CONSTRUCTING CADASTRAL REFORM THEORY IN SOUTH AFRICA

by Clarissa Fourie and Herman van Gysen
Department of Surveying and Mapping, University of Natal (Durban), South Africa

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It has been a momentous year for South Africa. The elections in April brought to an end the era of apartheid and white political domination. South Africa now enjoys democratic rule, under an interim constitution and with a government of national unity, in which all major political groupings share power.

The transition to democratic rule was brought about by what has come to be called a `managed revolution', an internally mediated process that brought together all political parties in many months of talks. This culminated in agreement on the new constitution, the elections, and the transfer of power to the new government. The new constitution is a complex and not altogether satisfactory document; it reflects the compromises undergone to achieve consensus during the negotiations.

For example, in the important matter of land, the return of land lost under apartheid to the original landholders is elevated to a constitutional principle; while at the same time the state is denied the right to expropriate land in the public interest to give effect to a programme of land redistribution. (Note: A distinction is drawn between the expropriation of land for public purposes, eg. for a public use such as constructing a road or hospital, and the expropriation of land in the public interest, eg. acquiring land for redistribution (Land and Agricultural Policy Centre:1993:5). In terms of the new South African constitution, Act 200 of 1993, expropriation in the public interest is not permissable (South African Government Gazette:1993)).

But compromise has brought with it conciliation and inclusiveness that gives the constitution and new government not only legitimacy in the eyes of all South Africans, but has engendered a willingness and commitment among all sectors of society to work towards building, what is often termed, 'the new South Africa'.

The principal instrument for giving effect to the broad policy outlines of the African National Congress, or ANC as it is more commonly known, (the majority government partner), is the Reconstruction and Development Programme (RDP). The RDP seeks to build the nation by redressing the development inequities of the past; by ensuring that basic needs for land, housing, food and services are met; by developing to the full the country's human resources; by strengthening the economy; and by democratising the state and society (African National Congress:1994).

As regards land, the programme calls for the restitution of land lost because of apartheid laws (with land claims being dealt with by land claims courts), and the redistribution of land through a process of land reform. The objective is to redistribute 30% of white-owned farm land in five years. All landholders are to enjoy security of tenure, whether they own or rent land, or hold it under customary tenure. The shortage of housing is to be addressed by building one million new low-cost houses in the next five years.

New legislation that gives effect to these aims of the RDP is being prepared to lay before parliament; these include a Land Restitution Bill and a Development Facilitation Bill.

Policies aimed at equity are a challenge to institutions that were comfortable with the previous order. Not least among these is the land surveying profession, which in South Africa enjoys a uniquely powerful role as custodian of the cadastre, and which in the past has contributed significantly to the carrying out of segregationist policies (H. van Gysen:1993). The profession, recognising that its position would no longer be as securely entrenched, set out in 1993/4 to prepare for change, by considering alternatives to its established practices; by indicating to policy makers its willingness to be adaptable; and that it was keen to contribute to development.

Change in the society (and survey industry) also meant that survey education would have to be re-geared. In gearing up for this change van Gysen and Fourie took the view that the cadastre, and any problems associated with it, could not be understood in isolation from

its overall socio-economic context. That is, the cadastre is composed of many interconnected and interdependent parts which cannot be the focus of any single academic or professional discipline. Rather, from the outset of the research initiative, through to the writing of this paper, van Gysen and Fourie deliberately sought to bring together the too often dissociated social insights of the social scientist and the narrow technical outlook of the surveyor. This was done through extensive and intensive debate and discussion between them. Further, the survey industry that serves the cadastre, as will be shown, went beyond the contribution of information to the research, to the point where the industry was equally involved with Fourie and van Gysen and equally instrumental in developing the ideas presented in the paper. The academics learnt as much as the industry learnt from the research -a wholly proper capacity building role for an academic in a learning society.

In this paper we describe the process of change on which the land surveying industry embarked a year ago; and we seek to understand the process of, what can be termed, 'engineering' social change in a key group within the cadastre. We also seek to understand the factors, other than administrative, technical or economic, that need to be taken into account when considering changes to a cadastral system.

To this end we introduce the notion of analysing, for the purpose of cadastral reform, not only the technical, administrative and economic factors, but also the socio-political factors which form part of the path dependence associated with a land registration system. Linked to this, we also analyze the land tenure systems in a country within this conceptual framework. It may well be that the theory and processes described here, though in this presentation clearly situated within the particular circumstances of South Africa in 1994, also have relevance to the fostering of cadastral reform in other parts of the world.

THE SOUTH AFRICAN SURVEY INDUSTRY'S COMMISSIONED RESEARCH INTO THE FUTURE OF THE CADASTRE

Background

The programme described in this paper developed from a meeting between Professor John McLaughlin and van Gysen in 1993, where the future of land surveying under a new government in South Africa was discussed. Van Gysen decided to institute cadastral reform research in the Department of Surveying and Mapping at the University of Natal. That is, an international approach encouraging local capacity building, which approach was a theme throughout the programme, was integral from the outset.

