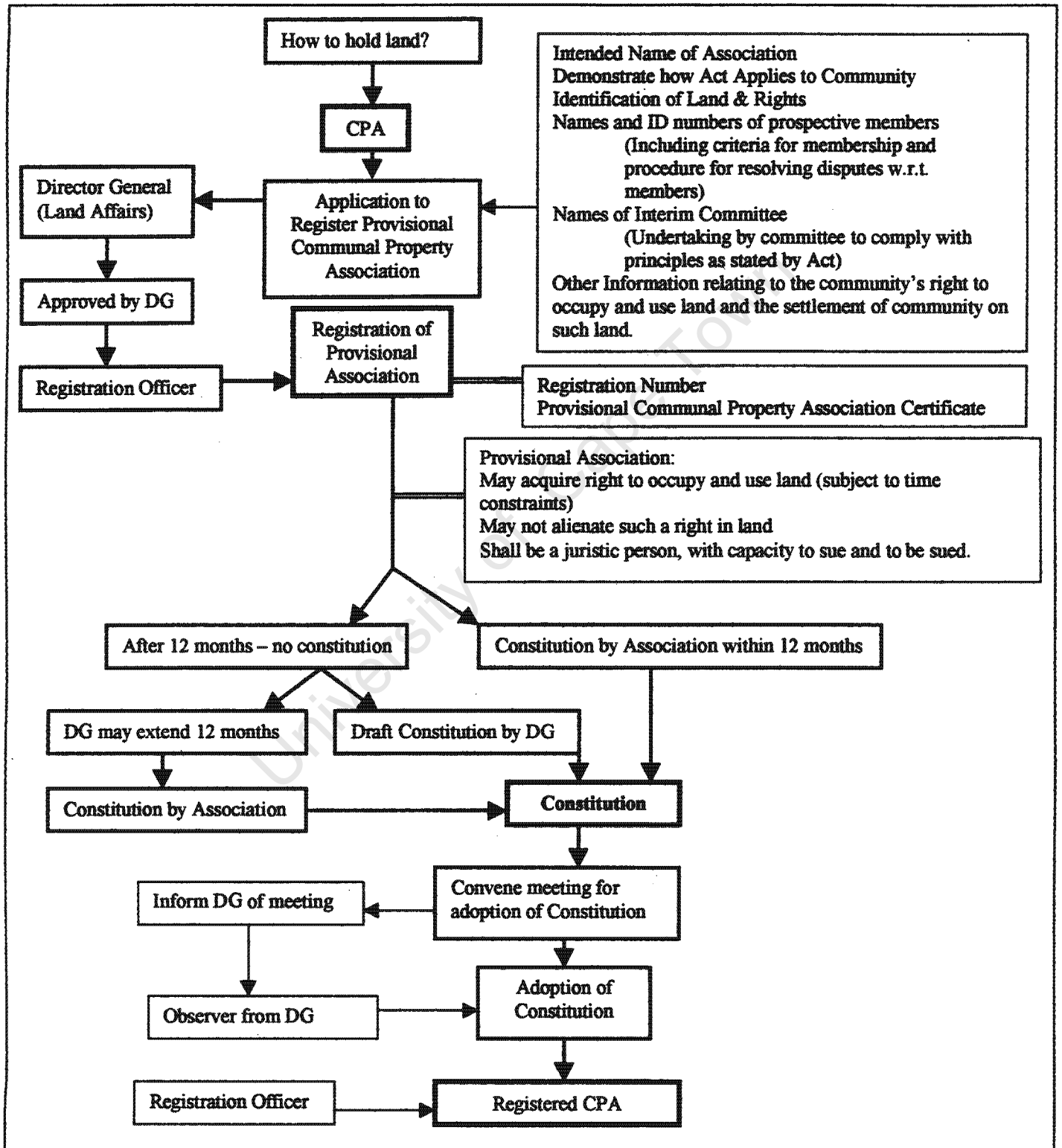


Figure 3.1: The Process of Registering a CPA

The CPA Act (28/96) can also be used when a community has, prior to the commencement of the Act, established a similar entity through democratic process²⁷. The Director-General of Land Affairs (DG) may then exempt such a community from going through the process of drafting and adopting a constitution²⁸ and the process of registering a communal property association. After the procedure that the community went through to form the entity is examined and approved by the DG, the entity will be registered as a CPA.²⁹

Once a community has shown that they fulfil the requirements of the CPA Act (28/96) in terms of beneficiaries, the community can start the process of registration. The process is graphically portrayed in figure 3.1 and discussed in the following paragraphs.

Once the community has decided to use the CPA Act (28/96), they have to submit an application to the Director-General (DG) of Land Affairs to register as a provisional association³⁰. The application must contain the information set out in the flowchart (figure 3.1); the most important being the information that demonstrates how the CPA Act (28/96) applies to the community, the identification of the intended property of the association and the prospective members of the association³¹. If the DG is satisfied, the Registration Officer (an officer of the Department of Land Affairs) registers the provisional association³². The provisional association may then acquire the right to occupy and use land. Rights in land may however not be alienated³³. The association, a juristic person, then acquires the capacity to sue and to be sued³⁴.

²⁷ This applied to the Elandskloof restitution case. Refer to the discussion on the Elandskloof CPA in section 2.2.1.

²⁸ This only applies if the community already drafted and adopted a constitution.

²⁹ CPA Act 28/1996: s 2(5)

³⁰ CPA Act 28/1996: s 5(1)

³¹ CPA Act 28/1996: s 5(2)

³² CPA Act 28/1996: s 5(3)

³³ CPA Act 28/1996: s 5(4)

³⁴ CPA Act 28/1996: s 5(4)(c)

The provisional association may start preparing a draft constitution and apply for assistance in doing this from the DG, who can then appoint an officer of the DLA or someone else to assist³⁵. The provisional association can apply for the adoption of the constitution, upon the completion of the process³⁶. The DG will then appoint an officer to witness the adoption and to ensure that the adoption occurs through a fair, democratic process³⁷. Any complaints of exclusion may also be submitted at this stage and the DG may refuse to register the association until such matters have been resolved³⁸.

The application to register the association and the constitution is then submitted to the DG, and will then be examined to ensure that the association, the process and the constitution comply with the Act³⁹. If the DG is satisfied, the association will be registered; if not, the DG will assist the community to resolve the matters that prevented registration⁴⁰.

The drafting of the constitution is discussed in the next section.

3.1.4 The Constitution of a CPA

The principles⁴¹, according to the Act, which must be accommodated in the constitution, are as follows:

- Decision-making processes must be fair and inclusive.
- Equality must be ensured in the membership of the association. (See section 3.1.6 for details.)
- Democratic processes must be used:

All members of the association have the right to be given adequate notice of general meetings, to attend, speak and vote at the general meetings, to have access to the

³⁵ CPA Act 28/1996: s 6

³⁶ CPA Act 28/1996: s 7(1)

³⁷ CPA Act 28/1996: s 7(2)

³⁸ CPA Act 28/1996: s 7(4)

³⁹ CPA Act 28/1996: s 8

⁴⁰ CPA Act 28/1996: s 8(3) & (4)

⁴¹ CPA Act 28/1996: s 9

minutes of general meetings, the financial records of the association and the constitution.

- There must be fair access to the property of the association:

The property under the auspices of the association must be managed for the benefit of the members of the association in a participatory and non-discriminatory manner. A member may not be excluded from access or use of property that he or she has a right to, unless it is in conflict with the constitution. The association may not sell or encumber property of the association without the consent of a majority of the association at a general meeting.

- Accountability and transparency must be promoted:

The accountability of the committee to the members of the association is encouraged and they must exercise their powers in the best interest of all the members of the association. The association must have an account in its name in which to deposit cash and there must be effective management and recording of all transactions of the association. The association may not purchase shares other than those listed on the stock exchange. The financial records of the association are also subject to an annual independent verification.

Other matters⁴² that must be resolved in the drafting of the constitution are summarised in Appendix I.

In the creation of the CPA, the above stated principles must also be followed. The author believes that the principle of accountability and transparency must also be abided by in the methodological theory of using a LIS to support the creation process of a CPA. This is one of the research objectives stated in section 1.2.

⁴² CPA Act 28/1996: Schedule

The discussion in section 2.2.1(b) deals with the difficulties of establishing membership in a CPA. The following section investigates the guidelines decreed by the CPA Act (28/96) for establishing membership.

3.1.6 Membership in the CPA

The CPA Act⁴³ stipulates that the application to the Director-General of Land Affairs for registration of a provisional association must contain a list of names and if possible identity numbers of the intended members of the provisional association. However, in cases where this is not reasonably possible, the CPA Act (28/96) does provide the measure that the application must contain the principles for identifying others that may be entitled to membership and also the procedures that will be followed to resolve disputes regarding the rights of others to membership⁴⁴. The Act also requires that there must be no discrimination in terms of race, gender, sex, ethnic or social origin, colour, sexual orientation, age, disability, religion, conscience, belief, culture or language, against any person who may be a member or who may qualify as a member⁴⁵.

In the case of associations that decided to create different classes of membership, the basis for the differentiation must be consistent with the principles of equality as promoted in the CPA Act (28/96). All the members within a class must have equal rights. Communities who already occupy land and whose members are exercising informal use rights may not cause the loss of these rights due to the differentiation in classes.⁴⁶

Other matters that need to be included in the constitution include the issues of:

- if membership is based on individuals or families;

⁴³ CPA Act 28/1996: s 5(2)

⁴⁴ CPA Act 28/1996: s 5(2)

⁴⁵ CPA Act 28/1996: s 9(1)(b)(i))

⁴⁶ CPA Act 28/1996: s 9(1)(b)(ii)

- if membership is family based, how will the family be represented in the association;
- whether members may alienate their rights, and if alienation is allowed, to whom may the rights be transferred;
- what happens to the rights of a member upon his or her death.⁴⁷

The membership of the association may only be revoked on reasonable grounds, and only after a fair hearing during which the member was given an opportunity to defend him or herself⁴⁸. The grounds for termination and the procedures must be included in the constitution, as well as what happens to the rights of the terminated member⁴⁹. If termination of membership does occur⁵⁰, the association must provide the DG with information regarding the termination⁵¹.

The matters discussed above have a major impact on the creation of the CPA, the development of the land tenure arrangements in a CPA and the design of the LIS. These matters include the classes of membership, family versus individually based membership, the alienation of rights and the right of inheritance. The LIS must also enable the removal of a member from the membership list.

The following section will examine existing legislation that uses a communal system of tenure. The focus of this investigation will be to consider why these communal systems were rejected in favour of the CPA Act (28/96) and to determine if there are any lessons to learn that may assist the creation and administration of a CPA.

⁴⁷ CPA Act 28/1996: s 8, 11-12

⁴⁸ CPA Act 28/1996: s 9(1)(a)(iii)

⁴⁹ CPA Act 28/1996: Schedule, s 9

⁵⁰ The member in question may appeal to the DG, and if s/he still feels aggrieved, may then appeal to the Minister. (CPA Act 28/1996: s 16)

⁵¹ CPA Act 28/1996: s 11(9)

3.2 EXISTING MECHANISMS FOR HOLDING LAND COMMUNALLY

In the previous section it was mentioned that the Department of Land Affairs concluded that the “established models [of communal ownership] are inappropriate and their administrative requirements too complex for less experienced and underresourced communities.”⁵² Although these models were judged as not appropriate (the author will analyse the reasons for this at the end of this section) they have been in use for more than ten years, and hold lessons for communities using the CPA Act (28/96).

The Sectional Titles Act (95/86), the Share Blocks Control Act (59/80), trusts⁵³ and section 21 of the Companies Act (61/73) are considered in the following discussion.

3.2.1 Sectional Titles Act No. 95 of 1986

The Sectional Titles⁵⁴ Act⁵⁵ was created to allow the division of buildings into sections and common property. Thus ownership of a section (with the right to generate funds by means of mortgage bond etc.) and joint ownership of communal land (which is maintained by charging a levy⁵⁶) could be acquired⁵⁷. This concept of ownership deviates from the fundamental legal principle of South African law that the owner of the land on which a building stands is also the owner of the building⁵⁸. Composite ownership, namely, separate ownership of a section and an undivided share in common property was therefore a new concept introduced in the Sectional Titles Act 66 of 1971⁵⁹.

⁵² DLA 1997: 62

⁵³ Trust Property Control Act (57/88)

⁵⁴ Sectional Titles are also known as strata titles (Australia), condominium titles (USA) or apartment titles (New Zealand). Lecture notes: SUR317W (Land Law and Land Tenure Systems).

⁵⁵ Sectional Titles Act (95/86) 1986:3

⁵⁶ This is equivalent to the membership fees of a communal property association.

⁵⁷ Sectional Titles Act 95/1986: Preamble

⁵⁸ Hutchison *et al* 1991:302

⁵⁹ Hutchison *et al* 1991:302

The Sectional Titles Act (95/86) also introduced simplified procedures for the acquisition and transfer of ownership of sections and common property⁶⁰. No new diagram or title deed was necessary as in conventional transfers; only an endorsement on the original sectional title deed⁶¹ was required. Endorsements were subsequently stopped, because the Chief Registrar of Deeds felt that titles were becoming too cluttered⁶².

The body corporate is the controlling body of a sectional title scheme and all owners of sections immediately become members of this body⁶³. Ownership thus determines membership. Levies⁶⁴ are also collected from members for the maintenance of the scheme.

Management rules and special rules⁶⁵ govern the actions of the body corporate and voting is done by means of a participation quota, determined from floor area⁶⁶. A sectional title scheme thus does not promote the concept of one equal vote per person and goes against the guidelines of the White Paper that states that decisions must be made in "democratic processes so that the interests of a minority cannot lead to the dispossession of the rights of others"⁶⁷.

The participation quota vote may be one of the aspects of sectional title schemes that caused it to be rejected in favour of the Communal Property Association Act (28/96). This will be considered in section 3.2.5.

The following section discusses the Share Blocks Control Act 59 of 1980, a precursor of the Sectional Titles Act (95/86).

⁶⁰ Hutchison *et al* 1991:302

⁶¹ Sectional Titles Act 95/1986: s 15(1)

⁶² M. Barry, pers. com. 22 September 1999

⁶³ Sectional Titles Act 95/1986: s 35(1) & 36(1)

⁶⁴ Sectional Titles Act 95/1986: s 37(1)

⁶⁵ The management rules of a sectional title scheme can be compared to the constitution of a CPA.

⁶⁶ Sectional Titles Act 95/1986: s 35(2) & 32(1)

⁶⁷ DLA 1997:33

3.2.2. Share Blocks Control Act 59 of 1980

A share block scheme⁶⁸ is similar to a sectional title scheme, and can be converted to such a scheme⁶⁹. As with a sectional title scheme, levies are charged for the maintenance of the share block scheme⁷⁰. Voting in a share block company is done according to shares⁷¹ and shares are allocated in terms of parts of the immovable property⁷² acquired by members⁷³. This is similar to the participation quotas used in the Sectional Titles Act⁷⁴ for voting. The memorandum or articles⁷⁵ of a share block company can be viewed as similar to the rules in a sectional title scheme.

The main difference between a sectional title scheme and a share block company is that share block companies fall under company law, for example the use agreements of a share block company is lodged with the Registrar of Companies and not the Registrar of Deeds⁷⁶. Also, a section owner in sectional title scheme can raise a mortgage against a section⁷⁷, but a shareholder cannot bond the space allocated for usage to a shareholding⁷⁸.

The Share Block Control Act⁷⁹ can thus be another option for communities wanting to hold land communally, but as with sectional title schemes, the Land Policy White Paper⁸⁰ believed the Act to be inappropriate and the administrative procedures too complex for communities. Share block companies and sectional title schemes were thus rejected in favour of the CPA Act (28/96). This is contemplated in section 3.2.5.

⁶⁸ Share Blocks were actually introduced before Sectional Titles.

⁶⁹ Share Blocks Control Act 59/1980: s 23

⁷⁰ Share Blocks Control Act 59/1980: s 13

⁷¹ Share Blocks Control Act 59/1980: s 3(1)(b)

⁷² Immoveable property means land and any building upon the land. (Share Blocks Control Act 59/1980: s 1(viii))

⁷³ Share Blocks Control Act 59/1980: Schedule 2, s 12 (c)

⁷⁴ Sectional Titles Act 95/1986: s 35(2) & 32(1)

⁷⁵ Companies Act 61/1973: s 59

⁷⁶ Share Blocks Control Act 59/1980: s 7(5)

⁷⁷ Hutchison *et al* 1991:302

⁷⁸ Hutchison *et al* 1991:241-242

⁷⁹ Share Blocks Control Act 59/1980

⁸⁰ DLA 1997:63

3.2.3 Trusts

Unlike share block companies, sectional titles and section 21 companies, there have been attempts in the past to use trusts as a mechanism for the holding of land by communities. However, trusts have proved to be difficult to sustain. De Wet⁸¹ states that 15 months after the establishment of Trust One in the Eastern Cape, there were possible indications of weakening in the trust. These mainly involved problems due to undefined duties and responsibilities of members⁸². Other difficulties arose because the members of the trust accepted that the land belongs to them, but they did not feel as if they were in charge of the farm and administration⁸³. This uncertainty emerged because of suggestions and interventions of the Department of Land Affairs, which was seen as interference by the members of the trust⁸⁴. Despite these problems it is de Wet's opinion, that Trust One still has a chance of success⁸⁵.

An adjusted form of trust, the Community Land Trust⁸⁶ has been experimented with in Kenya, and in one case study was found to be very successful⁸⁷. The researchers however caution that this may have been due to the particular nature of the community involved and does not guarantee replicability⁸⁸.

It can be seen from this discussion that trusts are used at present as a mechanism by communities to hold land. It was however not viewed as a viable option by the government. This is discussed at the end of this section.

⁸¹ de Wet 1998:4

⁸² de Wet 1998:4-5

⁸³ de Wet 1998:7

⁸⁴ de Wet 1998:8

⁸⁵ de Wet 1998:9

⁸⁶ The Community Land Trust (CLT) model has its roots in India and was developed in the United States. (Bassett and Jacobs 1997:217)

⁸⁷ Bassett and Jacobs 1997:215

⁸⁸ Bassett and Jacobs 1997:228

3.2.4 Companies Act No. 61 of 1973 Section 21

A final possible option for communities who wish to hold land communally is an Association Incorporated under Section 21 of the Companies Act⁸⁹.

An association not for gain may be formed under section 21 of the Companies Act (61/73). The requirements for a company of this nature are as follows. The company must have the main object of promoting religion, arts, sciences, education, charity, recreation, or any other cultural or social activity or communal group interest. Any profit of the company must be applied to promoting the main object and the payment of dividends to its members is prohibited.⁹⁰

The company is managed according to a memorandum. The memorandum includes provisions dealing with the income and property and its application towards the main object. The prohibition of paying members dividends elaborates to include any portion paid or transferred, directly or indirectly, in any form (dividend or bonus etc.). The only way that a member may receive remuneration from the company is by rendering services to the association.⁹¹

Another provision that must be stated in the memorandum is that with regards to the deregistration or dissolution of the assets of the association, these must be transferred to another association or institution with a similar main object.⁹²

It can be seen that an association formed under section 21 of the Companies Act (61/73) can be modified to suit the land holding requirements of a community. This will be considered in the following section.

⁸⁹ Companies Act 61/1973

⁹⁰ Companies Act 61/1973: s 21 (1)

⁹¹ Companies Act 61/1973: s 21 (2) (a)

⁹² Companies Act 61/1973: s 21 (2) (b)

From the above discussion it can be seen that other options for holding land communally do exist. However, the government viewed these communal holding entities as inappropriate⁹³ options for the communities targeted by the Reconstruction and Development Programme. The following section will consider the possible reasons for the conclusions drawn by the government.

3.2.5 Analysis of Legal Communal Land Tenure Entities

This section will analyse the communal land tenure entities discussed above. The analysis will first be done in terms of the perspective of the government and then according to the opinions of the author.

a) Sectional Title Schemes

There are many similarities between the Sectional Titles Act (95/86) and the CPA Act (28/96). Both of these allow communal ownership with individual access to parts of the property. The body corporate of a sectional title scheme is analogous to the committee of a CPA. Both entities have rules for the management and administration of the property. In a CPA these are mostly contained in the constitution, with additional rules relating mainly to conduct⁹⁴. Finally, both systems require a fee for maintenance.

The differences between the two acts may provide the motivation for the rejection of the Sectional Titles Act (95/86) by the Land Policy White Paper⁹⁵. The first difference is that membership in a sectional title scheme is a result of ownership, whereas ownership in a CPA is obtained through membership⁹⁶. The Sectional Titles Act (95/86) thus would not

⁹³ *Land Policy White Paper* DLA 1997:63

⁹⁴ Refer to section 4.1.2

⁹⁵ DLA 1997

⁹⁶ CPA Act 28/1996: s 5

allow members in the scheme who do not own sections, but the CPA Act (28/96) is flexible enough to accommodate different types of members⁹⁷.

