A practical guide to preparing, implementing and ensuring sustainability of reforms to property rights registration systems.

Real Estate Registration and Cadastre

Practical Lessons and Experiences

Gavin Adlington

With specialist chapters from:
Tony Lamb, Rumyana Tonchovska and Robin McLaren

The findings, interpretations and conclusions expressed in this work are those of the authors only.

Chapter 9 was revised in March 2021 to reflect changes to the UN-GGIM Integrated Geospatial Information Framework.

Forewords

Professor Peter Dale

As in many areas of professional activity, there is theory and there is practice. The former tends to be based on the ideal, or what is assumed to be, while the latter deals with hard facts and reality and is the starting point for this book. Gavin Adlington and his co-authors have each worked at the sharp end and have learnt the hard way what works and what does not. They share their experiences in what follows.

Land is a fundamental without which we simply would not exist. It is as important as the air that we breathe and the water without which no living thing can survive. It is so important that we take it for granted. It is not just a physical substance consisting of the earth and rocks that underpin us and the vegetation that grows upon it. It is also an abstract concept of rights and responsibilities that embraces law, cultural behaviour and economics. The ways in which we use and value it determines how well we and all living creatures can and will survive.

Land raises complex issues, many of which are touched upon in the experiences shared by the authors. Solutions to the resulting problems vary across the globe, although within such diversity there are many common threads. We can all learn from each other, even though we may draw different conclusions for our own environment or see only a few sides of a multi-faceted spinning coin. We need to understand land within its wider context before we adopt measures to administer it for the good of all. Too often there has been a silo mentality, overlooking the bigger picture while we address small parts of a vast jigsaw. This often manifests itself in competing objectives between government agencies. As a result, land administrators need to address institutional issues every bit as much as technical ones.

Our understanding of land depends on access to accurate information, and hence techniques of land information management, especially using modern computer technology, underpin the ensuing chapters. For starters, we need to compile records of who claims what areas of land. Territoriality applies to individuals, to communities and to nations as a whole. Social and economic stability require us to address this and since patterns of land ownership change over time, the system of recording must be dynamic and capable of continuous updating. Designing complex Information Technology (IT) systems is no easy matter and there are many examples around the world of IT systems that have failed at great expense. Lessons are there to be learnt and, in the context of land, many appear throughout this book.

IT is, however, only a means to an end, not an end in itself. The aim is better land management and, with it, improved social security and cohesion thus underpinning economic development. This requires a legal framework that is fit for purpose and a set of land policies that embrace both human and environmental needs. Even these are insufficient without good administrative management. It is no surprise therefore that the text makes references to the need to listen to the people on the ground, to check the reality of everything and to build the capacity to deliver what is required. Management skills are all important and capacity building is the means to achieve these. The experience of the authors and the lessons that they pass on in the ensuing chapters should help to that end. There is much wisdom here for readers to mark, learn and inwardly digest.

Kate Fairlie

Secure tenure is linked to multiple Sustainable Development Goals (SDGs 1, 2, 5, 12, 16). It is a fundamental safety net and basis for empowerment for vulnerable women and men around the world. It's an essential precursor to many land-based climate change mitigation and adaptation strategies, an enabler of food security, the basis for infrastructure and economic growth.

A wealth of recent publications recognise these facts, particularly those publications calling for fit-for-purpose land administration to address the significant 'land tenure gap' that many developing countries face[1]. Yet few address the actual practice – being the day-to-day slog, for want of a better word – of realising secure tenure at scale. This slog is experienced by practitioners around the world – be they World Bank or donor country staff, government counterparts or private sector consultants.

At the same time it is a well-recognised paradox that young practitioners are unable to find jobs in the sector without experience and are unable to get experience without jobs. This at a time of low surveyor numbers internationally – and at a time when professions of the future are increasingly likely to transcend disciplinary boundaries. This 'how to' guide of sorts, then, is a welcome response from such seasoned professionals as Gavin, Tony, Robin and Rumyana.

Knowledge management itself is of paramount importance - not simply in the context of an ageing (and retiring) surveying profession, but in the international development arena at large (where wheel reinvention is a favourite pastime). Yet knowledge management is frequently poorly implemented. It is certainly not an easy thing to tap out the knowledge of your years in a cohesive manner on paper – or on screen in this case – but Gavin and colleagues have managed this admirably. It is to be hoped that greying(!) professionals in their footsteps likewise find the time to document and impart the key lessons – and crucially, the mistakes alongside the wins - of a lifetime of experience.

It is refreshing also to see a practitioner perspective, not simply because the existing, more theoretical takes are typically more difficult for those less experienced to translate from theory into practice, but because such practical examples typically demonstrate how one moves 'beyond the silo.' This practical handbook provides a unique step-by-step guide to approaching land administration projects; it spends a significant proportion of its length on those essential soft skills, emphasising how the application of such skills can make, or break, projects. Whilst it begins – as many land administration tomes do – with the economic case, it is the socially-embedded nature of land that is at the heart of subsequent chapters. There is likewise significant emphasis placed on devising a team with complementary skills and the essential nature of early and ongoing stakeholder engagement alongside the more technical elements of land registries and boundary mapping.

I take some issue with Gavin's statement that 'good consultants in the land sector are very rare' – but in the style of this book, having identified the problem, he seeks to solve it. Having had the privilege to work directly with Gavin and Robin, and indirectly with Tony and Rumyana, I am pleased that their knowledge and experience is captured here and look forward to the possibility of future updates and addendums.

[1] Indeed, there is a lengthy and valuable bibliography that provides an essential reading list for any and all seeking to work in this field.

About the Authors

Gavin Adlington MSc, Cert Ed, FRICS
Over the years Gavin Adlington has developed a unique breadth of knowledge and a deep understanding of all matters relating to land registration and cadastre systems, especially with regard to the successful implementation of projects involving mass systematic registration of title and the establishment of institutions that can successfully manage real estate registration and cadastres. His early years included operational experience as a cadastral surveyor, the implementation of major programs for systematic registration and work as a Registrar in a Title Office and as the Adjudicator in a systematic registration of title program. From the early 1990's to the present day he has been advising various governments around the World on their programs for implementing such projects. He has worked in 46 countries on projects in this sector and visited another 20 in order to assess their operations. Gavin sees himself as primarily a practical implementation person, rather than as an author, but decided it was time to document the experiences and lessons learned over a 40+ year career.

Many of the projects that Gavin advised on or led were in the Eastern Europe and Central Asia region where major reforms were being implemented following the collapse of the socialist systems and change over to market economies in the early 1990's, but he covered many countries in other regions as well. He has worked primarily for the World Bank through the last 20+ years of his career, eventually becoming the global lead specialist for land and geospatial matters worldwide for the World Bank. He retired in 2015 but has since then continued to work as a consultant in the same sector.
In December 2013, Gavin received the Michael Barrett Award from the Royal Institution of Chartered Surveyors of the United Kingdom "to the person whom in the opinion of the panel/ division has contributed most to the understanding of the subjects of land transfer, registration and administration, encroachments, cadastre and boundary issues, or the administration of the laws regarding them with the UK and overseas". This is a prestigious award given once per year to one individual worldwide.

Tony Lamb BA, LLM, MDR
Following specialisation in property law at university, Tony began work as a legal officer at the New South Wales, Australia Land Titles in 1989 and was engaged in document registration, property litigation, drafting of new laws and regulations, and providing education and advice to the public and professions. During that time, he completed a masters degree in dispute resolution and instituted a program for resolving contentious cases, including in relation to boundary disputes.

In 1995, while still with the Land Titles Office, Tony began providing technical assistance, first in Laos and then a series of other countries. Since then, he has worked in over 30 countries worldwide, having left the government in 2005 to concentrate on consulting. His work in Laos in the late 1990s formed the basis of a Master of Laws degree, for which he won the university medal.

His work with the World Bank, UN FAO and other organisations over the years has formed the basis for a variety of publications, several of which are cited in this book. He also co-authored the zero version of the Voluntary Guidelines on Governance of Tenure.

Rumyana Tonchovska M.Sc.
Rumyana Tonchovska, a Bulgarian national, is a Senior Land Administration-Information Technology Officer of the Food and Agriculture Organization of the UN (FAO) based in Rome.

Rumyana holds a Master's Degree in Information Technology, and is a certified international IT Project Manager with practical experience in design, development and implementation of large-scale complex information systems for land tenure, indirect finance and building Spatial Data Infrastructure. She has 26 years' work experience from over 23 countries in Eastern Europe, Asia and Africa. Under the FAO - World Bank Cooperative Program, 70% of her time is allocated to support the Bank-financed land administration projects.

Before joining the FAO in 2009, Rumyana worked as Information Technology consultant, UNISYS Senior Project Manager, IT Director at the Bulgarian Ministry of Justice, Head of the EU Funded Program Department at the Bulgarian Customs Agency (Ministry of Finance) and assistant professor at Technological University in Sofia.

Rumyana is leading various innovations to test new approaches and technologies, aiming at improving tenure governance, making best use of the available geospatial data and technologies, and building local capacity for evidence based policy making. She has been actively involved in the development of the Integrated Geospatial Information Framework and its implementation at country level.

Dr Robin McLaren D.Sc. (Honorary), M.Sc.E., B.Sc. (Hons), FRICS, MBCS CITP
Robin McLaren is director of Know Edge Ltd, a UK based, independent management consulting company formed in 1986, specialising in the application of geospatial information, and is a prominent consultant in land administration. He has been at the forefront of the GIS revolution and is recognised as an expert in Spatial Data Infrastructures and Land Policy. He works extensively with United Nations agencies, World Bank and EU on land policy / land reform / NSDI programmes and is on a mission to ensure that Land Professionals are delivering appropriate land administration services to the citizen. He was the lead consultant in formulating the UK Location Strategy. The company has also supported Canada, Western Australia, Hungary, Romania and Albania in establishing their NSDI strategies. Robin is an Honorary Fellow at the School of GeoSciences, University of Edinburgh where he teaches. His research interests are focused on how crowdsourcing can be used to support land administration.

He has co-authored the GLTN publication on 'Fit For Purpose Land Administration: Guiding Principles for Country Implementation' and most recently drafted the 'Strategic Pathway 3 Finance' of the Integrated Geospatial Information Framework Implementation Guide, to be published by UN-GGIM in 2020.

Preface

> *You can't change the world, but you can change that little bit of the world that you are in contact with. If others do the same, then <u>together</u> we can change the world.*
>
> Joe Parker. Colleague and Lecturer, Borehamwood College of Higher Education, 1975.

This book is not a typical treatise, text or explanation of the subject of real estate registration and cadastre. It is a description of the key things to consider when trying to reform, establish or renew such systems. It is written by practitioners who have been involved in dozens of projects and programs in multiple countries. The intended audience is those who would lead or be involved in such projects or programs, including senior staff in government agencies and team leaders from financing partners or bilateral donor agencies and consultants (local or international) working in the sector. The book can be used as the basis for training, taking one chapter at a time, or for a workshop lasting two or three days, or just for reading about experiences and lessons learned in other projects and programs. As changes occur frequently in this sector due to technology innovation, land policy development and institutional re-arrangements, the chapters can be updated as and when needed. Each chapter is independent and can be handed to someone who needs to work on, or know about, the aspect of land administration covered in that chapter.

The book will be less useful for those in countries with established, well-functioning systems, such as those found in Western Europe, the USA, Canada, Australia, etc., but conversely more useful for those in countries where the existing systems are not satisfactory, and who want to make changes. This may be to make their existing systems more efficient, to register property rights on a mass scale for the first time, or to do both of these. The subject matter is currently restricted to the registration of property rights and those issues directly related to establishing such systems, but it will also be interesting for anyone who wants to implement a project in order to achieve change in a related field. The narrow focus is deliberate as my main experience is in land administration, although related matters of land management have been included in my work and projects. However, I felt that chapters on related fields should be written by those with the appropriate qualifications and experience.

The book is an 'e-book' and should change as technology and experiences change. It can also be expanded with chapters for related matters, such as urban or rural planning, valuation and property taxes, customary land development, informal settlements, land and property markets, land rights in conflict areas, women's land rights, etc. However, I am well aware that planning and real estate markets / valuation are professions in themselves and it is presumptuous to think these subjects could be covered in a chapter, rather than in a book of their own. But, if you are a qualified specialist in any discipline associated with land administration and management, and you have multi-country experience with projects that were successful, then do feel free to write a chapter of similar style and length and suggest its addition to me. It must be based on actual practice and experience, with results and lessons from that experience. If you decide to do so, you can join the author list, but note that, as with the current authors, this is a pro-bono exercise, aimed only at sharing experiences that will be useful for others.

I have worked in 46 countries worldwide on land administration and management projects and visited another 20 to examine their systems – making 66 countries in all. Most of the projects I have been involved in were successful. About half of the countries where I worked were in the Europe and Central Asia region, where a coordinated program of work from the post-socialist era for the whole region was implemented from the early 1990's onwards by the World Bank, for whom I worked for more than 20 years as both a consultant and staff member. I was asked by several people to write up my experiences, but when looking through existing literature I realised that there is a wealth of excellent materials about the subject matter already available and that a different kind of book was needed. For this reason, I have made a book list that identifies the main texts, guidelines and other important works. The list also describes the contents of these books. Any person wanting to delve into greater depth of the theory and logic in the sector will find the book list very useful. This is contained in Annex 1.

I often start in the chapters with a bit of history or explanation before getting onto the key issues, but further reading for the serious student might be needed, and for that I cross-reference to Annex 1 and mention which books can provide more detail. Annex 1 also has a summary reference of a series of learning documents, guidelines and tools that have been prepared by the Global Land Tenure Network and the United Nations Food and Agricultural Organization as there is a plethora of excellent materials on their websites. A glossary of terms used is contained in Annex 2.

The text of this book is written in a 'conversational' mode to explain what we did and why, and it is interspersed with specific stories and anecdotes that actually happened and that teach good lessons. I have often kept reference to the countries general so as not to embarrass or upset people who may still be working in the countries concerned. Hence, I will say 'in a Balkan country' rather than mentioning which specific country. It is likely that some of my comments from experience will not tally exactly with theories previously expressed in the books in Annex 1. I make little attempt to cross-reference my personal conclusions with quotations or definitions from books or papers written by others. This is not because of any criticism or disagreement with these works, which are usually excellent and have provided valuable guidance to me for years, but because I am writing about lessons learned from a project implementation perspective. Within this context, the people who you work with are more important. Furthermore, the approaches must be tailored to specific country situations and the capacities, expectations and understanding of these people.

The book itself comprises nine chapters. I asked three other people to write specific chapters on subject matter in which they are specialists. It should be a basic principle for any professional or manager to *know what you don't know* and to get the real experts to address those issues. Thus, I asked Tony Lamb to write a chapter on law (Chapter 6) and Rumyana Tonchovska to write a chapter on Information Technology (Chapter 8). Robin McLaren prepared a final chapter (Chapter 9) to describe how the real estate registration and cadastre systems fit into the wider needs of government and society for information about land and its use in Land Information Services.

The nine chapters can be logically split as follows:

Chapter 1 *The purpose of these training materials – an introductory chapter* explains why real estate registration is important from an economic and social perspective and what such systems look like and achieve. Chapter 1 also addresses the key considerations when implementing projects within the sector.

Chapters 2-5:

These chapters provide the overall considerations and lessons for preparing, implementing and managing a project that is geared at reforming the sector.

Chapter 2 *Know Your Country, Know Yourself and Know Your Team* covers the preliminary considerations and due diligence required before starting a project. Much of the due diligence can be done before arriving in the country (if you are a foreigner), but you must also know your own skills and limitations as well as those of the team you assemble to undertake the work.

Chapter 3 *Preparing a Project or Reform* looks at the information you need to gather and the topics you need to consider when preparing a project. It covers the expertise you might need and the components of a typical project.

Chapter 4 *Implementing the Project of Reforms – the 9 C's.* Here I cover the main considerations and subject matter that need addressing in a typical project. It is referred to as the "9 'C's". The first two 'C's are the Champion and Corruption, the Champion being the critical person within the country who actually makes the changes occur. Corruption, which is the most important but least talked about factor, must be addressed because it is endemic and highly detrimental, particularly to the poor and vulnerable.

Chapter 5 *Project Management and Institutional Development* provides guidelines and experiences in managing projects, including project management team composition, monitoring and evaluation required and managing and mitigating the risks. The institutions responsible for managing projects must also ensure that the new or reformed system functions

efficiently in a sustainable manner. The arguments for a single agency model and self-funding once the new or revised system is functioning are discussed.

Chapters 6-8:

There are three key technical elements in any project to introduce or reform a registration or cadastre system: the law and property rights; the surveying and property boundaries; and the computer systems that ensure the registration and cadastre system functions well in the modern environment. Thus, three chapters written by the specialist in these specific fields are included.

- Chapter 6 *Legal Framework* focuses on the basic laws and types of laws that need to be reviewed when a project is to be implemented, and how to proceed when land policies are unclear or laws need changing, while making the point that you can usually work with what you have. The role of the lawyer *vis à vis* other specialists is addressed.
- Chapter 7 *Boundaries and Cadastral Survey* addresses the purpose of the boundary survey, the people who might be allowed to work on the surveys and the changes to survey measurement methods that are occurring. It also addresses some of the misconceptions around 'fixed' and 'general' boundaries.
- Chapter 8 *IT Systems for Cadastre and Property Registration* describes the experiences with developing and implementing IT systems, making the point that the system is just a tool for doing a job and not the solution for corrupt or inefficient practice. The approach taken for successful implementation of IT systems, plus acceptance and sustainability, are addressed.

Note: It would be possible to add other chapters, but these require different authors, for example:

- the social impact – including impacts on vulnerable, indigenous or otherwise disadvantaged groups;
- capacity development and training programs;
- real estate market development, providing financing or credit for smallholders and small enterprises;
- land economy and valuation;
- local government and other influences on land use, planning, address systems, etc.;
- state land management.

Chapter 9 *Land Information Services* explains how real estate registration and cadastres are important foundation layers for wider land information services, which help society to more effectively manage land wherever and however it is used. The requirements and approaches for developing national spatial data infrastructures that are being developed around the world and how such work is coordinated internationally is also included.

Thanks and acknowledgements:

My thanks to those that have guided and influenced my work over the years, particularly to the writings of Rowton Simpson, Peter Dale, John McLaughlin and Ian Williamson as I learned the ropes in my formative years. Many other papers and articles written by other specialists have also been a guide. The people I have worked with as specialists are too many to name (I made a list of over thirty top quality specialists!), but each brought different perspectives, ideas and approaches. In project management within the land sector, colleagues in my earlier years working with the World Bank were always helpful and I thank: Lynn Holstein, Ed Cook, Gotz Schreiber, Iain Shuker, Jessica Mott and Victoria Stanley in particular. The reviewers of this book provided a wealth of excellent ideas and commentary and I thank the reviewers Victoria Stanley, Peter Dale, Stig Enemark, Tony Burns, Tommi Tenno, Sarah Antos and Richard Baldwin. Mika Torhonen and Wael Zakout from the World Bank also provided suggestions, ideas and encouragement. In particular I thank my fellow authors Tony Lamb, Robin

McLaren and Rumyana Tonchovska who wrote the sections that I should not write and provided their comments to the full text of the book and with editing. I have worked with Tony Lamb and Rumyana Tonchovska on projects for many years, and the projects would not have been successful without their oversight and expertise. Above all, I thank my wife, Peggy, who has put up with me for all of my professional career, while I travelled the globe or was overly engrossed in work, and she has always been a great and constant support. She also edited the first and last drafts of this book without laughing too much at my spelling or my abuse of the English language.

My thanks also to Professor Peter Dale and Kate Fairlie for writing the two forewords. Peter is a well-known professor and author, and ex-President of the FIG, who has been a leading light in the land administration and management sector since the early 1970's. Kate is from a younger generation than any of the authors and is a professional land surveyor heavily involved in managing projects for Land Equity International.

Gavin Adlington

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Chapter 1 The Purpose of These Training Materials – an Introductory Chapter

Gavin Adlington

Why Be Involved in Property Rights Registration?

Just over a year ago I was in a West African country walking along the roadside towards the local World Bank office when I passed a little girl, maybe nine years old, sitting with her back against the wall. She was selling peanuts. A small paper cone of nuts would cost the equivalent of a few US cents. Some hours later after coming back from the office I noticed she was still there, sitting quietly. As I looked, I saw tears streaming down her face and those deep shuddering sobs you see when someone is really upset, but she made no noise or attempt to attract anyone's attention. I asked a local man to translate so that I could find out what was wrong, and it turned out that a man had recently passed by and stolen her takings for the day. I presume that she was not in school either because her parents could not pay the school fees or because they needed the money for daily living costs. She would now have to go home and tell her parents how she had lost both the money and most of the peanuts. Of course, we bought some peanuts and made sure we paid enough for both the peanuts and the money she had lost. This was not onerous as her takings for the day were about US$2, and it reminded me clearly why many of us work in the development sector.

The governments and the various financing partners have projects in education, health, clean water supply, social services and similar support to help little girls like this, and they often make great progress. You might wonder how working in real estate registration would in any way make an impact on the life of people like this little girl, but it does. Clear and secure land titles are one small cog in a bigger machine that can make life better for those less fortunate than ourselves. When I first went to the countries that used to form the Soviet Union, shortly after it collapsed economically, I saw much hardship, especially in the Central Asian countries in the early-mid 1990's. I recall in one country hiring the local secondary school English teacher to translate as we went around the farms to think about how to implement the early stages of the land reform. After checking how much I should pay, I handed her US$20 for the day's work. I thought it was not much, but she was thrilled and told me it would take her months to earn so much on her teacher's salary. In another country, we hired qualified surveyors and lawyers who, like most of the population, were out of work. They were paid US$20 per month and their assistants US$17 per month to undertake systematic registration. At this time the general population was very poor and had many of the problems seen in Africa where children could not go to school; they had insufficient food and health care was too costly.

In our projects all we gave the beneficiaries at the end were title deeds or certificates – although we also usually included various other interventions to get banks to accept the title documents as collateral for loans, gave advisory services to improve farming and provided public information campaigns and guidance on how to acquire their property rights and make use of them. Various other financiers and civil society organisations were supporting reform activities in other related areas – and the government oversaw it all. Gradually, we saw people developing new businesses, often using small loans from the banks, and improving their income and living standards. They began to be able to afford school fees and health care, etc. They really valued the title documents they had been given, as it gave them confidence that it was their property and that any improvements and developments would not be taken from them. When going to the banks for loans, the title deed or certificate convinced the bank that the applicant was local, had roots in the community and would not abscond. The title was often used as collateral to register a mortgage even for small sums. By the end of the projects we often saw transaction numbers at the registry office increasing by a hundred per cent per year and the value of money borrowed vastly increased. In one of the poorer countries, Kyrgyzstan, the population went from not being able to get credit at all to over US$1.3 billion in loans through mortgages - a figure that was

equivalent to 23 per cent of their GDP.[2] In that project they also regularised over 660,000 informally constructed buildings and registered the property rights for the occupants. Further details and actual figures for other countries in the region can be found in book references 11 and 37 in Annex 1.

We worked in that whole region for some 20 years or so and saw society quickly transformed and vast improvements in the standards of living – the land registration and cadastral projects across the whole of Europe and Central Asia region played a vital part in this success. The lessons learned are important when looking at how we can help other countries needing support – so that little girls can go to school and have a future.

The Economic Perspective

First, let us look at why land and registering land rights is so important from an economic perspective.

Real estate

Rowton Simpson (see book reference 2 in Annex 1) starts his book with these words:

> Land is the source of all material wealth. From it we get everything that we use or value, whether it be food, clothing, shelter, metal or precious stones. We live on the land and from the land, and to the land our bodies or our ashes are committed when we die. The availability of land is the key to human existence, and its distribution and use are of vital importance.

It is often the buildings and resources found within and upon the land that bring about the greatest wealth creation. In many parts of the world, the land and the buildings or objects upon the land are considered separately, and sometimes registered independently, so here we use the term 'real estate' to ensure that the reader appreciates that we are talking about both the land and anything firmly affixed to it.[3]

Registration

Real estate is registered for two good reasons:

(i) governments need to know who lives where and who owns what so that they can manage land resources optimally and for taxation purposes, providing income to help run the government. We often focus on the 'tax' part, but a good government needs to know who lives where and who owns what so that they can provide the services that are needed to society, such as garbage and sewerage disposal, provision of utilities, locations of schools, transport networks, social services and hospitals, etc;

(ii) the business community and people in general need to know with clarity who lives where and who owns what so that they can be secure when buying, selling, leasing, mortgaging or otherwise dealing with real estate. This is needed both if you want to stay on the land and not be removed by some other person or group (*for tenure security*) and if you want to deal with the real estate safely and securely for business purposes or to change habitation.

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[2] See the Kyrgyz Land and Real Estate Registration project implementation completion report for further details. http://documents.worldbank.org/curated/en/463911468047089384/Kyrgyz-Republic-Land-and-Real-Estate-Registration-Project

[3] Throughout this book, the word 'land' will often be used, but unless it is clearly indicated to the contrary, the word can be read as 'real estate'. This follows the English common law tradition. Similarly, 'property' and 'real property' will also be used and mean the same as 'real estate' as defined above.

Economics

Classical economics often refers to the key factors of production that create wealth as Land, Labour and Capital. 'Land' is the fundamental requirement and often the access and use of capital includes using real estate as collateral. The link between real estate registration and economic growth has been made for many years, with The Economist of May 29, 2003 stating that "land and property markets, including construction, may contribute as much as 15 per cent to GDP in a developed economy". In the UK there is approximately US$5 trillion in the value of housing and US$2 trillion in the value of commercial properties. The value of construction, professionals in the real estate sector and various rents etc., the contribution to GDP for housing alone is estimated at 15-18 per cent of GDP (see web site of National Association of Home Builders) and this probably rises to over 20 per cent when commercial property is included. Mortgages registered at the Land Registry in England and Wales amount to over US$1.2 trillion. (Land Registry Business Strategy for 2017 to 2022). This is a huge amount of investment that has an enormous impact on the economy as a whole.

In order for the market to work well, the corresponding registration system must be efficient. In the book reference 23 (see Annex 1) there is a clear diagram explaining how this linkage works. (Byamagushi, 1999). See figure 1, below. (Note: the term 'land' in this diagram includes all real estate.)

The key linkages are:

(i) tenure security and investment linkage, because people are satisfied that any investments or developments will accrue to themselves and will not be taken from them;
(ii) land title, collateral and credit linkage, because people now have an asset they can use to get credit and invest in their homes, land and businesses;
(iii) land markets, transactions and efficiency linkage, because it becomes easier and more secure to buy, sell, mortgage with security and efficiency; people will be more likely to make such living and investment decisions that create and improve the real estate market, construction and business development;
(iv) labour mobility and efficiency linkage, because it is easier to change residence or business locations and therefore for job seekers to move or rent property; it helps business and society in general to make sensible decisions with security;
(v) the land liquidity, deposit mobilisation and investment linkage, because formalisation of real estate rights frees up the "dead capital" and, because real estate is by far a nation's most valuable asset, it needs to be utilised for the highest and best use.

The logic and economic case for the registration of property rights is also made in the major textbooks, references 1-7 in Annex 1. Byamagushi's 1999 paper covers this in more detail and De Soto brings out the importance of registering property rights in *The Mystery of Capital* (see book reference 24 in Annex 1), where the importance of registration to a country to release 'dead capital' is dealt with in detail. Book reference 35 of Annex 1 deals with land markets in general and book reference 37 uses the linkages suggested by Byamagushi for case studies with actual data and results from 13 countries following land registration projects in the former socialist block. Book reference 11 in Annex 1 deals with the economic impact of projects the Europe and Central Asia region, as well as other lessons learned.