Van Gysen approached Fourie, an applied social scientist who had previously worked with the department, and they put together an initial research proposal to investigate cadastral reform, and attempted to raise money from the South African survey industry.

Van Gysen hoped that the South African Council for Professional and Technical Surveyors, more commonly known by its Afrikaans acronym Plato, might be interested in funding such a proposal. (Note: The South African Council for Professional and Technical Surveyors (Plato) is a statutory regulatory body for the whole South African survey industry. Registered members include professional land surveyors, surveyors and survey technicians (the last two being technicians)). Van Gysen, a member of the council, placed the research initiative on the agenda of the next national council meeting which was to take place in September 1993.

Federation of Institutes of Land Surveyors of South Africa (FILSA)

Over the same time period, in an unrelated initiative, the land surveying profession had identified a number of goals which they had built into a programme, namely: to make contact with the people who would be in power after the elections in April 1994; to try and influence future opinion makers about the role of survey in this country; and to ascertain what adaptations the profession would have to make to adjust to the requirements of the new policy makers.

Mr.O.Greene, the national Vice President of FILSA, who was initially lobbied by van Gysen and Fourie to lend support to their research proposal, was heading up this FILSA initiative to contact opinion makers. Greene arranged for van Gysen and Fourie to meet with the national council of FILSA. (Note: FILSA is composed of five provincial institutes whose membership consists solely of professional land surveyors).

At the meeting some of the FILSA representatives wanted additional aspects to be added to the van Gysen-Fourie proposal. For example, a suggestion was made that Fourie undertake work on the ground to ascertain what kind of cadastral system "the people wanted".

Fourie's approach was that it was more useful to build into the research firstly, the knowledge of land surveyors who had worked extensively in the field, especially in black areas (Note: The term black here means blacks of African origin. The classification has special significance in relation to access to land in South Africa prior to 1991 and the abolition of racial systems of land tenure in the country); secondly, to accept the work of reputable social scientists with a progressive reputation working in the field of land tenure;

thirdly to accept uncritically, and extrapolate from, the land policies of the major parties, especially the ANC; and fourthly to rely on her own experience in the field of land tenure in informal settlements and in indigenous tenure areas.

The discussions which took place at the FILSA national council meeting led to a number of changes in the proposal. The most important of these was that the research would not take place in isolation from the survey industry, but would involve an extended debate and a sharing of ideas within the industry and between the industry and Fourie.

Although this approach may be somewhat unusual in academic survey circles, it conformed to a school of thought in anthropology known nowadays as 'development anthropology'. Within this school a number of approaches exist which describe the roles anthropologists undertake in applied research. The roles of "engineering" and "clinical" anthropologist (L.Thompson:1970) in particular are discussed below.

The debating approach meant that social engineering was introduced into the research. An engineering anthropologist may be involved in accelerating adaptive change or "..attempting directly to guide or change the pace of ..processes in directions he or his client consider appropriate." This role implies direct intervention in the lives of members of the study unit (Thompson:1970:227).

Debate was included in the proposal as a mechanism to extend the data gathering capabilities of the research programme. Simultaneously the debate built capacity within the survey industry, as new ideas were introduced. The debate, or social engineering component as described in the approach outlined by Thompson, linked to the research meant that at times the research was seen as contentious.

Using debate as a research technique, both to gather data and undertake social engineering within the sponsoring group and unit of study, was vital in the assessment of the "path dependence" (D.C.North:1990:89-90) present in South Africa's land registration system, and specifically within the survey industry (see below).

Once the research proposal had been re-negotiated the FILSA national council decided to lend their support to it, when it came before Plato in the next few days. They did this largely as a means to obtain some, if not all, of the goals that they had themselves set.

The South African Council for Professional and Technical Surveyors (Plato)

When the research proposal was placed before the national council of Plato by van Gysen it was extensively debated and had to once again be rewritten and refined.

Firstly, the structure was transformed from the initial broad attempt to understand the issues involved in cadastral reform, with respect to the new land policies being floated in the country. Instead, the survey industry wanted to know more predictably what the future was going to look like, in general in relation to land and the cadastre, and in particular in relation to possible future markets for their services. That is, they wanted a range of 'What.. if' scenarios created.

The use of the comparative 'if ..then' construction, as a way of expressing the findings of a social scientist in the role of applied (now development) anthropology for the purposes of prediction, is an approach that has been in use for decades (F.M. Keesing:1945:299-330 and R.Firth: 1938:197). However, although social anthropologists often claim to be able to predict and forecast, this is "..an area which has hitherto been neglected." (M.R.Redclift: 1985:201).

Thompson describes what she terms the 'clinical' anthropologist's predictive role, as one where the probable behaviour of the study unit is predicted "..from a long-range viewpoint under alternate pressures, including those implemented to induce change." Forecasts about "..probable changes and future trends in behaviour under certain limiting conditions and.." possibilities are made by the anthropologist. To make the predictions, the anthropologist must understand the study unit "..in an explanatory way, including the interrelationship between all variable sets.." operating with respect to the study unit and any prediction in relation to it (1970:226-8).

