Land Administration Strategy during Uncertainty and Fit-for-Purpose LA Style Initiatives

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SUMMARY

The paper comprises two parts. The first part draws on two forthcoming volumes on land administration during uncertainty. It examines strategy formulation to improve land administration in uncertain environments, and presents methodologies for analysing a situation before, during and after formulating and executing strategies. The FIG and World Bank Fit-for-Purpose land administration (FFPLA) initiative offers a prescription for improving land administration, along with the STDM and Continuum of Land Rights initiatives. Nevertheless, there has been resistance to FFPLA adoption. The paper introduces a methodology that might facilitate better adoption of parts of the FFPLA and similar innovations. It briefly covers what constitutes an uncertain environment. It then covers the rational, political and collaborative approaches to strategy formulation, and soft systems methodology, participatory planning and evaluation criteria. Part 2 of the paper presents excerpts from a forthcoming workbook on land administration during uncertainty. It presents a sample of lessons from cases and practice, citing several examples drawn from the author's more than 40 year experience as a practising land and engineering surveyor, city official, middle manager, land consultant and academic researcher. These examples are drawn from practical projects, field research and consulting projects in 16 different countries and experience in developing flexible multi-media software for recording land tenure relationships. The paper contributes to the dialogue on enhancing land administration in uncertain contexts and uses parts of the FFPLA guidelines to structure parts of the discussion. However, it is not a critique of the FFPLA guidelines. The empirical work may inform scenario generation and analyses when formulating strategies that include FFPLA and similar innovations.

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1 INTRODUCTION

This paper contributes to the ongoing discussion regarding Fit-for-Purpose (FFP) land administration. The paper comprises two sections. The first part outlines initial work on developing a methodology for formulating and implementing land administration strategies amid change and uncertainty. Part of the illustrative context is the FIG/World Bank Fit-for-Purpose Land Administration guidelines (FFPLA) (Enemark et al 2014), along with the author's work on similar initiatives aimed at enhancing land tenure administration in fluctuating and unpredictable environments. The second part provides empirical insights to inform the Fit for Purpose discourse. It comprises examples and anecdotes drawn from the author's professional and academic experience. These are drawn from a forthcoming workbook, part of a three volume set of books on land administration during uncertainty (Barry *in litt*)

I use the abbreviations FFP to refer to fit for purpose in the general sense, i.e. a strategy or programme that is best suited to a particular set of circumstances, and FFPLA refers specifically to the FIG/World Bank Fit-for-Purpose Land Administration guidelines.

The paper is not an evaluation of the World Bank/FIG FFPLA document itself, as there is a growing body of work reporting on the FFPLA implementation experience. The goal is to encourage the adoption of FFPLA type interventions, innovations that seek to improve land tenure security and land administration, that are effective. We want practical, enduring strategies, plans and programmes. In addition we do not want inappropriate interventions. We should refrain from what Shipton (2009:26) calls, "People like to experiment on other people's soil".

1.1 Problem Context and Fit-for-Purpose

Secure tenure is critical to the achievement of several of the Sustainable Development Goals. Large numbers of people around the world do not have documented land rights. Perceived tenure insecurity is a problem (Prindex 2024), as is actual tenure security.

FIG, along with partners such as the World Bank, UN-Habitat, UN-FAO and national land administration agencies, has been involved in several initiatives to address problem. These include the Social Tenure Domain Model (STDM) software system, The Continuum of Land Rights metaphor and FFPLA.

The FFPLA initiative has encountered resistance / lack of take up in some quarters (NUST 2025). One response is to explore methodologies that will lead to greater acceptance of innovations to improve land administration in a jurisdiction or settlement. The process should examine what is the best fit for improving a particular set of circumstances, and that may or may not be the FFPLA recommendations or a subset of them.

1.1.1 The World Bank / FIG FFPLA Approach

An argument driving the FFP initiative is that many conventional boundary recording methods depend on expensive, high precision techniques that are slow to produce results (Enemark et al 2014). There is a mismatch between the ideal top-end technical solutions and what suits local circumstances. Two factors that drive this approach is (1) the need for rapid results and (2) legally recognised boundary systems that are affordable to create and sustain.

The FFPLA approach advocates an intervention that is flexible, participatory, affordable, reliable, attainable, and upgradeable (Enemark et al 2014:6, 8). These should be desirable attributes of most long range land administration system plans.