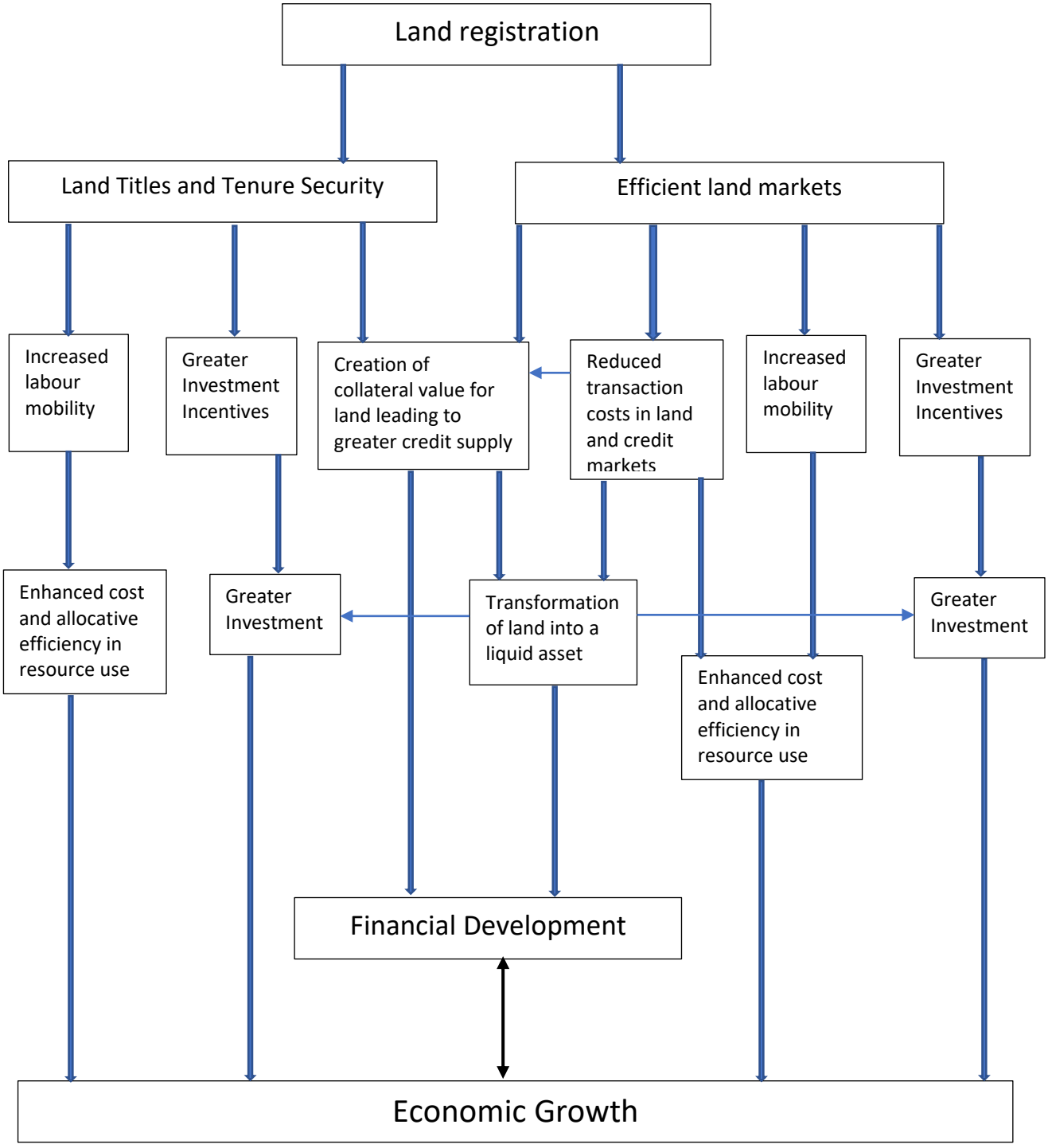


Figure 1: Relationship between Economic Growth and Land Registration (Byamagushi, 1999)

In the year 2000, in *The Mystery of Capital* (Book reference 24 in Annex 1) de Soto argues that an effective registration system is a necessity if an economy is to be successful. He looks at the countries of the former socialist block in Eastern Europe and Central Asia and compares them with poor systems in the developing world. De Soto states '… today they look astonishingly similar: strong underground economies, glaring inequality, pervasive mafias, political instability, capital flight and flagrant disregard for law …. most people cannot participate in an expanded market because they do not have access to a legal property rights system that represents their assets in a manner that makes them widely

transferable and fungible….'. If de Soto were to review the situation now, some 20 years later, he would see a completely different situation. Indeed, if you were to check the *Registering Property ranking* in the annual report on *Doing Business for 2019*[4] you would find six of these countries in the top 10, 10 in the top 20 and 13 in the top 30, etc. Only two can be found in the bottom half of the 190 countries measured (at 98 and 99), with one country not included in the list. Some 24 of the 30 countries had World Bank funded projects dealing with property registration and cadastre. There are many lessons to learn from the projects in the post-socialist countries and these are included within this book. Of course, the established countries in North America, Australasia and Europe already had good registration systems, and score well in the *Doing Business* indexes, but other parts of the world have not seen such significant impacts, despite having major projects on the registration of real estate rights.

The economies of the former socialist block of Europe and Central Asia have been transformed in these twenty years, but the improvements that might be made in registering property rights are not enough on their own to make a difference in the economy. Those countries had an overall program of economic reform; improving the security of real estate rights was just one of them. Unlike many of the countries in the developing world, they also had a history of strong government, good record keeping and a good tertiary education system. Many countries in the region included within their reforms the transferring of government-controlled lands and residential properties to the occupants free of charge. This introduced a huge number of very valuable, fungible assets into the economy that the public could utilise for economic benefit. It is probably true to say that the positive economic changes many countries desire will not occur just because of reforms in the real estate sector, but that they are unlikely to occur without addressing deficiencies in the real estate rights sector.

The Wider Context

The above text is written from an economic perspective and does not take into account the needs of society to congregate and live together socially, nor the very intense emotional connections to real estate that has been in family ownership for generations or where ancestors are buried. The stories of people holding up huge development projects for sentimental reasons, despite being offered huge sums of money for their land or house, have made good movies over the years. Large tracts of land across Africa, South America and Asia have been held in customary or indigenous ownership, with full tenure security through local acceptance, for centuries.[5] Systems have worked well, but disruption has been occurring in the last 60 or more years as land has become more scarce, and therefore valuable, and the danger of the wealthy, the elite or governments taking land that they wanted or erroneously thought was unused. Although there may not always be great economic benefit to clarifying and protecting these rights, there is a definite need to protect citizens from losing their heritage, their homes or their means of livelihood, and thus the registration and protection of these rights is fundamental for peace and security. Increasingly, it has turned out that failure to protect indigenous rights in forested areas or large pastural lands is adversely affecting the climate as well as the livelihoods of the indigenous communities.

Local government authorities usually have a key role in deciding how land might be used in their jurisdiction, such as what can be built on the land or what activities can be undertaken there. This role overrides the supposed freedom that landowners have to utilise their property as they wish. Thus, in many countries an investor (or any person involved in a transaction) will need to check whether the

[4] The *Doing Business* report measures how business friendly a country is for medium sized businesses. They measure 11 different aspects that businesses need for investment and growth, one of which is the ease of registering the sale of a warehouse for business purposes. It measures the speed, cost and number of procedures that the parties have to go through, and also measures the quality and national geographic coverage of the systems in use.

[5] Tenure security does not necessarily need a certificate or document. It is a term associated with ensuring that people with rights acceptable to the community are protected in law and practice. It is now common that a certificate (or title document), record or register held by government bodies provides an extra level of security that will stop the elite or wealthy from taking land from people who have insufficient knowledge or power to protect their own rights.

land has all the necessary permits for development and check the restrictions on usage and environmental considerations before purchasing or using the property. Also, apart from concerns over unfair acquisition and use of land held for generations by local communities, a major concern has been the rapid growth of cities as people migrate from rural to urban areas. In 1950 about 30 per cent of the world population lived in cities, but by 2018 this was 55 per cent. The greatest growth is in Africa and Asia, where urban populations are expected to triple in Africa and increase by 60 per cent in Asia by 2050 (UN, 2018). If the local government manages its jurisdiction well and caters properly for housing and business needs, then both the social and economic benefits will be felt. However, it is very common that housing land is not provided in a timely fashion and large informal areas with poor sanitation, transport and facilities develop. The role of local government in good land management is key, although not the subject matter of this book.

Generally speaking, if the economy is progressing well, then all of society benefits through greater employment opportunities as well as the more productive use of the land. The important linkage between sustainable development, including greater productivity and better land usage, with land administration systems in general, is described very well in Figure 2 below, which is taken from a paper by Enemark, Williamson and Wallace on *Building Modern Land Administration Systems in Developed Economies*, Journal of Spatial Sciences in 2005 and reproduced in book reference 7 in Annex 1. More detail can be found in that book.

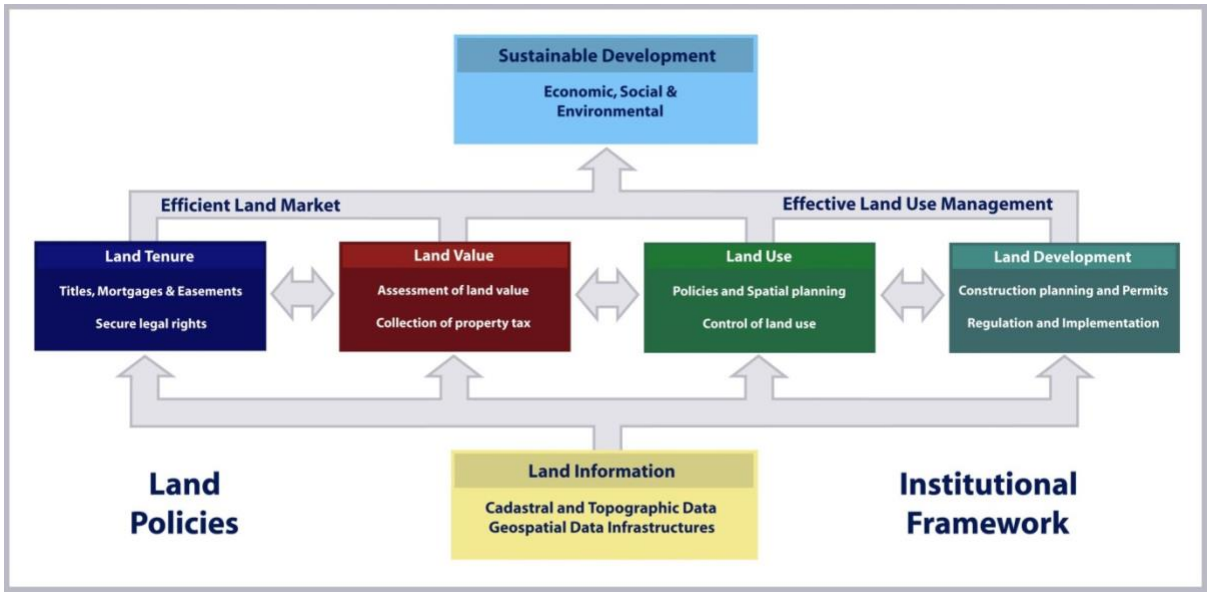


Figure 2: Context of Land Administration (Enemark et al, 2005)

General Background to Registration and Cadastre

The following text deals with some of the fundamentals of real estate rights, recording titles and boundaries of properties.

Land and Real Estate Rights

From earliest history, property rights needed to be protected and there are early examples, such as when Jeremiah the Prophet (about 626 BC) bought some land from his cousin. The Bible text states:

"I bought the field at Anathoth from my cousin Hanamel and weighed out for him seventeen shekels of silver. I signed and sealed the deed, had it witnessed and weighed out the silver on the scales. I took the deed of purchase – the sealed copy containing the terms and conditions, as well as the unsealed copy, and I gave this deed to Baruch, son of Neriah, the son of Mahessiah, in the presence of my cousin

Hanamel and of the witness who has signed the deed and all of the Jews sitting in the courtyard of the guard. (Jerimiah 32 v 9-12). Later the text notes that he put the deed in a clay jar "so that they will last a long time".

This gives us some basics. The process makes sure that the piece of land has not been stolen and the owner mysteriously disappears, or that the owner does not sell the same property to two different people. Public acceptance and publicity are very important. In this example, all the neighbours and the people of the community recognise that Hanamel sold the property (the field of Anathoth is the object description) freely of his own will. The transaction is documented and witnessed, and the documents stored away safely in a place that anyone can come along later and check. The neighbours and community recognise and accept the new owner. This is an important principle that is still applied to this day in keeping registers open to the public. Whenever a program to create deed or title registers[6] or adjudicate the rights of individuals claiming real estate is involved, this 'public viewing and acceptance' is an essential element and it is almost always included in the law to register a property for the first time. In countries that have retained a level of customary land ownership (very commonly in Africa, but many other regions also have customary or verbal systems) the principle that the community agrees to the allocations of land or transfer of land, with the information held securely either verbally or in written form by the elders, headmen and chiefs, still works well in many places.

It was rare in olden times for people to move far from their original home, but as it became more common, a deed of sale or a deed showing money loaned using the land as collateral, needed to be stored in a safe place. This was often a local courthouse, so that it was publicly available to all to check and could be protected from theft, changes, destruction, etc. Sometimes the public official that kept these records in their office was a notary. In these early years, there were few real landowners and most people neither owned land nor travelled far from their original place of birth. There was a lot of trading and business development in the middle ages and forms of documents and safe storage of the documents became more structured, but the major changes that came about were because of the much more widespread changes that arose from the agrarian and industrial revolutions in the 18th and early 19th centuries in Europe and North America. At this time there was mass movement to the cities, businesses were established and flourished, and transactions became more frequent and more complicated. Also, at this time, there was a demand to protect newly acquired land rights by settlers in the colonies in the Americas, Asia, Australasia and Africa, which occurred at about the same time.[7] Systems developed and were implemented by governments around the world to protect people's real estate rights and to facilitate the real estate market operations for economic growth. It was not only ownership rights that needed protection and facilitating – other rights such as leases, rights of way across another person's land, rights to extract minerals or other wealth from the land, rights associated with mortgages, rights of third parties to prevent an owner blocking their light or view, or using the property for unacceptable purposes (such as creating excess noise or pollution in a residential area) could be included.

Tax Records

Nations also often collected land records for tax purposes, with examples going back as far as Egypt in 3000 BC, usually to fund governments or their wars. The term 'cadastre' is often used. A cadastre is really a record of all land parcels and information about those parcels in a jurisdiction, and it is used for various purposes, depending on the needs of the country concerned. Some include value and use, others information about ownership and yet others information about soils and productivity. Cadastres for taxation purposes became quite common long ago – such as in China and India around 1000 AD; Britain's Domesday Book in 1086; records in the Ottoman Empire in the middle ages and thereafter; and then more comprehensively across Europe, largely by countries emulating the very successfully established national cadastre in France ordered by Napoleon in 1790. The principle was that every piece

[6] Chapter 2 includes a section that explains the difference between a register of deeds and a register of title.
[7] Even though there is some contention about the way in which these land rights were acquired, they still became the foundation for recording property rights and the famous 'Torrens System' that originated in Australia had the objective of protecting settlers' land rights.

of land would be recorded on a map so that none would be missed when requiring taxes to be paid. The value of the land could be included so that those living on more valuable land paid more towards the tax revenues. In some countries, the term 'cadastral survey' came to be used instead of the term 'boundary survey' when recording the boundaries of ownership, even though that country might not have a complete cadastre recording all properties.

The Modern Registration and Cadastre System

The comments above are just a very brief overview leading to the decisions in the mid 19th century by countries around the world to address the problem of recording all real estate rights (for tax and tenure security) and to cater for the increasing numbers of people owning real estate and those moving to towns where they might acquire such rights. This, then, encouraged property markets to operate more efficiently and securely for the overall good of the economy and social cohesion. In the mid 19th century, countries in Europe began linking their cadastres with legal records. In much of Northern, Eastern and Central Europe they created land books or land registers. However, in those countries of Southern and Western Europe that had a French or Spanish influence, the link between the cadastre and legal records was more tenuous. The Ottoman Empire was doing something similar to link existing cadastres to deeds registries.

In many of the colonies and ex-colonies of the major European powers, formal systems similar to the European models were established. In England and Wales, they developed the Land Title Registry System and Sir Robert Torrens introduced the system that goes by his name in Australia. In fact, many of the countries were in contact and learning from each other in the first half of the 19th century, but each developed the systems suited to their own history, culture and needs. Since then there have been enormous changes as systems developed to meet the needs of society. Computerisation has made systems much more useful and efficiently accessible, and the land records about ownership and the graphical record of boundary positions have become an integral part of the current information society. A much greater in-depth analysis of the history is contained in the textbooks, book references 1-7 in Annex 1. A good summary of the modern cadastre is found in page 127 onwards in book reference 7 (Annex 1), summarised in their 'butterfly diagram' in Figure 3 below.

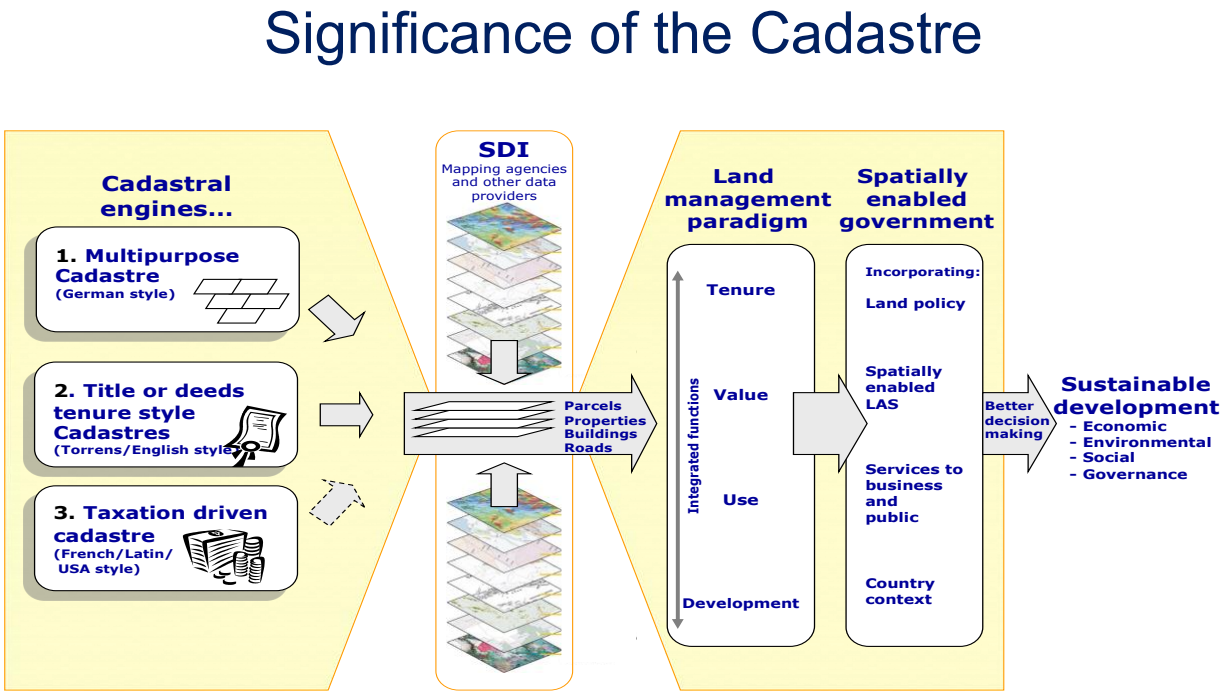


Figure 3: Significance of the Cadastre (William et al, 2010)

Projects Involving Real Estate Registration and Cadastre

In any country you will find that the rich and powerful have secure real estate rights. Generally, they know how to make sure that their land will not be trespassed upon and how to get the legal and government protections needed. There have been criticisms in the past that focussing on the economic benefits of real estate registration projects can have the unintended consequences of harming poor people and women because their access to land and use of resources is curtailed. In worst case scenarios, 'land grabs' by influential people have occurred. For example, in some of our own experiences in the Europe and Central Asia region, anomalies emerged during the course of the projects. The 'maps' showing land in collective farms were sometimes deliberately "reduced" in scale during communist times, by showing a larger recorded scale on the map. It then appeared that there was less land on the farm than in reality. By recording, the 'area' as less than actually existed, it was easier to meet the quotas for production that came down from the government in the capital. When privatisation occurred after the collapse of the former Soviet Union this 'smaller' area was divided up for the members of the collective, but that meant that a fairly large area was left unallocated. This was not common in reality, but happened on occasions, when the administrators basically just 'took' the unallocated land for themselves and their colleagues.

There are also areas where 'land grabs' have occurred because many of the population did not know their rights and unscrupulous people claimed the land for themselves. There has been a lot written about this, especially with respect to people with customary rights or grazing rights who lost land because there was no written record. (See summary under "Land Grabbing" in Wikipedia.) There have been many reported cases worldwide where women had access to and use of land and basically did all the farming, but when the time came to put the name of the owner on the title document, it was a man that was registered. These types of examples might come from practices or projects that were badly implemented and should not deter us from 'doing it right'. Hopefully some of the discussions in the following chapters will help to make sure that such mistakes do not happen in any new projects. In Chapter 3 the 'team' of people required to prepare a project is discussed and this type of problem is addressed.

When commencing a project, the plan is always to establish a registration and cadastre system that is fair, efficient and meets the needs of all in society. People should not be excluded because of lack of knowledge about the program and its benefits, or because they cannot afford to be included. It should certainly protect the more vulnerable. Projects tend to focus on the register of legal rights and the survey of the boundaries of the properties, although it may be included within a wider program involving land valuation and taxation, recording land use or land management. The management of State-owned lands is often a major issue, partly because the State very often does not know the full extent and locations of the land that they are responsible for, and partly because government agencies are often poor at getting the highest and best use of the land under their control.

Real estate registration is basically a legal activity because the program should protect the *real estate rights* of the population, and then should formally record all rights whether they have prior documentation or not. It needs to include their rights (for example) to outright ownership, to pass on their ownership to their heirs, to access their land through the land of another person, to gather wood or food from commonly used land or to pasture their cattle – even if it is seasonal. The *boundary survey* activity may be done by various methods, including aerial photography, conversion or identification from existing maps and diagrams, or new surveys on the ground using traditional surveying techniques or identification of boundaries on orthophotos. But it is essentially a support for the need to record the legal rights because it is used mainly to identify the extent of those rights. This is important so that the same piece of land is not recorded to different people and so that the boundaries can be relocated in time of doubt or dispute.

It is an anomaly that by far the majority of experts working in this sector are surveyors rather than lawyers. A very high percentage of the literature and publications that you will find at conferences is

about how to conduct the surveys, rather than how to assess the legal rights and record them. The latter is often the more complex. My opinion is that this is because of the nature of the legal profession in contrast to those involved in more 'engineering' tasks. Engineers tend to be more pro-active and to focus on getting solutions to problems, whereas lawyers often wait for a query or problem to come to them so that they can adjudicate, advise or argue a case.[8] (This is a big generalisation, of course, but it is a fact that the majority of specialists advising in this sector originally have a surveying, planning or GIS background.)

Many countries in Europe, plus the USA, Canada, Australia, New Zealand and others, already have existing and efficient registration systems. They continually change as new technology, new needs of society and the demands of integrated government in the digital age have to be addressed. The text of this book focuses on those countries that need to fix or change systems that currently do not work as well as they should, and for those that want to include *all* of the population in their systems because too many are excluded. It is assumed that they have decided to do this and commence a project, whether funded by the government entirely or funded partially through external funding. When doing so, there are a few things to remember:

- There is an existing system running that people use on a daily basis. It is required for the economy to function, so do not disrupt it. Whatever new interventions are included in the project, the ability to seamlessly continue providing services to the public is essential;

- The existing system may need improving and this should be done in parallel with any mass registration of property rights for others. It may take years to include everyone who previously had no registered rights within the new system, but the government and public will want to see changes very quickly;

- People already have property rights. Some will be documented, and some may not be. Very often people in squatter areas, informal settlements, customary land areas, etc., already have secure tenure because they may have been there for years (or generations) and no government is going to remove them because of the civil unrest it would cause. Often, they are protected through local community acceptance. *It is important to ensure that you only make things better for them and that they recognise the improvements and benefits that come from the project.* Do not include a requirement to pay or to make existing buildings conform to planning requirements as this always causes resentment. I have never come across any situation where the people object to getting a new, government guaranteed title when they have not had to pay or do something other than filling in necessary forms and showing officials their property. The benefits to government and the economy as a whole soon cover the cost of the project implementation. (See Chapter 15.8 of book reference 2 in Annex 1 for clarity on why systematic registration should be free of charge and the benefits to government and society as a whole. Book references 11 and 37 outline the economic benefits in the Europe and Central Asia region);

- The first-time registration of property rights under a mass registration program is a 'one-off' exercise requiring very large costs and human resources. Once it is done those human resources have learned a lot, but would no longer be required because the work is completed. Some should be absorbed into the tasks of registering ongoing transactions and others may be absorbed into other sectors of the economy. It is important to have a plan for the future careers of these people, including retraining, or they may be inclined to delay completion of the initial registration in order to stay employed;

[8] In reviewing this chapter, Tony Lamb suggested that the lack of interest by lawyers arises from the fact that they are usually employed in more lucrative jobs than registering land. Disputes are by far a better way to make money!

- There are three basic ways for people to be registered for the first time:

    i. Systematic registration. When trying to include all the population, especially those in more rural communities and in the poorer areas of towns and cities, a systematic registration of title program may be undertaken. This is usually done on a 'block by block' or 'area by area' basis until all properties are included. After completing a whole block or area the results are put on public display so that all can inspect and agree the registered ownership rights, or object if they disagree. Some guidelines for this work are included in book references 16 and 17 in Annex 1, and the theory and practice are also covered in book references 2 and 4. Depending on the specific country context, systematic registration may include one, or both, of the two methodologies:

        - Land Allocation – where land is allocated for the first time by government, often based on rules enshrined in law. This is commonly the case where customary land or indigenous land that is held in trust by the government or some other local authority or body is to be registered to the beneficiaries. It was also the case for those ex-socialist countries where State ownership of real estate was prevalent, and it was decided to transition to private ownership and for the real estate market to function;[9]

        - Land Adjudication – where people already have some rights for which they have evidence of ownership through deeds, transfer documents, evidence of paying taxes for the property, evidence of long occupation, etc. and the rights are assessed and adjudicated by the body specified in the law to do so. This may be required either when existing systems have become so flawed that the system is unreliable or unusable or because the existing system has not been used by the public in the past because of cost, corruption, complexity or remoteness of the service providers.

    Whichever of the two systematic registration methods is needed, there would typically be required:

        a) an adjudication or allocation officer to manage the process, make decisions and adjudicate disputes;
        b) a demarcation team to meet the public, ensure good publicity and public engagement, agree the property locations on the ground, gather documentation, and generally oversee the public displays and public interactions with the process;
        c) a survey team to record the boundaries as agreed by the demarcation team and to create the cadastral map;
        d) a recording team to analyse the claims, review legal (or other) records and prepare the registers. They would also refer complex or disputed cases to the adjudication or allocation officer.

    This whole process is dealt with in much more detail and clarity in book 2, Annex 1.

    ii. Sporadic registration. Even when a project involves systematic registration of rights, the option of first-time registration of a property right based on the owner's application should also be included. The applicant would normally pay a fee for this. It is not acceptable to tell someone that you will get to their area and register their property in

[9] Not all land allocation programs result in a registration of the allocations. There are many examples around the world where governments have allocated land, especially when colonial powers established themselves in the Americas, Australasia, the Pacific and the Caribbean prior to the 20th century, where the allocation to settlers and others was done, but it was not recorded in an accessible register.

'x' years. Sometimes systematic registration cannot be done because of the volume or the costs of the activity and limited resources. It requires a very large initial outlay to systematically record all property rights. In some former socialist countries in Eastern Europe and Central Asia sporadic registration was used for the main cities because of their size; the real estate market activity was high and property values were high. People were willing to pay for registration. The UK has always used only the sporadic first registration method, although this did include compulsory registration whenever a transaction occurred from 1990 onwards, and therefore had elements of a systematic approach. In the sporadic approach you do lose one of the main advantages of undertaking a systematic approach. In the systematic approach all properties in a specified area are recorded and matched against each other, and then the public viewing period makes all results visible together for public acceptance. It is possible in the sporadic approach for people to register their rights without neighbours or other interested parties being aware, and for the other interested parties to not have the opportunity to object.

iii. Conversion. If you are putting in a new system, but there is an existing (fairly) reliable system, it should be possible to just convert the records to the new system. This is the methodology that was used in much of Northern and Central Europe when they created their land books from deeds registries in the late 19th and early 20th centuries. The owners have to be informed so that they can object if there is something wrong. If combining this approach with a systematic registration program, it is also normal to also include these titles within the period when public display occurs in the systematic registration project. It is important that *there should never be a case where a person with an existing registered right in the older system is not included in the new system.*[10].