That is, a systemic holistic analysis is integral to anthropological prediction. This type of analytical approach meant that South Africa's cadastral system had to be understood as an integrated whole instead of being viewed as a disassociated collection of parts or sub-systems. The various parts, their interdependence and how they were interconnected had to be analysed, in order to be able to obtain an overall picture of the cadastre.

To offer to predict the future of an entire nation's land policies, let alone that of South Africa during a time of near revolutionary change/cum civil war, and to do it in relation to an arcane subject such as the cadastre of that country was, with hindsight, possibly somewhat arrogant and naive of Fourie.

Secondly, the close link between Fourie and the industry, and their management of her work over time, was written into the proposal.

The research proposal was tightly structured with respect to time and the delivery of different aspects of the research. In order to ensure compliance with the conditions laid down, as well as to manage the research and the debate attached to it, a committee was created chaired by Greene. That Greene, who was not a Plato council member, was elected into such a position, indicated the strength of the professional land surveyors' vote on the council of the survey industry and their desire to link the two programmes together.

From the outset Greene and the committee made it clear, through almost daily phone calls and regular meetings, that the research programme was central to the agenda of the profession and should deliver tangible results quickly.

The third aspect of the proposal refined by Plato was the role of the wider industry in relation to the research. As already indicated, an extended debate and sharing of ideas was envisaged as integral to the research. The way this was finally articulated in the research proposal was that "(t)he research project has been set up in order to stimulate debate .. about the future of cadastral surveying in South Africa.. (T)he debate within, and insights gained.. during the course of the research.. is considered as valuable, if not more valuable, than the series of reports" from the project (C.Fourie:1994b:75).

To conclude, the research proposal originally envisaged by van Gysen and Fourie went through a number of negotiated iterations. From the viewpoint of the academics, they had to ensure that the changes did not compromise their goals of contributing to well grounded cadastral reform theory and degenerate into journalism cum facilitation cum market research. Of necessity Fourie had to ensure that the research did not go against the ethical guidelines laid down for development anthropologists (Association for Anthropology in Southern Africa:N.D.).

Throughout the programme the academic goals were jeopardised, both by the time constraints imposed and the highly structured management style used. This was largely because, "(a)pplication normally involves the pursuit of interests rather than of truth" (S.Charsley:1982:195). Academic publications from this research programme will be the test which indicates the extent to which the purely academic goals survived within this programme.

Research techniques used to gather data

The research techniques used to obtain data for the programme were case studies, interviews, documentary research, workshops and written inputs. A significant proportion of the material was obtained in terms of the debate within the industry, which began almost immediately.

The speed with which events took place, as well as the high level of interest, commitment of time, financial donations and other resources, team working and sharing of ideas shown by the national industry, specifically the professionals in private practice, during the research, are an index of the very real anxiety they had about their future, as well as their desire to re-gear their practices as quickly as possible to the demands of a future market. This attitude was not exclusive to the survey industry but pervaded the whole of South African society and business during this time. For example, the conveyancers also conducted a similar exercise.

The extended debate was premised on individual surveyors making available to Fourie case material - both in terms of measurement as well as land management - from their work in the field. Obtaining this material, and thinking through the implications of it for the future of the country's cadastre, was done by using a number of techniques.

WRITTEN INPUTS
All Plato members were circularised informing them about the research and requesting that relevant material be sent to Fourie. Among the material sent was a letter from Namibia, which proved to be pivotally important to the research (discussed below).

WORKSHOPS
A series of workshops around the country were almost immediately set up by each of the five provincial institutes of the professional land surveyors. These workshops introduced the profession to the land policies of the ANC. They also gave members the opportunity to work through their own private political agendas and realise that these agendas needed to be seen as separate from the future of the cadastre. The goal of the workshops was to discuss how the industry was going to re-gear for the changes outlined in the ANC's land policies.

Case material was presented at the workshops and by thinking the issues through together as a group new approaches were formulated. One group of land surveyors, for example, introduced what was considered a novel idea of an outside boundary, for group occupation of land, as the start to a local cadastre, rather than starting with individual sites.

That is, based on Thompson's description of social engineering, these workshops served, to some extent to accelerate adaptive change and directly guide or change the pace of processes in directions which were considered appropriate both by the leadership in private practice and by Fourie (Thompson:1970:227).

South Africa is regional in its political economy, terrain and vegetation. Running the same workshop in five different areas made it possible to draw comparisons. This assisted in the creation of an overall picture of the national cadastre and made it possible to see that a wide variety of cadastral problems, experiences and approaches existed in the country.

This variety was reflected in the type and depth of input made at the workshops. Those areas which included land surveyors who had lengthy experience in black townships and the homelands found it easier to think through the issues raised by the ANC's land policies. This variety of approaches and experiences was also reflected in the second set of workshops at which the final report was presented for comment.

The second set of countrywide workshops had a two-fold purpose. Fourie's findings had by this stage gone beyond predicting the future of the cadastre. Her report also included suggestions about possible adaptations to it. As far as Fourie was concerned, the second set of workshops was to communicate to the industry the findings of the research.