Specific recommendations related to boundary recording are:

1. **General boundaries** rather than fixed boundaries. Using general boundaries to delineate land areas will be sufficient for most land administration purposes especially in rural and semi-urban areas. In the present context, the term “general boundary” means one whose position has not been precisely determined, although usually, the delineation will relate to physical features in the field.
2. **Aerial imageries** rather than field surveys. The use of high-resolution satellite/ aerial imagery is sufficient for most land administration purposes. This approach is three to five times cheaper than field surveys.
3. **Accuracy** (or precision – author) relates to the purpose rather than technical standards. Accuracy of the land information should be understood as a relative issue related to the use of this information.

Relevant activities relating to this are developing a spatial framework, the legal framework, institutional framework and capacity development (Enemark et al 2014:6, 8).

1.1.2 Analysis and Critique

The attributes listed above should apply to the administration of most boundary systems. A gap is the Enemark et al (2014) FFPLA document fails to specify the necessary strategy formulation, scenario analyses and organisational development activities that should precede its adoption or rejection. These are implied, however. Additionally, some of the recommendations may create problems or catalyse latent conflicts instead of resolving them unless a comprehensive local and regional analysis of the politics, capacity, willingness to

implement, organisational readiness and community preparedness is undertaken. I shall specifically cover examples related to this based on my experience in part 2 of the paper.

Any strategy, policy or land use plan that has been formulated using good strategic planning practice should yield a fit for purpose outcome (Barry 2018). However, as the discussion on politics, extractive institutions and inclusiveness below will show, this can be an extremely complex endeavour.

1.1.3 Important Questions

In the land administration and development context, critical questions related to an innovation include:

1. Whose and what purpose? Is there consensus over what should happen, and what should happen when consensus cannot be reached?
2. Who is excluded, who loses out? What actions might we expect from people who lose out or are excluded, especially those on the margins of benefitting from a particular programme. Can we expect claims from people who were not involved at the outset that might delay or derail a development or maintenance project?
3. How do we avoid situations where a policy, plan or strategy is inappropriate and may create problems instead of improving a situation? How do we correct course if this does occur?

Ways of identifying and/or addressing these questions are covered in the section on public administration strategy.

2 METHODS

The strategy related theory and empirical data draws on my more than 40 years of experience in more than 15 countries involving:

- Cadastral and engineering surveys and project management in several countries while in private practice and as a middle manager in the City of Cape Town.
- Academic research projects and consulting assignments in land administration strategy, informal settlements, land information systems design and effectiveness, land tenure software design, GIS and geomatics education, conflict and post conflict situations, among others.

3 UNCERTAINTY AND WICKED PROBLEMS

There are various forms, scales and intensities of uncertainty in land administration. The following is an extract from Chapter 1, Vol 1 in Barry (*in litt*). Jurisdictions experiencing uncertainty in land administration, and other areas of public administration, may be exhibit some of the following:

1. Poor governance across different levels of government, political arenas and community administrations.
2. Political and economic institutions at a range of levels (from the national to the community level - author) are extractive rather than inclusive. Inclusive economic institutions create broad based incentives and opportunities in society. The economy and access to power are accessible, and so the economy is likely to grow as more people can access it and benefit from the larger cake that inclusive economic institutions create. Extractive institutions benefit powerful elites. They reserve access to the economy (and power - author) for the elites, block competition, extract state revenues for the elites, exploit those who are blocked and do not tolerate dissent. They trap the excluded in poverty and servitude (Acemoglu & Robinson 2012, 2019; Papaioannou 2025). At the settlement level, social change situations create opportunities for extractive behaviour by individuals and factions who manipulate the rules for their own ends (Comaroff 1981, Fourie 1993, Barry 1999, Barry and Danso 2014).
3. Authoritarianism, dystopia and tyranny. These issues may may manifest in a range of situations and at different scales, ranging from within households, in local communities all the way up to the national and international level.
4. High levels of poverty, corruption, crime, gang and/or land mafia activity, forgery of land documents, predatory loan sharks who charge exorbitant interest rates and/or drug lords who quickly call in their debt by seizing the "customer's" land and/or dwelling.
5. State capture situations, where loyalty supplants meritocracy and state organisations are hollowed out. Typically, in such a situation political leaders capture government administration organisations and state-owned enterprises (SOEs), the judiciary and the police by replacing people who owe their positions to merit with ones who show fealty to the political leadership (cadre deployment).
6. Human rights abuses where the rights of various societal segments are ignored or not inadequately addressed. These segments include women, extended family members, indigenous and customary groups, displaced people, refugees, informal settlement residents and religious and ethnic minorities. We may categorise these as in-household situations where women, children and extended family members among others are particularly vulnerable. The second category includes people outside households, such as minority groups, and the scale of the problem ranges from community to national level. Note that in many cases the lines between these categories are blurred, - e.g. women fall in both categories - but we may need separate policies and strategies to deal with the two categories.
7. One or more of plural legal systems, hybrid governance and alternative governance structures. The different legal and "informal rules" systems may or may not coexist harmoniously and the situation can be susceptible to manipulation.
8. Poor ethical standards among land professionals.