Summary

This chapter introduces the subject matter and explains why the registration of real estate rights is so important. It provides the general background to the importance of registering real estate rights and recording the boundaries of the land. Primarily the registration system improvements should have a major economic impact nationally if implemented correctly, but any registration program should be inclusive and also focus on those who are in poorer circumstances, who currently have little chance to utilise the rights that they might already have because they are not documented or usable.

A project involving the registration of real estate rights will have the greatest impact on the overall economy if it is part of wider economic reforms. On its own, it may not be enough. Having said this, my experience has shown that the registration of real estate rights and associated cadastres is complex enough on its own and projects are more often successful when the focus is on this. Projects could include work in the financial services sector and links with municipal development to ensure that the benefits of clear tenure are not constrained by planning and building restrictions or business rates and taxes. However, experience has clearly shown that overly complex projects with too many components often do not succeed. Coordination across projects is more effective than integration of projects.

A project can help those in rural communities or in informal or sub-standard housing areas, and it can encourage and facilitate the development of small businesses in those communities if there is a well-designed program to do so. It can have an impact well beyond the immediate need to clarify real estate rights and promote the real estate market to operate if it is completed as part of wider reforms aimed at improving the lives of the poorer members of the community. When analysing the results of projects, it is important to gather information about the impact and benefits to people, other than just giving them

[10] Conversion is also commonly conducted on a sporadic or case-by-case basis as someone buys a property, but it can take many decades before the new system can replace the older one.

certificates. This is required for political support and justification of the large amounts of money that will have been spent.

There always needs to be a double focus – both to register properties for the first time in a reliable system and to ensure that transactions can be facilitated and protected quickly in an affordable, reliable and efficient manner. Projects should not in any way impede or restrict the real estate market or the members of the public who are already utilising systems. The projects should only make things better for the public. It is fundamental that projects should do no harm, especially to the more vulnerable members of the community and to women, as this seems to have happened on occasion in the past. It is important that impacts can be seen quickly and clearly demonstrated. This is important because of the political imperative for governments to show that they have made a difference and made life better for the citizens.

Chapter 2 Know Your Country, Know Yourself and Know Your Team

Gavin Adlington

It is assumed that you have been asked to help to improve a system of registration of property rights in a particular country – or at least something that includes this aspect in larger land reforms. You may be the head of the responsible agency, a representative of a financing partner that has been asked to help or a consultant designated with the task. This chapter looks at the issues you should review both before and immediately upon arrival in a country. If you are from the country itself, much will already be known, but it is useful to think about the issues raised in this chapter afresh. There is no harm in that!

Please respect the people you are going to work with in the country concerned, especially the government officials or professionals involved in the sector. They are usually busy people with important responsibilities. Try not to waste their time or take up too much of it. There is a lot of due diligence to be done before you start. In particular, it is important to discover what is the problem that needs resolving. Is it systems that do not work effectively for the economy? Or corruption? Or informal settlements and transactions? Or lack of protection for customary land right holders? Or the need for a more comprehensive land information service? Or combinations of these?

Know the Country Before You Arrive

Pre-visit Studies

If the reader is a resident of the country concerned, they will already know the basics about the country (such as the size, topography, population, main cities and industries, political system, economic performance, etc.) but the visitor coming to work needs to find out. This helps put the work that is required to be done into context and is especially useful if some government document or politically made promise relating to land issues has been made. Of particular interest will be the overall government documents that outline a five- or ten-year vision, often with a separate document that shows what must be achieved by certain deadlines. Sometimes this vision and program for implementation will include specifics on real estate registration, but more often it will refer to targets relating to topics that will require a good registration system in order to achieve them. For example, requirements to massively increase affordable housing or improve medium size business development or to reform the agricultural sector; all require efficient land registration systems and the protection of property rights. It is also important for both local and foreign specialists to research the history of the land administration systems and to read any reports, studies and recommendations that have been done in the past.

There are probably no countries that have not been visited and had their land issues written about extensively, but it is surprising how often past reports and decisions are lost or forgotten. I recall in one Baltic country I visited that a study had recently been completed (within a few months) with funding by the European Union (EU). It included two years of technical assistance, but could not be located by the World Bank or EU colleagues whom I asked. In the country itself no one could find the final reports or remember what it said (although they did remember the consultants' names). In the end I had to find the individuals who wrote the report to find out what had been done and to get a copy. On another occasion I visited a West African country to lead a small team to investigate why the land registration system was not functioning properly. The problems were affecting local and foreign investments and preventing low- and middle-income residents from getting access to land for housing. The study included access to land for the private sector, urban town planning and government acquisition of land. This was back in 1997. With local support I found many detailed reports that had been prepared by various consultants over the previous ten years. Many of these appeared to be excellent, but no changes in practice had occurred. At the opening meeting I asked if our report would just be added to the pile of

past reports and this caused some consternation. In the end it did become 'just another report', and many others have been written since, so the pile is now much bigger. The reforms needed have still not been accomplished to this day.

Free reports from donors are all well and good, but if there is no local buy in (or local buying!) it may not be useful. Too often we seem to repeat both the interventions and the mistakes of the past. [Of course, another way of looking at this is that the reports all mentioned good practice from an international perspective and what needed to change. If the government had rejected those ideas because it did not fit their vision or political agenda, then it is not useful to repeat the same message. In our study we did come up with some new alternatives, but they met the same fate as those in previous reports.]

The Legal Basis

One of the key factors that affects real estate registration and cadastre systems comes from the history of the country itself. There are often basic differences that will affect what can and cannot be done. If the country has a common law background (effectively from British legal origins – including for example the USA, Australia, much of Africa, South Asia and others) it is very different to the civil law background that effectively emanates from Roman law, as modified by Germanic, French, Scandinavian and Chinese influences. Changes made through communist ideology to civil law origins are also influential. Several countries have a legal basis that is influenced greatly by Islamic law and others have traditions of customary law that are more important than statute law for many parts of the country. Over the years there has been a lot of merging so that the different systems effectively provide similar protections, but essentially common law is based on case law that comes from legal judgements in courts, while civil law is based on codified statutes. Islamic law is based on an analogy with religious literature and case law from the religious courts. Customary law is usually based on local custom and tradition, with changes occurring as local elders, headmen or chiefs adapt to changing situations. Both Islamic and customary laws are more similar to common law than to civil law in that way. It is often said that for civil law countries *you can only do what the law says you can do,* whereas for common law countries *you can do anything, unless the law says you can't.* This has a big impact on any flexibility you might need in introducing new approaches to solving problems in registration of property rights or cadastral surveying. For example, a colleague advised that when he was involved in establishing the IT system in a common law country, the flexibility required in the code developed by the programmers (who came from countries with a civil law background) was difficult for them to understand.

It is estimated that about 150 jurisdictions are basically civil law jurisdictions, about 80 follow common law traditions and about 12 follow Islamic law. (For those of you noticing that this total is more than the total number of countries in the world, it is because some countries operate different systems in different parts of the country – for example the civil law tradition in the State of Louisiana operates within the generally common law traditions of the USA.) It would be extremely difficult to find out how many customary law jurisdictions there might be. Wikipedia provides some good background to the differences between civil, common and Islamic law jurisdictions and the countries affected by these three types of legal traditions.

Legal traditions have also impacted how land registration systems and cadastre systems originated. Indeed, the word "cadastre" is virtually unknown in some common law countries, and in other countries is has a different meaning depending on where you are from. Some common law countries often refer to cadastral surveys and a cadastral index map for property boundaries, but essentially a cadastre was originally a record of all land in a certain geographically defined area. In countries with a Spanish heritage, they will think you are only referring to property tax if you mention the cadastre. However, in countries with a Germanic tradition, land use will often be the key – with legal boundaries and land value of great importance also. In some former Soviet Union countries I came across many cadastres that were essentially soil surveys (focussing on agricultural output) and also forest cadastres, water

cadastres and even one cemetery cadastre. A colleague working in Bolivia identified an agrarian cadastre, a hydrocarbon cadastre and plans for an Indian cadastre.

What Registration Systems Are in Use?

Check the real estate registration laws, such as deeds registration, registration of title, adjudication of title, customary land, etc. Many countries include them in their government web site. Past reports may also refer to them. For the country in which you are working, it is important to find out which form of registration is used. There are many countries that have issued their own specific documents , such as *permission to occupy* issued by tribal kings or chiefs in South Africa or *land patents* issued by government bodies in the Philippines. The specific country situation and anomalies must be understood. There are generally considered to be three main ways in which conveyancing occurs and the corresponding records stored or protected:

i. **Private conveyancing**. This is where a document or verbal evidence that has undergone local publicity is proof of a right or exchange of rights, such as the case with Jeremiah in Chapter 1. The parties keep the documents themselves, or perhaps with a notary or lawyer, together with all past documents relating to the property – as in A sold to B, B sold to C, C sold to D, etc. With this chain of documents, title can be proven, and the new owner would keep the full set of documents. It gets complicated when sub-divisions occur, i.e. when D sells half to E and half to F, because only one party can keep the chain of documents. It also begins to have problems with other complex transactions with multiple sub-divisions, easements and the like, or if the documents are lost or destroyed by fire or vermin. There are not many countries that still use this system.

ii. **Registration of Deeds**. Here the deed is registered at a (usually) government office and a deed that is registered would normally have priority over deeds that are not registered. In some countries the deed is considered invalid if not registered, and the deeds office will check that the it conforms to legal requirements (such as having witnesses, being prepared by a registered conveyancer, in the correct format, etc.), but in the end a deed is usually just a record of a transaction between parties. The 'chain of deeds' must still be examined by a conveyancer in any new transaction in order to check that a valid title is conferred on the transferee, but computerisation and good record keeping by an office makes that examination very simple and quick.

iii. **Registration of Title**. In this system a register is prepared based on the property unit, such as the land, the building or part of a building. The owner and other right holders are recorded in a register against the property unit and evidence of title is merely the extract from the register. It does away with the need to check a chain of deeds, as whoever is recorded in the register is considered to be the owner. An index map of the registered properties is also required to make sure that there is no possibility of having different registrations for the same property unit. The application made to a title registration system is no longer to register an agreement between parties (a deed), but it is an application to change the register. The register does not normally have to manage historical title information, although most systems do keep a record in the archive just in case some historical information is requested when a dispute arises, or a researcher wishes to know.

In principle, the Registration of Title system is considered by most writers to be better and simpler. If you have ever worked in a busy, paper-based deeds registry, with the books and ledgers, cross-referencing and time taken to find books or ledgers and copies of deeds (often sitting on someone else's desk and not in the archive) then you have lived in organised chaos. There would be huge piles of ledgers and documents on people's desks and messengers pushing carts around to deliver the necessary information to the examiners. In a Registration of Title office, it is much simpler; one ledger would tell you the current owner of the specific property unit and, if the documentation that comes in matches the

register, it is a straightforward process to update it. It is different now, with good record keeping and the use of modern technology, so there should be little difference in effect between the deeds and the parcel-based title registers. For this reason, I have rarely recommended changing from a deeds system to a title system since good computing support became widely available in the late 1990s. The Registers of Scotland started converting their Deeds Register (Register of Sasines) in the mid-1980s and they plan to complete the process by 2025.

I wish you hadn't done it.
I recall vividly the time just after completing conversion from a deeds registration system to a register of title in my early years in Malawi. A local well-known lawyer congratulated me and said how well it was working. Then he said, 'But I wish you had not done it.' In the past lawyers had objected to the register of title because it was difficult to justify a big fee when the new application to register was a one page document and it was processed in a few minutes, but his logic was different. He said that the main drawback with registration of title is that it is totally dependent on the government (or responsible agency) being corruption-free and efficient – because the "register" is the proof of ownership. In a deeds system he could always get hold of the current and past deeds from an owner and satisfy himself that the buyer was getting a good title – even if the deeds registry was not efficient. In a register of title system, the only proof of title is the register, which is usually held by a government agency – and if it is wrong or they have problems of corruption, the conveyancer has a problem and the system breaks down. I have come across some countries where this has indeed been the case.

Following on from the above, experience shows that a good system is one that is well managed, corruption free and efficient. It is the calibre and honesty of the people running it that is key. Later chapters of this book will deal in more detail with an analysis of the different systems and their advantages and disadvantages, and how to deal with the corruption, political interference and inefficiencies that are so common in many countries' land registration systems.

What Boundary Survey Systems are in Use?

Check the laws. There may be a Survey Act and Survey Rules, or it may just be covered in the more general registration laws.

Boundaries and boundary markers have been an important issue for centuries. Moses the prophet (circa 1550 BC) included within his laws that it was forbidden to move a neighbour's boundary marker – even stating in the book of Deuteronomy (27:17) *'Cursed is the man who moves his neighbour's boundary stone. Then all the people shall say "Amen."'* Boundary markers (or monuments) were always important, and early surveys, plans and maps were prepared primarily so that the boundary markers could be located. It was a common statement that *Pegs were Paramount* – meaning that the monuments on the ground were more important than the plans and measurements that were in, or attached to, a deed. Documents often made reference to the neighbour and their land as an abuttal to the land being described. Reference to major features, such as a well-known tree or rock and distances or directions between boundary markers would be noted. I recall one boundary description stating that the boundary was a stream and that the property boundary started from the wooden bridge next to a specified tree (I don't recall what type of tree) and then giving the distance. Unfortunately, the description was well over 70 years old and there was no sign of a wooden bridge within the forest that now existed.

The original boundaries in European cadastres, which were often initially created for tax purposes, were located using equipment from 150 years ago and usually no monuments were used. Some of these boundaries were just footpaths between fields or other features that no longer existed. Although many new and more accurate surveys have been carried out, many countries still retain old plans and descriptions – but it rarely causes a problem because owners generally know where their boundaries are and disputes between neighbours concerning boundaries are more often because they do not like each rather than because there really is a problem.

A basic principle should always be that if neighbours agree where the boundaries are, and they are clearly visible on the ground, you would have to have a very good reason to disagree and insist on adherence to a plan produced in previous years. A big mistake made in England when they tried to introduce registration of title for the first time in 1862 was to try and identify exactly where the boundaries were. The neighbours might agree that the wall or hedge or ditch was the boundary, but when the surveyors tried to ascertain exactly where the invisible thin line that defined the boundary was located (i.e. which side of the wall or which part of the hedge) disputes arose where none had existed before. In 1875, after miserable failure to register properties, they had to revise the law so that boundaries could remain *generally described*, e.g. the hedge, and it could be marked with a thick line on a topographic map to show its location.

The history of how a parcel was measured affects the area stated on a deed or register. The area can only be considered approximate, unless there is specific evidence that a high quality and accurate boundary survey was utilised to assess the area, and that this area was then included in the deed. More recent surveys are likely to be better documented and more reliable, but the evidence should be available. There will be more written about boundaries in Chapter 7.

Know Yourself and Know Your Team

Can You be an Expert in Something That You Have Never Done?

One of my early assignments for the World Bank was in a Central Asian country not long after the collapse of the Soviet Union and the creation of the many independent countries that were once part of that Union. Other donors had already been in-country and one was demonstrating the work they had done in an open day. I had just recently concluded the establishment of a new registration system in Malawi, where I was the registrar. I naturally headed straight towards the expert who had "registration specialist" written on her name tag – and the conversion went like this:

Me: Hello. My name is Gavin. Great to see another registration specialist. Where did you work as a Registrar?
Her: Pardon (with a confused look)
Me: You are the registration specialist?
Her: Yes
Me: So, where did you work in registration?
Her: I studied GIS
Me: (Dumbfounded silence)

I later discovered that 'experts' in subject matter that they had never actually been involved in themselves were quite common. This begs a very obvious question - *can you be a specialist in something you have never done*? No matter how well read you might be, there is really no substitute for actual experience. When I am working on a project I find myself constantly thinking back to situations and experiences that actually happened in the field when undertaking work and, more importantly, the consequences of deciding one way or another. This helps me to make decisions about institutional arrangements, laws and practice, procedures, achievable targets and the like. I have frequently come across projects and programs that are beautifully designed and theoretically faultless, but it is immediately obvious that they are impossible to achieve in practice in the country concerned.

Can you fix it?
One of the funniest sketches I recall from the American sitcom 'The Big Bang Theory' comes when the four geniuses are driving along in the car. They all have doctorates, or high level qualifications, in theoretical physics, engineering, space technology and the like – and the driver asks the question, 'Do you know how the internal combustion engine works?' There is great hilarity as they all laugh and say how simple it is, and so basic. Then follows the next question: 'There is a problem with the engine; can you fix it?', with the immediate response, 'No', 'No' and 'No' from the three non-drivers. The next scene shows the mechanic who was called out to fix the car, with the four geniuses watching on. We should all be wary of trying to 'fix' something that we only know in theory, but not in practice.

Apart from the need for an expert to be able to show that they have actually worked in the discipline before, it is worth noting that there are many disciplines associated with implementing a modern registration system. Each discipline will have graduate level courses that people take in order to become qualified in the subject on which they are advising – whether it be land law, land survey, mapping, valuation/appraisal, land economy, town planning, land management, economics, social sciences, GIS or IT (and these last two are very different). The fundamentals of each subject matter are covered in the courses that each specialist takes, and it is presumptuous to think that you might know enough about a subject for which you do not have the basic qualification and have not practised in a professional capacity. For example, I know from experience working within the World Bank that whenever you need to make the case for a project, it has to be justified on economic grounds – and I know all the arguments and reasons. I recall sitting in front of a Country Director (who was an economist) explaining why the proposed project was such an important issue for the country from an economic perspective. He didn't look convinced. Then my colleague, sitting next me, who was an economist, explained. I am absolutely convinced that he said exactly the same things in the same way, but somehow the Country Director now understood and was supportive. I have had the same experience with lawyers and other professionals – and have learnt to understand, value and appreciate what I do not know.

The ability to 'know what you do not know' is absolutely essential when implementing a project or reform program.

The ability to listen and re-assess your position is essential. The perspective of the leadership within the country, the people involved in working on a daily basis in the registration and cadastre systems and the views of the experts are all fundamentally important.

I have learned three key lessons from the above:

(i) When hiring experts to advise on any subject matter – make sure that they have actually worked in that field. The IT specialist must have developed complex IT systems that work. The valuer must have worked in the business of valuing property. The public awareness specialist must have successfully implemented a good communications campaign, etc.;
(ii) Do not assume that you know a subject matter better than the person who has a professional qualification in that subject matter;
(iii) Do not assume that you know what will work best and what will be better for a country than the people who live there.

However, the most difficult skill for a manager is knowing which of the specialists and which of the people they meet in country are just 'talking the talk' and which are practical and can deliver.

Know Yourself and Your Team - Different Skills and Competences

When building a team and getting support, the first step is to know yourself. What is your basic attribute and skill? I divide them into four specific categories:

1. The Technician
2. The Professional
3. The Academic
4. The Manager

When addressing a given situation within a country, all four of these skills are critical. Some people will have more than one skill, but it would be extremely rare to find anyone who has abilities in all four. My definitions of these is skewed a little by experience in working on land registration projects and so might not fit the 'normal' definitions. I apologise to purists who may see things differently and like to go by the standard definitions in reference works.

The Technician

The technician is basically someone who knows *how to* do a task competently. The task can be extremely complex and require advanced levels of technical expertise and degrees that few others possess. The engineer who has developed a rocket to go into space is a technician – a very competent one! In the land administration sector, I would class people who are competent and licensed to operate in the sector within their own country as 'technicians'. In reality they are 'professional' technicians who would be both graduates and probably members of a professional body. Thus, a conveyancer who understands all the steps, the relevant laws, the searches and other due diligence that must be completed, is fulfilling a set of tasks competently and 'professionally', but they would be a technician in my definition. The surveyor who takes into account the rules and regulations for surveying according to the law, including planning rules, surveying principles and accuracy, investigation of legal boundaries, complex geodetic measurements and the like, is a technician in this sense. The same applies to valuers, town planners and other technical professionals. Although the immediate reaction is to think they might be inferior to my definition of the 'professional', this should not be so. They are vital to the success of any registration project or land reform program. Typically, I would call upon a very competent technician if we were putting in a Continuously Operating Reference Network (as a basis for GPS measurements) or a database management specialist when implementing certain aspects of the IT system being put in place.

The Professional

In my view, the big difference between a technician and a professional is that the professional knows why these technical rules are in place, who put them in place and what was the historical reasons that some of the rules of practice were put in place? Also, whether they need to change and how they should change as society, technology and expectations emerge. They understand how good practice can be adapted, modified or applied to other situations (e.g. in another country), while taking into account time frames, financing and political motivations. The overall government policies and specific land policies must be well known. They understand which matters are of critical importance and which are useful, but not necessarily vital, when weighing up the logistical and financial limitations to develop approaches to getting a solution for the given problem. They understand the importance of social obligations, i.e. that all should enjoy the benefits that these systems provide, regardless of their poverty, race, gender or other differences. They have a good understanding of all other disciplines that are associated with the professions that they hold. They know clearly the breadth of their own knowledge (which reduces over time as more technically complex solutions to tasks materialise) and what people from other disciplines can contribute. The professional knows his or her subject well, but also knows what it is that they don't know well enough – and they never stop learning.

The Academic

I have tremendous admiration for academics. This is largely because I have never been able to do the things that they do so well. They usually have the skills to lay out principles and practice in logical steps, to explain the issues and come up with innovative, well thought out solutions to many problems, whether they be legal, technical, economic, social or educational. They also have the ability to see into the future and test solutions for problems that have not yet necessarily materialised. And then they write the books and papers that I, as a professional, need to read to keep me informed and to challenge my mind as decisions need to be made. The ability to structure such large amounts of knowledge in such a way that students, technicians, professionals and managers alike can benefit is indeed a gift. However, the main thing to consider when using a person who is primarily an academic in your team is whether they fully appreciate how the work is done in practice and whether their solutions are workable.

The Manager

The manager has a unique set of skills that enable him or her to lead a program or project even though he or she may not be a specialist or have much knowledge in the subject matter. Subject matter knowledge is not essential, although an understanding of the important issues is very important. Team building, communication and the management of risks in a project context are key skills that are needed. He or she may be a specialist and can combine skills of both management and the professional, and this is helpful when budgets for preparation and supervision of projects are restricted. For the manager, the people on the team are essential to achieving a project's objectives, and the counterpart or politician who they interface with is also crucial, because they are the client. The manager is a person who works well with a team of people and can get the best out of them by taking them seriously and building them up – always looking at the good side and encouraging team members before addressing the problematic aspects of their work. *It is also necessary to know when it is a lost cause, and the person must go.*

Lessons for Managers

Many of the people reading this document will be the managers or future managers. I believe that good managers are born that way. You can always improve with additional training and utilising management systems, but the necessary 'people skills' and drive often come naturally. Project management processes and toolboxes are readily available on the Internet. They are useful and worth reading in order to learn, but most financing partners or donor organisations, including the World Bank, have set structures and processes that they utilise.

There are different types of managers and I have come across some that are strict, forceful disciplinarians, who get good results, and others who are much more affable, flexible and accommodating, but still get good results. In many ways the manager is a bit of a psychologist because the manager *is always assessing the hidden objectives and expected reactions of the people he or she is working with, and then working out what will work and what will not work, accordingly*. The manager balances his or her team's capabilities with the needs of the client, understands the political economy and those things that can actually be achieved in a given time frame and within a set budget. When balancing the team, it is good to include diversity. Although men and women are undoubtedly equal, they are not the same, and any team should contain people of both sexes if at all possible. Different generations and different nationalities also give a broader perspective and different approaches, which is always a good model. It is too common for managers when recruiting to find people who are like themselves, but it is far better to include within your team people who are not at all like you as it will provide a better balance.

In my own experience, I started as a technician and developed over time to become a professional. Management was a natural progression. I don't think it is possible to clearly specify all the attributes a good manager will have. The best way to describe some of the skills of the manager and the professional is through some actual examples I have come across.

1. A tale of two managers. I recall joining a team in a country in the Europe and Central Asia region to help a World Bank team leader[11] take over responsibility for a project that was part way through. According to previous reports everything was going very well, but the new team leader was not so sure. We investigated and my conclusion regarding the registration system was that there was a high level of corruption, costs for the client were very high, and the

[11] At the World Bank, the team leader is the person responsible for managing the team that monitors implementation of a project funded by the Bank, and advising the government body that is responsible for implementing the project. Often, they are also specialists in the subject matter or very experienced through many years of implementing similar programs, but that is not always the case. The team leader would be expected to add the necessary experts to their team for the advice they would need.

procedures were time consuming and complex. The team leader did not know the subject matter very well but believed his expert. This was reported to the head of the agency concerned and he was absolutely furious; he had only ever heard good reports before. He ruled his team with an iron hand (such that people had to stand up and report formally in departmental meetings and were very afraid of his reaction) and he immediately demanded from the World Bank management that the new team leader be removed and never come back to his country. The team leader stood his ground (which was very brave considering that registration was not his speciality) and we both returned about four months later. The head of the agency greeted us. He said, in essence, 'I investigated your claims and report. You were completely right. I have removed half of my registrars, reduced all fees by 50 per cent and instructed them to complete registrations within seven days instead of the usual fifteen.'

This is a tale of two very good, and very different, managers. The project ended up successfully completed and to this day the country concerned has an excellent reputation for registering property.

2. The Pragmatist. For a country in Eastern Europe, a small project had been designed to systematically register every property and establish a registration system for the first time. It had funding of about US$ 15 million. The head of the new agency had previously been the mayor of the capital city. He was a very busy man (they usually are) and the resident foreign project manager had worked out that the best way to brief him and get decisions was to turn up in his office with a bottle of brandy and two glasses on a Friday afternoon, just after most of the staff had left. When visiting to oversee the project, I joined them. I recall one day the senior surveyor coming into the office with a draft survey plan and sample certificate of title to show his boss. It was a sample he was proposing for the new registration system. It looked excellent and the boss was pleased. I asked three questions: (a) how long did it take? (b) how much did it cost? (c) how many do you have to do? The answers were: (a) One whole day. (b) About US$ 20 (excluding the staff cost). (c) 6 million. I said nothing. The boss thought for about 20 seconds, did the sums in his head and said, 'Well done, now go back and find a way to do it quicker and cheaper.' And here is another lesson. The professional technician will generally come up with the best and most accurate way of completing a task. It is the duty of the professional and the manager to require a methodology from them that will meet their targets in terms of cost and time.
3. The Stubborn One. As a professional working in a given context there are always some things that are essential and for which no leeway is given and others that are less important. This can cause issues during project preparation and getting agreements to proceed. For a simple example, in one country some years back I recall putting into a project for US$ 10 million, the sum of US$ 1 million for 'consumables'. This was actually primarily for paper and printing ink. (It was before we went completely digital.) The counterpart kept on insisting on reducing this and I kept saying 'No', but conceded that if the funds were not used, we could reallocate them for something else. Two or three years later, they had issued the first hundred thousand certificates and were planning a few hundred thousand more. They kept saying, 'Thank goodness we put so much money aside for 'consumables'. In another country we were writing up the project documentation. It covered several different land sector activities and the documentation was very complex, as were the budget, performance indicators and procurement plan. As is often the case, the counterparts read the documents, not necessarily understanding everything, queried a lot of issues, but pushed forward because they needed the money identified in the project. About three years through the five years planned for this project, the project manager came to me and said, 'We decided that the project was not progressing well or doing everything that we needed it to do, so we had a series of meetings to assess what was wrong, what changes were needed and then decided we should modify the project documents to address the issues that we need resolving. We all re-read the project documents and found that everything we needed and wanted to do was already there. We just had not realised.' (The professionals during project preparation had really done their job well in that case.)

4. The People Person. I learned a great deal from my first ever manager. (Of course, you have to mention your first manager – especially if they are a good model.) I arrived in Malawi in 1978, where most of the department heads and senior staff were still British, some twelve years after independence. I was the first white foreigner to have a Malawian boss, Ambuje Tambala (now deceased). He was a surveyor, but had had a somewhat strained relationship with the current senior staff at the department. In Mr Tambala I found a man who cared, was patient with my early mistakes and always supportive – yet spoke his mind without reservation on things that could improve and should be better, especially with regard to Malawians needing to run their own department. He was not technically gifted and there were many aspects of surveying and mapping work that he was unclear about, but when he eventually took over as the Head of Department we found working conditions improved, funding became more available and people who had not previously had opportunities for advancement were getting them. Like other good managers he knew well those technical things that he should keep quiet about and relied on the technical specialists for advice. He also had a good sense of humour and was approachable, and I once recall challenging him on something he was proposing to do with regard to licensing surveyors within the department. I reminded him that when the previous management had tried to do the same thing he had objected vociferously and got it stopped. He chuckled and said, 'When you are fighting for independence you blow up the bridges, and when you get independence you build them again.' I learned a lot from him, as he was always open, encouraging, available and pleasant, while putting his staff first.