The second set of workshops was used by Greene to try to obtain some form of agreement about the report, and to what use it should be put, from the national profession. By that time he had established contact with some of the new policy makers who could influence the future of the cadastre. Greene was, one presumes, attempting to obtain the metaphorical boundaries within which he could negotiate with these opinion makers in the new government, about adaptations to the cadastre.

That there were two agendas being run in these workshops made it difficult for some participants to decide how they should respond to the report, which contained some very controversial ideas in the eyes of some. Were they just being informed on the findings of the research? Or were they in fact being asked to accept the findings of the research as the way the future of the cadastre should look? This ambiguity led to controversy both within different provincial institutes and between institutes.

However, at the same time this ambiguity allowed the progressive leadership in the profession to make use of the findings in the report to both protect the cadastre and position the profession more favourable in relation to the new government's land policies.

INTERVIEWS

Another technique used was interviewing. This was done throughout the research, but was focused around the first set of nation-wide workshops and during a trip to Namibia.

During the first set of workshops interviews were set up with people who could contribute to the research. Fourie conducted open-ended one-on-one interviews, in which the person interviewed broadly chose which part of the cadastral system they wished to discuss. Surveyors across the whole political, gender, age, race, and technical-professional spectrum were interviewed.

In relation to this technique, the visit by Fourie and Greene to Namibia was absolutely crucial to the success of the programme. Their trip to Namibia was facilitated by the Ministry of Lands, Resettlement and Rehabilitation of the Namibian government and the Namibian land surveying profession. They interviewed influential people across the spectrum of the land industry.

Much of Namibia's cadastral system, and the problems being experienced with it, are comparable to South Africa. Namibia had been a colony of South Africa and was still using its cadastral legislation. Namibia has a small population and is therefore a relatively small study unit to analyze by comparison to South Africa. Also, the people involved with the land industry had reached a point of being able to articulate their problems. Consequently it was possible to use Namibia as a typological equivalent, and a national case study. This allowed Fourie to identify the multiplicity of related issues within the cadastral system and to build an explanatory framework within which the South African cadastre could be analysed.

From the Namibian case study a picture of a cadastre as a whole, with its multiplicity of interconnected and interdependent parts, was created. Such a picture was an essential requirement to be able to predict the future of South Africa's cadastre with any certainty. A comparative analysis of the South African cadastral system, as Namibia's typological equivalent, was then undertaken. From this, it was possible to identify some of the systemic links, path dependencies, and possible trade offs which existed within South Africa's cadastral system.

Throughout the programme there was also an ongoing discussion and debate between Fourie and her academic survey colleagues. Often lively discussions took place from different points of view, which illuminated the vested interests both within the public and private sector, in relation to particular technological choices.

This academic discussion and debate also took place between Fourie and a number of international thinkers (McLaughlin and D.Jeyanandan- personal communications) and proved to be of immense significance for the thinking being done about the South African cadastre.

With respect to the flow of information within the research programme between the range of sources described above, Fourie consciously undertook the role of broker. "A broker is a professional manipulator of ..information who brings about communication.. He thus occupies a strategic place in a network of social relations viewed as a communication network." (J.Boissevain:1974:148-9). Fourie manipulated information from these diverse sources to acquire data; build a holistic picture of the cadastre and its multiplicity of related elements; and assist in introducing new ideas and in guiding the pace of adaptive change.

With hindsight, if this extensive debate and team working had not taken place, been so extensive geographically, and intensive in terms of the time spent thinking by so many people, and especially a few of them, the enormously ambitious goals of the research would not have been met to the satisfaction of the sponsors.

SOCIOPOLITICAL CONCEPTUAL FRAMEWORK
All data acquired were assessed by Fourie in terms of:

1.the type of society and cadastre which the politicians of the major parties were trying to bring about, articulated explicitly or implicitly in their land reform policies;

2.descriptions by social scientists of what they considered to be forms of land tenure which the grassroots desired or had already adopted, albeit informally;

3.her own field work experience in land tenure and political economy;

Essentially, the question which Fourie asked was, what cadastral products or spatial management tools was the new South African society going to want? Once the answer to that question was predicted, the next step was to assess the extent to which the present cadastre accommodated those predicted needs. This step was followed by suggestions of how the cadastre could be adapted to accommodate those needs, in a way which made the cadastre more efficient in technical/administrative and economic terms, taking into account path dependence. This approach meant that new markets for survey products were simultaneously identified, such as for example low-level land records.

That is, Fourie's predictive approach, which underpinned the whole research exercise, meant that different questions were asked about how and why cadastres should change, from the usual questions asked. As opposed to the question what does society want, the question generally posed by surveyors is, how do you make the present land registration system more technically and/or administratively and/or economically efficient.

In addition to this, a separate, but linked, analytical process consisted of the analysis and construction of cadastre related social theory from the data, anecdotes, opinions and other sources of material that were made available to Fourie by surveyors, and which she also acquired as a participant observer.