The nature, scale and intensity of the uncertain versus stable portions of a town, city or region play a crucial role in formulating strategies for dealing with an uncertain situation. The political and geographical scale of uncertainty varies. For example, an entire city may be classified as uncertain. In contrast, parts of it may be affluent and stable, while other parts of it are characterised by informal settlements and/or ganglands. Further, the intensity and nature of turmoil influences how policy makers and land managers navigate these situations. For example, a post-conflict emergency phase presents very different challenges when compared to a society experiencing petty corruption.

Land use challenges have been labelled as wicked problems. Briefly, there is conflict over what is the problem. There are better or worse solutions, not right or wrong ones. (Rittel and Webber 1973, 1984, Buckingham Shum 1997). Optimum solutions are elusive. During uncertainty the problems are "wickeder". Many more variables are uncontrollable (Barry and Fourie 2002, Barry and Augustinus 2016). Generally, they are situations to improve incrementally, but systemically, rather than problems to be solved on a grand scale. Unlike a commercial enterprise, a distinctive constraint in formulating and implementing land administration strategies is that some actions, such as recognising rights in land, are irreversible. For example, once a person's right in land is recognised in law, it would be close to impossible to try to take it away!

4 PUBLIC ADMINISTRATION STRATEGY DURING UNCERTAINTY

This section examines public sector strategy formulation and implementation during uncertainty. I cover the three conventional approaches to strategy formulation and examine how to adapt these to uncertain situations. I cover the rational, political, collaborative approaches and then participatory planning and soft systems approaches.

4.1 Rational Comprehensive Approach

The rational approach assumes that decisions are purely rational, i.e. there are no or minimal political, power or emotional factors at play, and it is possible to arrive at optimal choices. Managers play a central role as planners and decision makers (Favoreu et al 2016, Bryson et al 2010). The following is a summary. The process generally involves several iterations (Barry *in litt*, Vol 2).

- Set and agree on goals and rank them in order of importance.
- Develop measurable objectives that give effect to the goals and indicators to measure their success/effectiveness.
- Identify the internal and external environments to the problem context(s), describe and explain how the different systems, sub-systems and elements interact within and between these internal and external environments. Describe the network of organisations, sub-organisations (e.g. branches in an organisation), external stakeholders, communities and individuals (e.g. politicians, community leaders) who might be concerned with the problem.

- Identify the different gaps and constraints.
- Generate a set of alternative strategies to solve the problem. Evaluate them using the evaluative criteria above and discard ones that are clearly impractical.
- Evaluate the pros and cons of each option using a range of tools such as scenario analysis (perhaps using gaming engines to visualise scenarios), AI, panels of experts, systems approaches, and SWOTC (strengths, weakness, opportunities, threats and constraints).
- Identify the critical success factors (CSFs) that must be present or must be created for each strategy in the set to work. Without the CSFs then a particular strategy should probably be rejected, at least until such time as conditions change.
- Choose the best strategy according to the agreed goal ranking, risk analysis, and the presence and reliability of critical success factors.
- After that, negotiate the efficacy of the possible strategies with other ministries/organisations /departments / strategic units / operational units / the public and local communities and modify it as necessary.
- Choose the optimum policy/ plan/ strategy, release it for comment, reconcile the ranking of goals and other differences within the organisation driving the process, between the different bureaucratic structures, and with politicians.
- Develop safeguards, especially for whistle blowers.
- Implement the strategies, monitor and evaluate them, and adjust as needed.
- Ongoing reflection and learning.