The second is that votes in a sectional title scheme are determined by participation quota, as opposed to the CPA, which allows each member an equal vote within his or her class. The author believes that the use of a participation quota⁹⁸ was viewed by the government as being in opposition to the principle of democratic decision making as stated in the Land Policy White Paper⁹⁹. As mentioned above, this may also result in the undermining of the rights of minority groups.

The Sectional Titles Act (95/86) is thus very similar to the CPA Act (28/96), but contains intrinsic differences, such as membership through ownership and decision processes that do not promote equality. The author believes that because of these conflicts with the guidelines in the Land Policy White Paper¹⁰⁰, the government did not view a sectional title scheme as a viable option for communities.

The Sectional Titles Act (95/86) also contains lessons for CPAs. In the author's opinion the simplified procedures for the acquisition and transfer of ownership of sections in a sectional title scheme can readily be adopted for use in a CPA. This will be considered in chapter 6. The rules used in a sectional title scheme could also prove useful, when developing the rules for a CPA¹⁰¹, especially because these have been in use for more than 35 years in terms of Act 66/1971 and later Act 95/1986.

⁹⁷ A stranger that enters the community, for example through marriage, thus has the opportunity to become a member. At first the membership will convey the right to vote, and only later will the opportunity to accumulate other rights present itself.

⁹⁸ The author believes that the Sectional Titles Act (95/86) could have been adapted to allow equal voting.

⁹⁹ DLA 1997:33

¹⁰⁰ DLA 1997:33

¹⁰¹ Workshop 13 August 1998

b) Share Block Schemes

In the comparison between sectional title schemes and CPAs above, the differences and similarities between the two entities were examined. It can be seen that the following differences are also valid for a share block scheme. Membership in a share block scheme is a result of ownership of shares and voting is done in terms of share holding. This is analogous to sectional title schemes, and yet again in conflict with the guidelines of the Land Policy White Paper¹⁰².

The similarities between share block schemes and CPAs are that both are systems for the communal holding of land and allow individual access to parts of the property. A share block scheme also has a memorandum or articles that are analogous to the constitution of a CPA.

The author believes that the government rejected share block schemes for the same reasons as sectional title schemes, mainly relating to the relation between ownership and membership, and the method of voting.

c) Trusts

The Land Policy White Paper¹⁰³ does not see trusts as an achievable option for communities and states that "an inherent short-coming of [the establishment of trusts to hold land] has however been the fact that the property is held by the trust on behalf of others, whereas the need is for communities to hold and manage property themselves."

This is contradictory to the statements made in section 3.2.3, relating to Trust One in the Eastern Cape. However the statements of the government probably relate to the historical

¹⁰² DLA 1997:33

¹⁰³ DLA 1997:62

practice of land being held in trust for black beneficiaries, either by the Commissioner for Native Affairs (pre-1913) or by the South African Development Trust (post-1936)¹⁰⁴. The policy position thus has more to do with the negative connotations that trusts have acquired (as providing second-class rights), than the actual legal form of trusts¹⁰⁵.

Lessons learned from trusts have been incorporated in the Communal Property Associations Act (28/96), for example requiring the definition of membership and rights, the drafting of a constitution, the establishment of the committee etc. in a CPA. In the author's opinion there are no major obstacles in using trusts as an alternative to CPAs, despite the fact that the Land Policy White Paper believes that it is inappropriate.

d) Section 21 Associations

Parallels can be drawn between the Communal Property Association Act¹⁰⁶ and a section 21 association. An association under section 21 can be tailored to have as its main object the communal group interest of holding land, similar to the intention of a CPA¹⁰⁷. The constitution of the CPA can also be equated to the memorandum of an association formed under section 21.

The differences between the two are mainly contained within the management of profits and assets. Although the members of an association under section 21 may not share in the profits of the association, there is the possibility of paying members for services rendered¹⁰⁸. This will however be a complicated way of spreading wealth amongst the members. The CPA Act does not restrict the gains of the CPA.

¹⁰⁴ Email correspondence Dr. T. Roux (Centre for Applied Legal Studies, University of the Witwatersrand) (1 October 1999)

¹⁰⁵ Email correspondence Dr. T. Roux (Centre for Applied Legal Studies, University of the Witwatersrand) (1 October 1999)

¹⁰⁶ Communal Property Association Act 28/1996

¹⁰⁷ Communal Property Association Act 28/1996: Preamble

¹⁰⁸ Companies Act 61/1973: s 21 (2) (a)

The transfer of assets¹⁰⁹ after deregistration of a section 21 association clarifies the intention of such an association, that is, that the association is supposed to render service to sections of society. This diverts dramatically from the intention of the Reconstruction and Development Programme¹¹⁰, to enable people to hold land and eventually accumulate wealth for themselves.

The author believes that a section 21 association could be modified to resemble a communal property association, but there are intrinsic differences that would be difficult to accommodate. The use of a section 21 association would also be complicated and outside the sphere of the abilities and resources of most communities. In the author's opinion section 21 associations can not be viewed as a viable alternative to CPAs.

Conflicts with the guidelines of the Land Policy White Paper¹¹¹ exist in sectional title schemes, share block schemes and section 21 associations. These conflicts relate mainly to the ownership-membership relationship and equal voting rights. Trusts were also rejected because of negative historical connotations. These communal holding entities were thus viewed as inappropriate¹¹² options for the communities targeted by the Reconstruction and Development Programme. This resulted in the decision of the government to create the Communal Property Associations Act (28/96).

In the author's opinion there are practically few differences between CPAs, sectional title schemes and share block schemes. Some of the government's motivations may however be valid. The author concurs with the conclusion of the government that section 21 associations are not a viable option for communities, because of the major diversion between the intention of these associations and the objectives of the Reconstruction and Development Programme. However, the author disagrees with the policy position relating

¹⁰⁹ Companies Act 61/1973: s 21 (2) (b)

¹¹⁰ ANC 1994:20

¹¹¹ DLA 1997:33

¹¹² *Land Policy White Paper* DLA 1997:63

to trusts. The author believes that the negative historical connotations relating to trusts are not enough reason for rejecting trusts. Very few differences also exist between CPAs and trusts. In addition, nationally and internationally¹¹³, trusts are still viewed as a viable option for the communal holding of land by communities. In the author's opinion trusts can be used as an alternative to CPAs.

This concludes the chapter on communal property associations and other models for the communal holding of land. The next chapter will discuss the case study that was conducted of the Algeria community.

3.3 SUMMARY

This chapter examined the CPA Act (28/96) and other communal ownership models in South Africa. The motivations behind the CPA Act (28/96) were discussed, with focus on how the Act conforms to the principles as set out by the DLA in the Land Policy White Paper¹¹⁴. This discussion is important to ensure that the intentions of the CPA Act (28/96) are maintained down to operational level. This was followed by a general description of the CPA Act (28/96). The process of registering a CPA was then discussed. Finally, the constitution and membership of the CPA was elaborated on.

All of the above mentioned discussions provide guidelines for the design of the LIS for the Algeria CPA. This assists in the fulfilment of the research objective that aims to build methodological theory, using LIS, for the development of land tenure arrangements in a CPA. The following guidelines relate to the design of the LIS:

- The LIS must be able to record various use rights.
- Use rights must be allocated according to membership and class.

¹¹³ Refer to section 3.2.3 for a discussion on Trust One in the Eastern Cape and the community land trust in Kenya.

¹¹⁴ DLA 1997:viii

- Existing rights must be recorded before new allocation occurs.
- The process of registering a CPA must be viewed as parallel to the development of the LIS.
- The creation of the LIS must abide with principles of transparency and accountability.
- The LIS must be able to model the various types or classes of membership in a communal property association.
- Family based membership will result in a different LIS, to the LIS based upon individually based membership.

Other forms of communal ownership were then discussed; focussing on aspects of the models that may benefit a CPA. This discussion also highlights why these acts were not judged as appropriate alternatives to the CPA Act (28/96). The lessons extracted from these communal ownership entities will be further considered in chapter 6. Especially pertinent to the design of the LIS are the simplified procedures used in sectional title schemes for the acquisition and transfer of ownership.

In conclusion, this chapter provides necessary information for the comprehension of the chapter 4, which discusses the case study. Valuable guidelines for the design of the LIS were also obtained. This will assist in reaching the research objective of building methodological theory, using LIS, to support the creation of a CPA.

4. THE ALGERIA CPA

This chapter discusses the Algeria case study. Firstly, the history of the community is described, focussing on their claim to the land, the motivations behind their pursuit of land and the general development of the communal property association (CPA). Secondly the process of creating the Algeria Communal Property Association is described.

This discussion provides information for the comparison of the Algeria and Elandskloof community in section 2.2.3. It also investigates the process of creating a CPA, which assists in the identification of data requirements of the Algeria LIS, as well as the design of the LIS¹.

4.1 HISTORY OF THE ALGERIA COMMUNITY

The Algeria community lives in the Rondegat River valley in the Cederberg Mountains located in the southwest of South Africa². The land lies between a Wilderness area managed by Cape Nature Conservation (CNC) in the southeast, and the farm, Grootkloof, in the northwest.

Most of the inhabitants of the Algeria village are descendants of families that lived in the area in the eighteenth century in small settlements that have subsequently disappeared. The Joubert, Ockhuis, Arangie and Burrows families were originally from Wysterskloof and Tom se Gat. Droëfontein, Doringdraai, Sandkraal and Waterboer se Werf were the smallholdings³ of the Zimri, Hanekom, Willemse, Sass, Dawids and Joubert families. All these settlements⁴ were next to the Rondegat River, which is important for irrigation and agriculture.⁵

¹ Refer to section 5.1.3 and 5.2.

² Refer to figure 4.1 (Map of the Western Cape).

³ These are historical locations. (These locations are not indicated on the maps in the thesis.)

⁴ Refer to figure 4.2 (Map of Algeria Area)

⁵ Interview : O.G. 17 September 1998

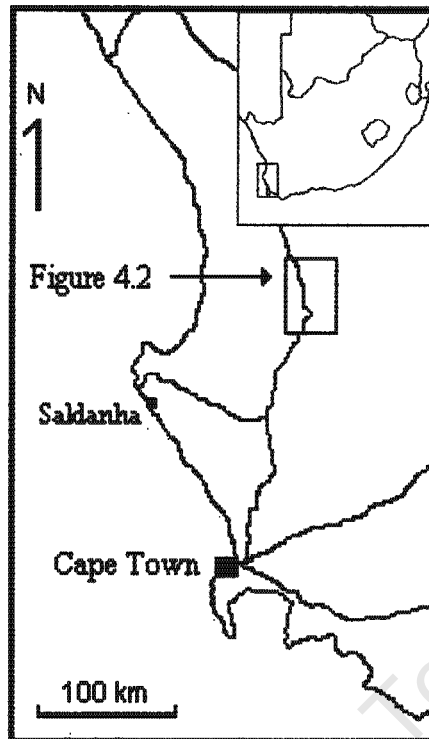


Figure 4.1: Location of Algeria in the Western Cape⁶.

The Joubert family, lived on the farm Sandkraal where they had cattle and span oxen, but their mainstay was the harvesting of buchu⁷, rooibostee⁸, kliphoutbas⁹ and cedarwood, all indigenous to the area. In 1936 the family moved to the farm Doringdraai, where they stayed for 25 years before the farmer, on whose land they were staying, insisted that they remove their livestock from his land. By this time most of the male members of the family were working for the Department of Forestry, so an appeal was made to Forestry to allow the family to move with their livestock onto the currently settled area of Algeria.¹⁰

Algeria, originally known as Garskraal, has been inhabited by forestry workers¹¹ since the late 1800s. With the declaration of the Cederberg as a Wilderness area in 1980, other

⁶ Adapted from www.lib.utexas.edu/Libs/PCL/Map_collection/africa/South_Africa.jpg and www.cia.gov/publications/factbook/sf.html.

⁷ A type of fynbos use for variety of purposes, including medicinal.

⁸ A herbal tea.

⁹ Kliphoutbas is a type of treebark that is ground to obtain an orange or red powder. This powder is then used as a pigment in leather tanning. (CNC Ranger, January 2000)

¹⁰ Interview : O.G. 17 September 1998

¹¹ Most of these workers were indigenous to the area.

families in the area were slowly forced to move to Garskraal, so enlarging the population. Currently the community consists of 240 people. The existing 33 houses built in the 1960s and 1970s were divided into two sections, Bosdorp and Skilpaddorp¹². Prior to this workers lived in self-built "riethuise"¹³ along the Rondegat River on the Algeria land. Through the years a community hall, a clinic and a school have been added.¹⁴

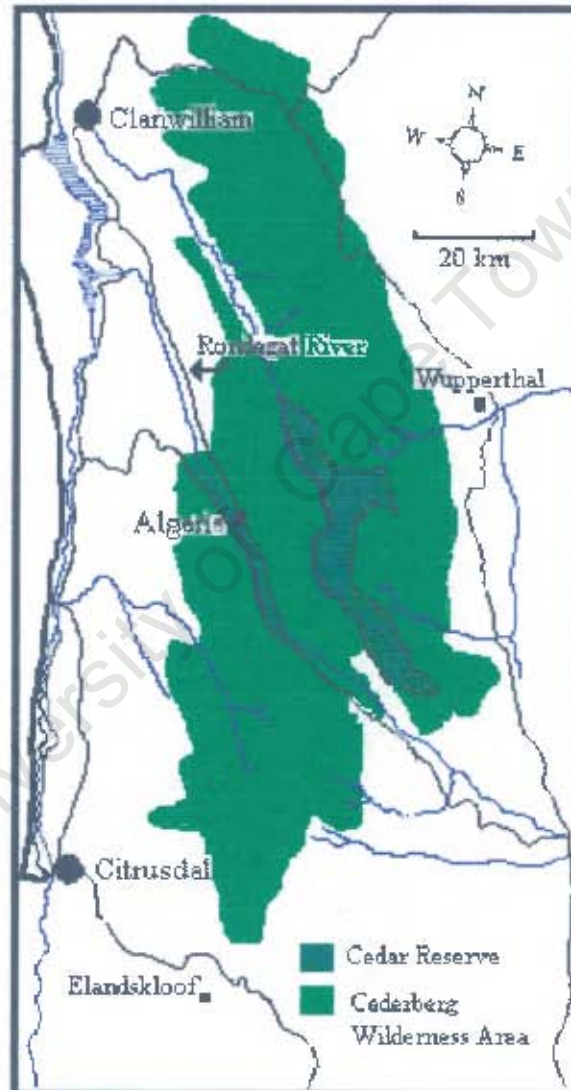


Figure 4.2 The Algeria Area¹⁵

¹² Refer to figure 4.3. and 4.4.

¹³ Thatch-roofed houses.

¹⁴ Interview : O.G. 17 September 1998

¹⁵ Adapted from cw.scouting.org.za/obs/cedar.html.

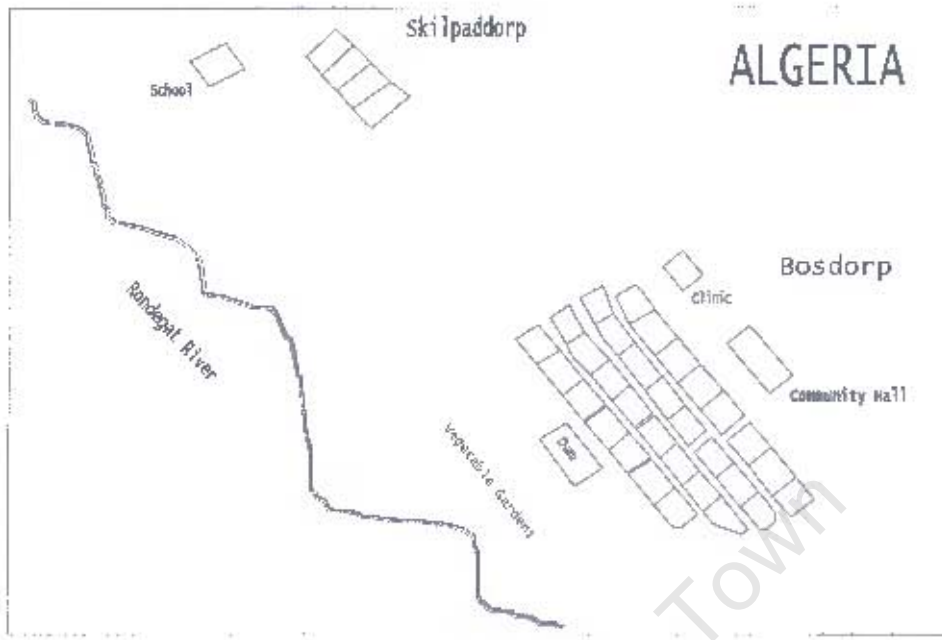


Figure 4.3: Sketch map of Algeria

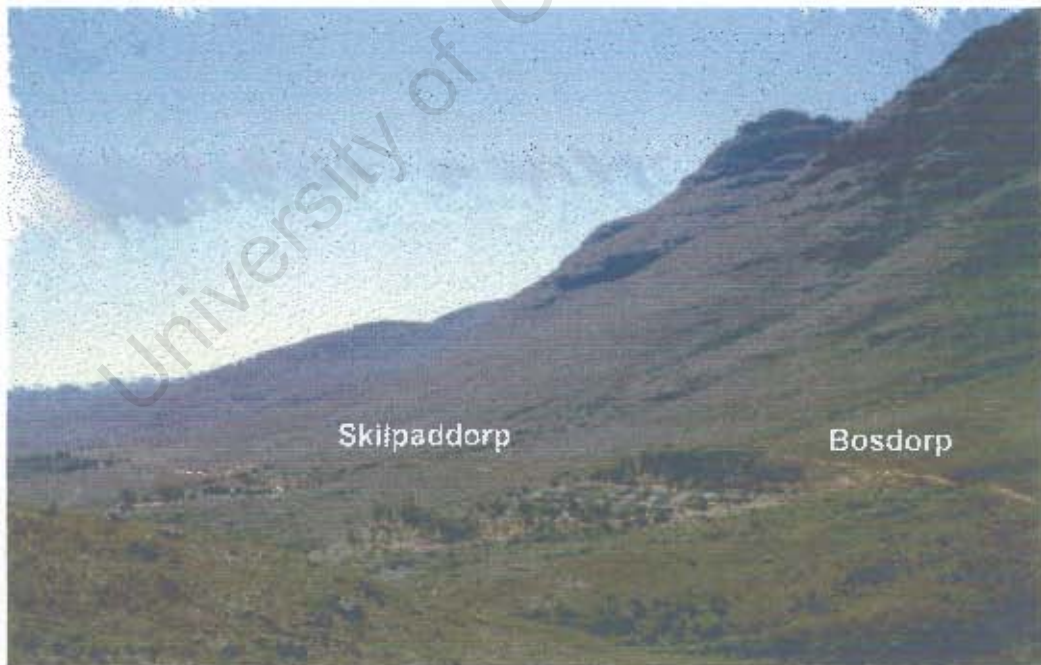


Figure 4.4: Algeria

The inhabitants of Algeria have access to vegetable gardens along the Rondegat River. The gardens are irrigated using water from the river, as well as a pipe that runs across the property, which was built by a neighbouring farmer. The father of the farmer originally obtained this unregistered servitude in an agreement with CNC. Community members obtained the right¹⁶ to use the pipe in terms of a personal agreement with the farmer¹⁷. The houses are leased at a R100 per month and electricity and water is also provided by CNC¹⁸.



Figure 4.5: Vegetable Gardens in Algeria

Security of tenure has however been fragile for the community, since tenure was dependent on employment with the Forestry authority¹⁹. The original employer (1800s to 1980) was the Department of Forestry (national government) and later Cape Nature Conservation (provincial government)²⁰. During the years, various families were required to vacate their

¹⁶ The farmer retains control over the usage of the water from the pipe. According to the farmer, the main reason behind the control he exerts over the use of the pipe is because it is a high-pressure water pipe used for irrigation, and if too much water is used from the pipe, the purpose will be defeated. Interview : O.G. 17 September 1998

¹⁷ Interview : K.M. 17 September 1998

¹⁸ SPP and Algeria Committee 1997:4

¹⁹ SPP and Algeria Committee 1997:1

²⁰ SPP and Algeria Committee 1997:1

houses and leave Algeria at retirement, so as to provide space for new workers²¹. One respondent²² explained that in the past when someone stopped working for CNC he and his family had to leave. The family then had three choices. They could move to one of the nearby towns and live with other family members, they could try to build a house in town or they could apply for an existing house in town²³. He explained that one could not afford to both educate ones children and build a house in town at retirement. The other option was to put your name on a waiting list for a house in one of the nearby towns, but the respondent said that this usually took so long that you would probably die before you were allocated a house²⁴. Women were in an even more insecure position, in that their security of tenure depended not only on their husband's work, but also on their marriage²⁵.