The behaviour of those who served the cadastre (such as surveyors) was analysed, in order to predict how they would behave in future. A range of social theories, which have relevance for cadastral reform theory, were used, such as network theory, structure and functionalism, transactional analysis, the dialectical relationship and coalition/alliance formation. In addition to this, cadastral reform theory was imported from the work of H. de Soto (1989), North (1990) and Jeyanandan and I.P. Williamson (1990).

In this way the systemic holistic picture of the South African cadastre was further developed, making it possible to both predict future changes and suggest adaptations to accommodate the requirements of the new society.

The road from anecdote to social engineering, in relation to cadastral reform, therefore passes through the description of the behaviour of the unit of study by reference to the general body of social theory; to the prediction of behaviour; to the manipulation of the predicted behaviour, by the introduction of change or reform.

The analysis of the cadastre using social theory has special bearing on the analysis of the path dependence of land registration systems and the way adaptive changes can be introduced (see below).

To conclude, implicit in the research report, but elaborated to some extent in this paper, is a conceptual framework which takes into account the importance of non-economic and non-technical (non-administrative) factors in a land registration system. In other words, there is behaviour associated with a land registration system which is not always economically or technically rational, but is rational in terms of other non-economic or non-technical factors (see examples below). This behaviour, both of the consumers of the service and the suppliers of the service, can be analysed and to some extent predicted by using social theory. These predictions can then serve a cadastral reform initiative. This conceptual framework could well have special significance in land tenure in Africa.

THE DEBATE AND THEORY LED TO SUGGESTIONS ON HOW TO CHANGE THE CADASTRE: AN EXAMPLE FROM THE REPORT

One of the cadastral reform approaches suggested in Fourie's report to the survey industry's national council related to in situ upgrades or giving security of tenure in informal settlements. This approach is summarised below. It will be followed with a description of how some of the various choices were made within this approach, based on the debate, the social theory, and the path dependence present in the South African cadastre.

North (1990:89-90) argues that "path dependence" is a characteristic of property registration systems. This path dependence relates to, and is a function of, the transactional behaviour of the range of vested interests linked to the land registration system. As a result of this path dependence, institutional change within a property registration system does not take place easily. Changes to the system are compromised by trade-offs made by existing and/or new vested interests associated with the path.

The path dependence in South Africa's land registration industry, and specifically the survey industry, together with the wider notion of the man-man-land relationship (P.Bohannan:1973) as being emergent out of the past with direction into the future, were taken into account in the approach below.

An approach outlined in the report

The approach to in situ upgrades of informal settlements which is

"..outlined below takes into account the immediate needs of the community; sound planning principles; the long term needs of the Surveyor-General; the requirements of the finance houses; the needs of local authorities in relation to service provision; and makes it possible for individuals to upgrade their land rights over time.

This approach (see figure 1. below) is described in terms of phases, with the progressive upgrading of an area taking place. Some phases can be skipped, and the pace of upgrading can vary enormously. Some areas might never go beyond certain levels of title and/or service upgrading. The ultimate goal of the process, if desired, is that a township register (freehold title held in a central deeds registry office) can be opened for an area which is already settled, in an area where the people initially have no legal land rights and no development has taken place.

Before an area can be considered for upgrading several aspects need to be checked to ensure that upgrading is possible. Firstly, the land surveyor would have to check the underlying titles of an earmarked area (right up to where a township register can be opened). S/he would then assess what steps would be required to clean up the underlying titles to the area and take a calculated risk.. that a township register in the central deeds registry could be opened at some future date.." (Fourie:1994b:30-35). (Note: The term cleaning up the underlying title means firstly, determining the registered real rights in a parcel of land -and possibly the informal claims to that land; secondly, buying out or extinguishing rights inconsistent with the intended use of the land -eg. closing public rights of way; and thirdly, undertaking a consolidation of the parcels in order to create the new legal subdivisions.)

"This step is necessary for two reasons, first to ensure that the area can by upgraded all the way to freehold; and secondly to attempt to satisfy the needs of the financial institutions, so that they will give bonds to these areas.

South Africa's cadastral records have never to date indicated conflicting rights. Normally a township register cannot be opened if there are conflicting rights, i.e. the underlying titles have not been cleaned up. The existence of a township register in new areas has therefore served as an index to the financial houses that there are no conflicting rights and that the land registration process can and will take place without prejudicing their claims..

This new approach would mean that during the upgrading process conflicting rights would be kept on the cadastral records, until the underlying titles were sorted out. A financial institution would not be willing to bond properties in this situation, unless the professional surveyor took responsibility for ensuring that the area could be upgraded to the point when a township register could be opened; and ensured that the underlying titles were eventually cleaned up and the conflicting rights eliminated, so that the Surveyor-General's records no longer reflected any conflicting rights in the area.

Secondly.. a geological and environmental assessment would have to be made.. Thirdly.. one should presume that the area had de facto been accepted by the regional and/or national authorities as a high density residential area..