5. The Window of Opportunity. The *people person* also knows his staff and their capabilities. When a team from the financier of a housing project visited Malawi at the mid-term review stage and discovered that the component to establish the title register had utilised half the budget but not issued a single title, they threatened to cancel the component. Mr. Tambala called me in to try and rescue the situation. It was immediately apparent that something had to be shown to have been achieved when the review team returned, so we focussed on two of the simplest districts (out of the 26 districts to be concluded), completed the process and issued titles before the review team came back four months later. We also made sure that we had a clear plan for the remaining districts. Apart from the need to show progress, a financier is unlikely to stop a process that has started successfully and is now part way through. The project was completed successfully and on time. This is an important lesson because you might find that you arrive in a country and the *window of opportunity* has just opened, and the officials and politicians are eager to make a change, or change might have been forced on them from outside circumstances, as it was when the Soviet Union collapsed. So, you need to be prepared to act quickly and try to get the necessary reforms (whether they are reforms to policies, laws, administration or procedures) presented, discussed and agreed while that window is still open. Practical experience shows that the window of opportunity can quickly close, so don't waste any time.

6. The Dictator. During the height of the land reforms and changes that were occurring in the 2000's in countries of the former Soviet Union we had many experiences with completely different management styles to those that we had experienced in the West and in developing countries. I recall presentations in which the still prevalent top-down management style was criticised, often to the obvious annoyance of the people from those former communist countries. I had always been incredibly impressed when visiting offices around the former Soviet Union. For example, they used to have offices that managed housing and other buildings, including keeping extraordinarily complete records of building materials, room sizes and volumes, heating units (most apartments blocks had a common heating supply), locations and materials for the bathroom units, etc. I even saw some in areas with commonly windy conditions that had a "wind cadastre" showing the prominent wind directions and strengths that were affecting the buildings. Across seven times zones in by far the largest country on Earth – all offices providing this service were virtually identical. And there must have been about 4000 or more such offices across the whole Soviet Union. The structure of their buildings, archives and facilities, the processes they used and records they kept were all identical. It even seemed that the personnel came out of one mould, because they all seemed to be the same, say the same things and react

the same way to our comments and suggestions. And they were all efficiently operating. To me, that was an extraordinary management accomplishment. I recall in one former Soviet Union country, after piloting successfully the new registration system in a few locations, the government decided that they would now roll it out to all 220 offices. We were aghast – we said, 'No, you will have chaos.' The reply was – yes, for about three months and then it will be fine. They were right. I also recall in Russia after many years of discussion and changes, the new system was now operational. The instruction came from above that all 150 million (approximately) land parcels must be registered and valued within five years. After the initial resistance and complaints, the personnel who said it could not be done were replaced with people who were prepared to do it – and it was achieved. Russia now has the largest and busiest (and one of the most efficient) national registration system in the World.

7. Going to the Top and Taking a Risk! I recall being asked to manage a project in the Balkans that had gone seriously awry. There was clearly corruption in the office and despite repeated attempts the project was going poorly. In my first few visits I tried unsuccessfully to get things to improve and then went to the Country Manager and said, 'It is no use – let's just close the project.' She was not yet ready to give up and suggested that we go to see the Prime Minister himself. I asked around about policies and realised that part of the Prime Minister's manifesto was that the land issues would be resolved. We were summoned to his office (I had kept a tie in my pocket just in case that happened) and I told him that despite all efforts the project needed to close because we had found it impossible to meet his manifesto commitments. There was, of course, no point in telling the Prime Minister about all the problems or what agreements with the office had not been fulfilled or who was to blame, just something that would resonate with him. In response, he was polite and just asked us to wait a few days. The next day, which was a public holiday, the head of the responsible agency arrived in the World Bank office in his jeans and said, 'OK, what do I have to do.' Everything went well thereafter.

8. The Senior Manager. I recall one team leader complaining to me that I rarely went to visit their projects or comment on what they were doing, but I had spent a lot of time on others and with others. The answer was simple, 'Why would I? Your project is going great, you are doing well, and you have everything in hand. The other project is problematic.' This stems from my own preferences. When a senior manager left me on my own to get on with things and did not interfere, I was grateful and happily got on with my own project or tasks. I was lucky in the World Bank because this was mostly the case. However, I realised that some people would like the encouragement, reassurance or praise needed, and that it is important to spend time with them to do that. Like professionals – managers never stop learning!

9. If I were in their position, what would I want to know? As your career develops you will always have those who you manage and those who manage you. Everyone has someone senior to them who they must report to. Your boss is busy, and often based in another location, city or even country. In one of my first managerial positions back in the early 1980's in Malawi I was based in Mzuzu in the north and my manager was based in Blantyre in the south. I learned early on that a simple one page (or less) regular monthly report summarising progress and what I was doing takes little time and just keeps them informed. I always thought, *if I were in his position, what would I want to know?* Years later while working for the World Bank a short report included a statement that: 'the project in XXX country is now concluded and assessed as satisfactory.[12] We now have concluded 24 projects rated as satisfactory or higher in the last fifteen years with only the one in YYY being considered as moderately satisfactory'. When my manager was then talking to her manager and having a difficult conversation this simple information was relayed and suddenly all were content.

[12] Ratings at the World Bank range from 'highly satisfactory' (the best), through 'satisfactory' to 'moderately satisfactory' and so on down to 'highly unsatisfactory' (the worst). Anything below 'moderately satisfactory' is considered problematic.

Summary

One of the key tasks prior to ever visiting a country is to find out as much as you can from existing documentation and research that relates to the project or program in the particular country where you are going to work. This would include the political economy, overall vision and goals of government and the specific elements that relate to the land sector. Past documents and papers that are generally available on the Internet, plus the laws that relate to the land sector, can often be found and give a good background to the tasks ahead of you. You should not be in a position where you are gathering information that is readily available externally from people within the country, because they are usually busy people and have their normal everyday tasks to cope with. It is respectful to arrive having done the due diligence.

The second issue concerns yourself and your team. You should know your own abilities and weaknesses and the skills and capacities of those that work with you and those that you need in order to supplement your team. *Know what you know and know what you don't know* is a good mantra. Some key pointers would be:

- Make sure that any expert has actually successfully done the tasks that they are advising on – you cannot really be an expert in something you have never done.
- Listen.
- Appreciate the skills and abilities of others – people with degrees and experience in subjects that you have not studied or practiced will generally know better than you on the legal or technical issues.
- Recognise that people are different – some are technicians, some are professionals, some are academics, and some are managers. Each has their role.
- Include diversity within your team.

Having done all of the above – you are now ready to start!

Chapter 3 Preparing a Project or Reform

Gavin Adlington

First Considerations

Who Asked for this Reform?

When requested to support some reforms in the real estate registration and cadastre activities, the first issue is to find out who asked for this program or project, and what specific problem(s) they want solved. As professionals we will often know what we think are the limitations and problems in a country, and financing or other partners[13] will also have identified problems in the real estate sector that they think need addressing. However, the key is to find out what the country itself wants to achieve and its motivation for agreeing to the assistance or project being planned. If this can be married with the financing and other partners' objectives, then there is a possibility for a successful program.

It seems common that requests for support can come from one of three main sources:

(i) The government, at ministerial level;
(ii) A department head or agency responsible for the sector, who has realised that he or she needs some help; and
(iii) A development bank, bilateral partner or other international or local organisation trying to help resolve problems either from an economic or social perspective.

If the origin of the request is the government, at ministerial level, then this is the best option because it has top level government support. The driver(s) could be concerns over housing needs, job creation or (most commonly) a poorly performing economy and a desire to get the real estate market sector functioning, to improve agricultural output, and generally facilitate economic growth. Occasionally there is conflict that is rooted in land problems where they need support. In recent years the annual *Doing Business* report provided by the World Bank has driven governments to look at their ranking for registering property and wanting to see an improvement. (I always consider the country's report from the latest *Doing Business* report as part of the background studies – see Chapter 2.) Sometimes there are concerns about slums and informality, and the government will never disagree if they are asked if they would like to improve land use for environmental and climate change benefits or to foster women's rights or to benefit marginalised groups – but these are rarely the driving force that one would hope for. An advantage of getting the highest level national support is that they will be able to take action to force the responsible agencies to cooperate and improve or to pass any necessary regulatory or legal changes.

If the origin of the request is a department head or agency responsible, this is again important because the responsible agency is seriously looking at the services they provide and wanting to improve. They may be frustrated by lack of experience, funding or personnel. Sometimes it becomes a challenge to bring the relevant ministry on board, especially the Ministry of Finance, which might be expected to finance a project through a loan or their own funding. So, some clear messages regarding the financial and economic benefits and the social needs will have to be demonstrated when, inevitably, you have to bring the responsible ministries on board. In this instance it is also necessary to link any intervention with government policies and the political agenda. If you are having to make the economic case to persuade a minister or financier, my advice would be to get a qualified economist to undertake this. The professional will make the justification much more convincingly. I recall in one country hiring an economist who had never worked on real estate issues before. After his initial studies and analysis, he

[13] These can include multi-national development banks like the World Bank, bilateral partners providing funding for a country or international organisations that provide technical assistance, such as the United Nations Food and Agriculture Organization, or small amounts of funding.

came to me and said that he must have made a mistake. The economic rate of return was so high and the possibilities for the agency to be self-funding and profitable so clear, that he was worried that he had done something wrong. We used his analysis – and at the end of the project it turned out to be correct. Incidentally, I have found it useful at times to bring in a consultant with no experience in the real estate sector (such as an economist, social scientist or communications specialist), as they bring in fresh thoughts or ideas, and challenge your assumptions. Obviously, however, the technical and professional specialists need to have considerable sector experience.

If the origin of the request is a development bank, bilateral partner or other international or local organisation, it may turn out to be more of a problem. The financing partners are usually interested and responsible institutions and they may have identified issues that need solving either through the business community, their own studies about good governance or some drivers that are related. For example, if a major road or some other infrastructure is being funded and they need to acquire the land, they might have found it to be very difficult to find land owners and other interested parties affected, or worse, that they might have found too many claimants and cannot discover the truth. In this way, they might become aware that there is a problem. If people must be moved for construction of a dam then acceptable compensation or resettlement schemes will be needed. Often the interested financing partner has its own agenda from their own government to address, and if support is being provided for national parks, reforestation or climate mitigation – or for social awareness, poverty reduction or women's rights – then land issues will always come into consideration. The UN Sustainable Development Goals are often a driver for financing partners, and there has recently been a lot of funding available for implementing the Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of national Food Security (VGGT) (see book reference 9 in Annex 1). Often the government agencies are immediately supportive, but sometimes it can be more a case of 'No harm in that so long as it does not cost me anything, go ahead'. The necessary support is not then so clear.

What do the Stakeholders say about the Land Administration System?

The other key factor to consider when conducting the due diligence at the start of a project or reform program is to find out what the stakeholders truly think about the registration services being provided. The key people who use the service are lawyers, conveyancers, cadastral surveyors, banks (for mortgage purposes), real estate agents, developers and local government officials (such as town planners).

If there are indigenous communities, pastoralists or customary leaders, then they should also be interviewed. In addition, any non-government organisation (NGO) that is addressing issues of land rights or inequality would be important. A drive around to see informal settlements, levels of development and construction, etc. would also be useful. Hopefully, from the stories people tell, you will find out about levels of corruption and inefficiencies, things that go wrong and have gone wrong recently and where the official systems do not cater for a citizen's needs. Many of these issues will not be addressed (or may not be mentioned even if known) by the officials you usually meet when starting work in a country. It is surprising how often the stakeholders not only have complaints, but also possible solutions. I also have found in many places that the professional community has offered help or advice at no cost, just so that the current problems can be solved.

The other thing to do early on is to visit the existing deeds or title registries and the office responsible for surveying boundaries. This will help to give a 'feel' for how things are being done and how efficiently they operate. At this stage it is also useful to investigate and understand the technology being used in those offices. One of the most important issues to understand is the quality of the records and the data in any established system. If the data are good then improving systems to make them more modern, user friendly and faster could be a goal. If the data and records are untrustworthy, then a more fundamental reform approach is needed.

If possible, it would be advantageous at this early stage to undertake a survey that finds out from general members of the public what they think about registration services, the real costs in time and money, the

professionals they have to deal with when transacting and the reliability of the system. The study should include both those that have used the systems and those that have not – partly in order to find out why not. Any difficulties encountered by minority groups or women should also be identified so that solutions can be developed.

Cartels

Beware of the cartels. It is common in many countries that certain professions have a monopoly and very good income from their privileged position of being the only people allowed to function in the private sector as suppliers of services. This is common with licensed conveyancers and licensed surveyors, but can also relate to real estate agents, valuers, mortgage suppliers, etc. They will often not want to see change as it may affect their monopoly, and therefore their income. I recall one lawyer complaining in a Caribbean country that the new system required him to produce a simple single page transfer document for a sale. He would still put it within two expensive looking cover pages, tie a ribbon through it and wax seal the ribbon (even though there was no requirement to do so) because he felt it helped justify the fee he charged. In a Sub-Sahara country I visited, there were only 38 licensed surveyors in the country, and most were older men; this small number despite the fact that the university in the capital produced over 100 survey graduates every year and had done so for over 20 years. The small group of licensed surveyors appeared to be keeping their number small because only they could sign the survey plans. Most of the field work, plans and documentation was done by the younger graduates, but the plans and records had to be signed by the licensed surveyors – who retained most of the fee.

There is also often a reticence amongst professionals and technicians within government organisations to change the way they have always done things or to lose the control they have over the process. In my work in Africa I have found it common that:

- government employees use their position and experience to provide services in the private sector, even though they are government employees, in order to augment their income
- the systems and processes used for registration that were established in the colonial or apartheid past are virtually unchanged despite the fact that they exclude the majority of the population from utilisation of systems because of cost, lack of local accessibility and complexity.

In some cases, well over 50 years have passed since independence and yet more inclusive systems have not yet been legislated or implemented.

Land Policies

In theory, you would like to see a clear land policy from which the laws are derived, and the project could be implemented to meet those policies. Many developed countries (like much of Europe, the UK, USA and Australia for example) do not actually have a specific land policy, but the policies can be derived from the existing laws if there is a need to do so. If there is no such clarity, then a land policy document could be developed. A study could be undertaken to develop the policies based on the Land Governance Assessment Framework (LGAF) (see book reference 10 in Annex 1). This would guide the author of such a study through all aspects of land administration and land management and identify all aspects in the land sector that needed addressing. The LGAF is very thorough and an excellent resource. Where these assessments have been completed, they are highly participatory, led by local consultants and agencies and take some time to develop (months). The LGAF report produced could then be used to prepare a more detailed land policy. Of course, policies are often prepared without using the LGAF as a basis, and this is also fine, so long as they are locally owned and include all relevant stakeholders in the discussions. Book reference 26 also deals with land policies in some depth. Module 6 of the Responsible Land Administration Knowledge Base available at the GLTN website (https://elearning.gltn.net/) also covers land policy issues.

One of the greatest challenges is to find who is responsible for developing the land policies, because there are so many different ministries and agencies involved with land that there is rarely just one that will take the lead. Rural and urban sectors have such different objectives and needs that getting agreement can be difficult and it may be that one overarching policy is neither possible nor needed. However, the LGAF report or development of the policy can be useful for the responsible agencies and professionals as a guideline even if an overarching land policy is never finally developed or approved.

In fact, it is very rare that a good land policy has been developed and then forms the basis for developing a project in the sector. Usually there are immediate issues to deal with that relate to the quality of service being provided in the sector, and the time it takes to develop land policies and then for the laws to get approved can be excessive. In the former socialist countries of the Europe and Central Asia region where the reforms in the 1990's were to fundamentally change from socialist planned economies to more open market economies, the governments often only knew generally what they wanted to achieve and had neither the time nor the knowledge to develop a detailed policy document. In general, the introduction of land markets was new to them. In many ways, they already had their policies from their government meetings, the decisions that had been made and the laws that they had developed. They knew what was needed. Their 'policies' were in their heads – just not written. Their immediate needs were usually for institutions, systems and good quality services to be provided very quickly. If the policies are developed by consultants within set timelines, then it is often not owned by the government or wider community. I recall a number of occasions when a policy or strategy developed was referred to as Mr. X's (the consultant's) document, rather than being one that they fully believe in. In one sub-Saharan country a policy document prepared in 2000 led to laws being approved eventually in 2016, and nothing much happened in between. In another sub-Saharan country the policy document prepared had virtually no possibility of being implemented within the next 20 years.

My preference is to understand the existing legal situation and begin dealing with the immediate problems at hand using good international practice as understood by the professionals advising in the team. The policy and legal development can be included as a component within a project so that they can be developed in parallel as the project matures. In most World Bank funded projects implemented in the Europe and Central Asia region, a 'legal and policy' component or sub-component was included.

Coordination of the Work, and the Influence of UN Agencies, Bilateral Donors and other Financing Partners

One thing to always remember if you are coming in from another country: ***this is not your country.*** We are there to advise, help and support. We may be stubborn about the need to include certain important activities or ensure transparency and good standards, but in the end, we are guests and should recognise this fact. There are many examples of very good support that has been provided and great coordination and cooperation and I do not want to dismiss or denigrate that support, but here I provide some examples of what not to do. It is also important to identify these examples in order to be aware when the same issues arise:

- I recall in one Balkan country where the financier funded a restitution program. The financing institution decided that the responsible agency was neither transparent nor suitable for completing the work, so went ahead on their own to complete the task. When they delivered the results to the responsible agency, they were very upset when the agency refused to accept it or to issue the land titles the financing institution had worked so hard to prepare. No matter how bad you might think the responsible government agency may be, you need to work with it.
- In at least two Eastern European countries, the financing partner did try to coordinate and cooperate, but on their own terms, with the government. However, they used their influence to make sure that the responsible agency accepted the work they produced. A few years later the

responsible agency had to redo most of the work because it did not meet the standards they required and to which the rest of the country adhered.

- In one particularly bad example I recall being asked to assess the projects being funded by seven different international organisations working in the land sector of one country. They had tried to coordinate but it was a problem and two organisations, in particular, were using diametrically opposite methods for the process of systematic registration – with one using very rigid and slow methods, while the other was handing out certificates to almost anyone that asked without checking very much at all. They both denigrated the work of the other organisation to the government agencies. Two further international organisations were using yet other methods for systematic registration, which did not match either of the two extremes. Funding was coming from these international organisations and hundreds of local people were being employed, with a very good income in an otherwise highly constrained labour market, so the government agencies just accepted whatever came to them. Eventually, the responsible agency took control and had to fix the situation left behind. They are now an extremely competent and resourceful agency, but they are still resolving the issues that were left behind from some 20 years ago.
- Following on from the above, we had the situation in some countries where the local government agencies were competing with each other. It was not always very easy to get them to cooperate and coordinate and in one Eastern European country I recall exhorting the head of the agency to meet and discuss coordination problems with the head of another agency. Both were trying to obtain responsibility to run the new self-funding registration authority. His reply was, 'This is not how we work here. Here we compete, one wins and the other loses.' I let them do it their way (not that I had any choice in the matter). Interestingly, the agency we were working with 'won' and got responsibility, but a few years later when the government changed and a new political party was in charge, the head of the competing agency was appointed to replace him as the head of the new agency. We had the problem in another Central Asian country where the competing institutions managed to get funding from different financing partners and then used the fact that they got support and funds for their projects to support the case for them gaining control of the land sector work. In effect, the financing partners began competing with each other to lay the case before the government in support of the agency with whom they were working. This is really a serious problem and in this instance the case went to the Cabinet of Ministers and they made a decision on the way forward.
- It is quite common that firms working for financing partners hire local people to run their projects and there is a tendency to pay much higher rates than normal in order to attract the best candidates. I have seen local consultants getting ten times the income of their counterparts in government agencies, and they can sometimes earn more than the head of the agency. In one instance it had become so bad that when we tried to replace an international consultant with a local consultant, the local consultant said she would not work for the same salary paid to the international because it was too little. This involved an income that was many times higher than the minister himself was earning. It created a problem where people working within government would leave (especially the best ones) and the institutions themselves could not function effectively. Often there was resentment from those left in government and I heard on several occasions of those who were left in government service refusing to do work on a project unless they got the same pay as the local consultants. In one Central Asian country this led to the government calling all the financing partners together and instructing them to adhere to salary levels for local consultants that they would set. If the financing partner was not willing to do so, they could leave. There was of course great anger among the local consultants, most of whom threatened to resign. However, as all the financing partners had to stick to the policy, there were no other jobs for them to go to at the inflated income levels – and so they remained. After a few months of disruption, the new situation was accepted and caused no problems.

Unfortunately, it is quite rare that the government will step forward and give direction to the various financing partners and agencies that they work with. It is even more rare that they will tell a financing partner to do things their way or leave, but this is often what is needed. So, please remember – it is not

your country and, in fact, the people who live there actually do know their own country, their own needs and their own problems better than any visitor. They require from us examples of good international practice and advice on what will address the problems they need to resolve. They also require support in the key areas of their concern so that they can demonstrate results quickly, often before the next election. If we, as visitors, cannot support the things they want to do then we can try to explain and advise to do otherwise, but we also should be prepared to say 'No' and leave. The imperative from financing partners can too often be to disburse money that our own foreign governments or organisations need to see disbursed instead of doing the right thing. In my first interview before my first ever job abroad, the interviewer told me that my foremost priority was 'to do myself out of a job'. If you can complete a project and then leave without returning or needing to provide further support, then you have succeeded. This statement is maybe a little simplistic, because experience has shown that there is always another job to do afterwards. For example, when the cadastre is developed and all titles issued, it turns out that the country now needs support in developing an information system that links the cadastre and registration system with municipal planning and property tax systems or with central government e-government systems. It may be that the country decides to establish a self-funding agency or public private partnerships (PPP) arrangement for registering real estate. So, having completed one task successfully, another may come along.

Developing the Concept, the Objectives and the Goals

Let us assume that the request has been made for some support. Possibly the team leader has been before just to respond to initial questions or understand what the counterpart needs. Let us also assume that the team is ready and has completed the due diligence required as described in Chapter 2[14] before they ever visit the country, and that they have a list of questions for clarification when they arrive. You meet the key government officials to find out what they consider to be their biggest issues and problems, and you will probably advise them how you have helped solve similar problems in other countries. Be careful now because I once enjoyed such a good opening meeting in one sub-Saharan country that at the end of the meeting, they asked me what was the solution to the problems they had in their country?'. I just said, 'I have no idea yet – I have not visited anyone and need to understand the practice and opinions of all the key stakeholders. We should meet again in a week and I can advise.' No matter how well prepared you might be before visiting, it will require at least a week (usually more) to understand the key issues within the country from a practical perspective.

Situation Analysis

The first stage is the situation analysis. If funding permits you need the following specialists:

(i) Team leader. Dependent on skill sets, this person will undertake the political economy analysis; assess clients' interest and willingness to make change; meet with other financing partners and NGOs or specialists working in the same area; find out the real goals and objectives of both the key government officials and the financing partner that commissioned the work; and ensure that all the team meet their obligations. The team leader, or one of the team members, will need to assess what government policies exist in the land sector. It may be that these are written down in a policy document, but more often they are not. (Try finding out if there is a land policy document for the country you come from!) The officials within the country generally know what they want to achieve, and they will have laws from which the policies can be derived. However, it is likely that additional policies will need to be developed (addressing things such as informal settlements, regularisation of informal constructions or modernising record keeping in customary land areas). Consideration must be given to the on-going sustainability of any system that is to be put in place, taking into account revenues that can be generated and whether it will be possible to retain the level of competent staff required to run an efficient registration and

[14] See also Chapter 6 for legal due diligence.

cadastre system. Outsourcing, concessions and PPP could be considered – if the local private sector capacity exists.

(ii) Land lawyer. It is fundamental to understand what the law says and requires. Despite all the technology and complexity involved in improving registration systems, it is fundamentally a legal activity designed to protect property rights and facilitate real estate market activity and economic development based on those legal rights – so this initial study is foundational. There will be regulations, instructions and guidelines that have been published and these must be assessed. If the land lawyer has registration office experience then he or she can assess how the registry office functions, talk with members of the legal profession and other key stakeholders involved in the sector (such as the banks), and find out the limitations of both the law and the practice. The lawyer will need to complete an assessment about what can be achieved under current legislation and assess what may need to change to fulfil all objectives of the program. I have very rarely found that existing laws cannot be used; problems are usually with interpretation of the law and with implementation of the regulations. As it can take years to approve a policy document or change a law, it is far better to work with what you have and include a program for amendments in the reform program.

If the lawyer is not experienced in registration work then someone with that experience will be required. A key consideration will be whether there needs to be a national program for systematically registering all properties and, if so, how this can be done while ensuring that the daily on-going registration of transactions can continue and be improved.

Please note that you need an experienced *land lawyer*. On a few occasions I have come across lawyers drafted in to work on a land program that have a corporate law or a tax law background, and they have been virtually useless for a registration project.

(iii) Geospatial specialist or surveyor or similar. This person will need to assess the current mapping systems and the geodetic network (national coordinate systems and the basis for survey work); the way in which boundary surveys are conducted; private and public sector capacities; licensing of persons permitted to do cadastral survey work; the institutions responsible for surveying, mapping, control networks and remote sensing; and the linkages with other agencies and local authorities that utilise geospatial information. It is very common that a continuously operating reference network (utilising satellite-based position fixing, such as GPS) will need either to be utilised or to be put in place. If there is a national spatial data infrastructure (NSDI), or work underway to prepare an NSDI, then the specialist will assess this and ensure that any proposals or work planned are in conformity. The United Nations (UN) have established a group of experts called the forum on 'Global Geospatial Information Management' (UN-GGIM) which is leading international coordination on an *Integrated Geospatial Information Framework (IGIF)* and progress with this will also need to be monitored. This is explained in detail in Chapter 9.

(iv) IT specialist. A competent IT specialist will need to assess the technology and software in use. A review would cover all levels of centralised and decentralised systems and the networks that link the different offices, their databases and their processes. An assessment of the telecommunications networks nationwide will need to be made. Often the government will have e-government initiatives and international / national standards that must be adhered to and the specialist will have to check and assess these to make sure that any intervention recommended will meet those needs. The sustainability of these systems is crucial for business continuity, so the support arrangements and resourcing need to be investigated. This is a critical area for any project in the modern day and needs focussed attention by very competent experts. Working with the legal and survey specialists, an analysis of the quality and currency of any data in existing systems must be undertaken.

(v) Social scientist. This person is often not included in the situation analysis phase, but I prefer that they come in at this stage. It is very important to recognise those people who are excluded or marginalised by current practice and to find out what their needs are with regard to property rights, security of tenure and the ability to pass on to descendants those properties they own – whether they have registered rights or not. Would there be anything in proposed project plans that might affect marginalised communities, women, vulnerable groups or the poor? What safeguards need to be put in place? How should changes to systems and their rights be communicated to them and how will you get feedback and information from key stakeholders? If work is being funded by a foreign government or development bank, there will almost certainly be documented safeguard standards that have to be met before funding is released and these will need to be taken into account. It is in this phase of work that the social scientist is needed so that the technical and professional team members can take these issues into account.

For a first visit, a period of about ten days to two weeks is needed for this work. The team should not be too big. I recall once arriving for a meeting in which there were 13 of us from the World Bank and it overwhelmed the counterpart, while lots of expensive people were sitting wasting their time in meetings. At the end of the first visit, the team should be ready to talk about their findings and advise the client (government officials, usually) on the conclusions of the visit in a structured way before leaving, in order to get some immediate feedback that should be incorporated into the initial findings. It is at this stage that you really need to agree the vision, the project objectives, the goals and some of the specific targets where they are critical.

The Vision, Goals and Objectives

The vision (sometimes called the higher level objective) looks at the big problem that needs to be resolved. Is it (as so often) that the economy in general is weak and is this partly because the real estate market is not performing? In some countries in the Middle East the issue is an over-reliance on oil for the economy and there is a need to diversify. In one country from this region they wanted to become an economic hub by encouraging major businesses and industries to base themselves in their country but, apart from the registration system, access to land was a serious problem and it was unclear how they would manage the public land that they wanted to use to encourage business development. Housing is often a big constraint, causing pollution and disease in unregulated areas or it could be the lack of productivity in farmland that may be a constraint. You have to know the fundamental problem(s) that need to be addressed so that you can ensure that the project includes activities to help solve them and make progress towards achieving the vision.