Although a CNC representative²⁶ denied in an informal discussion that anyone had been forced to leave in the last 10 years, an interview²⁷ with one of the residents at Algeria revealed that this was due to no one retiring or taking a retrenchment package in the last ten years. Also, there was an agreement with CNC that as long as there is one occupant employed by CNC in the house, in whose name the house can be recorded, the family may remain²⁸. Security of tenure has thus been fragile for individuals in the Algeria community.

With the change in government in 1994, the community became aware of the new opportunities available to them to obtain permanent rights to the land they live on and decided to pursue these opportunities. They contacted a non-governmental organisation, the Surplus People Project, to assist them in their application for housing grants, as well as the application of transfer of the land. The motivation behind the action of the community was to ensure that no further removals would occur and that they can feel secure on the

²¹ SPP and Algeria Committee 1997:1

²² Interview : O.G. 17 September 1998

²³ Municipal housing, usually in nearby towns, for example Citrusdal or Clanwilliam. Refer to figure 4.2.

²⁴ Interview : O.G. 17 September 1998

²⁵ Interview : D.N. 23 March 1999

²⁶ Interview: H.Q. 17 March 1998

²⁷ Interview : H.I. 23 March 1999

²⁸ Interview : H.I. 23 March 1999

land they were born on. SPP conducted workshops in the community on the various aspects of the process. The community decided to take advantage of the Communal Property Association Act (28/96)²⁹. SPP then held further workshops on the various aspects of the Act and eventually the community submitted their interim constitution to the Director-General of Land Affairs. At the time of writing, negotiations with the state are in progress for the transfer of the land.³⁰

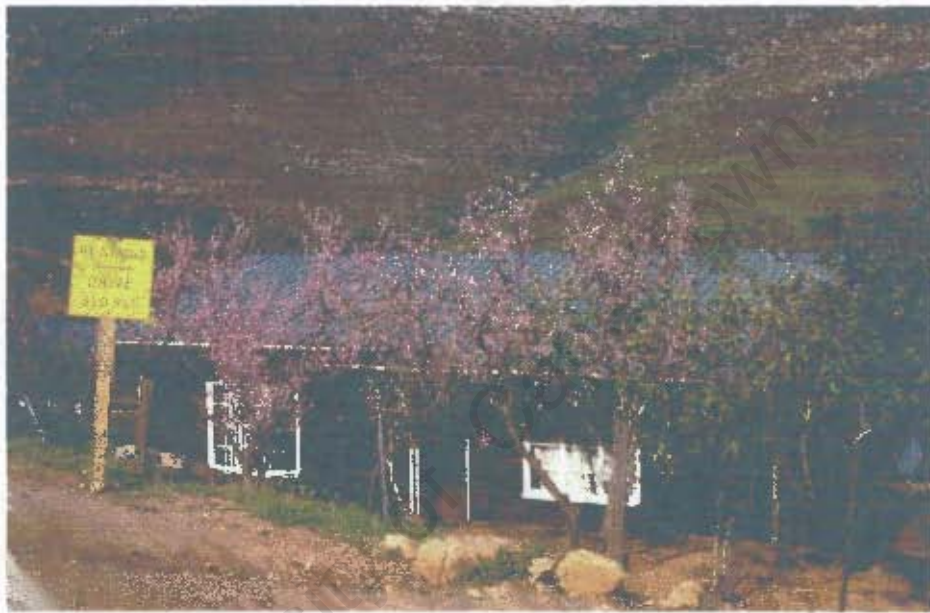


Figure 4.6: A house in Algeria

At the start of the process³¹ some members of the community were sceptical and refused to participate. There were various reasons for this. One reason was that there were fears that the process would not succeed and that the project was not viable. This feeling still persists among some members and is even tendered as the reason behind one of the original committee members resigning. There were also doubts in the community relating to their ability to manage the property. Another fear was of being disadvantaged, due to the domination of certain majority groupings in the community.³²

²⁹ Described in section 3.1.

³⁰ Personal Observation

³¹ 1997 and early 1998.

³² Interview : H.I. 23 March 1999

However as the process continued, those with doubts decided to join too. The author believes that this was due to the following reasons. One group of inhabitants that decided not to join the association was influenced by conversations with a local farmer with whom they have close ties³³. According to a member of this group, they later decided to join after same farmer advised them to³⁴. In addition to this, SPP and the committee had informal meetings with this group and explained the whole process and its value to them³⁵. Some members still did not join in the process, but that was because they were planning on retiring to homes they had built in other nearby settlements and they left Algeria during the course of the process³⁶.

This concludes the discussion of the history of the Algeria community. This section also provides information used in the comparison between the Algeria community and the Elandsbloof community that was considered in section 2.2.1. The following section describes the process of creating the Algeria CPA in more detail.



Figure 4.7: Enjoying the Sun in Algeria

³³ Discussion with L.L., 17 September 1998

³⁴ Discussion with L.L., 17 September 1998

³⁵ Interview : O.G. 17 September 1998

³⁶ Interview : H.I. 23 March 1999

4.2 THE ALGERIA COMMUNITY AND THE COMMUNAL PROPERTY ASSOCIATIONS ACT

The facilitation process between the community and SPP started in (May/June) 1997. The workshops started with discussions on the problems experienced by the community, development needs, land use in Algeria and the community's vision for the future. There are four main categories of problems experienced by the community. The first category related to all land matters, including security of tenure, housing, grazing and vegetable gardens. Women, as well as the disabled and retired persons were identified as particularly vulnerable with regards to these issues. The second category was the unavailability of employment opportunities which affected everyone including matriculants (school leavers). The third and fourth categories involved problems with services and community facilities, for example the clinic that does not operate regularly.³⁷

The advantages and disadvantages of the different types of ownership were also discussed in the workshops. Private ownership (freehold), renting and communal ownership were the three options tendered by SPP.³⁸

During the second workshop the differences between the communal ownership and freehold models were discussed in more detail and the community decided to use the communal model. The communal model was seen as providing more control over who is allowed to stay in Algeria. It ensured that the community will be able to own and use the land surrounding the residential area. It was also decided that the interests of the community superseded the interests of the individual.³⁹

After this decision was reached, the issue of rights was broached. This is seen by the facilitators from SPP and the author as one of the most important matters to be decided on.

³⁷ SPP en Algeria Grond Komitee, Minutes of Workshop 1, undated (early 1997)

³⁸ SPP en Algeria Grond Komitee, Minutes of Workshop 1, undated (early 1997)

³⁹ SPP en Algeria Grond Komitee, Minutes of Workshop 2, 7 June 1997

It includes not only the rights in terms of land and who is allowed to use what and how, but also who has the right to be a member of the CPA. Other decisions⁴⁰ that had to be reached included family or individual based membership, whether classes of membership will be created, inheritance and the management of the association. The constitution of the Algeria CPA was adopted on 19 February 1998 and addressed these matters⁴¹.

Biases in Decision Making

The above discussion implies that the community exclusively made all the decisions. This is not entirely true. In attending the workshops and by admission from one of the facilitators⁴², it was observed that the facilitators tend to be prejudiced in their discussion of issues⁴³. One pertinent issue was that the facilitators insisted that women be included in the committee. Although the Land Policy White Paper⁴⁴ supports the participation of women, the CPA Act (28/96) does not insist on this. The decision regarding family or individually based membership was another issue influenced by the facilitators. There is thus a certain amount of bias, introduced by the facilitators, included in the decision making process.

The author in her role as participant-observer was also queried about issues, mainly relating to rights and inheritance, in workshops and in informal discussions. This was because the community and the facilitators viewed the researcher as having an expert opinion. This researcher therefore also introduced some bias in the decision making process.

This section provided a detailed background of the practical application of the CPA Act (28/96) by the Algeria community. It discussed the facilitation process the community

⁴⁰ Refer to section 3.1

⁴¹ Field notes (Workshop: 19 February 1998). Refer to appendix VI for a chronology of events.

⁴² Interview : L.Z. 2 April 1998

⁴³ Field notes (Workshop : 19 February 1998).

⁴⁴ DLA 1997

went through, as well as the issues raised in workshops. Finally the introduction of bias by the facilitators and the author is reasoned.

The following discussion involves a more detailed description of the drafting of the constitution of the Algeria CPA.

4.2.1 The Constitution of the Algeria CPA

Subjects in the constitution relating to this research are highlighted in the following sections.

a) The Vision of the CPA

The vision of the community, as stated in the constitution⁴⁵, is to secure ownership and develop economic opportunities for inhabitants and future generations. This vision is supported by the following goals of the association: to acquire land, to grant members rights and protection of these rights, to manage the property of the association, to ensure adequate services and to provide opportunities for economic development.⁴⁶

The author believes that it is important to ensure that the LIS supports these goals.

b) Membership of the Association

The definition of membership of the Algeria CPA included the following categories⁴⁷:

- A member must be older than 18.
- Anyone living in Algeria at the time of inception of the CPA.

⁴⁵ Constitution of the Algeria CPA 1998: 1.3

⁴⁶ Constitution of the Algeria CPA 1998: 3.1-3.4

⁴⁷ Constitution of the Algeria CPA 1998: 6.1

- Community members who worked or occupied houses in Algeria and want to return can apply for membership. They will qualify if they meet the criteria⁴⁸ of the Committee and are ratified by the community.
- Any other persons expressing interest and showing the ability and willingness to make a valuable contribution to the activities and the welfare of the community will be decided on a case by case basis.

The constitution also provides for changes in the definition of membership⁴⁹.

In chapter two⁵⁰ the impact of divisions in communities developing CPAs, when defining membership, were explored. It was stated that few major divisions exist in the Algeria community. The divisions that do exist include groupings according to church affiliation, locality⁵¹ and political persuasion⁵². According to one of the facilitators⁵³, these did not have a great impact on the decision making process. However, in the author's opinion another grouping exists. That is, as popularly termed, the generation gap⁵⁴. The author believes that this division will have the greatest impact in the future of the CPA, especially on decisions involving economic opportunities. For example, in the meetings the issue of a shebeen⁵⁵ and brewing honeybeer⁵⁶ were raised⁵⁷. The majority of attendants were in favour of only allowing home production and consumption of honey beer and were against any form of shebeen⁵⁸. However, the more youthful component of the community felt that the selling of honey beer would provide an important economic activity, especially because

⁴⁸ Undefined as yet.

⁴⁹ Constitution of the Algeria CPA 1998: 6.3

⁵⁰ Section 2.2.1

⁵¹ There is a division between the inhabitants of Bosdorp and Skilpaddorp. For example the Skilpaddorp inhabitants have a very good relationship with a local farmer, whereas the Bosdorp inhabitants have been involved in disputes with the farmer.

(Interview : L.Z. 2 April 1998 and discussion with K.M. 17 September 1999)

⁵² Interview : L.Z. 2 April 1998

⁵³ Interview : L.Z. 2 April 1998

⁵⁴ This component comprises the age group 18-30.

⁵⁵ A residential house where alcohol is sold informally.

⁵⁶ The availability of this traditional alcohol is seen as part of social problems in Algeria.

(Interviews H.I. 23 March 1999 and K.M. 17 September 1999)

⁵⁷ Interview : H.I. 23 March 1999

⁵⁸ Interview : H.I. 23 March 1999

of the tourism prevailing in the area⁵⁹. This issue has not been resolved and was not included in the business plan of the Algeria CPA.

The discussion on Elandskloof in chapter 2⁶⁰ also considered the impact of problems on the definition of membership that were related to limited space for settlement and agriculture. Although there is also limited space and housing in Algeria, the building of five new houses⁶¹ would provide for present needs. Problems are however foreseen for the future, due to a sudden upsurge of engagements in the settlement⁶². This will inevitably lead to inadequate housing. Already this problem has emerged. The recently married eldest son of the chairperson of the committee was allocated a vacated house⁶³ by CNC, after having been housed in the clinic. Some discord has arisen because the house is one of the bigger ones in Algeria and the young family only consists of three members, whereas other houses have up to eight occupants.⁶⁴

Another matter that may cause dispute in the community involves the different sizes of the house parcels in Skilpaddorp and Bosdorp. The parcels in Skilpaddorp are much larger than those in Bosdorp⁶⁵. There is however a simple solution. The inhabitants of Skilpaddorp cultivate their gardens within the house parcels. These gardens can be recorded as vegetable gardens. The inhabitants of Skilpaddorp will thus have access to two additional rights that relates to the same parcel.

The above discussion provides more information for the design of the LIS, specifically on issues relating to membership. It also highlighted some issues that may cause disputes in future in the Algeria community.

⁵⁹ Interview : H.I. 23 March 1999

⁶⁰ Section 2.2.1 (b) (iii)

⁶¹ Part of the development plan and limited to five houses by the carrying capacity of the land and the availability of funds.

⁶² Interview : H.I. 23 March 1999

⁶³ The occupiers were transferred to another posting by CNC in the beginning of 1999.

⁶⁴ Interview : H.I. 23 March 1999

⁶⁵ Personal Observation 17 September 1998

The following describes issues related to the development of the membership register for the Algeria CPA. This has a direct impact on the design of the LIS, and is an area where the process of developing a CPA will benefit from the support of a LIS.

c) **Membership Register**

According to the constitution⁶⁶ of the Algeria CPA, the membership register of the community must be created and maintained by the committee. The removal⁶⁷ of a name from the register may only occur through a decision reached in a general meeting, after the offending party has been given the opportunity to present his or her case⁶⁸.

The author believes that the active participation of a community in developing a membership register is very important. Not only does it educate, but it also provides valuable experience for the maintenance of the register. This is a principle that must be applied in the development of the LIS.

The next section discusses the various rights of members in the Algeria CPA.

d) **Rights of Members**

The rights of members were set out as follows in the constitution⁶⁹. Members have the right to:

- attend, raise their opinions and vote in general meetings.
- inspect minutes of meetings, yearly financial statements and the membership register.

⁶⁶ Constitution of the Algeria CPA 1998:6.2

⁶⁷ The Algeria community has not determined the situations that may lead to the removal of a name. The workshops discussions on this issue mainly related to criminal behaviour or behaviour detrimental to the CPA and the community.

⁶⁸ Constitution of the Algeria CPA 1998:6.2

⁶⁹ Constitution of the Algeria CPA 1998:6.4

- access and use the communal property, with the understanding that this is controlled and managed by the committee.
- access to any other communal assets.
- exercise additional rights⁷⁰ to access and use part of the property exclusively allocated to the member/s by the committee, with the understanding that alienation or renting may only occur after permission of the association at a general meeting.

These rights may be alienated, transferred, subleased and inherited in terms of the constitution. Any member intending to pursue one of these must inform the committee in writing and must include the value or price involved. The committee will then consider acquiring the rights for the association. If it is decided to acquire the rights the committee will negotiate with the relevant parties on price. If no decision is reached, the committee may determine a price⁷¹. The same process is followed with the deregistration of a member. If the committee has not reached a decision within three months, a member of the association may acquire the rights.⁷²

The above exploration of rights in the Algeria CPA provides requirements for the design of the LIS. These mainly include the different rights the LIS must be able to record and the processes that relate to these rights. That is, alienation, transferral, leasing and inheritance of rights. This section also provides a description of the fragmentation of the bundle of rights⁷³ in a CPA.

This concludes matters in the constitution that impact on this research. Note however that certain aspects are only implied, for example the creation of different classes of

⁷⁰ Additional rights: Rights that allow the occupation of a house, the cultivation of a vegetable garden and access to communal property.

⁷¹ The price is determined according to a formula or an outside appraiser can be approached to make recommendations to the committee or advise them.

⁷² Constitution of the Algeria CPA 1998:6.5

⁷³ See section 2.1.11.

membership. Also no decisions have been reached on the criteria for the allocation of these different classes. Another matter that was not mentioned is that membership is based on individuals and not families⁷⁴.

At the conclusion of the research (September 1999), the negotiations⁷⁵ for the transfer of the property to the Algeria CPA were still in progress. The process will continue with the appointment of a planner, who will direct a physical planning exercise and conduct enterprise development planning with other technical experts. This will be followed by negotiations, relating to service provision, with the West Coast District Council. The claimed land will then be surveyed and after the finalisation⁷⁶ of the land management and tenure arrangements, the CPA will be registered. The process will conclude with the zoning, designation and transfer of the land.⁷⁷

This chapter provided information on the practical application of the CPA Act (28/96) as experienced in Algeria. This has assisted in the design of the LIS by identifying information that may be included in the LIS, as well as the land tenure arrangements that must be modelled by the LIS. Refer to section 5.2 for a description of the Algeria LIS.

This concludes chapter 4. The next chapter will discuss information systems and how the information obtained above was used in the system, and in the video evidencing proposal.

⁷⁴ The facilitators see individual membership as providing more security, especially for women. (Interview : L.Z. 2 April 1998)

⁷⁵ The negotiations first stalled because of confusion relating to the owner (national of provincial government) of the property, after this was resolved, the Department of Land Affairs questioned the valuation of the property and is continuing negotiations at this stage (September 1999). These hold ups are very discouraging to the community and they are starting to doubt if they will ever own the property. (pers. com. H.I. 23 March 1999)

⁷⁶ The planner, the Department of Land Affairs and SPP will be responsible for the finalisation of the land management and tenure arrangements. (SPP 1998 Project Planning Schedule)

⁷⁷ SPP 1998 Project Planning Schedule

4.3 SUMMARY OF CHAPTER 4

Chapter four describes most of the information obtained from the case study of Algeria. This includes, the history of the Algeria community and the development of the Algeria CPA.

The history of the Algeria community provides the necessary information needed for the comparison between the Algeria community and the Elandskloof community in chapter two. It also describes the present arrangements in Algeria that relate to land. This will be explored in chapter 6. The discussion also mentions the problems that motivated the community to pursue the acquisition of the land they are living on. A general description of the creation of the Algeria CPA is also provided.

This is followed by more detailed description of the development of the CPA. The author also mentions the bias introduced by the facilitators, as well as the researcher in the decision making process.

A description of matters in the constitution of the Algeria CPA, relating to this research then follows. The vision of the CPA, membership in the CPA and the membership register is considered. All these issues provide valuable information for the development of the LIS. These issues are:

- The LIS must support the goals of the CPA as far as possible. These include the acquisition of land, the granting of rights, adequate services and opportunities for economic development.
- The classes of membership that the LIS must model.
- The promotion of active participation of the community in developing the LIS.
- The different rights that the LIS must record.
- The different processes involving rights that the LIS must be able to process. These include the alienation, transferral, leasing and inheritance of rights.

5. LAND INFORMATION SYSTEMS AND VIDEO EVIDENCING

This chapter examines the information requirements of land information systems¹ (LIS). The "western" LIS described by Rakai and Williamson² is explored, as well as the use of LIS in South African informal settlements. The study of these LIS assists in determining the information requirements of a LIS. The section concludes with a discussion of video evidence, which is additional data incorporated in the LIS developed in this research. To ensure that this video information is recorded in a useful manner, guidelines were obtained from case law relating to the requirements of submitting video evidence in a court of law.

The next section describes the LIS developed for Algeria. The functionality of the Algeria LIS is described, followed by a discussion of the collection of data. This includes the collection of terrestrial data, socio-economic data and video evidence.

The next section examines the information requirements of LIS in the global context as proposed by Rakai and Williamson and that of LIS in South African informal settlements. From these discussions the information requirements of the Algeria LIS is determined. The section concludes with a discussion on the inclusion of video evidence as additional information in LIS.

5.1 LAND INFORMATION SYSTEMS: INFORMATION REQUIREMENTS

Land Information Systems have gained prominence, because of the recognition of the need for the systematic collection, updating, processing and distribution of spatially referenced land

¹ LIS are defined in section 2.1.2.

² Rakai and Williamson 1995

related data to support administrative and economic decision-making, and developments in technology³. The discussion on land information systems starts with a description of a "western" LIS⁴, which provides a general assessment of the information requirements of such a LIS. The information requirements of LIS in South African informal settlements is then discussed, as it presents the use of LIS in a South African context and involves communities that obtained ownership and land through the Reconstruction and Development Programme⁵.

5.1.1 The "Western" LIS

The standard "western" LIS uses the land parcel as the basic organisational unit for referencing land tenure data and information. This organisational unit functions as the link between data sets. The attributes used in a LIS can be classified according to two types: spatial attributes and textual or non-spatial attributes.⁶

The spatial attributes describe location (house number, coordinates), bounds (adjoining parcels), size or area and shape (lengths of sides, angles). These attributes can be collected using conventional terrestrial surveys, aerial photography or any combination of these methods.⁷

The non-spatial attributes of a land parcel determine the nature of the land tenure rights (rights, restrictions and responsibilities pertaining to these rights) and the identification of the holders of the rights (name, identity numbers, addresses)⁸. The nature of the land tenure can include:

³ Larsson 1991

⁴ The "western" LIS is defined by Rakai and Williamson (1995:29) as a LIS that is developed to serve the needs of countries that use a "western" style land market where individual land rights are the norm.