If the above steps are in place then the upgrading exercise could go ahead. An outside figure of the earmarked area could then be created. This outside figure should consist of a beaconed boundary. This boundary should: have been negotiated with the residents of an area; conform to a planned superblock or "block" (Jeyanandan and Williamson:1990:5-6); be linked to a group title held by some

form of body corporate; be a mirror of a physically demarcated boundary on the ground which has been pointed out to the residents of the area; contain between 100 and 200 plots.. This outside figure and group title should be held by the Surveyor-General's office and Deeds Registry respectively..

Each of the houses within the outside figure could be given a midpoint coordinate (a unique identifier); a paper record tied to a community register; and a stake next to the house (physical cadastre) which is linked directly to the midpoint coordinate. This midpoint coordinate would indicate that a person had a right, albeit without an exact spatial dimension, to a place within a group title..

The object of the first phase would be to supply permanency and land rights as soon as possible.. Once the area has stabilised, this level can be easily upgraded to the next phase.. The time taken between these phases is not important at all, as long as the people are satisfied with their existing level. ..Whether the next phase was undertaken might depend on the community reaching a certain prearranged target.

Once it has been decided to upgrade the area inside an outside figure, either as far as land titles are concerned, or to service the area, the area should be mapped.. (and the).. information.. taken to a ..plans and pegs.. workshopping exercise with the community living within the outside figure. The existing coordinate and community registry information could be verified, using the aerial photos and random checks on residents during the workshopping, and built into the exercise.

All.. documentation.. must be kept in the custody of the land manager and handed over to the local authorities as soon as they are constituted.

The ..Provisional General Plan resulting from this exercise could then be lodged with the Surveyor-General, but not for approval, only as a record.. (It).. could consist of the planned occupational boundaries and service corridors shown as an overlay on an orthophoto map of the area with only the outside figure surveyed and beaconed. The midpoint coordinate information could also be included.. A copy.. should be handed over to the community's leaders or an independent Trust (a community corporate body), who will become the transferees of the property with certain conditions attached.

These attached conditions would be formulated by the community members themselves through their corporate body. However, the main constraints on these conditions will come from legislation, in terms of the operation of the trust exercising its options, in conveying personal and real rights; and how these individual rights relate to the group as a whole.

It is possible to avoid the local government consent procedures which are triggered by the land use control system.. (of South Africa), and which can take an enormous amount of time. This avoidance is possible if the local authority and/or utility is only responsible for taking services up to the outside figure. From there on the group holding the title to the land must take responsibility, for ensuring that the services are put into their own area and for paying for these services as a group.

If the existing consent procedures are bypassed.. another mechanism would have to be introduced to ensure that correct planning decisions were being taken concerning the servicing of such a community. This role could be undertaken by any responsible land manager, such as a land surveyor. Once the planning is complete, service areas or corridors and super blocks and blocks within the outside figure could then be demarcated for engineering rather than cadastral purposes..

At this stage subdivisions could be undertaken without any consents required. Subdivisions could be done by the corporate body holding the group title together with the individual plot owners. Also, all the services could be put in without requiring any consents.. This could be followed by the pegging of the service areas and corridors. The boundaries of the plots inside the blocks could then be monumented.. by the people, as per their negotiations during the workshopping exercise. Each plot should be uniquely identifiable..

The community register could then become part of the records of the newly created local government/body corporate and a registry map could be created. This could be based on either: a map produced from an aerial photograph..; ..the earlier midpoint survey; or use the surveyed general boundaries of the area. The type of title issued in this case might be some form of lease. Also, ..(it) ..might.. be based on accurately beaconed boundaries.. The choice of which type would be followed would depend on what the community and/or state were prepared to pay; at what level of upgrading they were at; and what the ultimate requirement of the Surveyor-General's office would be to open a township register..

Another possible approach is for the registry map to be held by a local surveyor on behalf of a local government.. If a surveyor took responsibility.. it might persuade the financial institutions to accept the map and title being held at such a low-level..

The final stage of the upgrade would involve the Surveyor-General's office. At present the Surveyor-General approves a General Plan and the buildings are built and the services put in place which accord with the beacons that are on the ground, which are depicted on the General Plan. In this way the Surveyor-General's records mirror the land rights on the ground.

What is being suggested here is that the.. subdivisions.. (could be).. undertaken and the area serviced without the Surveyor-General's approval of a General Plan. Then once the area had stabilised, and been upgraded, the layout could be finalised and the usual General Plan framed, which would mirror what was already on the ground, which could then be handed to the Surveyor-General for approval and for storing as a public record. In this way the Surveyor-General's role, as a custodian of correct data about land rights, could still be maintained, because the final result was the same.

That is, by the time the General Plan is given to the Surveyor-General the underlying titles have been cleaned up.. (And) ..(t)he Surveyor-General probably could allow a township register for the area to be opened and then freehold could be given to its residents on demand." (Fourie:1994b:30-35,22).

The idea of land records being held at such a low level was considered a novel approach, given the centralised Surveyor-General and Deeds Registry system which make up South Africa's present land registration system; as well as the emphasis that has traditionally been placed on South African surveyors being measurers rather than land managers.