Underlying the rational approach is the assumption that most of the actors share similar goals and their activities serve the same overarching purposes. It is a rational, objective, organised sequential process that envisages an optimum solution (Favoreu et al 2016, Bryson et al 2010). Implicit is that many of the factors are controllable and the uncontrollable can be brought under control for the duration of the project.

In stable land administration situations, these assumptions are naïve. The public sector is explicitly and legitimately political (Bryson et al 2010). For example, there are significant differences in organisational culture (how things are done around here) within the departments that make up a land administration organisation, between different administrative organisations, and the multiple stakeholders outside these organisations. In uncertain situations a grand strategy is likely to be unworkable. However, we can break down a problem into smaller parts and apply some, perhaps all, of the above steps.

4.2 Political Approach to Public Administration Strategy

In contrast to the rational approach, the political approach assumes that there is no strategic homogeneity. Strategy involves sub-organisations (e.g. branches, departments) within a land administration organisation, other government organisations, politicians, the general public and communities and individuals who are supposed to benefit from or are affected by programmes and projects (Favoreu et al 2016).

The political approach holds that strategies and public policies result from a continual process of bargaining and negotiation, generating disparate and changing coalitions. In this context, the change is emergent, discontinuous, unstructured and incremental. Within and external to an organisation, there are multiple local rationalities, each with their own objectives and interests, with people pursuing personal as well as organisational interests (Favoreu et al 2016). Different individuals have different priorities and different world views of an organisation and a particular problem context. Further, implementing an innovation may place a burden on one entity within an administration when that entity is already stretched to capacity. Consensus over goal ranking is difficult if not impossible. Conflict over goals, constraints, methods, and allocation of resources is natural and to be expected.

In land administration, a further issue in strategy formulation is the behaviour of politicians themselves. The problem context may be coercive, as opposed to plural. Plural contexts accommodate disparate views and positions; coercive ones do not (Jackson 2003).

In local communities experiencing far reaching change, some individuals may simultaneously show allegiance to different groups which may collaborate and compete at the same time when responding to different forces. For example, a youth may be part of a family group that physically defends family land from land grabbing. At the same time they may be part of a youth group that demands digging (construction) fees from their family group (Barry and Danso 2014)

In some jurisdictions, dedicated officials may actively seek to exclude certain individuals or organisations from a development project. For instance, they may delay providing detailed information about development plans to local politicians if there is a risk that certain politicians may manipulate the process and ultimately render the plan or strategy unworkable (Barry 2019, Barry and Kingwill 2023).

4.3 Collaborative Approach

Recognising that results cannot be achieved by a single entity, the collaborative approach involves sharing and distribution of resources, information and skills. Multiple actors contribute to service delivery. Strategy is formulated collectively by inter-organisational, multiplayer groups, both public and private. It involves civil society and recognises the dispersion of resources and expertise among private and public organisations. For it to work, the alternatives should be acceptable to the participants and conflict between them should not be significant (Robertson and Choi 2012). Relevant parts of the rational and political approaches are incorporated in the approach. What is important is it should be clear who owns the problem and is accountable for the outcomes of strategies to deal with it.

Networks play a central role in collaborative approaches. Importantly, the networks should be evaluated for their effectiveness and commitment at the community, inter-organisation

network and organisation/participant levels (Provan and Milward, 2001). The collaborative approach may also involve working groups from different departments and organisations.

An issue that may arise is an individual may find themselves reporting to more than one boss. What they agree to in a working group may not be accepted by their senior or line managers.

4.4 Participatory Planning and Strategy Formulation

Closely aligned with the collaborative approach is the participatory approach to land use planning. At the local community level, residents participate in planning their community. It should be clear who owns the problem at the outset, how a final decision is made, and what constraints exist on a community plan. For example, a local community generated sewerage plan may be unworkable to the engineers who are responsible for city wide wastewater infrastructure. The community may develop a plan which requires a complex community level sewerage system. The city engineers' goal is to have a simple, cost-effective and easily maintained system. They would want to avoid numerous local level complex systems that are expensive, require additional staff, at a greater risk of frequent breakdown or sabotage and perhaps impossible to maintain (Schreiber and Barry 2016, Barry and Kingwill 2018).