⁵ DLA 1997

⁶ Rakai and Williamson 1995:30

⁷ Rakai and Williamson 1995:30

⁸ Rakai and Williamson 1995:30

- the duration of the right;
- the right of inheritance;
- what rent is due and when;
- the right to alienate the land;
- the right to mortgage the land;
- the right to lease the land;
- the nature and limits of land use;
- the rights of reversion; and
- residence and improvement requirements.⁹

Rakai and Williamson¹⁰ also produced a list of the typical tenure information that may be found in "western" land tenure based LIS. This includes:

- Ownership: name, postal address, street address
- Occupier : name, postal address, street address
- Full private rights : title reference, dealings, transfer documents
- Parcel boundaries and location : legal description, cadastral boundary data
- Private restrictions: mortgage, covenants, caveats
- Public restrictions: zoning
- Limited rights: leases, water
- Other ownership attributes : historic descriptions
- Other parcel attributes: land use, cultural features (buildings, roads)

From the above discussion, it can be seen that not all the data suggested by Rakai and Williamson¹¹ will be valid for a CPA in South Africa. This is mainly because the "western" LIS is based upon private ownership. The discussion does however provide a general description of a LIS, as well as the type of information that relates to land tenure.

⁹ Rakai and Williamson 1995:30

¹⁰ Rakai and Williamson 1995:30

¹¹ Rakai and Williamson 1995

The next section explores the use of LIS in South African informal settlements. This discussion will argue that the use of LIS in informal settlements provides valuable ideas for the development of a LIS in a CPA. This is especially true because both LIS in informal settlements and LIS for CPA will exist in the same South African environment.

5.1.2 LIS in South African Informal Settlements

Davies and Fourie¹² showed that "current, accurate and accessible information is required for effective land management" for informal settlements. They recommend a land management approach based on a record that uses LIS, thus linking spatial and social data for planning and administrative purposes¹³. This vision of Davies and Fourie¹⁴ correlates closely to that of the LIS for CPAs developed in this thesis. For this reason, it was viewed as important to consider their proposal in this research.

Davies and Fourie¹⁵ recommend that a professional land manager, who is acceptable to the community, should be appointed by the local authority to function as the manager of the technical, operational and social components of the system. A local resident, working under the supervision of the land manager, should also be trained and employed as the local land administrator¹⁶. The tasks of the land manager and land administrator would include basic surveys of new allocations, administration for the record system and assisting residents with queries and complaints regarding development and services¹⁷.

¹² Davies and Fourie 1998:245

¹³ Davies and Fourie 1998:245

¹⁴ Davies and Fourie 1998

¹⁵ Davies and Fourie 1998:243

¹⁶ Davies and Fourie 1998:243

¹⁷ Davies and Fourie 1998:243

According to Davies and Fourie¹⁸, the mapping of spatial relationships for the creation of the LIS can include the following:

- service corridors;
- access routes;
- recreation areas and community services;
- utility positions (stand pipe, poles, drains, access covers);
- public facilities (public telephones, post boxes);
- proposed and existing land use zoning;
- level of services per land unit within the settlement;
- 1:50 year flood line (important if there is a river or stream that runs through the settlement, so that settlement below this line can be prevented);
- geo-technical data, including water levels, and underground rock types;
- topography, including a digital terrain model if available.

Davies and Fourie¹⁹ also recommend that the following information, used to map social relationships, should be obtained for an informal settlement.

- date of enumeration;
- shack number;
- person who allocated the land;
- name - family and first names;
- identity number;
- gender;
- marital status - single, married, divorced, living with a partner;
- name of spouse or partner;
- identity number of spouse or partner;
- postal address if available;
- combined income of the household (this information is required for a Housing Subsidy²⁰ application);
- number of children in the household and their ages;

¹⁸ Davies and Fourie 1998:244

¹⁹ Davies and Fourie 1998:244

²⁰ Housing Subsidies are part of a government allocation to lower income families. (ANC 1994:25)

- date of arrival in the settlement;
- date of site allocation; rarely corresponds to date of arrival;
- available services to the dwelling, if any;
- name and address of next of kin, for burial purposes; number of permanent or weekly lodgers in the household;
- whether the site is physically demarcated by a fence or hedge;
- physical description of dwelling;
- service account number and record of payments, if applicable;
- record of previous transfer of dwelling, if applicable.

Davies and Fourie²¹ also view the people as an important part of the local administration of land records in an informal settlement. To encourage trust and participation in the process the people contained within the LIS should be given proof of this inclusion²². A certificate can be issued to each person shown on the land record²³. The certificate should indicate the date of issue, the number of the shack, name and identity number of the person shown in the land record²⁴.

Important points made by Davies and Fourie²⁵ for the use of LIS in informal settlements in South Africa is as follows.

- Accurate, current and accessible land record data of informal settlements are essential for land management by local authorities.

This is clearly valid for a CPA. The only difference is that the committee will function as the local authority. Also, this point provides motivation for using video data²⁶.

²¹ Davies and Fourie 1998:244

²² Davies and Fourie 1998:244

²³ Davies and Fourie 1998:244

²⁴ Davies and Fourie 1998:244

²⁵ Davies and Fourie 1998

²⁶ Refer to section 5.1.4.

- A land manager or administrator can be appointed to function as the manager of the technical, operational and social components of the system.

The author believes that a member of the community could be trained during the creation of the LIS and could be actively involved in the data collection activities.

This will result in a contribution to the pool of knowledge and education, referred to in section 2.2.4 (f). At the conclusion of the development of the land tenure arrangements and the LIS, the person can function as the land manager²⁷ within the CPA.

- People are an important component of the LIS and trust and participation should be encouraged.

This corresponds closely to promotion of the active participation of the community that will be argued in chapter 6 and supports the validity of that argument.

All these points are revisited in chapter 6 for inclusion in the analysis of the LIS for communal property associations.

Another contribution that the research of Davies and Fourie²⁸ makes relates to the simplified process of transfer and the information requirements of the LIS that they recommend. This is supported by the discussion on sectional titles in section 3.2.1.

The data collection proposed by Davies and Fourie²⁹ differ slightly to the information requirements of the "western" LIS system³⁰. This is mainly due to context, South African as opposed to global, and the transitional nature of the communities involved.

²⁷ As a land manager of the paper based set of records.

²⁸ Davies and Fourie 1998

²⁹ Davies and Fourie 1998

³⁰ Rakai and Williamson 1995

In conclusion, the above discussion provides valuable support for the building of methodological theory to develop the land tenure arrangements in a CPA, using LIS, as well as support for the research objective that LIS can contribute to greater security of tenure. These will be discussed in chapter 6.

5.1.3 Information Requirements of the Algeria CPA LIS

The above discussions provide guidelines for the type of information that can be included in a LIS. The following compares the “western” LIS, the informal settlement LIS and Algeria. The section concludes with a listing of the information that can be collected in Algeria.

Figure 5.1 considers the different types of spatial information suggested by Rakai and Williamson³¹ and Davis and Fourie³², and the spatial data that can be collected in Algeria. The main differences between the two relates to the classification of the information (attribute or spatial). The “western” LIS records only the mathematical definition of parcels as spatial information, whereas the informal settlement LIS includes all spatial information, including roads, zoning etc.

It can be seen from the table in figure 5.1 that other spatial information that could also be obtained in Algeria, includes the vegetable gardens, the community hall, the clinic, the river and its 50 year flood line, roads in the settlement, the pipe³³ line through the settlement, public facilities. In addition, spatial information could be obtained of resources on the land, such as cedarwood, buchu and beehives³⁴. All this information was targeted according to the suggestions made by Rakai and Williamson³⁵, and Davies and Fourie³⁶.

³¹ Rakai and Williamson 1995

³² Davies and Fourie 1998

³³ Refer to chapter 4, section 4.1.

³⁴ Refer to chapter 4, section 4.1.

³⁵ Rakai and Williamson 1995

"Western" LIS	Informal Settlement LIS	Algeria LIS
<ul style="list-style-type: none"> • Location • Bounds (adjoining parcels) • size or area of parcels • shape of parcels 	<ul style="list-style-type: none"> • service corridors • access routes • recreation areas and community services • utility positions • public facilities (public telephones, post boxes) • proposed and existing land use zoning • level of services per land unit • 1:50 year flood line • geo-technical data • topography 	<ul style="list-style-type: none"> • corner coordinates of boundaries of houses and vegetable gardens • size or area of parcels • shape of parcels • location of resources • access routes • clinic and community hall • utility positions • public facilities • land use zoning • level of services per land unit • 1:50 year flood line of Rondegat river • geo-technical data • topography • servitudes (pipeline)

**Figure 5.1: Spatial Information Requirements of LIS
(Comparison of "Western", Informal Settlement and Algeria LIS)**

Most of the differences in the information requirements of the "western" LIS and the informal settlement LIS can be seen in the comparison of attribute information in figure 5.2. Both require that the parcel, the owner of the parcel and any other information relating to rights and restrictions be identified. The informal settlement LIS requires more socio-economic data (gender, income, number of children etc.). This relates to the applications for settlement and housing grants³⁷, which require this socio-economic information. Also, information such as service provision to sites is required for planning. Other information – date of arrival, date of site allocation, number of permanent or weekly lodgers – are all unique to informal settlements³⁸, and is used to model the population.

³⁶ Davies and Fourie 1998

³⁷ Refer to section 2.2.1 (b) (iv)

³⁸ This relates to the fluid and fluctuating nature of the communities in informal settlements.

"Western" LIS	Informal Settlement LIS
<ul style="list-style-type: none"> • Ownership: name, postal address, street address • Occupier : name, postal address, street address • Full private rights • Parcel boundaries and location • Private restrictions • Public restrictions: zoning • Limited rights: leases, water • Other ownership attributes : historic descriptions • Other parcel attributes: land use, cultural features (buildings, roads) 	<ul style="list-style-type: none"> • date of enumeration • shack number • person who allocated the land • name identity number • gender • marital status • name of spouse or partner • identity number of spouse or partner • postal address if available • combined income of the household • number of children in the household and their ages • date of arrival in the settlement • date of site allocation • available services to the dwelling, if any • name and address of next of kin • number of permanent or weekly lodgers in the household • whether the site is physically demarcated • physical description of dwelling • service account number and record of payments • record of previous transfer of dwelling

**Figure 5.2: Attribute Information Requirements of LIS
(Comparison between "Western" and Informal Settlement LIS)**

It can be seen from the comparison between the "western" LIS and the informal settlement LIS that the information requirements of the LIS are context dependent. The above discussions were used as guidelines to identify the possible information that can be collected for the Algeria LIS. Information needs were also identified from workshops, documents, interviews and informal discussions. In the ideal case the information summarised in figure 5.3 can be collected.

In the actual data collection process it was not possible to collect all of the information. This was because of time constraints and the unavailability of information, for example zoning information. Also, the boundaries of parcels of only the Bosdorp section of Algeria could be surveyed due to time constraints. In section 5.3 the data collection is described in more detail.

The following section discusses an additional information type, not included in the above discussion. That is video evidence³⁹.

Algeria LIS
<ul style="list-style-type: none"> • Ownership : name • Occupiers : names • House number • Name, identity number • Gender • Marital status • Name of spouse or partner • Identity number of spouse or partner • Combined income of the household • Number of children in the household and their ages • Description of rights • Description of parcel boundaries and location • Water rights (Rondegat river and pipeline) • Historic claim to rights • Person who allocated the land • Date of site allocation • Zoning • Available services to the dwelling • Whether the site is physically demarcated • Physical description of dwelling

Figure 5.3: Attribute Information Requirements of Algeria LIS

5.1.4 Additional Information in LIS: Video Evidence

Before any information can be included in a LIS, it is necessary to ensure that the information is useful. In the case of video evidence⁴⁰, it is necessary to ensure that the video clips are in accordance with the legal rules for video evidence as far as possible. This is important, because the addition of video clips to the LIS may provide greater security of tenure, by

³⁹ Refer to definition of video evidence, section 2.1.11.

⁴⁰ Refer to sections 1.3 and 2.1.11.

contributing to the bundle of evidence⁴¹ recorded in the LIS. The video clips must be collected in a format that is in accordance with the law of evidence, if they are to be used in adjudication. The following section explores Canadian and United Kingdom case law⁴² to identify the guidelines that apply to video recordings used as evidence.

Video Recordings and the Law

Video recordings have been used in courts as evidence in civil and criminal cases. An extensive search of literature relating to the use of video evidence in law courts only disclosed one appropriate text. Although this text is based on Canadian and United Kingdom case law, the author believes that similar guidelines, in terms of video evidence, are implicit South African law.

The Canadian Weiss-McGarth Report⁴³ states that "... people remember what they hear better when visual displays accompany the spoken word; after 72 hours people remember only 10 percent of what they are told but twenty percent of what they are shown. When graphic displays are used in the court room, however the retention factor is 65 percent." This suggests that the visual display of evidence provide valuable additional information in law courts. For this reason, the use of video recordings as additional evidence for adjudication of property rights and disputes over property rights may prove to be very valuable.

There are however rules that the recording must abide by to be used as evidence. An analysis of Canadian and United Kingdom case law provided the following criteria. First the recording must be proven to be authentic, accurate and integral⁴⁴. The recording must be in

⁴¹ Refer to chapter 6, section 6.4 for a discussion on the bundle of evidence and the LIS.

⁴² Unfortunately, no comparable South African works could be found.

⁴³ Goldstein 1986:77

⁴⁴ Goldstein 1986:13.1-6 (*Kajala v. Noble*: United Kingdom)

sequence and not use different speeds of recording⁴⁵. No editing may be done, except where it is necessary to remove extraneous material to improve the sequence and chronology of the tape to make it less confusing⁴⁶. A witness under oath must also verify the recording⁴⁷. No filtering of sound (it may be misleading) may be done and conversations must be in entirety⁴⁸. Other aspects that are also considered are that the audio track of the video recording is just as important as the visuals and that some actions (not possible to judge visually) may contain a hidden⁴⁹ truth⁵⁰.

The author believes that the above discussion provides guidelines for the proposed video evidencing system, although they may not all be valid. If the video clips abide by these guidelines, they would be more likely to be included as evidence in court cases. For this research, the following guidelines were used.

- The video recording must be proven to be authentic, accurate and integral.
- No editing may be done, unless it is necessary to remove superfluous material.
- The recording must be used in entirety.
- The audio track is just as important as the visuals of the recording.
- The recording must be verified.

In section 5.3.3 the format used for the collection of video clips in Algeria is described.

This concludes section 5.1. In this chapter, valuable recommendations for the information requirements of a LIS are described, as proposed by Rakai and Williamson⁵¹ and Davies and

⁴⁵ Goldstein 1986:12-14 (R. v. Daniel Charles Maloney (no. 2): Canada)

⁴⁶ Goldstein 1986:12-158 (Ronald Edward Cunningham v. Thomas Welsh and the Corporation of the City of Ottawa: Canada)

⁴⁷ Goldstein 1986:12-2 (R. v. Arthur David Jette: Canada)

⁴⁸ Goldstein 1986:12-62 (R. v. Terrence Ronald Tookey (no. 1): Canada)

⁴⁹ This is the Heavy Garbage scenario. It is not possible to judge whether something is actually heavy or if the visuals misleadingly testify to the fact. (Smith v. AVIS transport of Canada Ltd., Goldstein 1986:12-47)

⁵⁰ Goldstein 1986:12-46 (Smith v. Avis Transport of Canada Ltd.: Canada)

⁵¹ Rakai and Williamson 1995

Fourie⁵². The ideal information for an Algeria LIS is also identified. The section concludes with a discussion on the guidelines, obtained from Canadian and United Kingdom case law, for the use of video evidence in law courts. The whole discussion relates to the research objectives discussed in chapter 1, that is to build methodological theory pertaining to developing the land tenure arrangements in a CPA, using spatial information technology, and to investigate the use of information technology, such as Land Information Systems and audio-visual technology in alleviating the identified problems relating to security of tenure.

The following section describes the LIS developed in this research. The functionality of the LIS is also discussed.

5.2 THE ALGERIA LIS

A LIS was developed as a project management tool for the Algeria CPA and only provides support for the duration of the creation of the CPA. This section describes the LIS and its functionality.

5.2.1 Description of Algeria LIS

The Algeria LIS⁵³ consisted of a database containing non-spatial attribute data and a spatial database. This section firstly describes the development of the attribute database and secondly, the construction of the spatial database.

The first step in the design of the database was to model the existing land tenure situation and the proposed future land tenure arrangements. This was necessary for the creation of an entity-

⁵² Davies and Fourie 1998

⁵³ Refer to section 2.1.2.

relationship model for the development of the relational database. The following subsection provides a summary of the existing land tenure in Algeria⁵⁴.

Existing Land Tenure Arrangements

The mapping of the existing tenure relationships in Algeria was obtained through interviews and observations. The situation⁵⁵ can be described as follows. The community members occupy houses as tenants of Cape Nature Conservation (CNC). The persons employed by CNC, invariably males, hold the tenant rights. The duration of these tenant rights is determined by the retrenchment, dismissal or retirement of the employee, and the tenant is then expected to evacuate the house. The allocation of house within the community, that is an allocation to a person already living in Algeria, occurs when a house is available and a request is made to CNC.

The community is allowed to cultivate vegetable gardens next to the Rondegat River, from which the gardens are irrigated. Water is also obtained from the pipe that crosses the property⁵⁶.

An important point to mention is that the community has never had a traditional system of land tenure. Historically, that is before the settlement of Algeria, the community lived as families on small farms, or as tenants of farmers in the area⁵⁷. There was thus no traditional land tenure system that had to be modelled by the LIS.

⁵⁴ A detailed description can be found in section 4.1.

⁵⁵ Refer to chapter 3 for a more detailed description.

⁵⁶ Refer to section 4.1.

⁵⁷ Interview : O.G. 17 September 1998

The above description identifies four sets of data that must be considered in the creation of the entity-relationship diagram: persons, houses, vegetable gardens and water rights.

This concludes the description of the existing tenure arrangements in Algeria.

Future Land Tenure Arrangements

This section describes the future land tenure arrangements of the Algeria CPA. This is based upon the requirements of the CPA Act (28/96) and observations made in workshops. Some of the issues, i.e. the classes of membership, have not been finalised by the community. These issues are thus inferred by the author from observations made in the community and discussions with community members.

Class	Right to vote	Additional Rights		
		Right to occupy a house	Right to cultivate a vegetable garden	Right to use the communal property
1	x	x	x	x
2	x	x	x	
3	x	x		
4	x			

Figure 5.4: The Classes of Membership in the Algeria CPA.

Membership of the Algeria CPA is held by individuals⁵⁸, and is allocated according to the rules as set out in section 4.2.1 (b). Classes of membership were not included in the

⁵⁸ Membership can be based upon families according to the CPA Act (28/96). Refer to section 3.1.6.

constitution of the Algeria CPA, because resolution was never reached on this matter. In workshop discussions the classes were defined according to rights. A summary of the provisional classification of the classes can be found in the table in figure 5.4.

It can be seen from this summation that no provision was made for the rights of strangers. The author believes however that this will be addressed as the CPA develops over time.

The community also decided that present use rights, for example the occupation of a house or the cultivation of a vegetable garden, would become formal rights with the registration of the CPA. The transfer, alienation, subleasing or inheritance of these rights may only occur in terms of the constitution of the Algeria CPA. A member who wishes to transfer, alienate, sublease or convey by inheritance, his or her rights must first notify the committee of his or her intention. This allows the committee the opportunity of acquiring the rights for the CPA. If the committee decides not to acquire the rights, the member may continue with his or her intention.

Rights may be obtained in the community in 8 ways. That is, by initial allocation with the inception of the CPA, through subsequent allocation, through alienation, by leasing, by transfer and through inheritance. Rights can also be obtained through marriage and through reaching majority⁵⁹ in the community. In one of the discussions⁶⁰ a community member proposed that the final decision of joining the CPA should only be reached when a decision is made to marry. There is some merit in the idea, however the author does not believe that marriage should be the first opportunity to join the CPA. Voting rights must rather be allocated when a person reaches majority. The rules of allocating additional rights, could then state that these rights might be allocated with marriage or with the start of a family. The older

⁵⁹ Reaching the age of 18.

⁶⁰ Discussion with F.J. 23 March 1999

members of the community frown upon single parenthood⁶¹, but this should not lead to the exclusion of single parents⁶².

Another matter that has not been considered by the community is that of accumulated rights. For example, through inheritance⁶³ a person could obtain the right to occupy a house. The person may however already have such a right. The author would thus recommend that only additional rights may be inherited and rights that are limited, may not be accumulated.