Why specific options were chosen

We now show why a few of the various choices were made within this approach, based on the debate, the social theory, and specifically, the path dependence present in the South African cadastre and land tenure systems.

Firstly, the 'path to property' idea, implying a process over time whereby property rights are formalized, and possibly several different property regimes involved, was a novel idea when introduced to Fourie by McLaughlin (personal communication) and Jeyanandan (personal communication and Jeyanandan and Williamson: 1990). This approach was then debated within parts of the industry and ultimately became a central theme of the report.

This illustrates the capacity building approach taken by some international experts on cadastral reform, as well as Fourie's role as broker transferring ideas from the international industry and within the local industry.

Secondly, for a number of reasons it became clear that, in terms of the model created, the end goal of the path to property had to be freehold title. Both in South Africa and Namibia blacks had only been able to obtain inferior titles by comparison to whites, generally because the central state wished to retain the dominium of the land. Blacks were unlikely therefore to accept what was perceived to be a politically inferior title -i.e. one which was not freehold, or at the very least was being/could be upgraded to freehold. This automatically implied that the 'path to property' in the model had to link through to the existing land registration system awarding freehold title.

In addition to this, the National Housing Forum (NHF), an influential South African Non-Government Organisation with a policy making role, had a clear agenda that they wished some sort of initial individual title to be available at the outset of a land development, which could be upgraded to freehold as soon as the paper work within the Surveyor-General and Deeds Registry offices had been completed. The NHF approach reinforced the need to make the path to property suggested in the model end at freehold.

Thirdly, low-level land record systems were incorporated into the approach outlined above because of a combination of institutional factors - social, political and economic. These factors had to be taken into account because they were already part of the path dependence associated with either the existing land registration system or the institutional arrangements within South African society's land tenure systems.

The ANC had indicated, albeit implicitly, that some form of low-level land registry should be instituted for the rural areas. In describing the institutional arrangements which were desirable for rural areas, the most important ANC think tank on rural land suggested that for institutional restructuring in regard to local and community areas, autonomy, accountability, flexibility and responsiveness, access to control of resources and simplification, should be the key goals for the administration of land (Land and Agricultural Policy Centre:1993:47-50).

Fourie's research had shown that subdivisions often took place in black areas without the permission of the authorities, as people consider that they have a right to do what they like on their land, whether it be subdividing it for family members, putting up blocks of flats etc. Also, where land use controls and subdivisional procedures for black areas had been extensively linked to the regional or central level, no control or only sporadic control existed over land management at the local level. This had often led to a complete breakdown in the records about land use in these areas and very time-consuming service delivery, because of the problems relating to the identification of owners and in obtaining their consents (Fourie:1994b:22).

This was an additional reason for moving decision-making and land administration, in the model, to the local level with respect to the

control and monitoring of subdivisions and the servicing requirements related to consents.

Some form of low-level registry also seemed practical to administer newly created real rights over time while the underlying titles were being cleaned up. South Africa has no unclaimed land. All land has registered real rights linked to it, including property rights, mineral rights, mining rights and servitudes (easements). Consequently, these titles have to be cleaned up before new legal subdivisions can take place. This can take an enormous amount of time. Given the serious possibility of massive land invasions, South Africa does not have this time.

Expropriation of land is not an option as it was negotiated out of the South African constitution. A method then had to be devised whereby land could be developed and people acquire some form of title, while the underlying titles were being cleaned up. It seemed more efficient, transparent, flexible and simpler if the administration of this process took place at the local level, rather than within the present Surveyor-General and Deeds Registry offices.

From another angle, group rights and individual rights to land have been the focus of wide-ranging policy discussions in South Africa (Land and Agricultural Policy Centre: 1993:32; and African National Congress:1992:28). Low-level registries were mooted within the approach outlined above for this reason and because they seemed to be an important way forward to manage the structural tension evinced on the ground between group and individual land rights. Fourie's work indicates that group rights and the structural tension (internal dialectic) associated with them, with respect to African land tenure systems, are a factor which should be accommodated in the cadastre.

With respect to institutional arrangements based on some form of group dynamics, in Africa, even urban Africa, the same parcel of land can contain both individualised land rights and community over-rights. The interplay between these two forms of land tenure is a function of the structural tension within the local land tenure system and the interaction between this local tension and factors in the wider society (J.Comaroff:1982:146). Group-based African land tenure systems do not evince the classical dependent behaviour with which allodial titles are generally associated. Rather, the rights held by the group, with respect to the same parcel of land, are held by the different social units (families, individuals, lineages, clans, etc.) as opposed rights or interests. This means that individualised rights in the same parcel of land can be altered to a more shared form of right and vice versa over time.

Also, the structural tension in a local land tenure system creates opportunities for the manipulation of the local land tenure system's rules for transactional and competitive behaviour (Fourie:1994a). The dynamics of the system suggests that new cadastral approaches are required, such as low-level registries, which can monitor and be integral to these changes over time.