When looking at the project itself, it is key to *ensure that you are solving an actual problem that exists*. Sometimes the lack of documentation is not a problem. In the late 1970's when I began working on the systematic registration of property rights in rural Malawi, many of the recipients of the title certificates were really grateful and used them for the purpose intended (to get credit, rent out the land, obtain licenses to grow tobacco, etc.). However, most of the population were not quite sure why titles were being given to them. (This confusion occurred despite a very comprehensive publicity campaign and inclusion in village gatherings.) They and their families had lived on the land for generations, they were completely secure in their rights and used it for subsistence farming. They had no intention of selling or doing anything other than feeding themselves and selling excess produce at the local market. I came across several instances where the family situation changed and, in agreement with the local headmen, excess land was given to others in need, without any of them even thinking about changing their registered rights or certificates of title. I often thought that we should only be giving the title documents to the people who want them and would utilise those rights, while leaving the remainder in the customary arrangements that had worked quite well before.

The Project Objective itself concerns what you will achieve during the project. It is usually a simple statement. An example might be *to support development of real estate markets and the more intensive*

and effective use of land through the introduction of a reliable and efficient system for the registration of rights in immovable property. If other activities are included then it might be something like: *to ensure that there is a reliable, transparent and efficient real estate registration system supporting the real property markets and suitable systems for the management and use of State-owned immovable property.*

The Goals may be: to establish registration offices in every district; to systematically register all properties nationwide; to introduce an e-conveyancing system; to implement a mass appraisal methodology for property taxes; etc.

The Targets would be agreed generally, but probably not specified in number terms until investigation is done during the project preparation phase. They will include specific objectives, such as: increase in numbers of transactions registered by 50 per cent; increase in the value of mortgage finance secured by using property as collateral by 100 per cent; decrease in the time to register a transaction from two weeks to one day; increase the public satisfaction of services provided from 55 to 85 per cent. For these targets, the baseline data is required (usually gathered during the project preparation phase) and the targets must be constantly monitored during the project.

Now for some personal anecdotes

You really never know what to expect. I recall arriving in one Balkan country that had requested support. They had previously been advised by a financing partner from one country that had helped them prepare a new law, but now they wanted major funding to implement it. The law turned out to be problematic and it was really just a copy of (or very similar to) the one used in the country of the consultants and not very good for the country concerned. However, there was no point trying to change a law that had just been passed, so we had to work with it. It was a small country and we had identified US$ 10 million as a possible loan amount. However, the first visit to the cadastre agency in one region started by them advising us that they had already worked out exactly all that needed to be done. They had their program, timelines and costing – and all they needed was US$ 220 million for the survey work. Our initial elation collapsed, and we saw that we had work ahead. The next visit was to the city authorities. Their big problem was the level of illegal construction that had taken place. It was huge and covered a very large part of the city. We asked what helped they wanted, and the response was "bulldozers – two big ones". They were serious too! My suggestion that this might create civil unrest was not considered a problem – the people had acted illegally and must take the consequences. I followed up with the argument that the buildings were put up because the city did not have a housing policy or provide any social housing; that it took years to get planning approval for new buildings; and that bribes had to be paid both for the approval and for agreeing the different stages of building works. This was not the fault of the people themselves who had to find somewhere to live, and maybe they should not be punished for building illegally. Maybe they should just be given an amnesty and have their buildings regularised. This argument was not accepted either. From an early stage we realised that we had a lot of things to discuss and that diplomacy and patience were going to be key. The project was implemented and was very successful – without knocking any buildings down and being much more pragmatic in the surveying work.

In another Balkan country we arrived for our first visit and discovered multiple bilateral donors already there, but without a coherent agreement on how to help in the sector. Each donor had their own agenda, funds allocated and timelines for utilising the funds. The World Bank had allocated US$ 10 million, which we later increased to US$ 30 million because of the amount of work to be undertaken. Then by coordinating closely with the other financing partners we arranged for €11 million from the EU to take over all the mapping requirements and establish a new mapping unit within the agency (this fitted in with work in forestry that they were focusing on). The Norwegian government were particularly interested in digital technologies, so they agreed to finance the digitisation of older records and to develop the archiving system. The Swedish government were particularly interested in training and the social side, so they took responsibility for that activity. The World Bank funded the rest. The project required a lot of coordination and a positive approach, but in the end was very successful.

It is also necessary to be wary and think about what is really going on behind the scenes. In one sub-Saharan African country the various financing partners (including the World Bank) had been working for many decades, but there seemed so much more left to do. In theory, one of the key considerations when trying to help is that ***you do yourself out of a job***, in other words that you provide the advice and support needed and then leave because a sustainable and suitable system is in place. In this country it was clear that a whole community of local consultants, NGOs and government officials had come to rely on the donor community and the money that came in from them. There was a perverse incentive to *not* finish or at least leave new tasks that must be done so that more funding could come in.

In another country (not in Africa) enquiries led us to understand that the head of the agency had to buy his position from the deputy Minister and then would need to cover that cost from informal payments. A sophisticated system of money being drawn from local offices up to the head (with presumably each taking their cut) was working. In this instance, when government changed and suitable procedures to avoid corruption were put in place, the project concluded successfully. You cannot always clearly state some of these problems in the project documentation because the documents are official and usually public documents – but they exist and should be recognised and mitigated. In one country in eastern Europe, the President solved the corruption problems by simply liquidating the corrupt agencies concerned and setting up a new one under new management.

Detailed Project Preparation.

The Experts you might need

Having decided what needs to be done, along with the goals and targets, it will always be necessary to investigate further in some areas, or it will be impossible to work out the costs and timelines for achieving the goals and meeting the specific targets. I usually prefer to keep the original core team, but sometimes additional advisors are necessary – often for short-term, one-off consultancies; or alternatively utilise existing specialists within government. Examples might be:

- a geodesist capable of preparing documentation for establishing a reference network;
- a valuer because, for example, the lack of valuation expertise was affecting the best use of government property assets or optimising tax collection;
- IT-related technical specialists because of the complexity of existing or planned IT systems, such as a database management specialist, a telecommunications specialist, a networking specialist, a WEB designer, a business systems analyst, IT systems auditors, or a GIS specialist (note that these are all different skills – not usually held by one person);
- a public awareness and communications person because the changes will be major and public information and support are essential;

- an economist/financial specialist to ensure that systems being established are viable and sustainable;
- a trainer, because training needs are substantial and complex;
- a town or rural planner;
- a PPP specialist if there is a likelihood that the government wants to partner or outsource registration services;
- a company to undertake a social survey or a similar study – maybe regarding the use of customary land or for gender equity or for understanding the informal market and informal construction, etc.;
- a monitoring and evaluation specialist for complex projects;
- a procurement specialist;
- a financial management specialist.

Of course, you would not need all of these and hopefully some people could fill more than one role. You must also be careful not to introduce too much complexity or produce too many long reports; firstly, because it becomes impossible to translate everything into the local language, and secondly because very long reports are rarely ever read. Also, you need to be careful not to take up the time of government officials, who are busy with their everyday tasks, with long interviews and discussions.

Keep it short? Or not?

I recall in one project we had substantial funding for project preparation and I took the lead in that preparation. We hired fourteen people – with some working on the same subject matter as joint international and local experts – in order to produce eight reports for key areas that needed clarification. They covered: (i) a land market study to understand the existing land markets, their level of activity and issues faced by the various stakeholders; (ii) the registration office functions, their records and how to deal with their overflowing archives; (iii) the cadastre records, methods of surveying and proposals for how to undertake surveys under the project; (iv) the law as applied to property rights and registration and what changes or modifications were needed; (v) human resources available and training requirements for the project and the longer term; (vi) the IT infrastructure and the strategy for future development; (vii) a monitoring and evaluation (M&E) framework, including any studies that needed to be done to monitor project progress; (viii) project management, timelines, procurement packages and finances.

I gave strict instructions that no report could be more than fifteen pages long. Thus, the documentation for a complex project would be: 15x8 = 120 pages. This is by far the maximum that you can expect anyone in government to read for a detailed project and you still have to summarize in slides and graphs for the more senior managers and people who will not make the time to read it all. I think that only the person hired by the government to manage their project read the whole thing. Two of the consultants just could not write a short report (the trainer and the M&E person) and each produced over 100 pages that I could not use. The M&E report was thrown away unused and for the training report we just used a few of the tables

The 17th century philosopher Blaise Pascal once wrote a long letter to the Jesuit Fathers and then apologised by writing, 'I have made this longer than usual because I have not had the time to make it shorter.' Many other famous people have repeated it – and I will join them. When writing a report, you need to take the time to make it concise, readable and informative. I recall one project manager who had prepared his report on project progress and handed it to the head of the agency. It was about 100 pages long. It was sitting on his desk, in the same place, each time I visited and, when he saw me looking at it some six months after it had been written, he said simply, 'I have no idea if I will ever find the time to read that.' My 'rule of thumb' these days is that anything over 20 pages is probably too long for an individual report, but you need to assess your audience. Major agency heads need less than eight pages and ministers less than two pages. (Although there are many exceptions and it is important to know

your audience – I recall one minister in a sub-Saharan African country who read and critiqued anything anyone wrote!)

Project Components

My strong preference is for a project that addresses *only* land administration and land management, and not have this subsumed within larger agriculture or urban projects. Of course, the team would ensure that the related requirements in other sectors are understood and taken into account because the land administration and management system must meet the overall needs of society and the economy, but it is important not to take on too much in one project. This is because the complexity of land projects and the different skills required to see through a reform are almost always underestimated. It is difficult to give the focus and resources needed to manage the land administration component if it is just a part of a larger project. When it is considered that a person's land is usually their most valuable and precious asset, that it is a foundation of the key economic drivers – land, capital and labour – and it is required for shelter and food, it must be given due priority. Typically, a project might include the following components or sub-components:

- Registration system development – including all the institutional and training requirements, civil works, furniture and equipment, computer systems, processes and practices, finances for sustainability and integration with the cadastre system. Archiving systems are usually very important for a registration system, whether electronic or paper-based, and they will need specific attention. The quality and usefulness of existing data and records within the existing systems must be assessed and may need cleaning or improving. Business process re-engineering and the introduction of e-services must also be considered. (Note: it is preferable to have one organisation responsible for cadastre and registration – but the activities must be separately addressed in any case.);
- Cadastre system development – including all the institutional and training requirements, civil works, furniture and equipment, computer systems, processes and practices, finances for sustainability and integration with the registration system. As for the registration system, the archives, the quality and usefulness of existing data and records within the existing cadastre or survey systems must be assessed and may require improvement. There may need to be mapping programs, establishment of geodetic networks and agreements on licensing practitioners and private sector involvement;
- First registration – possibly involving a systematic registration program so that all properties are included. (For a brief discussion of systematic registration and other options for first registration, see Chapter 7.);
- Land policies, land laws and the regulatory framework – they almost always need to be addressed and continually reviewed. Legal aid programs can be included if it is expected that issues will arise or a need for support to low income groups is needed;
- Institutional development – including financing, funding, sustainability and business planning for the organisations. Capacity development is a key issue that must be started as early as possible. This may also include an analysis of wider institutional arrangements across the land sector;
- Private sector development – to ensure that sufficient support is provided for people involved in the real estate sector to meet future needs. This may include ensuring that contracts for work in the local private sector are included in the procurement plan, training and establishing licensing mechanisms;
- Spatial data infrastructure and the linkage with other agencies;
- Public awareness, vulnerabilities and social monitoring;
- Capacity development and training;
- Project management, including the institutional responsibilities and project management by government; managing finances and procurement; auditing; M&E of progress, including continuous risk assessment and mitigation. There is more about project management in Chapter 5.

Additional related subjects might be included (if requested):

- Customary or indigenous land usage and management;
- Access to finance through banks, government sponsored financing organisations (such as rural development funds), building societies, credit facilities for housing or development, etc.;
- State land management;
- Land and conflict resolution;
- Addressing systems;
- Land and property tax – including mass appraisal; and
- Planning – including building permitting and dealing with informal settlements.

The Project Document

Different organisations have different standard formats for projects. The contents are often similar, and I will use the World Bank's standard Project Appraisal Document (PAD) to briefly describe what is normally in a project document. I have also listed a number of PADs in Annex 3, and it will be a simple matter to make an Internet search: 'World Bank project appraisal document', then project name and the country to get a copy of the document. They are usually between 60 and 80 pages in length, with the summary text describing the key parts of the project in about 15-20 pages and the rest in the form of annexes.

Typically, a PAD will include:

- Summary information about the project, parties involved, funding, objectives, components and any key conditions that are relevant (such as a promise not to require any person to vacate their land and property during the project). It is usually about four pages long. This will tell any senior official or interested outsider what the project is about and what it will achieve. They can then decide to read further if they want to;
- The main text would include the country background and the higher level objects to be reached – including the country vision and goals in the sector, followed by the project objectives, components and implementing arrangements, including the institutions that will be responsible and the team that will actually implement the project. The results and targets and how they will be monitored and evaluated comes next, followed by the risks that would affect performance and on-going sustainability after the project concludes. In the World Bank PAD there is also an appraisal summary addressing the economic and financial outcomes expected and a technical analysis of the key technically more complex parts of the project. Lastly, there are sections on fiduciary arrangements, social and environmental impacts and any safeguard issues that need to be considered to protect vulnerable people, the environment, cultural or historic treasures and resources, etc. The main text is usually about 15 pages long;
- There will be annexes to provide greater detail about the project. There is no standard length but 40 to 70 pages for the annexes is common. Some of it is tabular in form. Annexes would include, for example:
    - A Results Framework specifying exactly the targets to be reached and the timing for meeting those targets. It is separated between 'outcomes' that show improvements to functioning of the system evidenced through greater real estate market activity and investments occurring, and general proof that society is now more satisfied with their security and the transparency or efficiency of the system. There are also 'outputs' that specify, for example, the numbers of titles issued, amount of mapping concluded, number of people trained, etc. Good examples can be found in the PADs identified in Annex 3.
    - More detail on the country and sector background and explanations of why the project meets the overall needs of the country.

- More detail on the project components and all the activities envisaged within the project.
- More detail on other projects in the sector (often by other financing partners) that will impact the performance of the proposed project or the complementarity that needs to be assured.
- Greater detail on the implementation arrangements, including matters such as steering committees, the agencies involved and their responsibilities, project management units and contracting that might be required. The fiduciary measures that would ensure proper use and audits of funds and the procurement of goods and services would be included. (In World Bank funded projects financial management and procurement are often annexes on their own.)
- A more detailed economic and financial analysis is often included explaining exactly how the expected economic rate of return is calculated. This is important as the same methodology for assessing the impact is likely to be used at the end of the project in order to assess whether it was successful or not from an economic perspective.
- An annex addressing social issues and/or safeguard issues is often included.
- A detailed risk framework with mitigation measures. This is a key document used as a management tool continuously throughout the project. It should be regularly updated as risks change and new risks appear.
- Others as required.

Summary

1. When preparing a project, the person or organisation that has asked for assistance is key. If there is evidence of a high-level engagement and request from the country requiring the changes, then there is also a high likelihood of success because there is a desire for reform. If the request comes from ministerial level with an engaged minister who is keen to see the reforms, then that is the best scenario.
2. Make sure you know what the problems are and that you address the actual problem. Lack of a paper version of the title is not necessarily a problem.
3. One of the early tasks when preparing a project is to go and see the stakeholders in both the public and private sectors in order to find out from them, and if possible, the more general public, their understanding of the efficiency, transparency and importance of the existing systems and where they see that improvements can be made. A visit to the main land administration agencies, including their public reception areas and office practice, is important.
4. Always remember that your counterparts are busy people and you should not waste their time and, if you are coming from abroad, *that this is not your country*, so their wishes and expectations should be the driving force as you prepare the project. Usually, they really do know what will work in their own country, but they need good international experience, advice and ideas about how to solve their specific problems.
5. Different financing partners, government agencies, bilateral donors, etc. all come with their own agenda and idea of what reforms are needed. Coordination is essential to avoid giving differing advice or even working against each other.
6. Following on from above, the government should be taking the lead and directing financing partners, agencies and bilateral donors in their requirements. Too often it appears to be the other way around.
7. A basic principle for any foreign advisor, financing partner or bilateral donor is that you have succeeded when you have *done yourself out of a job*. This means that you can leave, and everything will continue to work well.
8. The first stage of project preparation will take ten days to two weeks, you will need specialists in land law, land survey, IT and social science as well as the team leader. They will focus on the situation analysis and identifying the vision, goals and objectives of the project. Other specialists will come in later if needed as the project is prepared.
9. Reports need to be short, concise and focus on solutions.

10. Projects that focus only on land administration and land management are more likely to succeed. Samples of typical components of a project are provided in the main text (above) and samples of good project documents are provided in Annex 3.

Chapter 4 Implementing the Project or Reforms – the 9 C's

Gavin Adlington

In Chapter 1 of this book the importance of real estate and the need for registration are described. The preparatory work and program leading to starting a project are covered in Chapters 2 and 3. Now we come to the implementation phase. Chapter 5 will focus on the project management and the institutional issues. Just as a reminder, the registration of property rights is a legal matter and the legal considerations and base for doing this work is contained in Chapter 6.

In order to establish the registration and cadastre system, or to improve it, there are various parts of the project that must be in place. I call them the 9 C's.

The 9 C's

The 9 C's are listed below so that it is easier to remember them!

i **Champion** – the key person who will make the project successful.
ii **Corruption** – the most common problem to be resolved.
iii **Customer** – the person who benefits and must be the main focus when establishing new systems.
iv **Computing** – the technology that will make it all work.
v **Consultants** – the helpers who will provide advice, support or complete tasks.
vi **Cadastral Survey** – the method of uniquely identifying and showing the parcels.
vii **Communications** – the way to let everyone know what is being done and how good it all is.
viii **Capacity Development** – the need to build institutions and train staff.
ix **Continual Adaptation** – the need to ensure that it all works and carries on working long after the project is finished.

Champion

Despite all the descriptions in Chapters 2 and 3 about the team leadership, expertise and specialists needed, the Champion who is found *in country* is by far the most important. With the right Champion, the job is already half done. It is rare that the Champion is a senior politician, although this happens occasionally, but the political figures need to be "on board".

This man has always been a typist

There are differences in nomenclature because in the UK and many Commonwealth countries a 'minister' and the 'prime minister' are usually also elected members of parliament, whereas in many other countries the 'minister' is a civil servant appointed by the elected president or parliament. In this sense they are also political because they generally change whenever the government changes following an election. You also often come across the term 'secretary' and 'undersecretary'. In the USA these are political appointments because they usually change when a president changes, but in the UK and some Commonwealth countries this person is a civil servant who is not supposed to have political affiliations and might be a full-time employee of government. In the UK the head of the ministry is called a Permanent Secretary, and works directly with the responsible cabinet minister (who is a politician). There is the amusing story, shortly after the collapse of the Soviet Union, when a Russian minister was introduced to his counterpart in the UK, who was a Permanent Secretary, and the translator told the Russian minister (in Russian) *this man has always been a typist.*

Translators are very important if you do not know the language. When working in Russian speaking countries I knew enough to know if the word 'not' was forgotten in the translation (which of course completely reverses the point being made) and I could tell if the translator said 'a hundred' instead of 'a thousand', but otherwise you have no way of knowing if the translation is accurate. It is good practice to have bilingual people on your technical team who will spot errors in translation. A good quality translator, knowing the specific technical language of registration and cadastre, is a very skilled person and it is not sufficient to utilise a person who is trying to interpret what you said and meant, because the message will not come across as you intended.

Whatever the person is called internally, the project team will get very little time with a very senior person, maybe ten or fifteen minutes would be typical, but the short session can be very important. It is crucial to think from their perspective:

- The country has an agenda in which land will have some role – make sure that you know the policies, ten-year visions or whatever is published, and gear your commentary to these overarching goals. Land registration itself will be rarely mentioned, and their focus will generally be on foreign investment, development of cities, civil disturbance because of land disputes, etc. It will be important to quickly and clearly refer to how the registration system can contribute to meeting the objectives that are their current concerns;
- The next election is coming in 'x' years, so what will be achieved by the time that election occurs? How many certificates of title will be issued (maybe referencing the need to hand out titles in a public event)? How will people understand the benefits in terms of jobs or housing or investment? Give figures where possible that the politician can remember for his/her next media interview. I recall the minister in one country attending about ten minutes of our presentation and then stepping out to the waiting press to announce how he was making sure that new support in every town and district across the country would be established so that the people would benefit from the extra investment that will be possible, including the job opportunities and reducing poverty in these places. He selected that part of the short presentation that suited his political needs;
- Beware the waiting media and be careful what you say! You might think that they are interested in your project, but often they are just wanting a story. In one country we were trying to establish a new registration system but were not ready to include dealing with major squatter camps that had been established following conflicts in another country. We were not working there at all. We did include a section in the project to help develop a policy and procedures for resettlement. The first question that came was innocent, but it was clear that the follow up would be an accusation that the World Bank were going to help make people homeless because we were not including the squatter camps in the program. The responses have to be carefully worded taking into account both the financing partners policies (on resettlement), the government policies and what stage we were actually at, so that it can be reported in a soundbite!
- Be ready for the unexpected. In one central Asian country we had gone through the full project preparation process and finally we had a meeting with the minister of finance. He had read the summary and was going to have to agree to borrowing the money from the World Bank to implement the project. He looked at me and said, 'I know we need this, but why should I trust you and your team to deliver this?' You need to be ready, know exactly the biggest challenges, have your answer about where you have successfully met these challenges before, and who on your team is going to make sure that the various high-level risks are going to be dealt with. He was satisfied and the project went ahead.

You have to have the politicians on board, but usually the most effective Champion is the department or agency head within the country. If he or she is devoted and wants to achieve results, then you have the best scenario. There is an unpleasant English idiom that says, 'there is more than one way to skin a cat', meaning that you get the same result even when using different approaches. When you have a devoted Champion you just encourage, advise and help to do what is needed his or her way, and this is where the 'professional' described in Chapter 2 is so key. Thus, for example, when the agency head in one country decided that he personally was going to visit all 50 districts and persuade the municipal head in each to give him new premises in a convenient place of town, rather than use the existing premises, and that this would be a part of his public awareness campaign, we just encouraged him despite the added cost and the time delays that this would entail. His idea was that this would emphasise a new beginning, a new way of doing things and that the public could have new expectations. Similarly, although it is often not a good idea to place concrete markers at every corner of a property because of the cost and time it takes to place them, the country that I went to advise had been working on a systematic registration process for some years and they were doing this. It would have been better to

start adopting existing corner posts in order to move faster through the process and reduce costs, but they had the beacon placing process running smoothly and did not want to change because they felt that the people expected it. So, we let them carry on.

Unfortunately, there is often no Champion. In addition, there is usually more than one agency involved and it can be difficult to get them to work together as they each have their own priorities, budgets and a 'silo' mentality that makes smooth cooperation difficult. It can be a struggle to get an agency to take the right actions when the project is not going well. It happens often. It can be that the politicians want to see change because of the bad reputation of the organisation, but the head of the agency is not so committed. The politician has ordered something to be done, and now has hundreds of other issues to deal with and cannot follow up himself or herself. It may be because the person who was the Champion has left the agency and the replacement is not so committed or that one of the key agencies that needs to be included is not playing its part. In one country that borrowed a large sum from the World Bank for a project to fix their registration and State land management problems, the minister of finance made it very clear to me, when he said 'We do not need your money, we don't really trust the agency and we just want to make sure this reform gets done according to good international standards, and that is why we are borrowing this money from you.' If there is no Champion, more regular visits and the *action list* become very important. See the example in Table 1 below. You visit, review progress with each aspect of the project, and then prepare and agree an *action list* and associated project plan that the agency will need to adhere to. It may be ten action items or 30 items, and it effectively guides the agency (or agencies) by the hand through the reforms needed. In the next visit you check the action list against actual accomplishments and prepare a new action list. If the actions are not concluded, then you go higher up the chain of command until sufficient pressure is applied and the actions get done.

Issue	Agreed Action	Target Date	Responsible
Establishing a single public enterprise for registration	Submit updated implementation schedule and organisational specifics for head office	Dec 31, 2010	Project Implementation Unit (PIU)
Training	Submit 2011 training plan to the World Bank, including training for roll out of project activities	November 30, 2010	Training Working Group (WG)
Cadastral manual	Submit updated version of manual	Jan 31, 2011	Cadastral Survey WG.
Other pending decisions	Submit report on status of government decisions regarding 'Approval of Clarified Procedures' including subdivision and consolidation	Dec 31, 2010	PIU
Mass scanning	Submit technical specifications for review	Oct 31, 2010	IT WG
Environmental Management	Ensure that provisions of the Environmental Management Framework are reflected in the terms of reference for the building renovations engineer.	Oct 31, 2010	PIU

Figure 4: Example of Action Plan

Corruption

This is, of course, a very sensitive subject. Standard project documentation often refers to 'increasing transparency' and remains silent on this key issue of outright corruption and bribery. If you are working in the land sector, *it is far more likely that there is corruption than not.* Don't ignore it! Land is the most valuable asset people have and usually of very high value. It is usually managed or registered by a monopoly agency and often by people who are on a fairly low income. When a transaction is occurring, it may involve tens or hundreds of thousands of dollars, so a little bit extra to be paid is not very noticeable. Unfortunately, the 'little bit extra' becomes a large amount in many cases. A study by Transparency International and the United Nations Food and Agriculture Organization (FAO) in 2009

concluded that land issues were the third most corrupt service provided by governments worldwide after the police and the judiciary.

Many recent studies show that corruption in the land sector is endemic and should be addressed, often through the use of open data. The reports are commonly looking at acquisition of land (usually State owned or customary land) by people who should not get those rights. (Check out the term 'land grabbing' in google to see these reports.) There is no reason why State, customary or indigenous rights should not be included within a land register or cadastre stating, for example, that the area is under customary tenure in the responsibility of Chief X or Community Y. Unfortunately, customary and indigenous rights are very rarely included in a land register, and often governments themselves do not know what land they own or are responsible for. If customary land and State land were included in the register it would make it necessary for any transaction to a private individual or company to go through the correct channels and documentation to obtain those rights, including the documented approval of the registered Chief or Community. This is not very attractive for those who are benefiting from the current arrangements, so you would likely face arguments that it is not necessary or too cumbersome or costly to do so.

In this paragraph we are going to look more specifically at what can be done to recognise and reduce the levels of corruption in the registration offices. When visiting a registration office and the main stakeholders, you should look for are some indicators that something is wrong:

- If the law or regulations require a lawyer or surveyor to be licensed or qualified (as in most countries) and they produce a document or plan that is only a few pages long, then it should only take a number of minutes to check that all is in order. Because of volumes it may take a couple of days, but there is no reason it should take weeks or months unless the office is grossly inefficient or corrupt. Either way action is needed;
- If there are people milling around the office who do not work for the organisation, or are sitting at a desk with officials on the other side, or behind closed doors, then there is an issue. The most common corruption method is that 'intermediaries' are required to follow up on applications for registration and it is these people who pay the bribes and arrange for transactions to be registered. A queue of people waiting to see the registrar is a bad sign;
- If the office premises appear to be cluttered with files lying around on desks and in piles waiting to be dealt with it is often because they will not be dealt with until a client or intermediary comes to 'facilitate' action;
- If the legal profession or notaries claim that people prefer to go to the office themselves rather than having the lawyer or notary submit the documentation (as in most countries with efficient systems) then it could well be because the lawyer or notary will not pay the necessary bribes or take the necessary time to visit the offices, so it is left to the client; and
- Stakeholders tell you that there is corruption – although it is surprising how often they do not admit it even when it is obvious. This may be because they have been working in the sector and do not want to admit that they have been 'playing ball' too.