The above discussion mainly involves the internal decisions reached by the Algeria community at the conclusion of this research. The use of water from the pipe, is an external complication that will impact on the tenure arrangements of CPA. This matter was discussed in chapter 4⁶⁴. In discussions with the adjacent farmer⁶⁵, he stated that he would allow the continued use of the pipe by the community if a servitude is granted. He wishes the informal servitude to be registered⁶⁶ and in that case will expect assistance from the Algeria CPA for the maintenance of the pipe. This issue has not been finalised and the two parties have not discussed matters such as payment for use of the pipe etc.

The following section gives a description of the entity-relationship model, based upon the above subsections as well as the discussion in section 5.1.3.

⁶¹ When the issue of single mothers was raised in working groups, a group consisting of older members stated that the mother should marry, because it is her religious duty. (Workshop : 5 July 1997)

⁶² The exclusion of single parents is also against the principles of the White Paper on Land Policy (DLA 1997) discussed in section 3.1.1.

⁶³ Inheritance is a sensitive issue with the community. In the initial workshops and in discussions with the community, the community insisted that the inheritance of rights must be accommodated.

(Discussions with F.J. 23 March 1999 and workshop : 12 December 1997)

⁶⁴ Refer to section 4.1.

⁶⁵ Interview : K.M 17 September 1999

⁶⁶ The author believes that because the pipeline has been in existence for more that 30 years, the likelihood of the servitude being granted to the farmer is high.

Description of the Entity-Relationship Model

The entity-relationship approach is a data modelling technique used in the conceptual design of a database. This is usually done by the developer in participation with the users. The data model is a representation of the real world which consists of a set of objects called entities and the relationships between these objects⁶⁷.

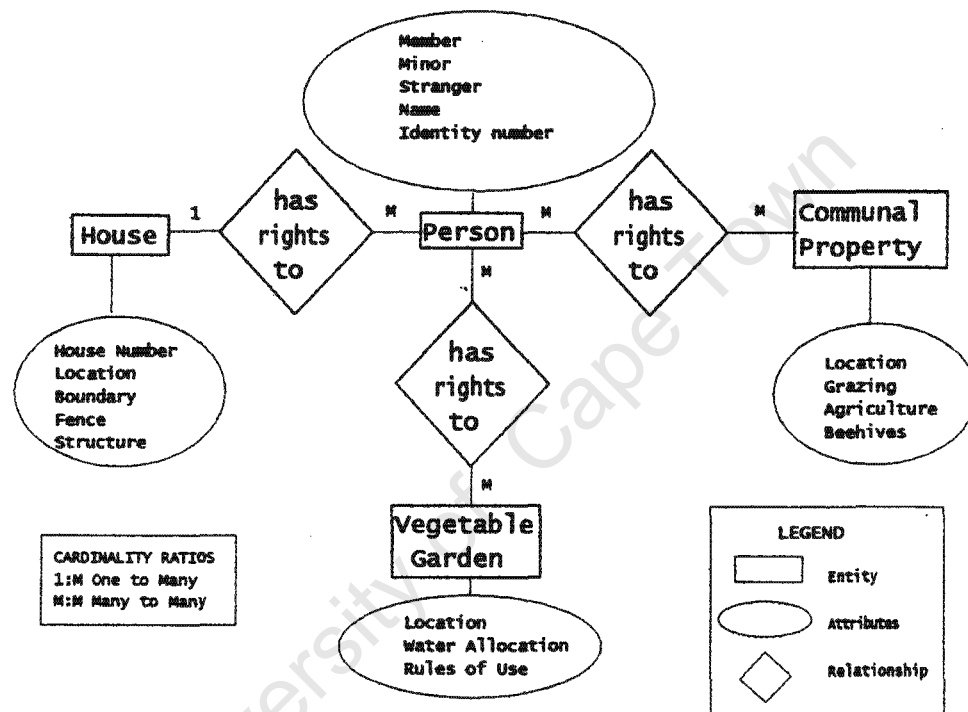


Figure 5.5: The Entity-Relationship Model

The Algeria community comprises persons⁶⁸. A person may be classified as a member, a minor with expectation of membership and a stranger. Each person has a name, identity number, gender, date of birth, income, employment status, employer. The land usage is divided into house parcels, vegetable gardens and common property. Each house parcel has a location (boundary coordinates) and a number. Each vegetable garden has a location.

⁶⁷ Elmasri and Navathe (1989:37,40) and Lorents and Morgan (1998:53).

⁶⁸ The community will be comprised of persons belonging to families in the case of family membership (refer to section 5.2.1). This would result in a different ER model.

Vegetable gardens are exclusive use areas of common property. A member, minor or stranger can occupy a house, but only a member has permanent occupation rights. A stranger has temporary lodger rights. The class of a member determines the additional rights that may be allocated to the member.

The basic entity-relationship model is diagrammatically shown in figure 5.5.

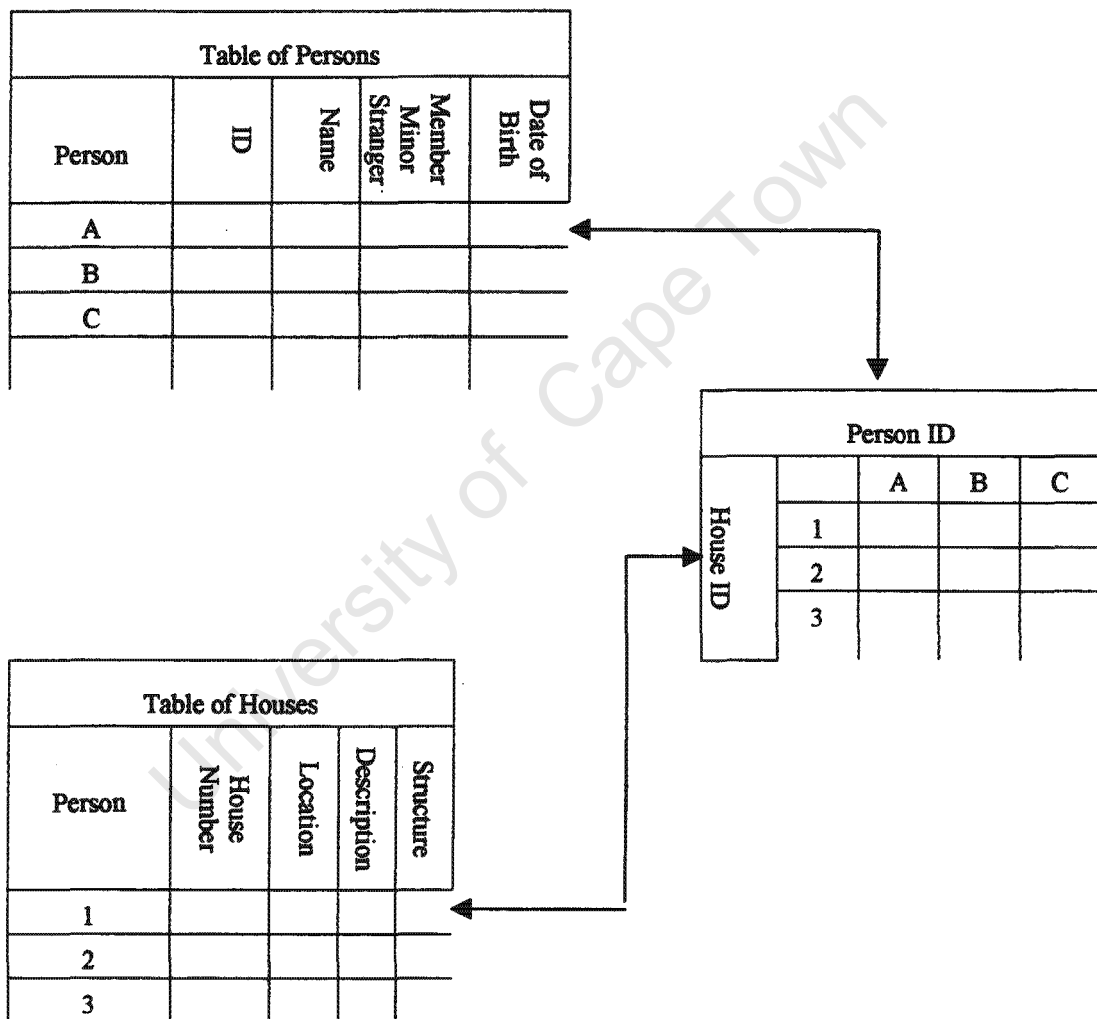


Figure 5.6: Model for relating land tenure information through indexing between tables.

The next step was to collect the necessary data. The data gathering is described in section 5.3 and includes the collection of socio-economic data, spatial data and video evidence. This data

was then recorded in the LIS. The tables in the database of the LIS are indexed as shown in figure 5.6⁶⁹. Figure 5.7 shows the relationships between tables in the database. This concludes the description of the database.

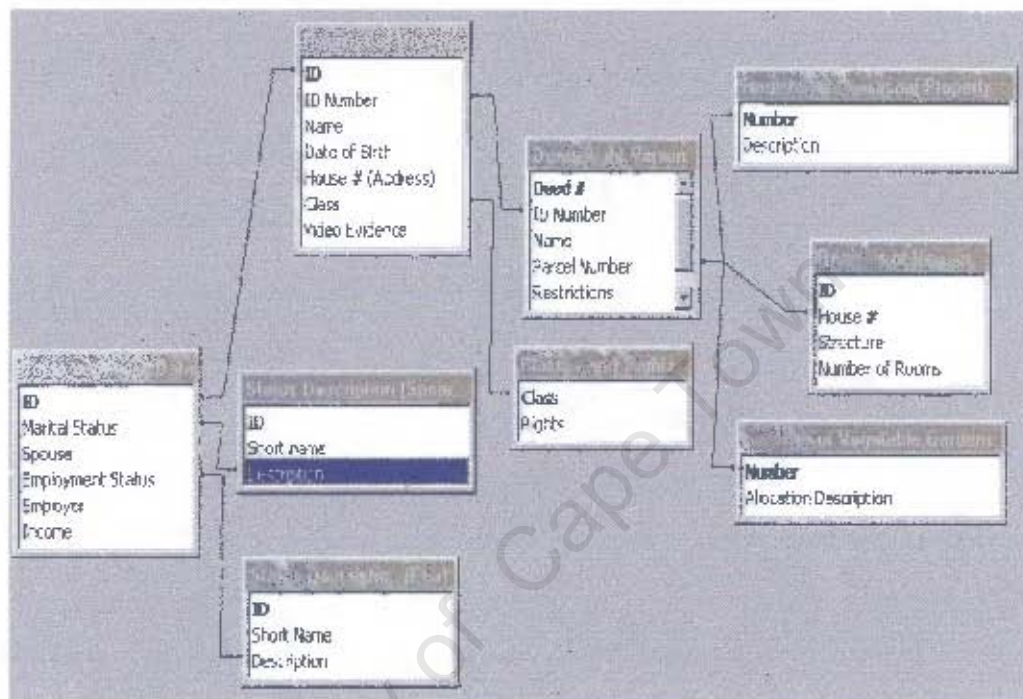


Figure 5.7: The Relationships between Tables in the Database.

The spatial information system recorded the spatial data collected in Algeria. The locations of boundaries were obtained from the corner coordinates of the boundaries. The map can be seen in figure 5.8.

⁶⁹ The figure only partially models the database.



Figure 5.8: Map of Bosdorp Section of Algeria (as displayed in spatial information system).

This concludes the discussions relating to the database and the spatial information system. The following section will consider the functionality of the LIS.

5.2.2 Functionality of the Algeria LIS

The functionality of Algeria LIS includes the capture and manipulation of data. This is done by means of various forms and queries in the database. The spatial information system can also query the database and by this means spatial analysis can be accomplished.

Maps can be generated for planning. It is also possible to create deeds or certificates in the LIS. In the following section, the data collection for the LIS in Algeria is discussed.

5.3 DATA COLLECTION FOR THE ALGERIA LIS

For the creation of the LIS for the Algeria communal property association, the spatial relationships, mentioned in sections 5.1 and 5.2, were mapped using a terrestrial survey. A socio-economic survey was also conducted to gather attribute information. The following will describe the collection of this data.

5.3.1 Terrestrial Survey

The first requirement of a LIS is the collection of spatial data in Algeria. This includes data relating to the boundaries of houses and vegetable gardens, roads, facilities, flood line of the river and the location of resources. The use of aerial photography was not an option, since the only photographs of Algeria that do exist are of too small a scale and not up to date⁷⁰. It was thus decided to conduct a survey using differential GPS to obtain the required spatial data.

All the corner posts of fences of houses in Bosdorp⁷¹ were surveyed. However, it was found during the processing that it was difficult to obtain solutions for points. The author ascribes this to the inadequate coverage of satellites over the valley⁷², distortions in the control net⁷³ in the area and the long distance, wide spread control. Because of these problems all the boundaries were also steel taped, to provide some redundancy. Only the boundaries in Bosdorp were surveyed, due to these difficulties and time constraints.

⁷⁰ 1:50 000 map dated 1986 (Surveys and Mapping).

⁷¹ Refer to figure 4.3 and 4.4.

⁷² The high mountains reduced the horizon. The valley also lies in a northeast to southwest direction, which may have reduced the availability of satellites.

⁷³ The distortions in the control net of the Cedarberg area translated into the transformed coordinates.



**Figure 5.9: The GPS Survey in Bosdorp
(Establishing a Base Station)**

[Photo - M. Barry]

A map of the parcel boundaries in the settlement was then drawn in TurboCAD 3.0, using the coordinates obtained from the processed GPS observations. This map was then imported into ArcView 3, via Arc Info software.

It was also decided not to survey the outside figure of the claimed land, since no survey⁷⁴ has ever been done of some of the portions and the rest of the land has not been surveyed since 1948. It was viewed as outside the scope of this thesis to get involved in a dispute over these boundaries. The external boundaries were also not required for the development of the internal land tenure arrangements of the Algeria CPA. Approximate boundaries are adequate for the purpose of this research.

⁷⁴ State land is frequently left unsurveyed.

5.3.2 Social Survey

To obtain attribute data for the LIS, a social survey was conducted. The social survey was done with the assistance of a fellow researcher⁷⁵, using a hand held computer, with an interface developed especially for the survey. The survey was performed with the help of three community volunteers.

The following information was collected: house numbers, names, identity numbers, gender, date of birth, marital status, employment and existing structures and services. It can be seen that some of the information recommended by Rakai and Williamson⁷⁶ and Davies and Fourie⁷⁷ were not collected in this survey. This included all information that was not relevant or available, such as information on private restrictions, information modelling the transient nature of informal settlements and date of allocation.



Figure 5.10: Glynnis Barodien (second from right) and community volunteers.

⁷⁵ Glynnis Barodien. See MSc thesis in Litt. *Field Computers for Spatially Referenced Social Surveys*.

⁷⁶ Rakai and Williamson 1995

⁷⁷ Davies and Fourie 1998

The information collected in Algeria was then downloaded from the hand held computer and imported into the relevant tables in the database of the LIS. Information collected by SPP⁷⁸ was also included in the database. This was to ensure the inclusion of outsiders⁷⁹ that wish to return to Algeria in the database.

5.3.3 The Collection of Video Evidence in Algeria

The main aim of the video evidencing system is to record information. This includes the identification of the claimant, the right being claimed, the thing the right is germane to, and any other information that relates to the right.

It was decided to obtain the above information by having each claimant read an affidavit⁸⁰ that they prepared⁸¹, for the testing of the video evidencing system in Algeria. A workshop was conducted in the preparation of the affidavits with the volunteers from the community. During the testing each claimant was recorded in context of the thing⁸² that was being claimed, while delivering evidence.

This format, as opposed to recording one household-head or two household-heads, was decided upon, for the following reasons. Recording one household head would be the easiest to organise, but this will require the identification of the head of the household, which could lead to discrimination. The recording of two household heads would also be easy to organise, and attempts to prevent discrimination. Yet again though, the identification of the two heads of household may prove difficult.

⁷⁸ The information collected by SPP mainly relates to the subsidy applications of the community. This included names and identity numbers of households, income and gender.

⁷⁹ The socio-economic survey only recorded people residing in Algeria at the time of the survey.

⁸⁰ Refer to appendix IV for an example of the affidavit.

⁸¹ An example of an affidavit was drawn up and contained suggestions of possible information. These included identification of the claimant, testimony of historical claims and claims to formally unrecognised use rights.

⁸² House or vegetable garden.

The major disadvantage of the two above formats would however be that they do not reflect the land tenure situation accurately and may exacerbate existing disputes. The author believes that each member of the CPA must deliver evidence, although this may prove to be logistically difficult⁸³. This is because of the amount of organisation involved in ensuring that all claimants are available when the evidencing occurs.

The following guidelines obtained from Canadian and United Kingdom⁸⁴ case law were also abided by during the recording of evidence. It was ensured that a clear audio track was obtained during the recording. In addition, the recording was verified by the affidavit, which provides documentary evidence that the recording occurred.

Another important aspect was to ensure that the thing being claimed, whether it is a house or a vegetable garden must be identifiable in the video clip. It was thus attempted to obtain enough visual information, to ensure identification. In the case of the houses, the recording started with the deliverance of evidence by the claimant. A visual was then obtained of the houses by zooming out and attempting to include distinguishing features⁸⁵ of the house. Due to the nature of the terrain, the visual identification of the entire house⁸⁶ was not possible in Algeria. For the vegetable gardens, the claimant was recorded while walking along the boundaries of the garden, with each corner defined by a flag⁸⁷. During this walking of the boundaries, the claimant delivered evidence and provided an oral description of the boundaries.

⁸³ This is dependent on the number of people involved in the process.

⁸⁴ Refer to discussion on video recordings and the law in section 5.1.4.

⁸⁵ Distinguishing features included electrical substations, trees, walls and other permanent features.

⁸⁶ The houses in Algeria are quite close together. Most of the houses also have elaborate gardens around them, including trees.

⁸⁷ This method of using flags was adapted from an informal system of resolving disputes and transferring land in the Eastern Cape. (Ralawe 1993:8)



Figure 5.11: Using Flags to Delineate Vegetable Garden Boundaries

The evidence of 21 people delivering a total of 25 claims⁸⁸ was recorded during the course of one morning on video. Five of the families occupied houses in the village and one family lodged, with permission of the association, in a house⁸⁹ used usually for single men employed by CNC. The "walking the boundaries" of the vegetable gardens of three claimants were also taped.

Except for three younger participants, most of the volunteers in the testing of the video evidence participated enthusiastically. The author also noted that community members that were taped more than once⁹⁰ were more comfortable with the second recording.

⁸⁸ 21 people claimed the right to occupy a house and 4 claims related to the vegetable gardens. The claims also included other matters that may impact on the claim. Refer to appendix IV for an example of the affidavit.

⁸⁹ This house is generally referred to in the community as "Die Ramhok" or the Ram-pen. (Discussion with D.N. 23 March 1999)

⁹⁰ Some of the community members were taped claiming rights to a house and a vegetable garden.

After the video evidence was recorded, it was captured onto a computer using a video capture card and associated software⁹¹. Because of the size of the clips (up to 120 000 KB), they were then burned onto a CD ROM. The clips were then inserted into the relevant tables in the database of the Algeria LIS.

During the capturing process the other guidelines developed in section 5.1.4 were applied. No editing was done of the individual clips and the clips were used in entirety. In addition, the individual in the clip could verify the authenticity, accuracy and integrity after the inclusion in the LIS.

This concludes the discussion on the collection of spatial data, attribute data and video evidence in Algeria. This information was used in the LIS designed for Algeria. This matter will be further discussed in chapter 6.

5.4 SUMMARY OF CHAPTER 5

Chapter 5 starts with a description of the information requirements of two different LIS, the "western" LIS of Rakai and Williamson⁹² and the LIS for informal settlements of Davies and Fourie⁹³. Both these discussions provide information for the design and development of the Algeria. Davies and Fourie⁹⁴ provided important information for the use of LIS in informal settlements, which can be used for LIS for CPAs.

⁹¹ Refer to Appendix II for list of hardware and software used

⁹² Rakai and Williamson 1995

⁹³ Davies and Fourie 1998

⁹⁴ Davies and Fourie 1998

The information requirements of the Algeria LIS were developed. This section discussed the inclusion of video evidence in the LIS, as well as the guidelines that video evidence must meet to be used as evidence in a court of law.

The Algeria LIS was then described. The development of the LIS started with the modelling of existing and future land tenure arrangements in the Algeria CPA. A description of the entity-relationship model of the Algeria LIS then follows. The functionality of the Algeria LIS is then described. The contribution of the LIS to security of tenure is also argued.

The data collection activities in Algeria were then described. This included the collection of spatial information, attribute information and video evidence.