Unless these constraints and ownership of the "problem" are clear at the outset and properly communicated throughout the process, a participatory "solution" which the land administration authorities reject may result in a great deal of anger among community members. One wants to avoid the "I participate, you participate, we participate, they decide" scenario where grassroots structures feel their participation is no more than tokenism. The challenge is in managing the situation and clear communication lines.

4.5 Soft Systems Approach

Soft systems thinking, along with other schools of systems thinking, provides a structure for conceptualising an uncertain land situation, and in some cases a method for formulating and implementing strategy (Checkland 1999). Systems thinking draws together all the connected elements in a complex situation, and it can guide a strategy that draws on a combination of the rational, political and collaborative approaches. It should be inclusive. The challenge is to ensure different actors in the network in the system understand a problem context and why particular advocates and resistors adopt their positions.

Soft Systems Methodology (SSM) holds that a situation can be described in terms of structure and process and the relations between the two. The agenda changes over time as the systems are multi-various, they are subject to numerous influences, and the perception of the problem is continually changing. A "situation" is something to be alleviated, rather than a problem to be solved (Checkland 1999).

In simple terms, SSM encourages different stakeholders to conceptualise a situation and develop strategies to improve it. Portrayed in Figure 1, different stakeholders with different

worldviews, priorities and agendas all participate in describing the situation to be improved. Each group of stakeholders then devises a system to describe the situation. The systems are then compared and debated and accommodations between the different systems and interventions are explored. Then accommodations that yield actions to improve the situation are created.

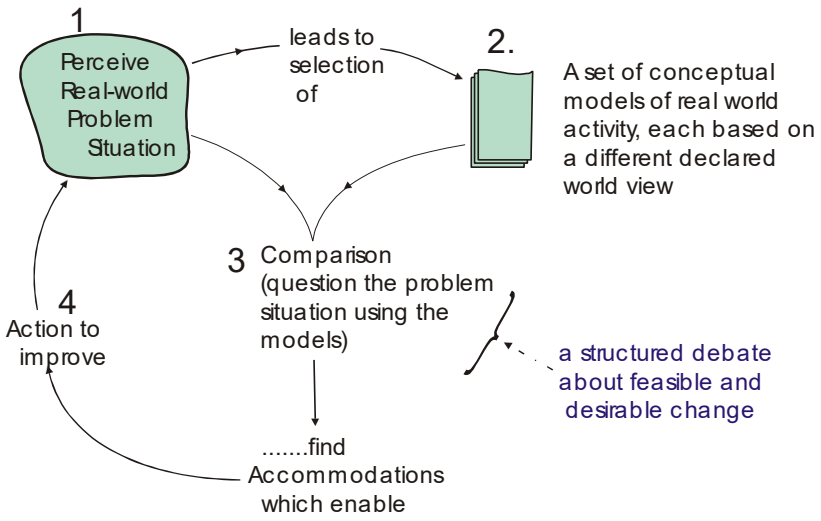

Figure 1 Soft Systems Methodology (Checkland 1999)

In uncertain land administration situations, it is likely difficult to apply SSM as described in many texts. However, it is a very useful approach for creating a picture among different stakeholders about the nature of the problem situation, what is possible, and the needs and aspirations of the different role players. It should incorporate all of the above three conventional strategy formulation approaches, but recognising the incremental nature of improvements when many variables are not controllable. It also encourages participants to design a "system", which should improve their broader understanding of a situation and why other participants take a particular position.

It is useful for framing the debate for thinking about and how to apply interventions such as those suggested in the FFPLA document in uncertain situations. It does also incorporate the incremental improvements that are part of the bargaining and negotiation process in the political approach. Note that given the changing nature of situations, what was FFP at one time may no longer fit the situation as circumstances change.

4.6 Evaluation Criteria

At various levels, public policy and the strategies and plans to implement them should be evaluated in terms of the following (Siu 2014: 84 - 85). (1) Balance of Public Interests, (2)

Accountability, (3) Impacts, (4) Cost Effectiveness, (5) Justice, and (6) Short- and long-term considerations. One might use the SSM evaluation criteria to guide the process using the 5E's: Efficacy, Efficiency, Effectiveness, Ethicality and Elegance (Checkland 1999). More detailed discussion will be found in Barry (*in litt*, Vol 2).

I now move onto part 2 which is a set of examples and learning points that may inform interventions that ideally are fit for purpose.