And now the actions:

(a) Keep a clear separation between the officials checking documents and making decisions from anyone in the public. This can involve having closed access doors with coded entrance numbers, video cameras and taking actions when someone is found inside that should not be there. Unfortunately, just having a guard at the door rarely works as the guard can then sometimes augment his or her own income by allowing payments for access.
(b) The public reception area needs to be large, open and completely separated from the area in which registrars or other officials are making decisions about applications. The counter clerk should be behind a wide open area with wide desk and maybe a glass front so that anyone can see whether money is passed across the counter. The reception clerk should just have a check list of documents and receipts to be presented and then pass the documentation to another

member of staff. Preferably, documents should be distributed randomly to staff for processing, so clients will not know which person to approach. A separate counter is used for payments only, with official receipts given. If a member of the public or a notary needs to meet an official checking the documentation, then a separate office (preferably with glass walls to see through) should be assigned in the public area. Appointments should be made to see the official and records kept.

(c) One of the reasons that files are 'waiting' to be processed is because the examiner needs clarifications or answers to certain questions. It should be a matter of principle that this cannot be held back for more than a day or two, and that any unanswered clarifications or questions that have taken more than a day or two to answer should result in rejection of the application with the reason behind the rejection stated. The applicants can re-apply once they have resolved the problems.

(d) Public notices giving information about fees, time frames for completing examination of documents and confidential telephone numbers or e-mail addresses for making complaints should be clearly and prominently displayed. The website should also include a possibility for lodging complaints. Remember to ensure that websites or telephones are attended and that complaints and responses are recorded.

(e) If a major problem is the lack of staff, such that they have trouble coping with demand at some stages in the year, then it is possible to have an official 'fast track' process, with additional fees for that service (thus avoiding paying for urgent registrations informally). However, it should be noted that if the registration office is efficient and it only takes a day to register, there is no need for a fast track service.

(f) A 'ticket' system for applicants to 'take a ticket' and then wait for their number to be called is useful for busy offices.

(g) As the office is gradually computerised it should be possible to design the business processes so that it is clear to managers who processes certain documentation. Thus, if some illegal action occurs, the culprit can be found. The system can also track the processes and time frames so that delays are flagged to the manager.

(h) In most developed countries no member of the public goes to the registration office at all. They probably do not even know where it is. It is the professionals that submit documents either by post, messenger or electronically. I know of at least three sub-Saharan countries where they used to have a process (some thirty years ago) that the legal firm's messenger brought a batch of documents to be processed and just left them with an office clerk, then walked across the room to collect the processed documents he had left the day before. This no longer works in any of those countries – and the main reason is corruption.

(i) E-conveyancing, through electronic lodgement of documents, makes corrupt practices more difficult, especially if accompanied by time schedules for processing applications or automation of the examination process. A system for electronic lodgement can be prepared quickly (a few weeks) and need not wait on a major system for registration that may take years to develop.

(j) Open access to data through searches at minimal cost enables people to check transactions that might have occurred. It should also be possible to object or complain on-line and appeal to the courts if there is no satisfaction following a complaint.

(k) I came across an interesting case in one Balkan country, where the government had a 'secret policeman'. This official went to conduct a transaction as if he were just another customer, without telling anyone who he was. He recorded all the actions leading up to the transfer and could report if anything untoward occurred.

Customer

I recall a meeting in an Eastern European country where I once referred to the registration system as providing a service to its customers. There was shock on the other side of the table as the legal expert from the registration office said, 'Customer? We don't have customers; we have applicants that come to us because the law says they must.' The way she said it was almost like she was saying 'supplicant' instead of 'applicant', as if they were doing people a great favour in considering their applications and

providing answers. A couple of years later, in the same country, a deputy minister referred to the registration system and the need to ensure that they provide a useful and valuable service to the public, because that is what they expect from the people they elect. That country now has a terrific, customer friendly, registration service.

A registration system is only useful if everybody uses it. The objective is for the government to be able to govern and for the public to feel secure in their property rights, all contributing towards the better social and economic fabric of the country. If the public do not use the system or do not trust it then it will fail to fulfil these requirements. In order to ensure the system is acceptable, I use the acronym "**SCARF"** – it should be:

Simple	to understand and utilise
Cheap	so that it does not deter people from using it
Accessible	so that people are able to easily use the system either through a local office or local conveyancer or notary
Reliable	so that people have complete trust in the system
Fast	so that people have their services provided quickly and efficiently

The staff of the registration office need to be friendly and helpful and give the impression of competence. Just like in any shop or bank, the quality of service encourages people to use it, which in turn does not discourage people from going through an arduous procedure that they would rather avoid. This helps if people want to upscale to get larger housing, thus making more affordable housing available to others, and encourages people to invest, build or further develop because they trust the system. In one Central Asian country where we implemented a project, I had visited the local banks to find out about the amount of money that they lent using property as collateral in the early years of the project. They said, 'Almost never.' At the end of the project I went back to the same banks and they now had a mortgage department dealing with customers every day. I asked about their lending portfolio and they said it was largely small loans (but large ones too) for short periods of a couple of years. I asked why their portfolio had grown so much and why they bothered to register small loans like that. Their response was: (a) the person coming for credit has to have a viable business plan, but the title document tells us that the person is local and has roots in the community, which makes them less of a risk; and (b) it is so simple and cheap to register a mortgage that we just do it, because it gives us that extra little bit of security. If people are borrowing in large numbers for business purposes, that gives some indication that the system is helping build the economy and that the customer is satisfied.

As with many other considerations in this book, it is important to put yourself in the shoes of the customer and think what you would need and expect from the government or a service provider. Although governments also have to ensure that they administer and manage land resources well, a good balance between the 'bottom-up' and 'top-down' approach is needed.

Computing

Many years ago, forward-looking land registries were quick to assimilate a certain amount of computing that involved word processing to create standard documents, databases to keep records and make searches and the technology to compute survey work and create digital records of plans and certificates of title. Even when I was in Malawi in 1991/2 we had a database built on C++ that could be searched and a series of standard documents and reports that could be made. However, the systems that have been built over the last fifteen years or so, tend to be complete, integrated systems that include a process and checks and balances for the whole system, plus linkages with the cadastral survey and linkage with other government bodies, often adhering to government led standards and the Land Administration

Domain Model (ISO 19152 from 2012) or the Social Tenure Domain Model that was more recently produced through the Global Land Tenure Network.

Every project I have been involved in for the last 20 years has included an IT activity and the development of a system. These have varied greatly from PC based local systems in the early years to more centralised and sophisticated ones, but the common trend is that they are always difficult to implement, take far longer than originally envisaged, and are much more complex than anyone thought they would be. The lessons learned in just the IT side are huge and it is so common for a system to fail altogether that it deserves a chapter on its own. Working on the principle that *you can't be an expert in something you have never done*, and that a simple database from over 20 years ago is not enough to claim expertise, I have asked Rumyana Tonchovska to prepare that chapter. See Chapter 8.

Consultants

The first lesson I learned as a consultant was that you have two masters – or two clients. In 1994 I had been recruited by a company working for USAID for some work in Russia. As an expert I quickly worked out from my Russian counterparts their current way of operating and their plans for the future, and I then started working with them to meet their objectives. The work was going well. Some months later we recruited another consultant to help and the first thing she did was document the existing procedures, institutional structures, etc., within Russia. The manager from the USA company (who was not a land specialist) showed it to me and I said, 'Yes – looks right.' Then he asked me why I had not written that up before, and I said, 'What for? The Russians already know their procedures and structures and so do I – we are just working on how to improve things.' It dawned on me later that the person paying my fees also needs to know the situation and problems that need to be solved and that this must be catered for too! The report would have been useless for the Russian counterparts, but helpful for the foreign company manager.

This does bring a dilemma. There are two clients with different needs, but usually only one report being prepared. When reporting I try to keep the main report short (less than 20 pages) and the details in annexes. The country background, situation analysis, government vision and policy, etc. that the client already knows can be in Annex 1. They then know not to bother reading it. The reference to standard information and practice about, for example, the different methodologies for valuation, difference between deeds and title registration, arguments about general boundary positions, or whatever else as background information can also be annexed. I recall one consultant being most upset when I put his whole report in an annex because it was all theory and general information. The main text needs to focus on solutions and be brief enough that the counterpart knows exactly what to do next. If they need the detailed justifications, terms of reference or reasons that things went wrong – find it in the annexes!

Consultants usually need to be professionals (see Chapter 2), unless you are bringing in a technician for a very particular task once the professional has decided what needs to be done. For example, you have decided to use drones for the basic mapping program and need someone with experience in using drones for mapping and surveying purposes. Consultants must be able to analyse the country situation, apply best practice and come up with sometimes innovative solutions given the country context, funding and time frames. There are all types of consultants working in the land sector; some are good, but very many are not particularly useful. Here are some regular pitfalls:

(a) Long report telling people what they already know. In many cases I have seen reports that are long, starting with a description of the country, demographics, topography and so forth. These are things that both clients already know. Then comes a description of the way things work now, and the problems being encountered. Often this comes directly from the department and specialists within the country. So now we have a report that just outlines everything that the people within the country have told the consultant – which may be useful for the manager of the company that hired the consultant, but is still not much use to the country concerned. The conclusion often is that, 'the government should ……'

followed by the statement about what the government should do. Again, they probably already know that – they want help to actually do it! If the report contains all this, it is probably very long and therefore unlikely to be read. As a person who might have recruited such a consultant, the first thing I usually did was to skim through the document and cross out or tear out all the things we already know, then see what is left. The remnant is the useful bit. Sometimes, there is nothing left and I recall one consultant coming to an Eastern European country and by the time I had finished reading his report, I realised that he had basically expanded and described his terms of reference and outlined all the problems to be solved, which were also in his terms of reference, with the conclusion that the government should take action to resolve these problems. Yet another report to be filed in the round container under my desk!

(b) The government should …. It may be obvious from the above that one of my 'pet hates' is the statement *'the government should ….'*. Recently I led a team preparing a report to provide guidance for implementing a land policy that had previously been prepared. For each consultant who came to the conclusion that *'the government should ….',* I required from them the resources they would need to do this including: the department or unit within government and the responsible person who would make sure that the activity happened, the personnel required and their qualifications, equipment or other resources needed, cost estimates and where the money would come from, time frames and the actual terms of reference for doing the task.

(c) Check the CV. It is far too common that consultants arrive who are either not real professionals (see Chapter 2) or keep referring back to what happens in their own country and trying to replicate that. Consultants are supposed to be offering advice based on a breadth of international experience and having achieved results in the past. When checking the CV, I would advise:

a. Make sure that the candidate has actually done the work before, i.e. developed a working IT system, completed a mapping program and produced the maps, been licensed to operate as a cadastral surveyor and undertaken surveys, worked in a registration office, implemented a successful training course, etc;
b. Make sure that the candidate has worked in several countries and will not just be offering the solutions from his or her own home country;
c. Make sure that they have several years' useful post-graduate experience in land administration or whatever discipline is required;
d. Check the countries where he or she has worked and the duration of the support provided. I recall noticing one CV once where the candidate had worked in many countries, but it seemed that they were nearly always one off assignments and he was never invited back. When investigating I found out why no one ever wanted him back, but his CV looked great!
e. Ensure the consultant is a good team player and can integrate into a diverse set of team members;
f. Check the quality of the consultant's English writing skills. You do not want to re-write their reports;
g. Make sure that they are truly independent and have no conflicts of interest;
h. Take up the references. Usually it is just a phone call. You really do need to know if the person is useless; and
i. If a person is recommended by someone you can trust, that is always a good sign.

(d) Terms of Reference. Good consultants in the land sector are very rare. There would be only a very few who you would feel you could invite to a country, expect them to find out what is wrong and come up with a good, innovative way forward, without giving them a very specific terms of reference. In by far the majority of cases, a detailed terms of reference is required with very clear instructions about: what needs to be investigated and where the

investigations must occur; who they should meet; who they will report to; and the deliverables and the time frame for the deliverables. It is also usually advisable to start with an inception report produced after a week or so (dependant on the size of the task) in which the consultant will provide his or her assessment of the situation and the approach for concluding the study or advice that will be given. Both the consultant and the person hiring the consultant should stick firmly to the terms of reference and if anything changes then they should immediately inform the other party and agree the changes. This is a safeguard for both sides. Here are a few examples:

- In a recent tender for a sub-Saharan country, the initial phase required investigations into eight specific issues, and the winning bidder had also said in their tender that they would do certain other tasks as part of that investigation. When the first phase report came out several of the investigations and tasks were not done on the grounds that the consultant thought they were not necessary or helpful, including the one that they had said they would do in their tender. It took months of correspondence back and forth to actually get what was required in the first place. It is important to 'hold their feet to the fire' and to make sure that the delivery is complete and up to standard.

- A few years ago, a consultant hired to gather baseline data and develop an M&E framework in a Balkan country arrived and worked very well with the counterpart. He was doing excellent work and the counterparts liked him. At one stage he wrote asking for an increase in funding because he had used up all the days allocated for the task. My response was to ask what additional tasks to those specified in the terms of reference he would be doing to justify an increase. His reply was that it was not additional work, but that it was much more difficult to gather data than was envisaged and therefore more time was required. Unfortunately for him the contract was based on outputs, not time, and there had been nothing specified in the inception phase that brought up this issue, nor a request to change the terms of reference or outputs or budget. The consultant took this in good faith and completed his task well without the extra funding.

- The person hiring the consultant can also have unrealistic expectations. We used to call this 'asking for a five-legged sheep'. So, a request to analyse a situation and develop a computer system to implement a registration system within two months is just not possible unless a very basic and simple system is expected. As the person writing the terms of reference clearly does not know how complex this can be, they probably would not be satisfied with the result of the task. Asking one person to evaluate the law, registration system, survey methods and explain the economic benefits of establishing a system is fine, if you just want everything very superficially addressed, but without anything useful to follow on with. I generally decline such requests because if the person making the request has no understanding of the subject matter then they will also have no idea if the results are useful.

- Procurement can also be an issue. I was once invited to tender on a very interesting piece of work in Asia, but then the tender stated that the person selected would be based on 'least cost' criteria. Competent professionals are not 'least cost', you get what you pay for and this evaluation criteria would almost guarantee that you got the worst person, so I just declined the invitation. One of the reasons many IT systems fail is because the procurement is often based on accepting the lowest bid. I have often looked at a bid and decided that if the company think they can do this work for the specified sum of money that they tendered, then they have no idea

what they are doing. Trying to persuade procurement personnel that this is the case can be challenging!

- Use a company or individuals? This varies dependant on the task. For most tasks it is the quality and experience of the individuals that is key, but often they work for companies and are only available through that company. Major contracts for large system development or buildings and similar major works require a company, but many consultancies require reports or solutions to specific problems. They are therefore more expensive because the company overhead has to be paid. My advice here is to get the right person – a really good person can do the work in half the time of someone not so good or experienced, and they will get it right first time. If you have to pay extra because they come through a company, then it is usually worth it. If hiring a company that offers certain individuals, then be very wary about the company replacing the individual with someone else. It can be that they never intended to use the experienced person with the good CV – they just used it to get the contract. I once had the experience of being asked by someone from the European Union why I could not do a certain contract. It was a surprise to me, because I had no knowledge that the selected company had used my CV to put me on their tender. It was only by coincidence that I met the contract manager from the awarding institution.

(e) And finally …. Beware the consultant who never finishes. I have come across many who will do the required work well, but then find in their conclusions that they must come back to do the next step, which only they can do because they now have the history and in-country knowledge. This can happen time and again, and they get the reputation accordingly. It is better to have a principle that there is no follow on work unless specifically stated in the terms of reference. If I get the situation above, I would normally request the terms of reference for the new activity, put it out to tender and advise the consultant that he or she cannot tender because he or she identified the task and prepared the terms of reference.

Cadastral Survey

Some initial comments about cadastres and boundary surveys are mentioned in Chapter 1, because this is a basic requirement. The location of a property is fundamental to knowing whether all land is covered and to ensuring that the same piece of land is not registered to different people. The arguments then become about the levels of precision with which measurements should be made and the accuracy of the end result. Note that these are different things – you can measure the position of a fence post at the corner of a field precisely to within a few centimetres, but if the fence post is not actually on the boundary or the point from which you are measuring is incorrect then the recorded boundary will be inaccurate. I recall once a surveyor going out to measure a property during a systematic registration exercise and coming back with the plans, reports and all corner point coordinates. The survey had been correctly done, all checks completed and the accuracy requirements for the survey work according to the regulations were all met. But when I looked at the position of the property in relation to the roads and streams, it just did not look right. Why would anyone have a parcel of land that just did not match the road configuration and the footpaths around? I went to the field and checked. Everything was in order – but it still did not look right. Then I noticed the very large survey triangulation pillar that he had used as a basis for all his work and that it was near to a quarry. So, I went to see the quarry manager. He clarified that he knew the pillar was very important, so when they had to excavate near the pillar they moved it for us and placed it in a safer place. They did not realise that they should inform the Survey Department. Thus, the basis for all the measurements and computations was wrong!

Now, going back to accuracy. If the cadastral survey is for tax purposes, then the accuracy of the measurements is not critical. If a piece of land measures 100 metres by 100 metres (10 000 square

metres or one hectare) but the measurements are out by 1 metre, this means that it is 99 metres by 99 metres. So instead of the area being 10,000 square metre it is 9801 square metres. If the land is valued at US$ 10 square metre, then this makes a difference of US$ 1990 in value, and if the tax is one per cent then the difference in tax paid annually will be US$ 19.90 and the owner is paying too much. Of course, his neighbour will then be paying too little and the tax authority will be getting the same amount no matter how accurately the survey was done. It is not worth spending large sums of money to get exact surveys unless the property is in a heavily built up area and values are very much higher – then it is in the interests of owners to make sure that the measurements are correct so that they do not pay too much. However, even there, the buildings on the land represent a much higher percentage of the value of the land than the land itself – figures vary, but a rule of thumb is that 80 per cent of a property value is in the building for high value areas, so the area of the land plot is still not critical.

The accuracy of the measurements for ownership purposes can be more critical. Apart from paying for the land itself, the opportunities for disputes to arise is much higher. This is largely because humans are involved and they tend to argue – especially about whether they think their neighbour is trying to take something that belongs to them. You often get cases that seem unbelievable. One recent case in the UK where a homeowner, who had lost a claim that a neighbour's extension trespassed by a matter of inches on their land, was then presented with a legal bill for the successful party's costs of over £100,000. This resulted in the losing party having to sell their £600,000 home to pay the costs. Although such cases are very rare in comparison with the number of properties that exist, and it ended up like this because of unreasonableness and the parties being unable to discuss rationally or go through mediation, it does explain why there are often arguments that boundaries have to be accurately measured. Whereas the cost and time frame for doing the survey work can be justified in a case by case basis, it is a different situation entirely when a project for systematic registration is taking place and millions of properties need to be identified. For this reason, a separate chapter is devoted to discussing boundaries and boundary measurements and the concept of a fit-for-purpose approach. See chapter 7.

Communications

A registration system is only useful if people actually use it. For this to happen, the **SCARF** principles mentioned under 'Customers' above need to apply, as the system must be free of corruption and sufficiently accessible and usable for people to accept it and utilise it. There are many countries in Africa where the wealthier use systems that have been left behind by the powers that colonised them, but most of the population cannot use the system because of its complexity and costs. If new systems are put in place and a mass program of registering properties is included, then the public needs to be aware and be supportive. Funding for public awareness campaigns and providing local information and support become essential. It is a very important part of the program if it is to be successful, so the communications activities must be budgeted accordingly. It is very common in projects to underfund the publicity work, and then find that people do not hear about the program. Most people are busy in their daily lives and if they are not currently involved in a property transaction, dispute or inheritance, then simple leaflets or flyers will go unnoticed, particularly if some of the audience are illiterate.

As a start it needs to be made clear what is changing and why. It is good to have a brand or seal, and a slogan that can be used. In one country in the Balkans they used 'It's yours. Confirmed!' as they encouraged people to register and use the new system. A full engagement strategy is required to ensure that every stakeholder is identified and communication to them is customised, clear and meaningful. Different parts of the country may have different needs and histories – especially for rural and urban areas or areas with specific ethnic origins, a history of conflict or strong customary authorities. As a first stage the key stakeholders, such as the legal professions, banks and real estate agents, need to be included in seminars or conferences and informed through contributions in their professional magazines, laying out the plans and timetables. Others, such as chambers of commerce, legal aid organisations, women's groups and NGOs that would be interested, should be included. The public interact with these various groups whenever they have land issues, so it is imperative that they know what changes are occurring and why, and what goals and timelines of the project or program are

envisaged. They must be convinced first. The general public may hear about the proposed changes, but it is not useful to start a concerted information campaign for the public until they are about to be affected by it.

Once the program is ready to start, it is necessary to let the general public know. Messages can be displayed on bill boards, the sides of buses and posters in strategic places (like town halls, swimming pools, supermarkets, churches and mosques, or other places the public often go to), but it is also important to communicate via the mass media and through local groups, neighbourhood committees and customary authorities in more rural areas or informal settlements. Sessions with the daily news programs, newspapers, magazines and social media to address the public with clear and simple statements about the 'new' system and the benefits for using it are needed. The best media to use will vary dependant on the country concerned. Paid television advertisements at key times are also useful and in one country I saw that they had hired a well-known comedian to produce a short commercial or 'infomercial'. He was dressed up as a woman and responded to the 'official' telling 'her' about the new system with good graphics in the background showing aeroplanes taking photographs, land parcels, boundary markers and documents that were needed, while she asked questions. The whole thing was hilarious – and I was laughing even though I could not understand the language. It became a famous advertisement in the country. I have also seen commemorative postage stamps produced and a troop of actors going from village to village to explain the changes as part of a play involving relatives who were arguing about their land rights. In one central Asian country the agency director arranged for a huge TV publicity stunt timed just after all the vehicles and equipment arrived that were being funded by the project. He had a senior government official and the heads of every office from around the country attending. Speeches were made about the new system with staff in their nice, new, distinctive uniforms that they all now wore. The office heads were presented with their equipment and the keys to the cars, and they were then shown on TV driving off into the sunset to their offices in different directions. The uniforms were used by all staff countrywide, such that the public immediately recognised them when they arrived in their towns and villages for registration work or when they saw them in the newly refurbished offices.

Apart from the media, a series of explanatory flyers, brochures and posters need to be available showing the key messages, actions to be taken and benefits that will accrue. Direct correspondence through the door, by post and through social media is necessary when the specific location in which the member of the public lives is being targeted for registration work.

Capacity Development

If there are major changes occurring then the staff and any external support required, such as short-term contract employees, will probably need their skill base and overall understanding enhanced. Assuming that the project leading to the new system has been decided, a human resources strategy now needs to be developed. The first step is do the 'situation analysis', to see what currently exists. The number of staff in each department or unit, their functions, qualifications, ages, salary levels or grades, need to be tabulated. The age of staff is primarily important in order to assess how many are likely to just retire rather than undergo all the changes, and the rate at which new people will need to be promoted or recruited needs to be taken into consideration.

The second step is then to assess what staffing requirements will be required for the new or changed organisation. For this, a clear understanding of the proposed technology to be used will be needed as transferring from paper-based or simple computerised systems to a major automated system with fewer offices and e-conveyancing possibilities will entail a lot of changes and new skills. It will also be necessary at this stage to know or agree what level of outsourcing of services might be likely. For example, in two countries in Eastern Europe the decision was made that the agency would no longer undertake cadastral surveys. This would only be done by the private sector in future. Thus, the focus in the training plan for this aspect was to ensure that the private sector received such training as needed and could obtain licences to do cadastral surveys. Also, training was required to ensure that surveyors

currently within the public service could transition to the private sector, with some being retained for quality assurance.

The training methods used will vary according to needs. In one country that had very good capacity, but no experience with a registration system, we set up a model registration office and a number of fictitious transactions and situations for them to process (a 'mock registration office'). Once they knew the cases that were likely to occur and what needed to be done, they could develop their own system to suit their own country's needs. I recall after the first course that we gave, the 'class' answered a set of multiple choice questions and they all did remarkably well – except in one question. The question was: 'A registration system should be (a) simple to understand and to use; (b) complicated and difficult to understand so that the public have to come to you for help; (c) contain as much information as possible.' The answers came in pretty much evenly with a third ticking each of the boxes. I hope that you know the correct answer!

A full training plan will be needed to ensure that staff and any private sector participants understand their roles and the way they need to operate. If it is agreed that some services (such as notaries, valuers or surveyors) require licences to operate, then that must be included in the training. In many projects we included the establishment of a training centre and person responsible for training within the project management unit to make sure that this important subject was given sufficient weight. In other cases, all training was outsourced. In one Eastern European country the government agreed that this would include the equipping and support of nine different universities so that they could provide all the training needs. In another country a unit was established to set up and conduct a very detailed distance learning program and all staff had to go through set courses in order to be allowed to practise in the particular function to which they were assigned.

In Russia, a country with tremendous capacity and capability, we found within our first project that funding to provide training was by far the best outcome of the project. Real estate markets and registration systems that supported the real estate market were new to them in the 1990's. Over 1000 people were involved in international training programs (including site visits to other countries) and 1555 in local training programs. With this new information they worked out what would be applicable to their own country and how best to implement their systems. When actually implementing their training activities they made remarkably good use of distance training using courses, feedback and examination through on-line training.

Capacity development is not just critical at the start of implementation reforms. In some countries there can be wholesale changes when those in power change after general elections. We had experiences in some projects where almost the entire registration and cadastral office staff were replaced following a change in government. This then requires another cycle of capacity development.

Capacity development is fundamental because there is little point in making reforms that cannot be maintained. It is not only for the project activity, but also the institutions or entities directly involved in implementing new systems that must receive training. As laws and practice change, the roles and practice of the professional community, local government and educational institutions might need support. 'Train the trainer' programs may be needed as institutions begin to retrain existing staff and specialists, or university or technical schools change their curricula. The subject matter is covered in great depth in chapter 11 of book reference 7 in Annex 1.[15]

Continual Adaptation

Having worked in Africa in the 1980's in property registration and cadastral surveying, I found that there were many good models functioning. Most were relics of what had been established in colonial times and they were still functioning quite well. At this time Kenya was considered a good model

[15] It is available as a pdf at https://csdila.unimelb.edu.au/publications/books/

worldwide and regularly had visitors to see their systems – I even took a delegation from Malawi, where I was working in the 1980's, to see the way they operated. It is recognised that these systems were established by colonisers and focused on private property rights along Western European models, which was suitable for the towns and for foreign settlers, but generally did not address the sometimes squalid informal areas in towns, and only rarely tried to include customary land areas. In customary land areas there were attempts to establish registration systems in some countries (like Kenya and Malawi), but in most places the customary systems were considered to be working quite well and should not be touched.

By the early 1990's many of the systems were failing and it is important to understand why this was the case. In some countries that I visited in the 1990's, the well-paid foreigners had left, and I was convinced that the problem was not so much the laws and systems operating, but the civil service as a whole. Salaries were low and many who were intelligent and entrepreneurial had left to join the private sector or work abroad. Those left behind struggled on their salaries and had to look elsewhere for income. I recall one registrar telling me that he arrived at work in the morning, did anything that was critical within the first half hour or hour, and then he left for his private business. He just left his jacket hanging on his chair. He said, 'They pretend to pay, and I pretend to work.' It is not surprising that corruption became more prevalent.

In customary land areas the pressure on land was becoming intense as it was becoming scarcer and, consequently, very valuable. The traditional practice that enabled people to move, reflecting the needs of an ever changing and growing population, and for people returning to their village to be given land, was becoming impossible because of the scarcity. Some of the old systems to manage customary land were beginning to fail and needed to be modified to meet current needs. I recall in one country only two years ago listening to a lawyer complain about the laws in their country that were left behind by the British. I stopped her part way through to ask what changes they had made to laws and practice in the 50+ years of independence and why anyone would think that institutions and practice established by a foreign government to manage a country thousands of miles away for their own benefit could even remotely be considered as suitable for the independent country?

Paradoxically, the ability to ensure continuity requires the ability to change as needed. You will find that most of the higher income countries have continually amended their ways of working. Their laws and their institutional structures will have changed many times in the last 50 years. It is certainly something that each new government considers as they are elected for their four or five year term. In situations that involve a project for changing land administration systems, the government and financing institutions must look to the future and decide whether the current ways of working need amending and what changes may be required for the future. One of the greatest differences between post-colonial independent governments and those governments I came across in Europe and Central Asia was that, although the Europe and Central Asia countries might resent and complain about the socialist systems 'imposed' upon them (and they blamed Russia), they quickly developed policies and new laws that suited their own situation and could be maintained. For example, when the Europe and Central Asia region opened up following the collapse of the socialist systems in that region in the early 1990's, there was tremendous poverty and very little funding to manage the 'new' systems that would allow people to own property and facilitate real estate markets. In many countries the institutions became self-financing from the start, linking with established professions to agree on procedures for registration, cadastral survey and valuation that the private sector would do and then working out how fees for service to register real estate rights could pay salaries and any investments required. They realised that they could not maintain large numbers of staff. Anything the private sector could do should be done by the private sector (such as cadastral surveys, systematic registration programs, legal and notarial services) and the government would only oversee this. They also realised that it was necessary to pay market rates for salaries within government if they wanted to avoid corruption and provide a competent service. Fees were fixed at a level that was comfortable for customers to pay but were sufficient to pay salaries and provide the basic infrastructure for a registration service.