Another spatial management tool which could be appropriate to register land to a group, as suggested in the approach outlined above, is that the only cadastral intervention into the local land tenure system is the creation of an outside boundary around the group, with no recording of individual spatial rights, only a mid-point coordinate per house (J.Jackson:1994).

This outside boundary, accurately beaconed, which measuring method conforms to South Africa's present cadastral approach, then serves to exclude the cultural norms and values (socio-cultural text) (R.Thornton:1994:7) within the boundary from the land registration requirements and socio-cultural text of the wider society. This allows a variety of both socio-cultural texts and land registration systems to co-exist in the same cadastral system without the characteristics, constraints, or errors from one system affecting other parts of the system. In this way freehold systems of land tenure and group based systems could coexist in the same cadastre. This outside boundary idea was first formulated by a group of land surveyors in the first Natal workshop.

To conclude, the approach taken was that cadastral reform premised on technical and administrative efficiency was necessary but not sufficient. Rather the economic and sociopolitical behaviour associated with land registration and land tenure had to be also accommodated. Therefore the path to property suggested in the model also accommodated non-technical (non-administrative) aspects of path dependence within South Africa's land registration system and the sociopolitical institutional arrangements which were integral to a range of land tenure systems.

The technical (administrative) path dependence within the existing South African survey industry which was taken into account included:

1. the use of accurately beaconed boundaries rather than a numerical and/or general boundary to supply the outside figure;
2. the use of a coordinate, albeit only one as a midpoint, to supply the unique identifier of an individual's rights within an outside figure-group boundary;
3. relying on the strong South African nationally referenced geodetic network to which all property and engineering surveys are linked;
4. the continued role of a centralised Surveyor-General and Deeds Registry system to store the outside figure-group boundary, to supply the administrative link between the local and central levels; and as the end goal in the upgradable path;

Also, the South African finance industry uses, among other criteria, the accurately beaconed boundary survey of the spatial dimension (the picture) of a land parcel as a guarantee that the rights exist. Survey therefore delivers hypothecation. The National Housing Forum wanted it to be possible to bond houses earlier in the land registration process. This meant that survey, and the type of survey to which the finance houses were accustomed, had to be built into the model.

Precisely because the new South African constitution did not allow the expropriation of property "in the public interest" (Land and Agricultural Policy Centre: 1993:5), i.e. for housing, the cleaning up of the underlying title before new subdivisions could be registered was a crucial aspect of South Africa's land registration system's path dependence which had to be accommodated in the model. Up until 1991 blacks could only own or occupy about thirteen percent of South Africa's land surface and consequently the threat of land invasions is very real in South Africa, if the cadastral system cannot deliver legal land rights efficiently. This specific aspect was discussed and debated by Fourie and Greene, and ultimately led to an input directly into national policy.

Some of the sociopolitical institutional arrangements which an attempt was made to accommodate in the model were:

1.the ANC's stated policies;

2.that conditions of title are a necessary but not a sufficient condition for people to accept a particular title, and that political and not just economic value can be attached to different types of titles;

3.both individual and group rights, and the structural tension which can occur between them;

4.historical black attitudes to centralised (white) authority structures in relation to subdividing land and land use controls;

5.that some land surveyors had a history of voluntarily coming together to think through the land management problems they were encountering; 6.the variety of cultural texts or land tenure systems, both Western based and African based, that exist within the national boundaries of the country.

THE POLICY ARENA

The report was completed before the elections on 27th April 1994. It predicted how the cadastre would change over time, because of the policies of a new government serving a largely black and poor constituency. It also suggested how the cadastre could be adapted to these policies.

Almost immediately after the elections, as a result of Greene's work in terms of the programme being run by the professional land surveyors in relation to the new government, ideas from the report were fed into the thinking of the new policy makers.

These new policy makers would over time bring their ideas into the institutions of the new government. By June 1994 a programme to draw up legislation to build a million houses in five years was put in place and Fourie was drawn onto the government commission writing the legislation. As an inevitable consequence of the professional land surveyors programme and her own role some of the ideas from the report became part and parcel of the thinking of the new policy makers.

CONCLUSION

Given the limitation placed on apparently rational action by path dependence within a property registration system and the sociopolitical institutional arrangements which make up a country's land tenure system, the question which needs to be asked of research reports, such as the one produced by Fourie, is, to what extent the reforms suggested were practical? Or to what extent were the range of actors, who drive land reforms in a country, able to use the research to effect reforms?

The report passed this test in that some ideas from it were subsumed into policy and/or legislation both by the South African and the Namibian governments. Also, some of its ideas were taken up by land surveyors in private practice as new survey products with which to expand their markets.

As far as survey and the international development banks and foreign contractors are concerned, South Africa has had virtually no experience because the international world was waiting for a change of government.

Given the strength of the South African survey industry, we hope that the international input, which we expect will be made into the country, will not ultimately lead to the withering of the local institutions who presently serve the society. Rather international input should be geared to building capacity in these local institutions, in the way we have seen throughout this programme to date, so that they can serve society better.

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