5 PART 2 LESSONS From CASES AND PRACTICE

This section should be read in conjunction with the presentation slides which include the graphics. More details of these examples and more examples will be included in the Workbook, part of Barry (*in litt*, Workbook).

5.1 Recording Land Use and Ongoing Audits Are Essential

There are certain instances where recording boundaries using aerial surveys, as per the FFPLA document, is not appropriate. However, in development projects it may be essential to map land use and establish who is uses the land, without necessarily acknowledging that land use as a right.

5.1.1 Case Java Survey 1980s

The case was an audit survey of an extra high voltage powerline route in the 1980s. Land rights were not recorded at the time. The people who owned the land and those who owned the trees and crops were not the same. Satellite imagery was low resolution and not easily accessible then. Topographic maps were 1;50,000 sheets surveyed in 1923 using plane table methods. Government officials accompanied the survey team to witness the survey, record which trees we cut down in order to compensate the owners. In some areas the survey team was stopped. Officials had informed the construction company that all the land for the route and tower sites had been purchased. There were a number of places along the powerline route where this was not the case. Landowners and users had not been informed about the project in these areas. They did not trust the government to pay them and possibly feared being moved off their land. The arrival of the survey team was the first that they knew of it. Lessons from this case, and several similar situations that I have been involved in, include:

1. Aerial mapping is a very useful, but start by mapping land use, not rights or boundaries.
2. Audits of whether people have been properly informed and consulted about a potential project should precede surveyors arriving on site. Organisational politics may present issues that have to be addressed. I.e. do a sample test on different sites to validate information about purchases or if people have been informed about the project at all before project planning and scheduling starts.

3. Trust is a critical success factor in development projects, FFP strategy formulation processes and FFPLA initiatives. The government and numerous actors in the "network" should be evaluated.

5.2 Working Group Coordination of Goals and Constraints

Panels of experts is one way of exploring strategic options in uncertain situations, evaluating strategies and policies, and evaluating government performance. After South Africa's transition to democracy in 1994, I was involved in two working groups on Surveying and Registration Options and Family titles in what was then the New South Africa. These were two of several land related working groups. I also critiqued the World Bank Land Governance working groups initiative in South Africa. Lessons include:

1. There should be coordination, oversight and communication between working groups, especially on goals, constraints and findings/progress from each group. What one group sees as a goal, another may see as a constraint and move on from there. A group can waist an enormous amount of time if a goal they are working towards is already considered a policy constraint.
2. One should be mindful of how officials are expected to participate in these think tanks and the risks to them if they participate. Might they be strategising themselves out of a job? Might the working group report be highly critical of their bosses or senior politicians?

5.3 Risk Analysis: Consequences of Ineffective Innovations

Part of any strategy exercise is risk analysis. An important question is what makes an intervention effective? Under what conditions will it work and what are the critical success factors that must be in place or created to make it work? What are the consequences if it is ineffective?

5.3.1 Land titles without title maintenance risk

Land titles have numerous benefits if the critical success factors are in place. However, there are many consequences if titles become cloudy when secondary transactions through sales and inheritance are not registered.

One example is Edendale in KwaZulu-Natal. Land titles were issued as far back as the mid 19th century. A major problem was many secondary transactions in the form of sales and inheritance were not registered. The dead man's title problem. It is a significant problem in South Africa's state-subsidised housing A consequence was that the authorities could not expropriate land to install engineering and other services. In addition, departures from building plans requiring neighbouring owners' signature could not be obtained. The de facto owners are not the de jure owners. One cannot execute either of these activities. The response was to initiate a Land Title Adjustment programme. However, this is expensive and time

consuming and it requires efficient administration (programmes. If one is compelled to title land, then one should explore a path to ownership using a progression of various tenure forms, and/or title maintenance programmes may be preferable to regularisation/title adjustment when problems occur (Barry 2019, Barry and Roux 2019, Barry and Kingwill 2018) Risk analysis should form part of strategy formulation involving land innovations. That includes risks associated with the effectiveness of the innovation itself and the effectiveness of the project management function.

The Edendale N case is particularly informative about why project management, audits and overall coordination is essential when development projects are implemented during changing times (Barry 2019).