Thus, continuity really means flexibility and agility – the ability to respond to changing situations and to modify the registration system and cadastre to suit the changed circumstances. In this sense,

continuity is different from sustainability, which is more about installing the skills, knowledge and attitudes in the registration and cadastral staff that enables them to be flexible and responsive to change.

The institutional changes and the establishment of self-funding reliable services in real estate registration is addressed in more detail in Chapter 5

Summary

This chapter deals with key issues to be considered when implementing a project. They can easily be remembered as the 9 C's:

1. The Champion within country is by far the most important. If he or she is dedicated and making the changes needed, then the prospects for success are very high. If there is no Champion, it requires much more effort in project management, and it is much more difficult to get the best results.
2. Corruption is by far the biggest problem to solve. It is very likely that there is corruption within the sector, even if it is not admitted or talked about. There are various signals that can identify corrupt practices and some straightforward, practical responses to eliminate or reduce them.
3. The Customer is the most important person. Customers are the prime beneficiary and only if a system is functioning efficiently according to the SCARF principles (see above) will people actually use the system and thus the economic and social benefits accrue to the country.
4. Computing, or rather Information Communications Technology as a whole, is a fundamental requirement in any modern system. The complexity, cost and time to complete systems is nearly always underestimated and failure rates are very high. A separate chapter is dedicated to this very important topic. See Chapter 8.
5. Consultants are utilised in most projects. There are common mistakes made as reports are too long and address problems rather than solutions. It can be difficult for the consultants because they have two masters – one is the company or development agency hiring them and the other is the government counterpart. They have different needs and require different information. This section is quite long and focuses on ensuring that the consultant performs as required and that the right person is hired in the first place.
6. Cadastral survey is required in any project because the boundaries of land parcels (or property units within a land parcel) must be uniquely identified. The question then arises to what level of precision or accuracy? This is a complex matter that is dealt with briefly above, but in more detail in Chapter 7.
7. Communications should be an integral part of any project and be appropriately funded. The use of good advertising, public awareness activities, slogans and distinctive brands and uniforms can all help. If members of the public remain unaware and do not participate in projects or use the system, it will fail.
8. Capacity Development of the stakeholders involved in registration and related fields is necessary to ensure sustainability. Initially the existing institutional and private sector capacity must be examined and a human resources strategy developed for the new institutions. Training needs for the institutions and the private sector are then developed. Academia should be engaged in this process.
9. Continual adaptation is key. A successful project should lead towards the establishment of a sustainable efficient organisation that no longer needs outside support. If the project has achieved its objective and the financing partner, bilateral donor or consultants are no longer being needed then it has been successful. Sustainable institutions that can continue to function into the future are dealt with in more detail in Chapter 5.

Chapter 5 Project Management and Institutional Development

Gavin Adlington

This chapter covers two topics that could be considered independently, but they are covered together because there are important project management lessons to be learned and applied by the institutions responsible for implementing and managing projects for reform or to complete a major task, not just during the reform, but thereafter. Also, major reforms often cause governments to consider the institutions involved and whether the institutions themselves should change to implement the reform or to function more efficiently after the reform has been implemented.

Project Management

Project Ownership by the Responsible Agency

I have often come across situations where the agency responsible for a project blames the PIU (Project Implementation Unit) for things that go wrong or when delays occur. I have also come across occasions when the PIU acts as if it owns the project and the responsible agency is a hindrance to getting the project completed. There are often statements about 'the World Bank Project' and what 'they' (meaning the World Bank) have done. It should be clear that the World Bank (and hopefully any other financing partner) does not implement projects; it funds projects that are to be implemented and managed by government agencies. The financier provides funds, and checks that those funds are used according to the purpose for which they were supplied.

The PIU is assigned by the government agency to implement the project, but the responsibility and control must remain with the agency. It is fundamentally important for all parties to realise that the project or reform must be 'owned' and be the responsibility of the government agency if the reforms or changes are to be sustainable.[16] If several government agencies are involved then a steering committee comprised of high-level representatives of the key agencies (and preferably users and the private sector) needs to be formed and take on the responsibility for implementing the project. However, experience has shown that such steering committees (or high level project boards) have a mixed record of usefulness and success. I recall in one Balkan country a highly unusual project that had five ministries or agencies involved and eight components in a very complex project, but it was managed well and ended successfully. Another in sub-Saharan Africa had six institutions, two financing partners and the involvement of civil society organisations. That project was also successful in most of its components. Unfortunately, it is much more common to find institutions competing for funds and influence and for steering committees to very rarely meet and not give directions or hold the agencies concerned to account for progress. As a rule, when a single agency with a good project manager takes ownership, the success rate is high, so where possible this is the preferred model. If a project or reform is not *owned* by the government agency, then the sustainability of the reforms will be questionable.

Project Staff and Methodology

When implementing any kind of project or major reform, it is normal to have a unit responsible for project management. When projects are funded by external bodies there is usually a requirement to include a separate project management or PIU, primarily to ensure that funds are utilised transparently and efficiently and that the goals and objectives of the project are met. Thus, all projects that I have been involved in would identify an overall project manager, financial manager, procurement manager and monitoring and evaluation (M&E) manager as fundamental to the project's success. External auditors would also be required. Although the PIU staff were usually employed on short-term contracts,

[16] In PRINCE2 terminology (see next page), there should be a Single Responsible Owner appointed who has overall responsibility for the successful delivery of the projects.

many of the institutions recognised the value of the project management skills and knowledge of the PIU staff and retained them as employees after the project ended.

The fiduciary requirements of projects and matters relating to ensuring that the responsible agency provides efficient and socially responsible services to the public, which are always catered for in projects, should also be standard for any government body. In recent years the importance of closely involving a 'safeguards' specialist has been recognised. This specialist should have always been included, but was often not given the status and importance that is needed. The safeguards specialist will ensure that human rights are not abused and the project's impact(s) on the environment (including climate change issues) and society are monitored. Protection for vulnerable groups, gender equity, indigenous populations and cultural or traditional norms and heritage sites will also be monitored by the safeguards person.

There are several project management methodologies that can be utilised to manage projects, such as PRINCE2[17] (used by the UK government and some private sector organisations) or PMP[18] (favoured in the Americas), but these have not been specifically utilised in the projects I have been involved in because most countries have not yet adopted these methodologies and the World Bank has its own project cycle and methodology for managing projects. It is certain that a structured methodology that makes the business case, clearly assigns institutional management responsibilities, ensures quality control, ensures continual risk assessment and effectively manages change as needed, and provides a focus on the end users and reaching the goals and targets, is essential, no matter which methodology is adopted. If your program is not based on funding and a project management methodology mandated by the financing partner, then the standard methodologies offered by PRINCE2 or PMP could be used.

There are two additional points relating to: (a) risk assessment and (b) monitoring and evaluation that should also be standard, but often are not. In many of the projects these two activities performed during project implementation have been continued by the government agency responsible for the project after it has closed, and for this reason they are described in a more detail below.

Risk Assessment

When playing a game of chess, the players are constantly asking themselves questions: If I make this move where will it lead? What do I do after that? If I make this move, what will my opponent do in response? Is this move part of a long-term strategy that will eventually lead to me winning or a short-term quick win to take an opposing piece? And the players balance the probabilities of their opponent making the right decisions by deciding whether the opponent will make a certain move (in which case they will lose) or whether they will make a different specific move (in which case they might win).

A risk assessment basically looks into the future and thinks about what is trying to be achieved (the goals and targets) and what could go wrong. After identifying what could go wrong (the risk), it is necessary to consider how likely that is to happen (the probability) and how serious it will be if the thing that could go wrong actually happens (the impact). The assessment framework will then develop measures to lessen the chance that the thing that could go wrong does not happen or, if it cannot be guaranteed not to happen, what to do about it. This is the mitigation measure. Much of this will be developed in consultations with the implementers and end users. The best way of illustrating this is with an example in Table 1:

[17] PRojects IN Controlled Environments (https://www.prince2.com/eur)
[18] Project Management Professional

	Risk	Likelihood (High, Medium or Low)	Impact Level. Explanation	Mitigation Measures	Changes since last review Date: xx/xx/xx
1	Registrars and notaries object to the reforms and obstruct changes	Medium	Medium. Delays and obstruction to the establishment of the new offices and new procedures.	Making them part of the discussions on the new entity. Prepare suitable human resources plan and migration plan.	Discussions with law society has been fruitful. Workshop planned for Sept 30 agreed for initial feedback and ideas.
2	There is insufficient budget likely to be available to carry out the reforms and changes needed.	High	Medium The changes would take a long time to complete.	Include a serious financial analysis within plans and be prepared to alter approaches if funding is not available.	This remains a very high risk. The financial analysis within a business plan is being prepared.
3	The team required to oversee the reforms and changes are not available or of insufficient knowledge and capacity.	Medium	High In order to manage the changes envisaged a team of highly capable individuals will be needed to manage the changes. If they are not available, the reforms will either take a long time or not happen at all.	Develop a migration strategy and establish a small internal Change Management Team as soon as possible.	First draft of migration strategy prepared but migration team not yet appointed. Speak to head of department about this.
4	Lack of public participation	Low	Medium Lack of credibility but existing records may be sufficient.	Continuous monitoring of contractor responsible for public awareness campaign.	No issues to date. There appears to be good demand and good response to initial publicity campaign.
5	Digitisation of deeds in Deeds Registry is delayed	Medium	High Digitisation of archive records is essential for new system to operate.	Develop a detailed archiving strategy within the road map and ensure that this is integrated with the migration plan for reducing offices. Do not change office structure until the deeds and ledgers are digitised.	No progress. Increase risk likelihood to 'high' and inform responsible Minister of the problem.
6	Public bodies do not claim their land rights.	High	Medium. This has been the experience so far. It makes the record incomplete and less useful as a record to be used by other ministries and users and for an SDI.	Unsure if they know where their land is. They do claim now, but it is unclear whether their claims are accurate, and it is difficult to verify. To be monitored more closely during supervision.	Discussions with State land management department are on-going.
7	IT department does not have the resources to create/ maintain the electronic services required in the long term plans.	Medium	High The IT department have been losing people because of wage structure and are currently understaffed. Hiring new people will be difficult because wages are not competitive.	Address this issue in the IT/IM strategy and ensure that a viable solution is prepared. It may require outsourcing of some aspects.	IT strategy has been completed and is being reviewed by head of department.

Table 1: Example of a Risk Framework

The risk framework would have many more rows, but this is just a sample. Other templates can also be used. There are many standard templates available and they can be reviewed via an Internet search. The agency responsible for the project will continue to develop and will have many challenges even after a project is completed, so continuing to utilie a risk framework is advised. To be useful the risk framework needs to be 'reality checked' to prove that the risks are being correctly assessed and that the mitigation measures work. There may be more than one mitigation measure for any identified risk. The PADs referred to in Annex 3 have good examples of risks and it is often noted that different countries encounter the same risks – so it is worth reviewing the PADs.

Unfortunately, experience shows that risk frameworks are rarely reviewed, updated and used as a tool for making change. Most frequently they are completed because the project management methodology requires them to be done, and then they are forgotten about.

Monitoring and Evaluation

A brief introduction to Results Frameworks is included within Chapter 3 under the heading on Project Documentation, in which it states: 'A Results Framework specifies exactly the targets to be reached and the timing for meeting those targets. It is separated between 'outcomes' that show improvements to functioning of the system evidenced through greater real estate market activity and investments occurring, and general proof that society is now more satisfied with their security and the transparency or efficiency of the system. There are also 'outputs' that specify, for example, the numbers of titles issued, amount of mapping concluded, number of people trained, etc. Good examples can be found in the PADs identified in Annex 3'

The diagram below shows how the inputs lead to activities and then outputs. These outputs feed into the outcomes required.

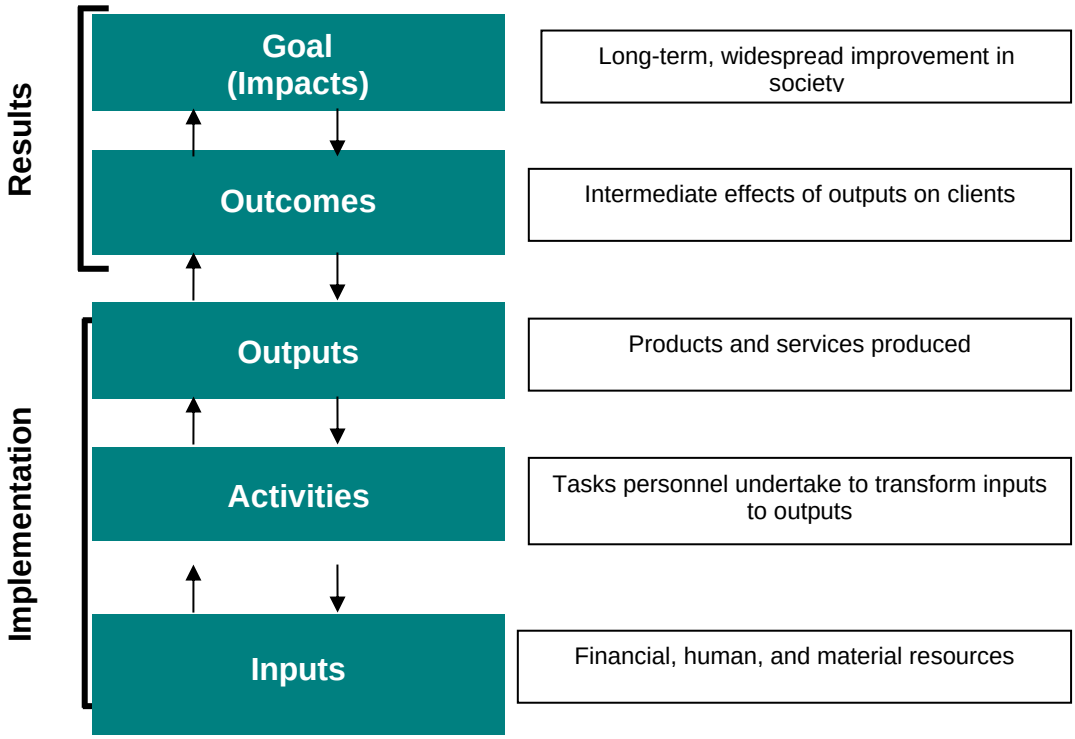


Figure 5: Overview of Results Framework

Kuseck and Rist (2004) used the term SMART to explain the key considerations for designing an M&E system:

> **S**pecific: The system captures the essence of the desired result by clearly and directly relating to achieving an objective, and only that objective.
> **M**easurable: The monitoring system and its indicators are unambiguously specified so that all parties agree on what the system covers and there are practical ways to measure the indicators and results.
> **A**chievable and Attributable: The system identifies what changes are anticipated as a result of the intervention and whether the result(s) are realistic. Attribution requires that changes in the targeted developmental issue can be linked to the intervention.
> **R**elevant and Realistic: The system establishes levels of performance that are likely to be achieved in a practical manner, and that reflect the expectations of stakeholders.
> **T**ime-bound, Timely, Trackable, and Targeted: The system allows progress to be tracked in a cost-effective manner at desired frequency for a set period, with clear identification of the particular stakeholder group to be impacted by the project or program.

Projects are nearly always judged by how well they meet the various goals, outcomes and targets specified in the results framework. If the results framework is poorly designed and not kept up-to-date with data, then the project might be classified as unsatisfactory even if it has actually achieved a lot and made a dramatic impact. I recall a case where an Eastern European country had transformed service provision from run-down shacks and dilapidated buildings providing very little service because only a few people used them, to having newly constructed and user-friendly premises, and providing remote services to villages with mobile offices. It was a fantastic change and extremely popular with the public, but reviewers thought the project was unsatisfactory because some minor targets relating to public land management were not met. In another example in sub-Saharan Africa, the excellent work done in customary land areas, urban planning, dispute resolution through the courts and street addressing was not sufficiently recognised as being important in the results framework and therefore received little recognition by reviewers trying to assess the project. Unfortunately, it is often not until the project is completed and bureaucrats in head office or the government ministries begin to assess the impact of all the funds expended that it is realised how important the M&E framework is. For this reason, it is always important to ensure that you have:

- Clarity on the real expected impact of a project taking into account what will be attributable only to project activities and what other impacts would influence results;
- Clear baseline information looking at both the current and expected economic impact and the current and expected social impact of any interventions – using competent professionals that specialise in these sectors;
- Taken into account the longer term impacts that will not be felt for a decade or a generation. For example:
    - Increases in agricultural output in rural areas is often mentioned as an outcome following on from people investing their time and money in the land once they have secure title. But, by the time the titles are issued, and the necessary investments are made, the project may well be over – in which case the increase in agricultural output will not be seen at the time of assessing whether the project was successful.
    - In discussion during baseline studies in a community it is very common for people without documentary proof of ownership to want the security of a title certificate so that they are sure that they have something to pass on to their children. This objective of passing on the land title to their children will hopefully not be met during the lifetime of the project!

  In these instances, the longer-term outcomes can be referred in the justification for implementing the project but should not be included as measurable indicators in the results framework.
- All projects undergo change from their initial definition and authorisation. This change, endorsed by the project board (key part of project governance arrangements), must also be reflected in a modified results framework.

It is also important to have a 'mid-term review' or 'stage reviews' completed part-way through the project to ensure that the project is moving along as planned and that the expected results are likely to be achieved. It should be done by an external team if possible so that an independent view is taken. Such a review gives the opportunity to make corrections for unforeseen events or over-optimism (or pessimism) in the expected outputs. If necessary, the results framework should be amended at this point based on the recommendations of the review team.

It is surprising how often the baseline data (i.e. the information prior to the project starting) is not gathered before the project starts, or within the first month or two of it commencing. This is a regular problem and often occurs because of inertia rather than any desire to avoid doing it. Unfortunately, without the baseline data none of the rest of the monitoring makes sense because you cannot measure any improvements. I have found in almost every country that the 'Monitoring' part of M&E is the easiest part as it just needs regular (monthly or quarterly) gathering of data and seeing how closely the targets are to those planned in the results framework according to the time frame envisaged. The 'Evaluation' part requires greater analytical abilities as it requires an assessment of whether the project itself made or created the changes, or whether they were impacted by other factors or would have happened anyway. Thus, skills well beyond data collection are required for evaluation and managers should be consulted. For example, the project may measure the amount of money borrowed using property as collateral, but this may be more impacted by an increasingly vibrant economy or banks changing their lending rules than the improvements to registration delivered by the project. These other factors need to be assessed and evaluated to get a true impression of the impact of the project.

For successful M&E, the key performance indicators and targets need to be specific, measurable and attributable to the project, as discussed in Chapter 3 in relation to the Results Framework. More important for the sustainability of the project outcomes is to build an M&E culture within the agency so that the agency continues to assess its performance against suitably drafted key performance indicators once the project is completed. References below to developing a corporate strategy and business planning within an institution shows how important it is to continue M&E activities within any vibrant organisation.

Our experience in projects has shown that, much like the use of risk frameworks, the M&E section is 'filled in' because the project documents and the project methodology say that they must be, but it is rare that the evaluation is seriously done or that the results are used to amend the management approach, revise targets and goals or challenge assumptions made when the project was prepared. There are some good examples, but they are very few. In socialist times in the Europe and Central Asia region targets and reporting were a common requirement under the centrally planned economies and reporting was done as a pro-forma activity to show that the targets were being reached. It took some time to change that approach and for individual agencies to use M&E as a management tool, but a few countries in the Balkans did make that change well.

Institutional Development

Never the Twain Shall Meet

It is very common around the world for different institutions to be responsible for the legal side of registering property and the survey side of recording the boundaries to those properties. In my early years in Malawi I found it odd that the deeds registry within the Lands Department was satisfied that there was a plan, without assessing the plan in any way, and that the surveyors in the Survey Department prepared plans based on the regulations that were enacted, but often did not really know what the Lands Department did and often did not link the surveys with the legal rights that they were supposed to depict. The more knowledgeable surveyors did it right, but for others it seemed to be more important that the surveyed plot adhered to the town plan layout, the road reserves and the survey rules than actually showing the true extent of the property in possession by the person for whom a deed was being prepared.

I recall one case where development had occurred before the survey work had been completed. The surveyor stuck strictly to the town plan layout and dimensions with the end result that every boundary marker showed that the boundary went right through the middle of every building. Unsurprisingly, none of the owners moved their buildings by the five meters that would be required to be within their boundary.

I thought that this type of problem was an anomaly until I started working in other countries and found it very common. I recall talking to one colleague from the USA who had worked as a court judge for land disputes in one district, and I asked him how often he called for a map (or used a map) showing the boundaries of the property to compare with the evidence being provided verbally. He thought about it for a while and then said, "Never. I never did that." I have also asked many registrars or legal examination clerks how often they look at the plans, and the answer is similar – either never or very rarely. Whenever I have mentioned this to surveyors, they are truly shocked. The legal rights and the extent (or boundaries) of the rights should be part of one consideration, but it seems that with regard to lawyers and surveyors, as in Rudyard Kipling's words about people from the East and the West, that *Never the Twain Shall Meet.*

[I should point out the excellent practice in parts of Northern Europe and Scandinavia that degree courses in land administration and management often include both the surveying side and the legal side of land and property rights, and the students get the option to specialise in one or the other in the latter part of their course.]

One Institution

Historically, in much of the world, systems developed for registration and cadastre used two separate institutions. One, often based on the courts, notaries or Ministry of Justice dealt with the legal side of registration, while the description of the property in the form of a cadastre or property index map was the responsibility of municipalities, mapping agencies or a Survey Department. In some countries the relationship between the ministry responsible, which is often responsible for policies, development of laws and approving regulations, and the department or agency that actually has to implement those policies can also be problematic. This is further complicated by the fact that local authorities are usually responsible for managing land use and planning, which affects what people can actually do with their land and has a huge impact therefore on its value. In many of the ex-colonies, a Lands Department was responsible for managing and allocating State land, leasing State land to the public or private sector, overseeing customary land use and maintaining the register of deeds and cadastral index maps. The role of an independent protector of a person's real estate rights under a registration law can be considered to be in conflict with the role of being one party to an agreement when leasing, buying, selling or managing that real estate if the same government organisation is responsible for both.

Many of the organisations that developed 'cadastres' for property tax purposes or as index maps for property ownership are now centres for geospatial information management providing support to multiple government agencies and the general public, as the cadastre provides a fundamental layer for national spatial data infrastructure, three dimensional information systems and mapping programs. In most of the former socialist countries of the Europe and Central Asia region, the cadastres had not reached this stage when our projects were being implemented and there was often a problem that the records in the cadastre did not match the legal records or were focussed on different cadastres, such as building locations, agricultural productivity or land use. For the purposes of registering land rights, we generally recommended integrating the cadastre that showed ownership boundaries with the legal register, and also recommended that it be taken out of the courts and into a more focussed administrative structure. Although it is understandable that many years ago records were stored in the courts for safety, there is no logic in courts now being responsible for a basically administrative function (the transfer of ownership or other property rights between willing parties) as there is no problem or dispute to resolve. The Council of Europe recommended that non-judicial tasks entrusted to judges be assigned to other persons or bodies and quoted 'Land registry (control over registration of transfer of property, of charges

over immovable property...)' as an example of such a task that could be moved. (Council of Europe Committee of Ministers Recommendation N. R (86) 12 of 16 September 1986). In fact, the register of legal rights and the description of the location of the property to which those rights refer are always supposed to be linked. The institutional issues and recommendation for a single agency model are also contained in the Land Administration Guidelines (see book reference 22 in Annex 1).

If the land register and the plans and maps (or cadastres where relevant) are under the jurisdiction of one agency, it reduces duplication of administrative structures and makes it much easier to ensure that the plans and legal records match. The overall head of the agency can give instructions to each of the department heads to make sure that sensible, cooperative approaches are taken. For example, in a Middle Eastern country where I have recently been working, the creation of the register has not progressed because the surveyors want to survey large blocks in one go and to combine the work with other tasks they have for the municipality (recording buildings, topography, utilities, checking for non-compliance with town planning requirements, etc.) while the Deeds Registry has to patiently wait for all this to be done before it can investigate title. As the Deeds Registry generally only responds to applications that come before it, the program to systematically register all properties has barely begun despite the fact that seventeen years have elapsed since the necessary legislation was passed. In some Balkan countries the mismatch between the records held in the cadastre and the records in the courts made it very difficult to find out which was right, and both sides thought that theirs must be the more accurate record. A single agency is needed to ensure that the legal and survey sides work together not just for first registration. Cooperation and alignment are particularly important when a subdivision or amalgamation occurs because of the processes needed to ensure that both the legal register and the index map match each other throughout the process. If not properly managed there could be occasions, for example, when a subdivision may be approved by a Surveyor General, but the application to register the two parcels with the Deed or Title Registrar does not occur because the owner changes their mind. Then the parcel layer and the register get out of conformity.

Harmonisation of Records

In many of the Balkan countries we included project components to 'harmonise' the records of the cadastre with the deeds registry because they did not match at all. In fact, having separate agencies has caused all sorts of problems. Here are three further examples:

i. In a Balkan country I recall a new law was passed that stated that any deed must show the property as approved by the municipal planning department. We did an exercise to map the location of properties as shown on the town plan, and then to map the location of properties as recorded in the cadastre, and then to map the properties as they existed in reality. When we overlaid them, we had three completely different index maps that did not even remotely match. When queried about this one official advised that the owner should acquire the land that he should own (but didn't) according to the town plan layout, sell the land that he should not own according to that layout and also remove any buildings (or parts of buildings) that did not conform. This obviously could not happen, so the notaries started preparing deeds with diagrams that corresponded to the town plan layout, knowing for certain that the plan and area did not represent the property that was being transferred. Some from the cadastre often ignored the town plan layouts and assumed that there was an error on the map showing the real life properties and their boundaries. Throughout, each of the three organisations involved adhered to their own guidelines as instructed by their department heads according to their own particular needs. Fortunately, after many months, the ridiculous law was amended, the cadastre took into account reality on the ground and the new deeds started to reflect the cadastral layout.
ii. In an Eastern European country there were three agencies responsible for registration. One recorded buildings, another recorded the land and a third registered the legal rights. Each had to prepare a certificate confirming the seller's rights and the location, but it was impossible to get to the third agency before the validity of the certificate from the first agency had expired. The only way to get registered was therefore to pay someone extra to ignore the expired date

on the first certificate. That country has now combined the three agencies into one and they no longer have such problems.

iii. Across the Balkans it was common for a system similar to the old Austro-Hungarian land book system to be in place – even if it had become outdated because of socialist restrictions on sales of properties and acquisition of properties by the State. The old cadastral maps were generally available. However, they almost never matched the physical situation on the ground. This is because the focus in those times was the relative accuracy between neighbours and surrounding boundaries rather than the absolute accuracies that might be derived from trigonometric networks suitably corrected for earth curvature, sea level, slopes and projections of the globe that might be in use. It was often very difficult to persuade government officials to 'move' the cadastral boundaries to fit the actual situation on the ground, which was now accurately mapped. For some reason it was considered that the cadastre boundary was 'legal' and therefore sacrosanct. In reality, of course, the roads, houses and hedges had never 'moved', it was just how they were shown on pieces of paper that changed.

As a result of all these problems with dual or multi-agency set ups, it has been our practice over the last fifteen or so years to strongly recommend establishing a single agency for registration and the cadastre (or property index map). It is still common in Western Europe to have separate cadastres and registration agencies, but even here there has been a shift towards unification in recent years in the Scandinavian countries. It is logical because a unified agency has only one 'boss' who can make sure that department heads meet the needs and requirements of other departments in one program of work. Costs are reduced because only one administrative structure is needed to cover finances, IT systems, procurement, auditing, human resources, etc. and only one building and set of utility and other expenses for the headquarters should be necessary. One unified corporate strategy and business plan (see below) is needed.