This chapter contributed to the fulfilment of the following research objective:

- to investigate the use of information technology, such as spatial information systems and databases, and audio-visual technology in alleviating problems relating to security of tenure.

The next chapter contains the analysis done for this research. This chapter will also develop methods, which is argued, should contribute to achieving greater security of tenure in a CPA.

6. ANALYSIS

This chapter analyses the Algeria case study in terms of the support technology provides to creating a CPA. First, the creation of the CPA is analysed with reference to Elandskloof and Algeria. The focus is on identifying problems in the creation of the CPA that may threaten security of tenure. Secondly, the video evidencing system is analysed. Three behavioural models¹, the theory of planned behaviour, the technology acceptance model, and the augmented technology acceptance model, are used as a structure for this analysis. Thirdly, LIS is discussed in terms of the support that can be given to the process of creating a CPA. This is followed by a discussion on the bundle of evidence contained in the LIS and the chapter concludes with a description of the methodology of using LIS when creating CPAs.

Key questions² were developed to assist in reaching the research objective, and these are addressed in this chapter. To restate, these questions are:

- What areas in the process of creating a CPA can benefit from the support of land information systems integrated with audio-visual technology, such as video?
- How can land information systems and audio-visual technology (video) provide greater security of tenure?
- How can audio-visual technology (video) be used to obtain evidence relating to tenure?
- How can video evidencing assist in adjudication of rights?

The next section discusses the problems identified in creating a CPA.

6.1 THE PROCESS OF CREATING A CPA - IDENTIFIED PROBLEMS

The following analysis considers areas in the creation of a CPA that may benefit from the support of a LIS. A review of the Elandskloof CPA was discussed in section 2.2.1 and the

¹ Refer to section 2.2.5.

² Refer to section 1.4.

case study of the Algeria community was discussed in chapter 4. The difficulties in the process of creating a CPA were identified from these discussions and these are analysed below.

The section first discusses the difficulties relating to the compilation of the membership register in Elandskloof, as well as the land grabbing and conflict that occurred in the community. The manipulation of land tenure rules in context of Fourie's³ social change model is also discussed.

In Elandskloof difficulties were experienced in the compilation of the membership register. These difficulties related to the confusion over different forms and inadequate planning and quality control of the social surveys. The author also noted that such difficulties, although experienced to a lesser degree, were not remedied in Algeria. The lower level of conflict in Algeria was mainly due to the less volatile nature of the Algeria community and the active participation of the committee members in the compilation of the membership register. People were also on site, whereas in Elandskloof they were dispersed over a radius of more than 250 km.

The author believes that adjudication and the compilation of the membership register is one of the most important activities in the process of creating a CPA. It is also an area where the support of a LIS can prove vital. This is discussed further in section 6.3.

Land grabbing and conflict were the other difficulties experienced within the Elandskloof CPA. These are directly related to security of tenure. Fourie's⁴ social change model⁵ explains the causes of land grabbing and conflict within the Elandskloof community. Fourie's social change model posits that the manipulation of land tenure rules is a result of competition for resources between groups and subgroups.

³ Fourie 1993

⁴ Fourie 1993

⁵ Refer to section 2.2.2.

In section 2.2.3 the author argued that if the Algeria CPA is considered in terms of Fourie's social change model, the same behaviour as in Elandskloof, that is, the manipulation of land rules, may be predicted. This is because of the limited housing available to the Algeria community. Thus as the competition for limited resources intensifies, manipulation of the land tenure rules becomes more likely. However this is speculation as such behaviour was not observed during the course of this research.

The author however believes that the potential for land grabbing and conflict within the Algeria community may be alleviated with due consideration of the elements that contribute to security of tenure in the design of the LIS and the support of the LIS. To recapitulate, the elements of security of tenure, identified in section 2.2.4 were: the definition of boundaries and rights, publicity, well established authority, effective dispute resolution and knowledge and education. These elements must thus be incorporated into the development of methods, using LIS integrated with video technology, to support the creation of a CPA. This is discussed in section 6.3.

To conclude, the areas in the creation of a CPA that may benefit from the support of a LIS integrated with video technology are:

- the compilation of the membership register, and
- land grabbing and conflict within the CPA.

The next section analyses the video evidencing system developed in this research in terms of the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model.

6.2 VIDEO EVIDENCING

It was mentioned in the above discussion of the Elandskloof CPA, that land grabbing and conflict still occurs in Elandskloof⁶. The author also speculated that such behaviour may

⁶ Refer to section 2.2.1.

occur in the Algeria CPA as competition for resources intensifies. The author believes that the addition of video evidence to social, documentary and physical evidence will assist in the adjudication process and with dispute resolution. It is also in the author's opinion that the video evidencing system contributes to the elements of security of tenure identified in section 2.2.4.

The following discussion considers the operational aspects of the video evidencing system. The video evidencing system is then analysed in terms of the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model described in section 2.2.5. This is necessary to analyse and predict if the system will be accepted and used by the community. The section concludes with a discussion of the contribution of the video evidencing system to the elements of security of tenure.

6.2.1 Operational Aspects of the Video Evidencing System

As noted in section 5.3.3 most of the community volunteers participated enthusiastically in the testing of the video evidencing system. Volunteers also became more comfortable with the process after they had become familiar with it.

A few logistical problems emerged during the collection of video evidence in Algeria. The first was that a large proportion of the volunteers did minimal or no work on the affidavits⁷ and this was especially true of the younger participants in the experiment. An alternative to the affidavits is thus to conduct a structured interview during the video recording to obtain the necessary information. This would not entail any preparation from the claimant and in addition illiteracy⁸ would not unduly influence the process.

In section 5.1.4 the importance of verifying a recording for use in a law court was discussed. An attempt was made in the testing of the video evidencing system to obtain this

⁷ Refer to section 5.3.3 and appendix IV.

⁸ Illiteracy did not influence the collection of video clips in Algeria. It may however have an impact in other communities.

verification by means of a written copy of the affidavit. However as mentioned above, few volunteers prepared affidavits. The author suggested above that a structured interview be used as an alternative to the affidavit. If a structured interview is used in the video evidencing, the verification of the recording can be obtained by including a standard form that must be signed by the claimant. In this manner the guideline of ensuring a recording is verified for use in a law court would be fulfilled.

Another logistical problem that emerged during the testing in Algeria was that two young men refused to participate⁹ and one young woman was absent at the appointed time. This is an important issue, because to obtain the potential benefits of the video evidencing system, the active participation of the community must be ensured. Alternatively, arrangements must be made to complete the bundle of evidence. For example, as part of the process, allocations can only be formalised after evidence is delivered. Also, community members who do not participate in the video evidencing should be reflected in the database¹⁰, and perhaps in this way be educated that they are diminishing the strength of their claims.

Other problems were also identified in the testing of the video evidencing system. The visual identification of the vegetable gardens proved to be difficult. There was visual interference from vegetation and it was difficult to follow the claimant with the video camera while the claimant walked the boundaries of the vegetable gardens, resulting in shaky visuals. A skilled video operator might avoid the above problems, but that would increase costs. Alternatively, a bird eye's view (viewing parcels from an elevated position¹¹) could be used. The claimant could still walk the boundaries, while delivering evidence into a tape recorder and video recorded from the elevated position. The audio track could then be overlaid¹² onto the visual recording.

⁹ The young men refused to offer a reason for their non-participation.

¹⁰ Additional information can be recorded in the database to show why no video evidence were obtained. The strength of the bundle of evidence in the LIS will also diminish because of the lack of the video evidence component.

¹¹ A natural elevation or a vehicle could be used.

¹² The video editing software used in this research does have this ability.

This concludes the analysis of the collection of video evidence in Algeria. The following section analyses the behaviour of the community members towards the video evidencing system.

6.2.2 Behavioural Models

Davies, Bagozzi and Warshaw's¹³ technology acceptance model (TAM) was described in section 2.2.5 (b). This behavioural model is specifically aimed at explaining computer usage behaviour. For this research the model was adapted¹⁴ to speculatively explain the behaviour of the community members towards the video evidencing system. Figure 6.1 shows the various elements of the model and their interrelationships.

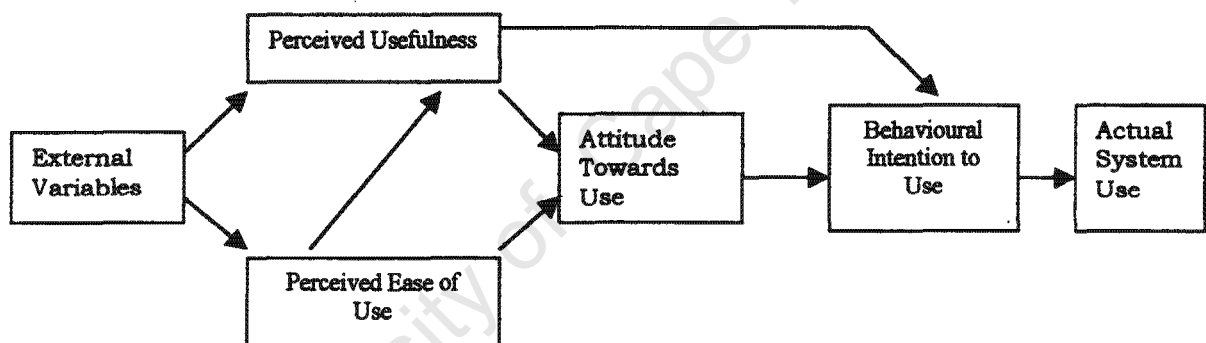


Figure 6.1: The Technology Acceptance Model

In section 6.2.1, the issue of the community members not preparing affidavits for the video evidencing was discussed. The author speculates that this is due to the collection of evidence not being viewed as providing personal decisive advantages for the individuals and there was thus no motivation to work on the affidavits. This corresponds to perceived usefulness and perceived ease of use components of TAM.

Perceived usefulness, in the case of the video evidencing system, is the claimant's subjective probability that his or her involvement in the process will advantage him or her.

¹³ Davies, Bagozzi and Warshaw (1989)

¹⁴ The adaption mainly involved a change in terminology. Refer to section 2.2.5 (b).

Perceived ease of use is the degree to which the claimant expects the process to be free of effort. According to TAM, attitude towards the video evidencing system will be determined by these two components. The author thus believes that, according to TAM, an increase in the perceived advantages and a decrease in the amount of effort required of the user will result in an attitude change.

Thus the alternative of conducting a structured interview¹⁵, instead of an affidavit, may circumvent the problem. The amount of effort of the claimant is thus decreased and the perceived ease of use increased. According to TAM this would increase actual use of the video evidencing system. This is however speculation and should be tested.

In section 6.2.1 it was also mentioned that three young community members did not want to deliver evidence, two of whom refused to explain their reasons. In the author's opinion this may have been due to lack of interest in the process or the shyness of being video taped. The behaviour suggests that in the context of TAM, the perceived ease of use and perceived usefulness of the video evidencing system was not enough motivation to participate.

The technology acceptance model does not include subjective norm, that is the individual's perception of social pressure to perform the behaviour. It is in the author's view that this may be an important factor to ensure the use of the video evidencing system. The theory of planned behaviour (TPB) and the augmented TAM¹⁶ does however include this factor. It was mentioned in section 2.2.5(b) that TAM and the augmented TAM are based upon TPB. The factors in TPB thus apply in Taylor and Todd's¹⁷ augmented TAM. The augmented TAM can thus be used to analyse the social factors impacting on the video evidencing process.

¹⁵ Refer to section 6.2.1.

¹⁶ Refer to section 2.2.5.

¹⁷ Taylor and Todd (1995)

The author believes that in a community the pressure on community members to comply with a behaviour may be used to ensure the use of the video evidencing system. An example of the "pressure" exerted by the community was mentioned in section 4.1. This related to the community members that were convinced to join in the process of creating a CPA, by pressure from the farmer, SPP and the committee. The author thus believes that if the committee can be convinced to support the video evidencing system, they in turn can persuade the community. If the majority of the community participates, the rest will be likely to comply due to social pressure. This was however not tested.

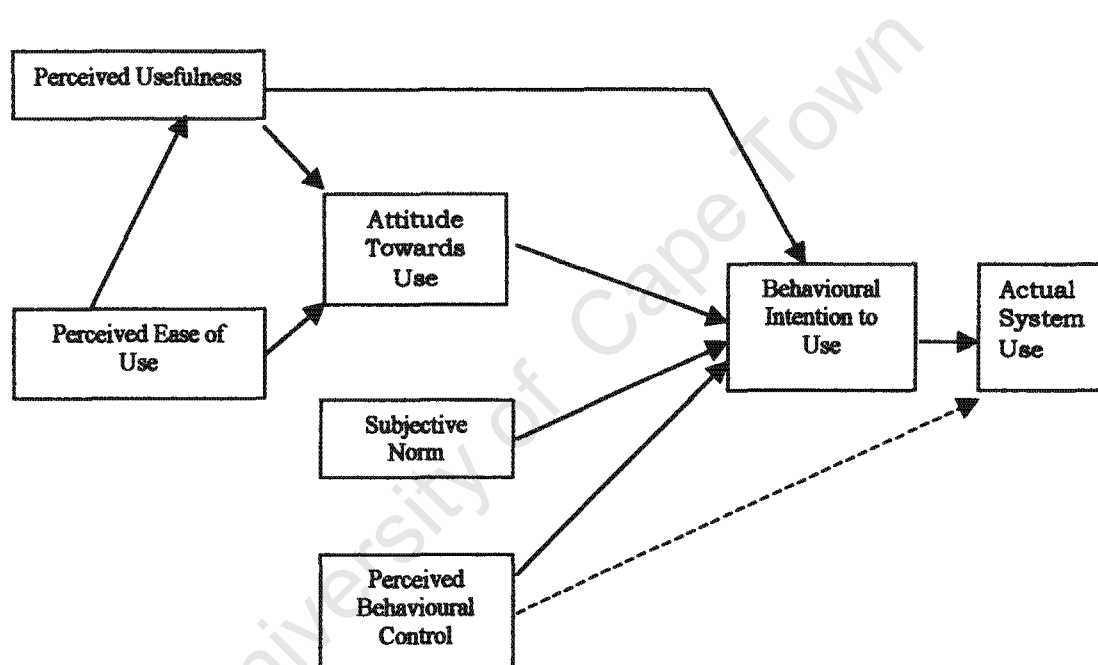


Figure 6.2: Taylor and Todd's Augmented TAM

Another factor in the TPB and the augmented TAM that is relevant in the testing of the video evidencing system is perceived behavioural control. In section 2.2.5 (a) it was stated that perceived behavioural control refers to the perceived ease or difficulty of performing a behaviour. In the TPB and the augmented TAM it is assumed that this factor reflects past experience as well as anticipated impediments and obstacles. In the testing of the video evidencing system it was observed that claimants became more at ease with being video recorded after the first recording¹⁸. Familiarity with the video evidencing system thus increased the perceived behavioural control of the claimants and in turn their willingness to

¹⁸ Refer to section 5.3.3.

participate increased. The author however believes that perceived behavioural control in video evidencing does not constitute a great contribution to behavioural intention. In the case of Algeria, respondents had volitional control over their behaviour.

The author believes that the above discussion provides an initial exploratory analysis of the video evidencing system, which may prove useful in understanding the behaviour of the community towards the system. The following section will discuss the perceived advantages of the video evidencing system.

6.2.3 Advantages of the Video Evidencing System

In the author's opinion the use of a video evidencing system provides the following advantages. The main advantage is that the claimant would know that what he or she affirmed is on record. This may alleviate the manipulation of the land tenure rules and contributes to greater security of tenure.

Other advantages includes:

- A positive visual identification of the claimant is obtained.
- A visual identification of the object of the claim is obtained. This depends on the situation. In some cases, as was found in Algeria¹⁹, this is not possible. However, since the video evidence is a component of the LIS, the identification of the claimed object is obtained from the spatial data recorded in the LIS.
- The process of collecting the video evidence is not time consuming. In the testing of the video evidencing system the collection of 25 claims was completed within one morning.
- Illiterates are not excluded from the process.
- The video evidencing occurs in the public domain and thus contributes to security of tenure²⁰.

¹⁹ Refer to section 6.2.1.

²⁰ Refer to discussion relating to publicity and security of tenure in section 2.2.4.

The recording of the video evidence can be viewed as a form of publicity, because the community is aware of activities in the community²¹. Thus through this publicity the community is educated and the knowledge of the whole community is reinforced. The recordings can also be played repeatedly. Manipulation of the land tenure rules is thus less likely to occur, because there is less opportunity for such behaviour.

- The video evidencing system provides additional information (to that of mathematical, textual or pictorial) for the clear definition of boundaries and rights²². It should not be seen as the sole evidence, but one of a range of tools to assist with adjudication and dispute resolution.

The video evidence is thus a valuable addition to the bundle of evidence recorded in the LIS. This is discussed further in section 6.4. The following section discusses the disadvantages of the video evidencing system.

6.2.4 Disadvantages of the Video Evidencing System

It is in the author's opinion that the video evidencing system has the following disadvantages:

- Technology is required. This includes a video camera, video capturing and editing software and hardware²³, and a CD ROM writer.
- An operator with basic video recording skills is required to obtain the video evidence
- The video evidence does not necessarily provide enough information for the identification of the location of a parcel. (However, because the video evidence is recorded in the LIS and the LIS contains coordinates of the parcel, this disadvantage is circumvented. Refer to section 6.3)

²¹ This is argued in section 2.2.4 (c)

²² Refer to discussion relating to boundaries, rights and security of tenure in section 2.2.4.

²³ Refer to appendix II.

This concludes the discussion of the video evidencing system developed in this research.

Answers to the key question stated in section 1.4 were obtained. These are:

- How can audio-visual technology be used to obtain evidence relating to tenure?
- How can video evidencing assist in adjudication of rights?

The following section considers the LIS.

6.3 LAND INFORMATION SYSTEM

In chapter 5²⁴ it was reported that Davies and Fourie²⁵ showed the current, accurate and accessible information that is required for effective land management in an informal settlement. The author believes that this is valid for a CPA, and concurs with Davies and Fourie²⁶ that a land management approach based upon LIS could assist in providing current, accurate and accessible information.

In section 6.1 the manipulation of land tenure rules and conflict in the Elandskloof CPA was reported and the same behaviour was predicted as a possibility in the Algeria CPA.

The weaknesses in the CPA that were identified in that section was:

- the compilation of the membership register and
- land grabbing and conflict within the CPA.

This section discusses the support that a LIS can provide the process of creating a CPA to alleviate the above stated problems.

Firstly the development of the LIS for a CPA is discussed. These discussions include the principles that must be maintained in the development of the LIS and the collection of data for the LIS during the process of creating a CPA. Secondly the functionality of the LIS is described. Finally the discussion concludes with an analysis of the relationship between the LIS and security of tenure.

²⁴ Refer to section 5.1.2.

²⁵ Davies and Fourie 1998:245

²⁶ Davies and Fourie 1998:245

6.3.1 The Development of the LIS

Certain principles must be accommodated in the development of a LIS for CPAs. The following section describes these.

Principles to accommodate in the design of a LIS for CPAs

Certain principles must be adhered to during the design of a LIS for CPAs. They are:

- The LIS must conform to the tenure system used in practice.
- Land records must be accurate, current and accessible.
- LIS should give proof of inclusion.
- The LIS should encourage trust and participation.
- The LIS must provide decisive advantages.

These principles were developed from the discussions in sections 3.1.1 and 5.1.2. The White Paper on Land Policy (DLA 1997) states that "new tenure systems and laws should be brought in line with the situation as it exists on the ground and in practice". The author believes that this guideline is also valid for a LIS. The tenure system should conform to the situation on the ground, and the LIS should explicitly model the tenure system.

The next principle is that land records must be current, accurate and accessible for effective land management. This is supported by Davies and Fourie²⁷ and as discussed in section 2.2.4, contributes to greater security of tenure by providing a clear definition of boundaries and rights. The principle of giving proof of inclusion was also extracted from the points made by Davies and Fourie²⁸, and encourages trust and participation from the community, another principle stated above.

The final principle is that the LIS must provide decisive advantages. This will be the main principle that must be considered when designing a LIS. If the system does not provide

²⁷ Davies and Fourie 1998:245

²⁸ Davies and Fourie 1998

decisive advantages, it will not fulfil its function and there will be no motivation to maintain and use the LIS.

This concludes the discussion on the principles that must be accommodated in the design of a LIS. In chapter three additional guidelines were developed from the discussion on CPAs. They are:

- The LIS must be able to record various use rights.
- Use rights must be allocated according to membership and class.
- Existing rights must be recorded before new allocation occurs.
- The process of registering a CPA must be viewed as parallel to the development of the LIS.
- The creation of the LIS must abide with principles of transparency and accountability.
- The LIS must be able to model the various types or classes of membership in a communal property association.
- Family based membership will result in a LIS different to that which is based upon individually based membership²⁹.