5.4 Boundaries: General or Fixed and Arial Survey Evidence

The FFPLA document recommends general boundaries over fixed boundaries and using aerial imagery to position them, as this is faster and cheaper. If the conditions (CSFs) for general boundaries recorded using aerial imagery exist, then this should be considered. However, there are a number of instances where this strategy may not be appropriate.

5.4.1 Frontiers, Borderlands and Multiple Claims

Frontier regions between customary units pose a particular problem. A frontier boundary is one where the boundary between groups is contested. Consider two neighbouring Clans A and B in a customary system. Over time, Sub-Clan AA decides to split from Clan A (fission) and pledge allegiance to Clan B (integration). Clan B now claims authority over Sub Clan AA's territory. Sub Clan A does not necessarily relinquish its claim over this land. This process may occur a few times over several generations, including fission and integration within Sub Clan AA. The result is there may be multiple overlapping claims to the frontier that has formed. Establishing a boundary or surveying and registering parcels within the frontier is likely to cause conflict. My research team has observed cases where people have demolished a house that they claim was built on their land (Sewornu 2018).

5.4.2 Fixed Boundaries, General Boundaries and Negotiated fence positions

In South Africa, the notion of general boundaries was explored in a working group in the 1990s. I examined the issue in three settlements in Cape Town. I use Browns Farm to illustrate the Brown's Farm is a state subsidised housing estate, which had a history of violent conflict in the 1980s and 1990s. I had surveyed the layout of a portion of it (to a precision of two to three cm) while in private practice and then did aerial surveys using 1:3000 photography of the as-occupied patterns of 350 parcels as an academic. Allowing for some error in interpretation and measurement, the aerial surveys revealed that 147 (42%) of the 350 parcels had fences which were not aligned with the legal boundaries, i.e. a number of these fences were probably encroaching. The most probable explanation for this phenomenon is that the encroachments were negotiated arrangements where neighbours were allowed to use land.

Brown's Farm was a volatile area, and door-to door interviews were not possible. However, interviews in other case studies indicated that people would allow a neighbour to encroach if there was an agreement. In the absence of such an agreement, they would not tolerate a 1 cm encroachment. They believed the beaconed fixed boundary to be their legal boundary (Barry 1999, 2007).

One lesson is that field surveys to establish what fences and similar "boundary objects" mean to landholders before embarking a programme to record the boundaries.

5.4.3 Walking the Boundary / Beating the Bounds may be the wise option

Walking a boundary may be necessary in some cases. This is akin to the beating the bounds custom dating back to mediaeval England where the parish walks the boundary to affirm their territorial boundary.

If this is necessary, it may be wiser and cheaper to survey the boundary using high precision field methods instead of aerial surveys. The main cost is accessing the site and one should survey it using GNSS that can provide a high precision result. Otherwise, one may merely create a new, narrower frontier (Barry 2008, Jones 2017).

5.5 Organisational Culture, Adoption of and Resistance to Change

Innovations such as FFPLA often imply organisational change. Hence the emphasis on analysing the network when formulating strategy. The literature on organisational readiness for change is pertinent. Noted above, there are different cultures – the way things are done around here - between organisations, between branches / sections in an organisation and within beneficiary communities.

5.5.1 Innovations can be embraced, accepted/tolerated or rejected outright

I use the example of the Talking Titler software system to describe how potential innovations may be received, adopted or rejected. I developed the developed the Talking Titler (TT) software in conjunction with my postgraduate research students in various forms as a research project between 1996 and 2017. In one form the TT data model is similar to the STDM, but the emphasis was on developing a system that could capture as much information as possible, such as stories, oral and video testimony to get a comprehensive picture about tenure in a particular community. The philosophy was a community or government agency could trial it and then develop their own software that would be in harmony with the local government information systems. Tests and presentations showed that such an innovation can be embraced enthusiastically, tolerated or rejected outright (Barry 2010, Barry et al 2013).

We first tested the TT software in a land reform case in South Africa. Residents were filmed in front of their houses and told how they came to occupy their house, which was going to be transferred to them. They then walked the boundaries of their vegetable gardens while being

filmed, pointed out the boundaries and described who their neighbours were. That was the first trial of the system and it was not implemented (Roux and Barry 2001).