These guidelines must be considered when designing the LIS. The following section discusses the collection of data in a CPA.

Collection of Data for the LIS

During the creation process of a CPA excellent opportunities occur for the collection of data for a LIS. Initially, a socio-economic survey can be conducted³⁰ and the data recorded in the LIS. This data can then be used in the subsequent development of the Register of Members, before the application to register the CPA is submitted. At this stage a provisional model can be created of the land tenure arrangements. The number of finalised matters relating to land tenure will vary; some information will however be available. After

²⁹ Refer to section 5.2.1.

³⁰ Refer to figure 6.2.

the survey of the land is completed, the spatial information can be recorded in the LIS. The modelling of the tenure arrangements can then be completed.

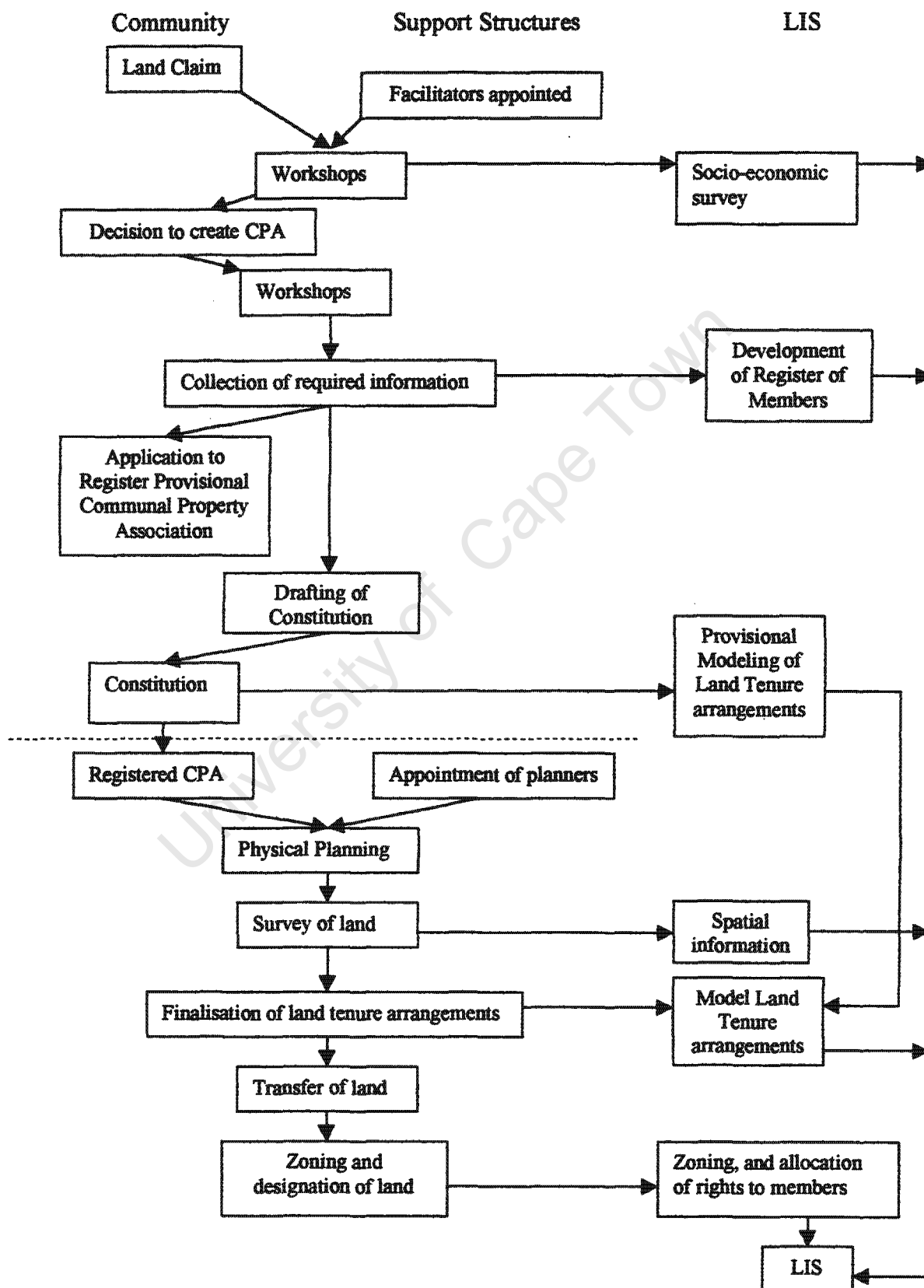


Figure 6.3: The Process of Creating a CPA and Collection of Data for the LIS.

The video evidence can be collected at any point in the process. In the case of a settled community, such as Algeria, where parcels are already occupied, the collection of video clips can be done in the beginning. This ensures that all *de facto* rights are recorded³¹. As rights are allocated or recognised in the process of creating the CPA, successive video updates can be done. This also ensures that a history of evidence is created.

The zoning and allocation of rights, which will complete the development of the LIS, follows the modelling of tenure arrangements. The process is shown diagrammatically in figure 6.3. The dashed line indicates the point in the process of creating the Algeria CPA at which this research was concluded.

This concludes the discussion on the development of a LIS for a CPA. The following section discusses the functionality of the LIS.

6.3.2 The Functionality of the LIS

The primary benefit of using a LIS in the creation process relates to its information management capabilities. The areas in the process of creating a CPA that can benefit from the support of a LIS can be divided into three categories: fiscal, administrative and juridical. The following analyses the LIS in terms of these categories.

Fiscal Support

The fiscal issues of the Algeria CPA relate mainly to the application for settlement grants. The confusion that arose over the different application forms in Elandskloof is discussed in section 2.2.1(c). In section 2.2.3 the author noted that this was not remedied in Algeria. The author suggests that a LIS may alleviate this problem. From the above discussions it can be seen that all the necessary data for the applications is recorded in the LIS. This

³¹ Refer to section 3.1.1 for a discussion on the recognition of *de facto* rights.

includes identification of families and income. A query can thus be used to create the necessary forms, using the database.

Another form of fiscal support can be provided at the conclusion of the LIS. A basemap can be produced by the LIS that can be used for valuation and collection of levies or fees. This also assists in providing support for decision making by the committee and in turn reinforces the authority of the committee. This contributes to the well established authority element of security of tenure³².

Administrative Support

The above discussion also falls within the domain of administration. However the greatest administrative benefit that a CPA may derive from the LIS relates to the creation and maintenance of the membership register. In section 2.2.1 (c) the difficulties of compiling the membership register in Elandskloof are discussed. These difficulties relate mainly to the confusion over the different kinds of application forms (membership forms, subsidy forms and a basic survey form) and inadequate planning or quality control in the data gathering process. The same problems were also experienced in Algeria.

The author believes that one survey form must be used to collect all the necessary information. Thus, once the necessary data has been recorded in the LIS, it becomes simple to manipulate and change data, and therefore to compile the membership register. The LIS thus becomes a valuable administrative tool in the process of creating a CPA.

In section 2.2.4 the elements that contribute to security of tenure within a CPA are discussed. It is in the author's opinion that the administrative capability of the LIS can provide information for effective decision making by the committee, and by doing this, develop trust between the community and the committee, which results in a well established authority. As argued in section 2.2.4 (d), a well established authority is an

³² Refer to section 2.2.4 (d).

element that contributes to security of tenure. In addition, effective dispute resolution³³ is more likely to occur, if the community perceives the committee as a well-established authority.

Juridical Support

The author views this category as obtaining the most benefit from the LIS. The LIS records all data relating to location, boundaries, use rights, details of the holder of the rights and video evidence. The inclusion of this data in digital format provides a combination of data that assist in the allocation of land and adjudication.

The importance of the contribution of the clear definition of boundaries and rights to security of tenure is argued in section 2.2.4. The recording of coordinates as well as a textual description of location provides a clear definition of boundaries in the LIS. The video evidence also provides an additional set of data that visually shows the boundaries and includes a vocal description by the claimant of the boundaries.

Once rights are clearly defined in the constitution of the CPA, they can be recorded in the LIS. This includes the classes of rights³⁴. The LIS can then be used to determine the class of a member or prevent the allocation of a right that falls outside the class of the member. In this way the LIS assists in the development of the land tenure arrangements of the CPA.

Publicity, and knowledge and education, are two other elements identified in section 2.2.4 that contribute to security of tenure in a CPA. The author believes that the collection of data for the LIS is a form of publicity and education in the community. In section 2.2.4 (f) it is stated that the continued land grabbing and manipulation of land tenure rules, that threaten security of tenure in Elandskloof, is a result of people not understanding land tenure rules. Opportunists thus found it easy to manipulate the land tenure rules to their

³³ Refer to section 2.2.4 (e).

³⁴ Refer to section 5.2.1.

advantage. Land grabbing and the manipulation of land tenure rules may thus be reduced if a community is educated in terms of these. The author believes that publicity and education occurs during the process of collecting data (especially the collection of boundary data and video evidence) in the community by making community members aware of their and their neighbour's rights and boundaries. As argued in section 2.2.1 (f), this contribution to the pool of knowledge of the community contributes to security of tenure by the application of social pressure. Thus community members will be less likely to manipulate land tenure rules in the face of disapproval of the rest of the community. In addition, because they are aware that video recorded testimonies can be republicised if replayed, they will be less likely to indulge in such behaviour.

Effective dispute resolution and adjudication are indirectly supported by all the elements that contribute to security of tenure in a CPA mentioned above and in section 2.2.4. The LIS provides support for adjudication and dispute resolution by recording a definition of boundaries and rights as well as video evidence. The LIS thus contains a bundle of evidence that can be used in adjudication and dispute resolution, as well as the first allocation of land.

In conclusion, the LIS provides valuable support in the juridical, administrative and fiscal categories for the creation of a CPA. This relates directly to the research objective of developing methodological theory, using LIS and audio-visual technology, to support the creation of a CPA with the object of minimising threats to security of tenure. Answers were also provided to the key questions³⁵:

- How can land information systems and audio-visual technology provide greater security of tenure?
- How can video evidencing assist in adjudication of rights?

The following section discusses the bundle of evidence recorded in the LIS.

³⁵ Refer to section 1.4.

6.4 BUNDLE OF EVIDENCE

One of the contributions of the LIS is the bundle of evidence it records. This bundle of evidence plays an important role in the land tenure arrangements of a CPA by providing evidence for ownership. The collection of bundle of evidence is thus an integral part of the development of tenure arrangements in the CPA and is part of the methodology suggested by this thesis.

The bundle of evidence in the completed LIS will consist of mathematical, documentary and video (audio-visual) evidence as shown in figure 6.4. The determination of boundaries using coordinates is part of the mathematical evidence and the textual description of these boundaries and the related rights constitutes the documentary evidence in the LIS. The entire LIS can be viewed as documentary evidence, however from the conventional point of view, the certificate or title created by the LIS provides evidence of a documentary nature. Social evidence is the information that people keep in their heads.

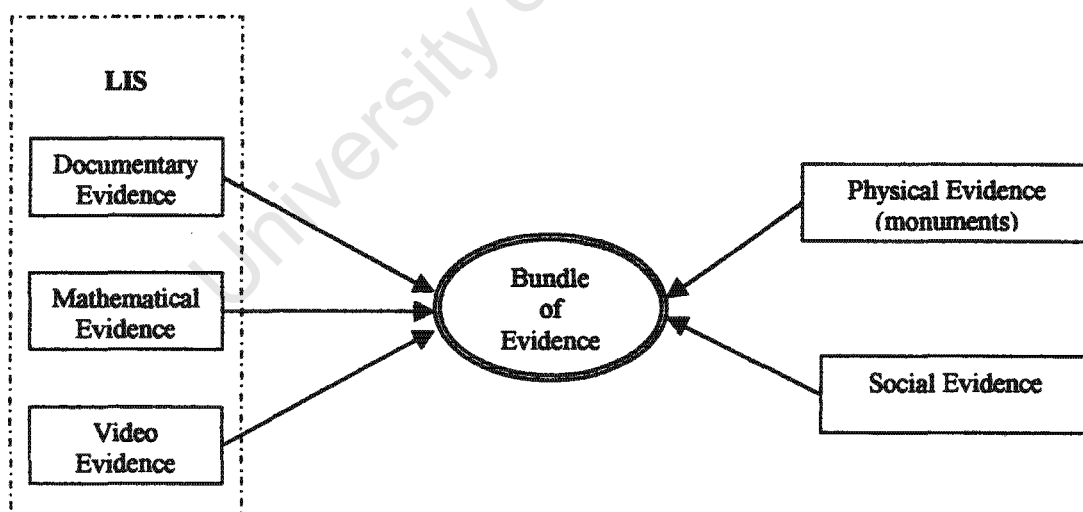


Figure 6.4: The Bundle of Evidence

The bundle of evidence will be very valuable for adjudication, as well as dispute resolution. The bundle also contributes to security of tenure by the sheer volume of proof it provides relating to ownership of particular rights. The author believes that video

evidencing removes some of the opportunities for factions to indulge in manipulation and reinforces security of tenure in a CPA³⁶.

The bundle of evidence that the LIS records is thus a component of the methodology of developing land tenure arrangement in a CPA and will be discussed in the next section.

6.5 METHODOLOGY FOR THE USE OF LIS IN THE CREATION OF CPAs

The primary research objective, as stated in chapter 1, was to build methodological theory relating to the use of LIS in the development of land tenure arrangements in a CPA. This section will discuss this methodological theory. The methodology for the process of creating the LIS for CPAs is described, and includes the information that is required for the LIS.

The first step in creating a LIS for a CPA (figure 6.5) is to model³⁷ the existing land tenure arrangements. This information can be obtained from interviews with all the parties that are involved in the land tenure arrangements. To model the land tenure arrangements information must be obtained relating to the allocation process of use rights, the restrictions that relate to these rights and the duration of the rights. Existing management structures must also be determined.

Modelling the existing land tenure arrangements ensures that the *de facto* rights are recognised³⁸. It also assists in the provisional modelling of the land tenure arrangements in the CPA, which occurs later in the process.

The next step in the methodology is to collect socio-economic information. The author recommends that community members be used in the collection process³⁹. The socio-

³⁶ Refer to section 6.3.2.

³⁷ Refer to section 6.3.1.

³⁸ Refer to section 3.1.2

³⁹ It was shown in section 2.2.4 that the active participation of the Algeria committee in the collection of data expedited the process of compiling the membership register.

economic information⁴⁰ must include name, identity number, house number, gender, marital status, name and identity number of spouse, date of birth, names of parents (in the case of a minor), income and employer. This information is required for planning and provides the necessary information for applications (State Subsidies)⁴¹.

The collected socio-economic information is then used to create a socio-economic database. This is the first component of the LIS. This database is then used in the development of the Register of Members⁴². After the Register of Members is completed, the database can be modified to reflect the changes.

When the community applies for the provisional registration of the CPA, some of the land tenure arrangements will have been decided upon and included in the constitution of the association⁴³. Thus at this stage the provisional land tenure arrangements can be modelled.

This is followed by the collection of spatial information⁴⁴ in the community. This information can include the mathematical, pictorial and textual description of the boundaries, as well as information relating to land use, the present user of the use right, a description of structures, services, public facilities, community facilities, roads, the flood line of rivers and streams, utilities and the topography. This information is then used to create a spatial information system. The spatial information system is then linked to the socio-economic database, which results in a provisional LIS.

The process continues with the collection of video evidence, described in sections 5.1.4 and 5.3.3. The collected clips are included in the database, and then provide additional evidence to the bundle of evidence⁴⁵ in the LIS.

⁴⁰ The socio-economic information requirements of the LIS was extracted from the information recommended by Davies and Fourie (1998), and Rakai and Williamson (1995) and is discussed in section 5.1.3.

⁴¹ Refer to section 2.2.1 (b)(iv).

⁴² Refer to section 2.2.1 (c).

⁴³ Refer to figure 3.1.4.

⁴⁴ The spatial information requirements of the LIS were extracted from the information recommended by Davies and Fourie, and Rakai and Williamson in chapter 3.

⁴⁵ Refer to section 6.4.

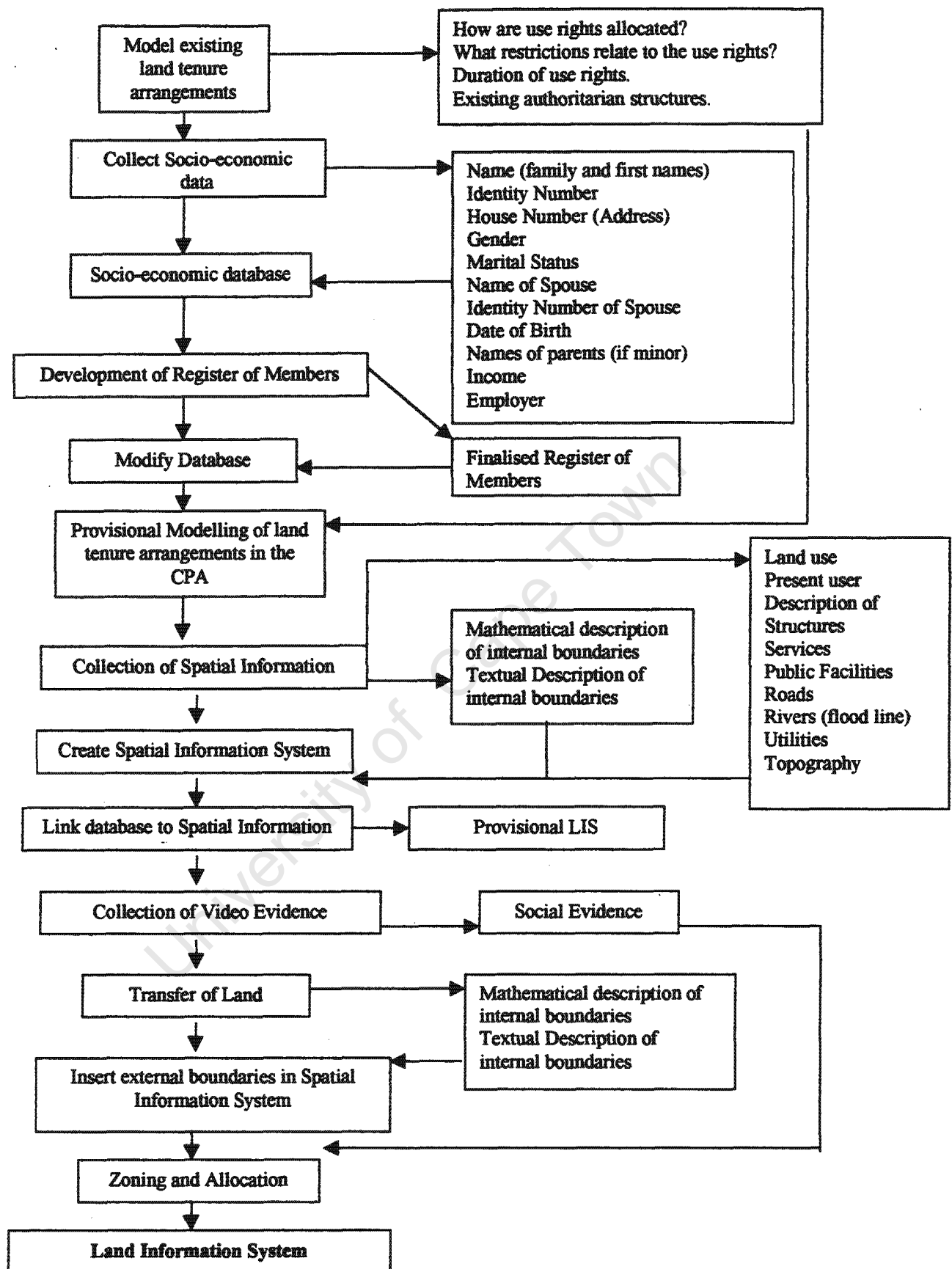


Figure 6.5: Schematic of the Methodology of using LIS in the creation of a CPA

After the transfer of the land the mathematical and textual description of the external boundaries can be obtained, if they are required. This physical information is then included in the spatial information system component of the LIS. The transfer of the land also allows the zoning to be completed and this can then be included in the LIS. It also allows the allocation⁴⁶ of rights in the CPA. The physical and social evidence recorded in the LIS assists this allocation⁴⁷.

After recording all the allocated rights, the land information system for development of land tenure arrangements in the communal property association will be completed.

The final stage will be to create a paper based internal administrative system from the information in the LIS. The lessons learned from the analysis of sectional titles in section 3.2.5 relating to the simplified procedures for the acquisition and transfer of sections, can then be used.

This concludes the analysis done in this research. In this chapter it was shown that a LIS could provide support to the process of creating a CPA that may alleviate difficulties relating to security of tenure.