In Nigeria, groups of government employed surveyors objected to the system when it was presented to them. I can only speculate over the reasons for their objections. The only feedback I received was, "It will not work". In contrast, regularisation officials embraced it enthusiastically and installed the system. I also ran a two-day workshop in a state's Surveyor General's department with staff who prepared documents. In my observation, the system was accepted, but not embraced, even though there were major land tenure problems in the state. My sense was that as a starting explanation there were vastly different cultures between the two departments (Barry 2008).

Clearly, there is more to it but these three instances exemplify how organisational culture can influence acceptance, or not, of a land related innovation.

5.5.2 Participatory Planning, Beneficiary Communities and Organisational Development

Beneficiary communities are an important part of the strategy formulation network if an innovation strategy applies to them. In one case where a community of 25,000 was involved in a community driven planning and development approach, the NGO facilitating the process, Violence Prevention through Urban Upgrading (VPUU), engaged in ongoing organisational development with the community leadership as part of the process (Barry and Kingwill 2018).

This is a research topic on its own. That said, when contemplating an innovation such as FFPLA, it is worth exploring the case write ups, grey literature and peer reviewed literature on the matter.

The above are some of numerous examples relating to how land related innovations and the processes related to them may be effective or not.

6 ANALYSIS AND CONCLUSIONS

In synthesis, initiatives such as FFPLA (Enemark et al) and other innovations should improve land administration if the enabling conditions and the critical success factors (CSFs) are in place. In the absence of CSFs an intervention can create problems where they did not exist before.

When formulating and implementing land related strategy, the rational approach incorporates the different activities that should be part of any strategy formulation process. Even an incremental improvement strategy should follow that structure and use the parts of it that apply to a particular problem context. The political approach brings a sense of reality. Public administration is inherently political, and the land sector especially so. Ideally the process should be collaborative, but the notion that strategy formulation and implementation is a continual process of bargaining and negotiation is pertinent, even under stable conditions.

Strategy formulation starts with identifying the different stakeholders, organisations, communities, politicians and other actors that may or not be part of the networks that comprise the system. Soft systems method provides a tool for conceptualising and forming the network.

Understanding of the corporate culture of each organisation and sub-organisations is important. What are the primary purposes, goals and objectives of each structure in the network, including structures in a community and structures on the edge of being excluded in a beneficiary community? Why should other actors in the network support or resist a proposed innovation / change? What organisational development work may be necessary to improve getting to yes in the bargaining and negotiations that follow? What organisational development and capacity development may be necessary in the "government side of the network and communities where participatory planning forms part of the process? How do we manage expectations of communities who design a development plan which some members of the network reject?

A special case in participatory planning is it should be clearly communicated that a participatory community generated plan may not be accepted. Further, who should benefit and who should be excluded from a development project, who decides this, and who enforces this decision is pertinent. Once that boundary has been established, part of the process becomes managing the interaction with those who excluded. Excluded factions may well try to derail a development programme in the hope of being included.

During uncertainty, we need to adapt the strategy formulation and implementation procedures that we'd apply to wicked problem contexts to even wickeder ones! The literature and my observations suggest incremental improvements, ideally where implementation projects are split into small parts and set up for variations that allow for continual change, rather than large grand projects. Achieving this can be very difficult. Problem ownership should be clearly communicated and project managers should report to the problem owner regularly. During uncertainty, more frequent, ongoing assessment of risks and independent audits are likely to improve the chances of success. In addition, the standard project managers function of checking if the persons doing various parts of the work, among contractors, professionals and officials, are properly qualified and have the necessary experience to do the work. The Edendale N case mentioned above exemplifies his need.

Lastly, what might be the unique approaches to improving a situation when unusual or unexpected situations. For example, what if politicians and other elites might hijack a project or parts of the land system for their own ends? What, if anything can be done, if officials fear an innovation places them at risk of being branded the face of failure if the innovation does not work?

The relevance to the FFPLA initiative is that perhaps more work on the strategy formulation and organisational development processes such as those presented above may improve the

take up. It may also generate a better understanding of a situation and at times reveal why some of the FFPLA recommendations may not work.

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- Research projects in Gaza, Ghana, Nigeria, Kenya, Somaliland, Canadian First Nations, and South Africa (18 field case studies) dealing with land reform, land restitution, land tenure information systems design and testing, registration, boundaries, property fraud, and informal settlements
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The set of two volumes and workbook referred to in this paper will be downloadable for free from the author's ResearchGate webpage.