6.6 SUMMARY

This chapter contains the analysis that was done at the conclusion of this research project.

The creation of a CPA was analysed; identifying areas in the process that may benefit from a LIS. The operational aspects of the video evidencing system were then analysed. This was followed by analysis of the video evidencing system in terms of the technology acceptance model, the augmented technology acceptance model and the theory of planned behaviour. The advantages and disadvantages of the system were then discussed.

⁴⁶ During the allocation of rights additional information, such as date of allocation can be included in the LIS.

⁴⁷ Refer to section 6.4.

The land information system was considered in section 6.3. The discussion started with the development of the LIS relating to the principles that must be abided with when designing a LIS for CPAs as well as the collection of data for the LIS. The section concluded with an analysis of the functionality of the LIS in terms of fiscal, administrative and juridical support.

The chapter concluded with a discussion of the bundle of evidence that is contained in the LIS and the methodology for the use of LIS in the creation of CPAs.

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7. SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

This chapter summarises the conclusions drawn in this thesis. Based on these conclusions, recommendations for future research are made. The chapter starts with a summary of the problems identified in the process of creating a CPA. This is followed by the conclusions drawn relating to video evidence. The land information system and the methodological theory developed are also discussed.

7.1 THE PROCESS OF CREATING A CPA - IDENTIFIED PROBLEMS

Two main problems¹ were identified in the analysis of the Elandskloof CPA and the Algeria case study. The first problem was the difficulty experienced in compiling a membership register in the Elandskloof CPA. The author noted that this problem was not remedied in Algeria. The author also stated that the compilation of the membership register is one of the most important activities in the process of creating a CPA, and an area where the support of a LIS could prove vital.

The second problem was the continued land grabbing and conflict in the Elandskloof CPA. This behaviour constitutes a direct threat to security of tenure for the community. Fourie's² social change model theorises that this manipulation of land rules is due to the competition between groups within the community for resources. The author argued that the manipulation of land rules because of limited resources might be predicted in Algeria according to Fourie's social change model.

¹ Refer to section 6.1.

² Fourie 1993

The author believes that both the identified problems may be alleviated with the support of a LIS integrated with video evidence. The following section discusses the video evidencing system.

7.2 VIDEO EVIDENCING

This section discusses the guidelines that the video evidencing system must comply with to be accepted as evidence in a court of law. The video evidence was also analysed according to the operational aspects of the system considered within the context of three behavioural models (TAM, augmented TAM and TPB). This is followed by the guidelines of introducing such a system in a community that were developed from the above analysis. The advantages and disadvantages of the video evidencing system are then summarised. The section concludes with recommendations relating to the video evidencing system.

The guidelines³ that the video evidence must comply with to be accepted in a court of law are:

- The video recording must be proven to be authentic, accurate and integral.
- No editing may be done, unless it is necessary to remove superfluous material.
- The recording must be used in entirety.
- The audio track is just as important as the visuals of the recording.
- The recording must be verified.

The author made the following recommendations relating to the operational aspects of the video evidencing system⁴. These were developed from analysing the video evidencing system in terms of the theory of planned behaviour, the technology acceptance model and the augmented technology acceptance model⁵.

³ Refer to section 5.1.4.

⁴ Refer to section 6.2.1.

⁵ Refer to section 6.2.2.

They are:

- A structured interview⁶ format must be used to obtain the required information for video evidence. An affidavit can then be signed by the claimant and used as verification of the recording. This complies with the guideline stated above.
- The author also recommended⁷ that social pressure within the community could be used to ensure that all the community members participate in the collection of the video evidence. Also the author believes that if the majority of the community participates in the collection of video evidence the rest of the community will comply because of social pressure.
- It was also found that familiarity with the delivering of video evidence increased the willingness of community members to participate⁸.

The author believes that the video evidencing system provides the following advantages⁹:

- A positive visual identification of the claimant is obtained.
- A visual identification of the object of the claim is made. However this identification needs to be used in conjunction with the spatial location data recorded in the LIS.
- The process is not time consuming. In this research it took 6 hours to record 25 claims.
- Illiterates are not excluded from the process.
- The video evidencing occurs in the public domain and thus contributes to security of tenure. This relates to the publicity and education that occurs during the process of collecting video evidence.
- The video evidence provides an additional information for adjudication and conflict resolution.

⁶ Refer to section 6.2.1.

⁷ Refer to section 6.2.2.

⁸ Refer to section 6.2.2.

⁹ Refer to section 6.2.3.

The author identified the following disadvantages¹⁰ of the video evidencing. These are:

- Technology is required, including a video camera, video capturing and editing software, as well as a CD ROM writer.
- An operator with basic video recording skills is required.
- The video evidence does not provide enough information to identify the location of the object being claimed.

Recommendations

Based on the findings relating to the video evidencing system, the following recommendations are made:

- This research developed and tested the video evidencing process. The participation of the community in the collection of evidence was also analysed in terms of behavioural models. This provided a useful conceptual framework for future research. The logical progression of this research would be to conduct a study of the actual use of the video evidence in adjudication and conflict resolution.
- This research focussed on CPAs. However the difficulties experienced in CPAs, such as land grabbing and conflict are also found in informal settlements. This research suggests that video evidencing may also be effective in informal settlements.
- It was stated above that the video evidence does not provide a positive identification of the location of the claimed object. In some cases this may however be an advantage. In a discussion of the cultural issues related to recording aspects of customary tenure in LIS in Fiji, Rakai¹¹ stated that the identification of the location of culturally sensitive areas, for example tabu¹² areas, would be abhorrent to the indigenous peoples. Comparable situations are also found in Australia and Namibia¹³ and other areas where customary tenure is practised. The author thus suggests that the video evidencing

¹⁰ Refer to section 6.2.4.

¹¹ Rakai and Williamson 1995:34

¹² That which is sacred or forbidden. (Rakai and Williamson 1995:38).

¹³ Refer to Design of a Communal Land Tenure Information System for Namibia (A A Danso, MSc thesis, University of Cape Town, 1998:56)

system be considered in terms of this. Video records can be created of such culturally sensitive areas, without revealing the location. If future disputes occur, the video record can provide evidence, in addition to social evidence. This however depends on the acceptance of the video evidencing system.

This concludes the conclusions and recommendations relating to the video evidencing system. The next section discusses the land information system.

7.3 LAND INFORMATION SYSTEM

This section first summarises the principles that must be accommodated in the development of a LIS for CPAs. The ideal opportunities that the parallel development of the LIS and the CPA provides is also mentioned. The conclusions relating to the fiscal, administrative and juridical support of the LIS are also discussed. Finally recommendations for future research are made.

The following principles, developed from discussions in sections 3.1.1 and 5.1.2, must be accommodated in the development of the LIS. These are:

- The LIS must conform to the tenure system used in practice.
- Land records must be accurate, current and accessible.
- LIS should give proof of inclusion.
- The LIS should encourage trust and participation.
- The LIS must provide decisive advantages.

Additional guidelines¹⁴ were also developed from the discussion of the case study. These are:

- The LIS must be able to record various use rights.
- Use rights must be allocated according to membership and class.
- Existing rights must be recorded before new allocation occurs.

¹⁴ Refer to section 6.3.1.

- The process of registering a CPA must be viewed as parallel to the development of the LIS.
- The creation of the LIS must abide with principles of transparency and accountability.
- The LIS must be able to model the various types or classes of membership in a communal property association.
- Family based membership will result in a different LIS, to the LIS based upon individually based membership.

In section 6.3.1 it was also stated that the process of creating a CPA provides ideal opportunities for the collection of data for the LIS. The parallel development of the CPA and the LIS was shown in figure 6.2.

The analysis of the LIS revealed that it provides support in three areas¹⁵. Those were fiscal, administrative and juridical. The fiscal support that the LIS provides relates mainly to the applications for settlement grants. Creating a base map at the conclusion of the LIS can also assist decision making and the collection of levies and fees within the CPA.

It was also stated that the LIS provides administrative support in terms of the creation and maintenance of the membership register, an identified problem area in the process of creating a CPA. It was also argued that the administrative capability of the LIS assists in effective decision making by provide the necessary information. The author believes that if this results in effective decision making the authority of the committee will be reinforced. This in turn contributes to a well established authority and effective dispute resolution, two elements that contribute to security of tenure within a CPA.

In the opinion of the author, the juridical support the LIS provides is the main benefit and motivation for using a LIS in the process of creating a CPA. It was argued in section 6.3.2 that the LIS contains the necessary data to assist in the allocation of land, adjudication and

¹⁵ Refer to section 6.3.2.

dispute resolution. The discussion also considered the contribution to the LIS to the security of tenure elements within the CPA. Those were, publicity, knowledge and education, the clear definition of rights and the clear definition of boundaries.

The author believes that the single greatest contribution of the LIS is the bundle of evidence that it records¹⁶. This includes mathematical evidence, documentary evidence and video evidence. The author argued that the bundle of evidence would be very valuable for adjudication and dispute resolution. The bundle of evidence also contributes to the security of tenure within a CPA by the sheer volume of proof it provides of ownership of rights.

Recommendations

The following recommendations relating to the above discussions can be made. They are:

- The LIS should be tested and analysed in the actual allocation of rights, adjudication and dispute resolution.
- The acceptance of LIS by the members of the CPA should be explored.

The next section discusses the methodology for using a LIS in the process of creating a CPA.

¹⁶ Refer to section 6.4.

7.4 METHODOLOGY FOR THE USE OF LIS IN THE CREATION OF CPAs

This section summarises the methodology¹⁷ for creating a LIS to provide support for the process of creating a CPA and concludes with recommendations.

The basic steps in the method are:

- Modelling the existing tenure arrangements and ensuring that *de facto* rights are recorded.
- Collecting the socio-economic data in the community.
- Creating a socio-economic/non-spatial database.
- Developing a register of members from the data in the socio-economic database.
- Modelling the provisional land tenure arrangements of the CPA. (This occurs at the provisional registration of the CPA.)
- Collecting the spatial data in the CPA.
- Creating a spatial database.
- Linking of the spatial database and the socio-economic database.
- Collecting video evidence in the community. This can occur at any point in the methodology and depends on the specific case.
- The spatial data not previously recorded can be included in the LIS after the transfer of the land to the CPA. This includes external boundaries and the zoning.
- The allocated rights can be recorded as allocation occurs. (This includes updating the video evidence.)

This results in the completed LIS. At the conclusion of the LIS a paper-based copy can be made for the use of the community.

This concludes the summary of conclusions and recommendations for future research.

¹⁷ Refer to section 6.5.

7.5 CONCLUSION

This research was grounded upon the question:

"How can land information systems, integrated with audio-visual technology, contribute to alleviating or reducing the uncertainty of security of tenure in a Communal Property Association, during the creation of such an association?"

It was shown in the case study of a stable community in Algeria that LIS can support the creation of a CPA and that audio-visual technology proved to be a valuable addition to the LIS. Finally, the combination of LIS integrated with audio-visual technology was shown to minimise threats to security of tenure within a CPA, with certain limitations. Video evidencing integrated into a LIS therefore holds the potential to contribute to the management of land in CPAs and perhaps in certain urban situations.

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Appendix I

Additional information¹ that must be included in the application to provisionally register a communal property association. Refer to section 3.1.4.

Name of CPA
 Address of the Association
 Objects of Association & Identity of community
 Land or property to be owned
 Qualifications for membership
 List of Names and IDs
 Principles for the Identification of members
 Procedures for resolving disputes about membership
 Classes of Members and rights associated with these classes
 Rights of members to use association's property
 Whether membership is based on individuals or families
 Grounds and procedures for terminating membership and what happens to the rights and property of the member
 The purpose of the property and the physical division and allocation of property
 Whether members may sell their rights, if so to whom
 What happens to a member's rights on his/her death
 How committee elected / terms of office / powers / powers of members in relation to decisions made by the committee / the power of members to remove the committee or members of the committee / payment (if any) of committee
 How and when AGM called, quorum and procedure
 How and when GM called, quorum and procedure
 The powers of the association and any limitations on them
 Responsibility of minutes and access to minutes
 Financial matters: how money of association will be dealt with
 Who will have right to make payments of behalf of the association
 How and by whom the financial records will be kept
 Provision for independent verification for financial records
 Distribution and division of profits
 Responsibility and apportionment of working expenditure
 Access to financial information by members
 How constitution may be changed
 How association may be dissolved, and what will happen to the assets
 Disciplinary matters (corruption, nepotism, etc)
 How disputes in the association are to be resolved

¹ CPA Act (28/96) Schedule.

Appendix II

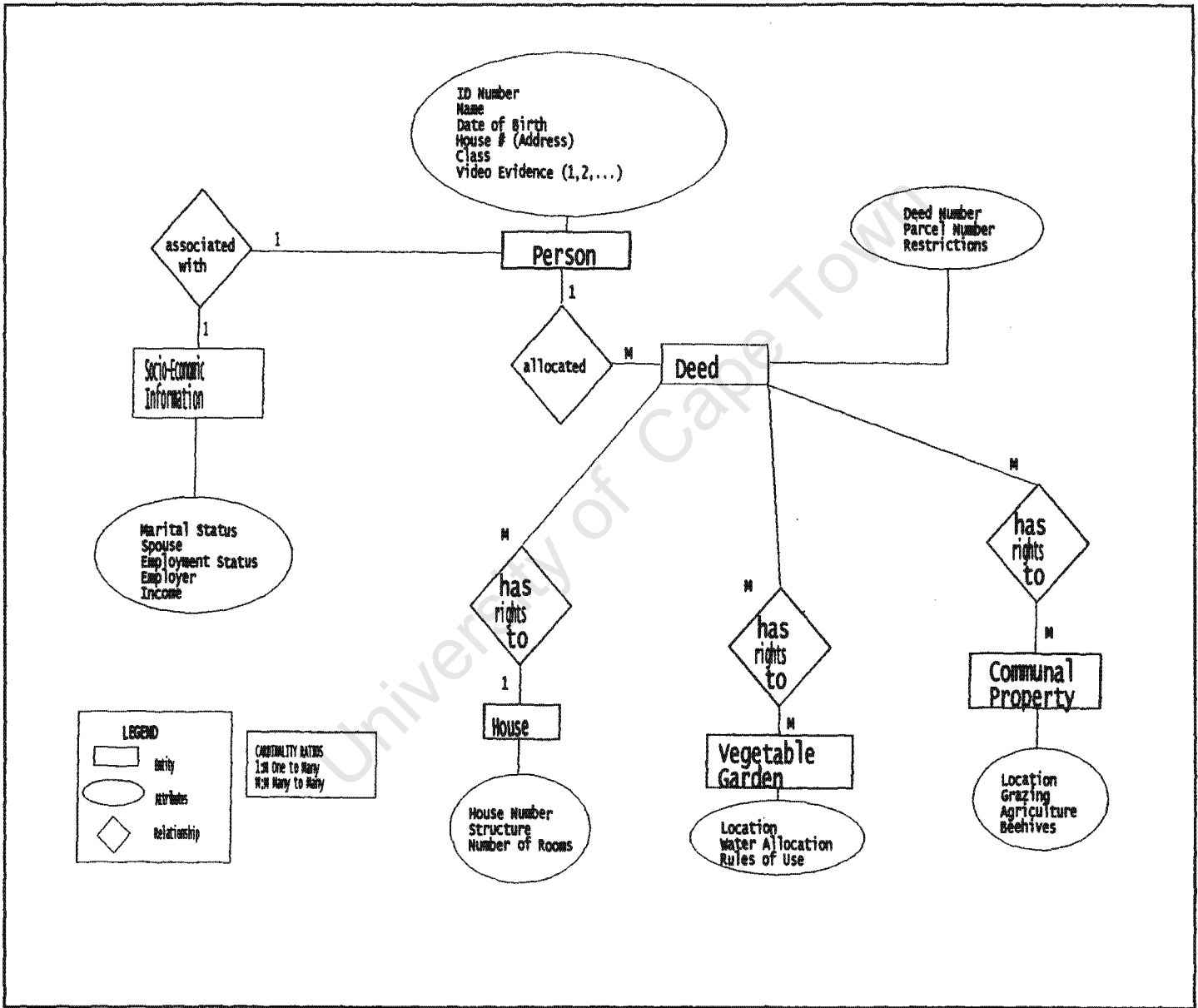
Software used in this research:

- Iomega Buz Multimedia Producer with MGI Videowave SE Plus (used to capture and edit video recordings)
- ArcView3 (GIS)
- ArcInfo (GIS)
- Microsoft Access (database)
- GPS software

Hardware used in the research:

- Iomega Buz Video Capture Card
- SONY Video Camera (CCD TRV16)
- Palm Pilot (3Com)

University of Cape Town



Relational Database: ER Diagram

Appendix III

Appendix IV

Affidavit (Refer to section 5.3.3 and 6.2.1.)

BEËDIGDE VERKLARING/GETUIENIS

Ek,, verklaar hiermee, op die dag,, om te hou by die Grondwet en Reëls en Regulasies van die Algeria Gemeenskaps Vereniging.

Die volgende kan ook in die verklaring ingesluit word :

Getuienis van regte uit die verlede :

- Afstammeling van die gemeenskappe van Heuningvlei en Grootkloof
- Onafhanklike toegang tot grond verloor as gevolg van koloniale en rassistiese ontneming van ons grond in die 18de en 19de eeu
- Gebore in Algeria (Skilpaddorp, Bosdorp)
- Tydperk al in Algeria (langer as dertig jaar ens)
- Deur die huwelik die gemeenskap betree

Regte vir die toekoms :

- In stand houding van huidige gebruiks regte Byvoorbeeld : “Op die oomblik woon ek in huis 1009 en ek maak daarop aanspraak om die regte te behou.” OF “Op die oomblik bewerk ek 'n groentetuin langs die rivier en ek maak daarop aanspraak om die regte te behou.”
- Bewus van regte tot gemeenskapsgrond
- Potensiële regte : Huis, groentetuin Byvoorbeeld : “Ek is bewus daarvan dat ek in die toekoms aansoek kan doen om die regte tot 'n huis of groentetuin te bekom.”

AFFIDAVIT/TESTIMONY

I, [name], hereby declare that to abide with the Constitution and Rules of the Algeria CPA, on this day [date].

The following can also be included in this affidavit :

Testimony of Historical Rights :

- Descendant of the Heuningvlei and Grootkloof communities.
- The loss of access to land due to colonial and racist deprivation of land in the 18th and 19th centuries.
- Born in Algeria (Skilpaddorp, Bosdorp)
- The duration of occupation in Algeria. (Longer than thirty years etc.)
- Entered the community through marriage.

Rights in the future :

- Maintenance of existing use rights, i.e. I occupy house 1009 and I wish to retain this right or I'm currently cultivating a vegetable garden and I wish to retain this right.
- I'm aware to my right to apply to use communal property.
- Potential rights: House, Vegetable garden. For example, I'm aware that I can apply for additional rights relating to the occupation of a house or the use of a vegetable garden.

Appendix V

Deed Form (as displayed in socio-economic database)

The screenshot displays a deed form interface with the following elements:

- Parcel Diagram:** A diagram showing several parcels with the numbers 6976, 6960, 2755, and 2757. A north arrow is present.
- Form Fields:**
 - County: 1328
 - Registration: 6372
 - Transaction: None
 - Name: Sloopman, Frederik
 - ID Number: 41071684007
- Video Evidence:** A video frame showing a man in a blue shirt, likely the holder of rights.

Deed includes name and identity number of holder of rights. Also includes the parcel description. A diagram obtained from the spatial database and video evidence also displayed.

Appendix VI

Chronology of Events

undated	Workshop 1: Development needs, land use and vision for the future.
7 June 1997	Workshop 2: Ownership models, cost of services and rights.
5 July 1997	Workshop 3: Ownership and land rights.
19 July 1997	Workshop 4: Economic Opportunities and relationship with CNC.
August 1997	SPP starts CPA facilitation process with Algeria community.
12 December 1997	Workshop: Communal Property Associations (<i>attended</i>)
24 January 1998	Workshop: Identity of CPA and management policy. (<i>attended</i>)
19 February 1998	Constitution formally accepted by Algeria community. (<i>attended</i>)
8 June 1998	Workshop: Rules of CPA
26 June 1998	GPS Survey
17 September 1998	Socio-Economic Survey
22 March 1999	Testing of Video Evidencing
June 1999	Conclusion of fieldwork.

Appendix VII

Instructions for using the CD ROM (Algeria LIS) included in this thesis.

The CD ROM includes:

- Socio-economic database (requires MS Access and avi video format compatible software)
- Spatial database (requires ArcView3)

Instructions

To use socio-economic database:

- Open Algeria.mdb in MS Access.
- Choose FORMS tab.
- Open (double click) 1)Intro form.
- Navigate using buttons.
- To play video clips - double click on image.

To use spatial database:

- Open Algeria.apr in ArcView3.

CD ROM not included in this copy.