Often the national mapping agency is also integrated within the single agency for registration and cadastre. Although this is not critical, it has advantages because the specialists working within the national mapping agency tend to need a stronger technical background in geodesy, map projections, aerial and satellite imagery etc., and can advise cadastral surveyors if they face difficulties or apparent anomalies. National mapping agencies are also often allocated the responsibility to oversee the establishment of a national spatial data infrastructure that link the spatial records of multiple agencies (including the parcels and buildings found in the cadastre) with each other and a national framework.

Self-funding

An additional reason to merge the institutions responsible for cadastre and registration is to make it more likely that an autonomous self-funding model can be achieved. The cost of undertaking or checking survey work is much higher than legal verification because of the field trips needed, yet it can be onerous on the public to charge them the full cost of this – especially for low value properties in more rural locations. In some African countries we found that the cost of the survey for one land parcel (including transport, fees and accommodation) was greater than the value of the property itself. By combining the two activities of on-going registration of transactions and the surveying work that might be required into one agency, self-funding becomes more feasible.

In the early 1990's I finished my contracts in Africa and moved on to start providing advice in the Europe and Central Asia region, primarily for the World Bank. The situation there was similar in many ways to some of the poverty I had seen in Africa, because the old socialist systems had collapsed and left people in dire straits economically. Government offices were underfunded, staff were very poorly paid, and corruption was becoming more and more common. They had the disadvantage compared to Africa that they often had no tradition and little experience of privately held land, generally without systems that could register or protect individual property rights. Their systems were primarily concerned with centralised planning and control. Especially in the Former Soviet Union countries, the very concept of private ownership of land was not truly understood and there were no (or few) laws,

experience, universities or courts that had dealt with matters such as valuation/ appraisal, registering property rights or dealing with land markets, land disputes and inheritance related to property rights. Their big advantage was that they had a tradition of very strong and efficient government and a well-educated population that had graduated from good quality universities.

When commencing work in the Europe and Central Asia region, the experiences of the organisations responsible for first registration of property rights from other countries were taken into account. Many countries in Africa, the Caribbean and Asia (Thailand was a good example) had programs for mass systematic registration of property rights, using 'fit for purpose' techniques, with some remarkably good results. Thailand had managed to create something sustainable, whereas some of the systems I was looking at in Africa often were not – primarily because of low salary structures and underfunding from governments, which meant that the agencies were often inefficient, corrupt or involved in conflict, which made it very difficult for even the best individuals to maintain good systems. Around that time the England and Wales Land Registry received trading fund status (1993) and the Dutch Kadaster became an independent public body (1994). In effect they became self-governing, self-funding models that were to run along business lines. This would enable them to retain sufficiently high calibre of staff, invest for replacement of technology and improvement of premises, equipment, etc. and, if properly managed, make them independent of the many constraints that occur in public service from time to time. The Land Titles Office in New South Wales, Australia, also became financially autonomous as a state owned trading enterprise from 1995. It subsequently paid US$ 20 million equivalent to the MoF on a routine basis as a dividend. In 2017 the government went one step further and awarded a 35 year concession (following competitive tender) to a consortium of private companies to provide registration services in New South Wales. The consortium paid AU$ 2.6 billion for the concession (almost US$ 2 billion in 2017).

Autonomy is particularly relevant in an age where technology changes so fast and greater flexibility in decision making is required. Annually the England and Wales Land Registry and the Dutch Kadaster produce reports on their visions for the future, incomes and expenditures, and their business plan for the coming year. Both agencies combined their register of property rights with the index maps showing the registered parcels, avoiding many of the conflicts and disparities seen in numerous countries that had a separate register and cadastre that did not match, and which had different objectives and management priorities. Given the difficulties that countries of the Europe and Central Asia region were going to have with funding and retaining professional personnel, the model from England and Wales and the Netherlands seemed to be an excellent model. Of course, every country has their different traditions and needs, but every project that the World Bank funded in the region included aspects related to developing a corporate strategy and corporate approach to operations. We tried to encourage the single agency model (not always successfully), financial autonomy through a move to self-funding status and introduction of regular monitoring of how customers were receiving registration services and seeking their opinions about the quality of those services. In most projects funded by the World Bank in the Europe and Central Asia region the project included a specific component or subcomponent to develop a corporate strategy and annual business plan. A separate cost recovery strategy or analysis was often undertaken so that the fee and pricing structure could be accurately established. Ministries of Finance will often agree to such reforms because they prefer to have an agency that contributes to the treasury through taxes, profits or dividends. Conversely, some agencies have trouble letting go of the security of central budget funding, even if it restricts what they can do. An important argument in favour of self-funding is that the agency will be able to retain sufficient funds as a reserve when the real estate market suffers a setback, such as in the 2008 financial crisis. Such a reserve can also be used to pay compensation when errors made by the office cause losses to people relying on the accuracy of those records. (See book reference 25 in Annex 1 for more on running land registration as a business.)

The changes that occurred across the Europe and Central Asia region have yielded excellent results over the past 20 years, and if you were to check the *Registering Property ranking* in the annual report on *Doing Business for 2019* you will find six of these countries in the top 10, 10 in the top 20 and 13 in the top 30, etc. It is by far the largest and most successful property registration reform done in a region in history, with the possible exception of the reforms across Europe, Australia, Canada and New

Zealand in the 19th Century (see commentary on this in Chapter 1). I would argue that the sustainability provided through self-funding models and the consequent ability to recruit and retain high quality staff was a primary reason for success in the region. Further reference to the work in Europe and Central Asia and the results of that work can be found in Book references 11 and 33 in Annex 1.

Examples of Self- Funding Agencies established in the Europe and Central Asia Region

Most of the former socialist countries of the Europe and Central Asia region ensured full employment and included most working age people of the population as State employees. The control of land, housing and all aspects of mapping were usually State level responsibilities, with municipal level oversight of some of the activities. Mapping was generally considered sensitive or secret, so only people with special clearances could undertake mapping and surveying work that involved national coordinate systems. It was a major problem in the early years of reforms in the 1990's that access to any form of maps, aerial photographs or imagery was restricted and could not be granted to foreigners (like myself). Even as late as 2006 I recall one meeting in which we discussed the need to create index maps for registration, where the military had to be present. They were adamant that no aerial photography or national coordinate system could be included until I connected to the Internet, showed the Google map and pointed out the building in which we all sat. At first they were angry, stating that it was not permissible to have such imagery in their country, but then understood the issue more logically when we discussed the fact that it seemed that everyone in the world had access to imagery of their country, except for the residents of their country. In another country, the military insisted on having one of their specialists in the aeroplane that was flying the photography and inspecting the imagery, which was not allowed to leave the country. However, I suspect that the contractor just sent the imagery abroad in digital form for processing without them knowing.

The above is mentioned so that it can be understood just how life-changing it was to begin to establish open systems of registering property rights and then to consider letting real estate be part of a business enterprise that would register those rights. Often it was circumstances that made this essential. In some countries the 'land committees' had thousands of staff that did all sorts of survey work from soil surveys to detailed mapping and geodesy, with different grades of security dependent on what activity was included. Suddenly, after the collapse of the former regimes, there was insufficient money to pay such a large staff, and yet a huge reform program that included the need to survey tens of millions of land parcels was occurring. In several countries they took half the staff and told them that from now on they would have to make their own income from fees. They started with a monopoly to undertake surveys for a fee that had to be paid by the client. They used the equipment that the State had owned and became a business. Fees had to be set at a level that people were willing to pay. This developed over the years until a vibrant private sector, with competition, was fully established. In one smaller country about 130 survey companies were established in this way, and over the years they either made it work, retired or amalgamated with more successful firms, and within a few years the number had reduced to 13 fairly large firms providing services competitively – with no government surveyors doing any field work at all.

Those countries that combined the cadastral work with the legal registration often set up business units so that the overall company could function effectively. In Moldova the agency for land registration and cadastre initially formed three state enterprises, which are self-funding, to provide services in: (a) land registry, cadastre and valuation; (b) land management and expropriation for government land; and (c) geodesy, cartography and geo-informatics. The third might provide services to the other two on a fee paying basis. In Kyrgyzstan only the headquarters were funded by government, and each of the fifty local registry offices operated on fees collected and were staffed and operated based on the income they received. In Georgia a new agency was established and people hired on 'normal' government level salaries, with a requirement to be self-funding. They had flexibility to operate along business lines and were instructed to provide quick, corruption-free services. Through increased efficiency and dealing with corruption they reduced staffing levels by about two-thirds over a two year period, while increasing tenfold the salaries of the trusted and competent staff that remained or were hired. As a result, over a

six year period they also multiplied the number of registrations tenfold. This enabled them to continue to develop and improve efficiencies through better technology, and to this day they are one of the most efficient registry services found anywhere in the world. In Albania the agency became self-funding during the course of a project, and I found in a subsequent visit that they had hired over a hundred data entry and data validation clerks on temporary contracts to improve their digital archive. They would probably never have managed to get funds from government for this exercise, but now that they were self-funding they could budget in advance and assign their funds as needed.

When the Dutch Kadaster became self-funding in 1994 it was required to be a non-profit organisation. This was partly because it was a monopoly organisation designed to provide a service to the public. As the Dutch Kadaster increased efficiency and improved services, it began making too much money and had to keep reducing fees for the first few years so that it could maintain the non-profit basis. I recall it doing this about four times – almost every year. This is a good lesson to learn. In one of the Eastern European countries in which the agency had become self-funding in 2004 it was discovered in 2009 (just as the worldwide financial crisis was having a major impact) that the agency had 250 million Euro in its reserve fund. The government quickly took this money and re-instated the agency as a State funded organisation. As a result, funding to the agency became difficult, morale was reduced, and income also reduced. Some years later the self-funding status was restored – but they didn't get their 250 million Euro back!

Strategic and Business Plans

Strategic and business planning is covered within the FAO technical guide N° 10 on Improving Ways to Record Tenure Rights (See book reference 18 in Annex 1) so it is not covered in depth here. A strategic plan lays out the longer term vision of an organisation and the goals it wishes to achieve. It sets out a sequence of steps (the strategy) that needs to be taken to reach those goals. A business plan would assess the current situation in the organisation, including its limitations, and develop a time-based plan to achieve the goals outlined in the strategic plan. In many cases it would be common to develop a five year strategic and business plan (sometimes a longer period is needed), and then develop annual business plans that monitor success in meeting the strategic objectives and develop very specific plans to be implemented on an annual basis, which are aligned with the longer term strategic and business plan, for the upcoming financial year of the organisation.

The strategic and business plan ought to be developed by the senior management of the agency concerned. However, it is common that consultants are hired to work on these documents because of time constraints and the expertise that is needed. It is vital that all staff are consulted at all stages through workshops and regular interaction and that senior management are fully conversant, and in agreement with, all conclusions, proposals and the final product. The government should endorse the strategic and business plan.

The *Vision* for the organisation needs to fit in with the overarching vision of the government. Thus, if the government is focussing on e-government services; decentralisation; anti-corruption measures; support to minority communities; etc., then the vision for the organisation and the strategic plan need to take these into account and ensure that they conform. If the organisation responsible for land issues is large it may be necessary to develop an overall vision and separate departmental visions, strategies and plans for each department. For example, a lands ministry might have separate departments responsible for registration, valuation, surveying, mapping, planning, land consolidation and land management. Each would need their own visions, strategies and plans that are linked to the overall vision, strategy and plan for the parent organisation (such as a ministry).

There ought to be *Goals* associated with the vision statements, for example:

> Vision: To provide rapid and reliable customer services for the registration of sales, mortgages, leases and other transactions.

Goals: By the end of calendar year 2016, to: (i) provide on-line access to information in the registration database; (ii) register mortgages within 4 hours of lodgement; (iii) register all other transactions within 24 hours of lodgement; (iv) establish and provide adequate funding to a guarantee fund and provide an independent mechanism for assessing claims against the registration service.

Individual strategies might cover human resources, customer service improvement, information technology, income and expenditure, policy and law reforms, etc. For each strategy a set of goals, targets and timelines is needed, and a risk framework and M&E framework should be developed and maintained – much as is done for a project.

Summary

This chapter looks at project management as government agencies and funding partners implement projects or reform programs or major activities designed to modernise or complete their land registries. It also looks at the best structure of those government agencies directly responsible for the post-project on-going implementation of registration and cadastre services.

Project management or implementation units are always required for fiduciary management of projects, but also to ensure that the project activities and specific time-based targets are reached. The project management unit should use a standard management methodology and be very careful to ensure that both fiduciary and social safeguards are in place.

Project management needs constant monitoring and evaluation to ensure that the project progresses towards its ultimate goal in a timely fashion, with regular monitoring of targets, monitoring of the risk framework and taking such mitigation measures as are needed to ensure targets are reached. The more difficult part is the 'evaluation', which should be constantly undertaken to ensures that the analysis and actions are SMART (Specific, Measurable, Achievable and Attributable, Relevant and Realistic, Time-bound, Timely, Trackable and Targeted.) A mid-term review by an independent group is useful for making any necessary corrections or changes before it is too late.

Do not forget to gather the baseline data and information *before* the project gets underway or it will be difficult to assess whether the project was successful.

The lessons learned in project management can be beneficial as new institutions or reformed institutions are developed. The need for continuity and sustainability of the new or reformed organisation and to have a vision and plan for the future is key, and for this the risk assessment frameworks and detailed M&E systems used in projects are needed for the institution too.

A unified registration system that encompasses both the legal rights and the cadastre or property boundary measurements in one agency is advised. This is by far the best model and takes account of the fact that registration of real estate rights and transactions involving real estate are effectively an administrative function.

Experience has shown that self-funding models, where the responsible agency can keep the income derived from charging for registration, helps to ensure that systems can be maintained, implement advances as technology changes and pay market rates for staff, which in turn reduces levels of corruption. The focus on having a paying customer underscores customer relations and customer satisfaction.

When establishing the institution responsible for registration and the cadastre, it is necessary to undertake specific studies and develop both a corporate strategy and an annual business plan. The strategies will take into account the longer term mandate given by government, the vision of what needs

to be achieved and the goals that the agency has over the longer term. There should be sub-strategies covering human resource, information technology and information management, incomes and expenditure and the policies and laws that are required to meet the vision and goals. The corporate strategy taking all of these into account should be a document approved by government. Annual business plans aimed at achieving the goals in the corporate strategy should be prepared.

Chapter 6 Legal Framework

Tony Lamb

Introduction

This chapter focuses on major lessons learned in relation to the legal framework. They have been derived from more than 30 years of legal work, beginning at the Sydney, Australia land registry, which operated both a deeds and title registration system, and then in more than 30 countries across Europe, Africa, the Middle East, Asia and the Pacific. The lessons are remarkably consistent throughout the world, which confirms the author's conclusion that people are pretty much the same everywhere, so the issues and approaches presented below should have application elsewhere. While the chapter is aimed at lawyers, those who manage lawyers might be interested to find out what the lawyers are up to. Unlike the other chapters, it does not include many anecdotes – drafting law is (sadly) often a rather dry business.

The focus of the following pages is not on technical matters relating to drafting of property registration and cadastre laws. Such matters have been addressed by the author in the FAO technical guides numbers 9 and 10, each of which has a legal chapter and the links to which can be found in book references 17 and 18 in Annex 1. Rather, this chapter looks at the approach to be taken and some contentious issues, including the human dimension, when approaching improvements (hopefully) to the legal framework to support improved land administration.

Overview of Laws

Having done your research into the country's legal system and found as many laws, reports and background items as possible (see Chapter 2 on desk reviews generally), the first thing to do is to carry out an assessment of the existing laws (and related policies). This should be done *prior* to visiting the country because time in country will be very precious, so it is useful to get the hackwork out of the way in advance. Also, you want to be informed at your first meeting – show the officials that you have done your due diligence and you are ready to get into substantive topics immediately. You should demonstrate that you are not going to waste their time with simplistic questions that would reveal a lack of preparedness and/or seriousness. Of course, it goes without saying that you need to be an expert in the particular area of the law that you are reviewing (or you can learn very, very quickly).

The laws as they currently stand provide the foundation for the future work and the starting point for any reforms that you might want to make. If the budget stretches far enough, it is a good idea to have both a local and an international lawyer to help out. Each can have special knowledge and skills, such as the local lawyer knowing which are the relevant laws, where to find them, how to ensure that the translations are accurate on key terms,[19] whether there are any relevant customary laws, and who in the legal fraternity might be helpful. A local lawyer might also know the history of why certain laws were adopted, the social context and the existing and potential problems. A client will often appreciate a local presence. And in an ideal world, you would have the help of a local sociologist or anthropologist to complete the picture.

In some countries, it is still very difficult to get current versions of laws. If you face this problem, then you might need to approach the legal drafting department (sometimes in the Ministry of Justice) because that department should have a complete and updated set of laws. Even if there is not a consolidated

[19] While Google translate has made life much easier, not all languages translate well, particularly where legal expressions are used as terms of art and cannot therefore be literally translated. Please don't try to save money on translations – a lawyer without the text of laws is a wasted resource. Having said that, translations take time and money, so you need to be strategic about which laws are translated and allow plenty of time.

version, you should be able to obtain the original law and all the amendments, and then try to piece it all together, which is often a time-consuming and tedious task.

The document produced by the lawyer from the review should: 1) identify the name of each law; 2) provide a brief overview of its purpose, functions and effects; 3) identify the main points of relevance for the proposed project activity, whether positive or negative; 4) highlight what is missing, including which laws (and possibly policies) are missing. The review document does not need to be excessively long but, depending on the current state of the legal framework, it could easily run to 20 or 30 pages if one page is devoted to each law.

Reviewing laws: what is missing might be just as important as what is there

The challenges when reviewing laws (and policies) are twofold: Firstly, knowing what is good or best practice, or at least workable, so that there is a standard against which the existing laws can be judged. This requires a good understanding of other registration laws and systems, and also some mental flexibility because there is no one best way to set up the legal framework. For example, when one new cadastre law was being drafted, they specified that the owner was the basic unit of the system, not the parcel. This approach was quickly reversed but only because those reviewing it knew what was best practice.

Secondly, you must look for what is *not* there – what is missing or what has been incompletely addressed. Looking for something that might not be there is a much harder task and requires quite a bit more mental energy and concentration than simply reacting to what is presented to you in the text of a law.

It is useful, therefore, to come up with a list of items that you would want to see *before* you start reviewing the law. You can then check off each major point as you come across it, and those still left on the list can be discussed with the drafters or client to see if those items were left out purposely and why, or whether a topic is covered elsewhere or in another manner (or whether they did not know to address it). For example, almost all European laws on National Spatial Data Infrastructure (NSDI) omit the most important thing to bureaucrats: money! Rarely is there any mention of who owns the data and therefore who is entitled to the proceeds of selling the data or who must pay compensation for losses caused by errors in the data. This omission will surely cause problems in the future, as evidenced in other jurisdictions already.

Making a list of important points in advance is hardly a revolutionary concept but it is included here as a reminder to do so, and also to devote the time and mental energy to the task. It requires some big picture thinking and, in the rush of project preparation work, there is rarely time for that. A standard list should apply across all countries, such as the list of items that should be addressed in a registration law (see FAO Technical Guide Nº 9, page 57. book reference 17 in Annex 1). Likewise, items to appear in laws to promote information sharing, gender equality, digital record keeping, condominiums, etc. could be developed and used across jurisdictions.

Constitution

The **constitution** is the basic legal document in almost any system (except a few, such as the United Kingdom, which does not have a written constitution). It sets the context and parameters for all other laws, so its provisions are very important when reading other regulatory documents. There are several features to look for in a constitution, namely:

- Does it expressly or implicitly create a division of powers between the executive, legislative and judicial branches of government (the doctrine of ‘separation of powers’), such that one branch of government is not permitted to carry out the functions of another branch? This can be very important for land titling programs because in some countries (such as the USA), first

registration has been characterised as a judicial function and thus a judge must be involved. See World Bank publication, Systematic Registration: Risks and Remedies, pages 52-54 for a discussion of this issue (book reference 38 in Annex 1).

- Does the constitution permit private property rights or provide protection for private property rights? In some countries, the constitution makes it clear that property belongs to the nation and people can only have land use rights.
- What does the constitution say about the taking of private land for public or other purposes? In most places, the constitution declares real property rights to be protected and the government can only take the land (usually, but not always, for a public purpose) if it follows a legal process and pays compensation. This is a clue to look for a law on compulsory acquisition.
- Does the constitution establish equality between men and women, such that both are entitled to own land, use government services, obtain information, etc.?
- Are there any provisions on access to information or any privacy provisions?

It would be extremely rare that you could expect to change the constitution of a country, so the review is more about understanding the current situation and how you need to work within the parameters of the constitution.

Land Administration Laws

The next stage of the legal review is to focus on the land and land administration laws (also known as 'real estate' or 'immovable property' in some jurisdictions, which should capture the buildings that are constructed on and attached to the land). Depending on the country, these could be named the land code, land law or real property law, and there are also the civil code and mortgage law to look at. They will normally include provisions on what is land, what are land rights, what can be done with them, and how and whether transactions need to be registered. These laws might also deal with the interface between customary and written laws. The laws on indigenous people's rights (if such laws exist) should be considered to see what limits might exist and also how land rights can be held, such as communally or individually. There is likely to be a law on surveying and surveyors, or at least regulations that set standards.

Tied to the land laws are the laws on condominiums, NSDI and e-signatures and e-documents, which permit people to transact electronically and for registry staff to register transactions using e-signatures. Will they support what you are planning to do? If not, what needs to be changed? The law on compulsory acquisition by the state (also known as expropriation or resumption) should be considered to see how the state goes about acquiring land for its needs and the extent to which it accords with the requirements of a donor or lender, such as those in the policy of the World Bank or the Asian Development Bank. As anyone who has attempted to insist that the standards in such policies must be applied to the local context will know, the local officials will be amazed that people with no formal legal rights should receive compensation when the public land that they are occupying is used by its rightful owner, the government (and that by providing compensation, you are creating a moral hazard that will encourage others to occupy state or other land). So, good luck in convincing them.

Most importantly, the law setting up the registration system (if any), such as the deeds registration or title registration law, needs to be very closely reviewed. More on this below.

Land Sector Laws

Looking further afield, laws on land reform, land consolidation, land administration and land management can be considered if time permits. Public land administration is also important, but a topic in itself and beyond the scope of this chapter. See Section 8 of the VGGT (book reference 9 in Annex 1) for key elements that should be present in a public land law. If valuation or regularisation of unauthorised constructions is part of the proposed project, then laws on those topics should be considered.

Laws of General Application

In all cases, laws on family and divorce, gender equality and inheritance should be considered to see how women are treated (equally, hopefully) in the economic and social spheres. Are they able to own land, including independently of a male relative? Laws that are relevant to the property rights of ethnic and linguistic minority groups might similarly be considered. And can children own land? If so, can they sell or otherwise transact with it (without special procedures)? Further, the law(s) on alternate disputes resolution, review of administrative decisions and appeals should be considered.

Dual or Multiple Legal Systems

Extra care needs to be taken in countries where, for historical or religious reasons, there are two or more legal systems operating in parallel or if there are laws left over from previous legal systems that are still in force. The overlay of communist law (mostly derived from the Soviet Union's work on legal theory of the 1930s) provides a further complicating factor. For example, in parts of Africa and the Middle East, you could find indigenous/customary laws, Ottoman era laws (in the Middle East), European colonial laws and post-independence laws. Western style laws and Islamic law will co-exist, but how they do so and which takes precedence are relevant questions. The distinction between civil and common law jurisdictions is not as great as it used to be because common law jurisdictions have increasingly come to resemble those of civil law countries, with parliaments enacting laws on many topics and doing so in great detail, leaving common law judges with less room to develop new law.

The review of so many laws might seem like **a lot of work**, and it is. But it is a wise investment. If your work progresses without a thorough due diligence effort, there will be surprises along the way that could distract you and even derail the entire activity. People are often looking for reasons to resist change and citing the requirements of an obscure law is an easy way to frustrate the purpose of a meeting or activity. Responding confidently in an informed manner will usually shut them up, until they think of another reason why your proposals are wrong. I have found that, as agents of change, we are rarely welcomed with open arms by everyone.

Drafting a New Law or Amendments to the Existing Law(s)

Once you have established your starting point, you can begin working out what needs to be changed and what needs to be introduced to the legal framework to achieve your ends. You might, for example, need to introduce a new registration law or dramatically amend the existing one. Alternatively, the existing law(s) might be quite adequate and require only small changes. If you are lucky, many of the policy and strategic decisions will have been made, so it should be just simply a matter of lining up the existing situation against what is required, and then drafting a few new provisions or laws.

However, things are rarely so simple. Often, the policy decisions have not been made or they are expressed in such a general way that they cannot be implemented without much discussion and consideration. What policy-makers regard as 'detail' can encompass major issues for lawyers and administrators, so much work can be required. Commonly, key decision-makers do not understand that it is their job to make the policy decisions and then instruct the lawyers in how to move ahead. Lawyers are not trained in policy development but I have found that the responsibility so often falls on the lawyers that it is easier to draft something and then wait for people to object – the draft text prompts them to turn their minds to the issue and say what they do not want.

Let the lawyers decide: Abrogation of responsibility to make decisions by non-lawyers

Laws are written by lawyers, so let's ask the lawyers to come up with the new law. This is a common approach. However, it is fundamentally flawed. Lawyers are drafters, and they come up with the right words to express ideas, policy positions, operational matters, new and better ways of doing things. They do not necessarily know *what* to write. This must come from policy-makers, operational specialists, topic specialists (such as IT, NSDI or gender specialists). This requires a team, with the lawyers acting as midwife to ensure that the new law emerges properly formed and as intended.

Unfortunately, it is not unknown to send the lawyers off by themselves to do all the work. The same thing sometimes occurs with new IT systems, where the IT people are left to re-engineer the processes without input from the operational and technical specialists. In both cases, major omissions and missteps can occur. What is perfectly logical to someone trained in law might be crazy in an operational context. I have seen this again and again. Worse still, the lawyers who make up a large number of parliamentarians might not realise the errors, and thus a flawed draft law gets adopted and must then be implemented!

The only sensible, efficient approach is to create a multi-disciplinary team to prepare laws. Where I have seen this happen, the results are usually very good. Involving outsiders, possibly economists or IT people, can introduce new ways of thinking too. To leave it to the lawyers alone is an abrogation of responsibility by those who are in charge of for the system's design and it should be avoided as much as possible.

Where can you find **inspiration** for the law or the amendments that need to be drafted? Fortunately, there is no shortage of internationally agreed or accepted guidelines; numerous diagnostic tools have emerged over recent years; there is advice on what is international best practice; there are likely to be policy statements of the host country; and there are probably one or more reports of previous consultants that contain useful ideas. Similarly, workshops with officials and external stakeholders can highlight problems and possible solutions. Technical assistance specialists are, of course, a good source of advice and inspiration.

Try to work with what you have, at least at first

Generally, the laws of a country will be in a reasonable state and capable of being used without major change, at least at first. If you don't use what is already there then you could face long periods of preparation, discussions and enactment of a new law. It can take years to have a major piece of legislation adopted by a parliament. You can add on another year to prepare and adopt the regulations. So, there can easily be a delay of two or three years before a reformed or new law comes into operation. In the meantime, work should continue under the existing law as much as possible. If necessary, the transitional provisions at the end of a new law can deal with work already done, such as by validating the outcomes under the existing law. Although retrospective provisions in a law are, as a rule, not recommended, they can usually be drafted without risk when they confer a benefit on the public.

One of the most basic decisions to make in a land registration project is whether the system should be **declaratory** (as in a deed system) or **constitutive** (as in a title system)? Much time is spent on this question in the academic texts because it is possibly the most fundamental issue and it used to affect the entire system (in the days before computerisation), although now it is not such a critical decision in terms of administration. It is also the main thing that lawyers learn about at university, so they will want to talk about it. There are also multiple versions of constitutive systems, starting with the distinction between deferred and immediate indefeasibility. The basic issues relating to these questions have been well explored by David Palmer in the FAO Technical Guide Nº 9 pages 49 to 52 (book reference 17 in Annex 1) so will not be repeated here, but his assessment should be carefully considered.

No matter whether you chose declaratory or constitutive, **all systems can work well**, particularly with suitable IT support that allows quick and easy searching.

When either amending the existing registration law or drafting a new one – whether it is declaratory or constitutive – make sure that it covers all the **basic elements** to permit the system to operate in practice. A checklist has been prepared (see FAO Technical Guide Nº 9 page 57 book reference 17 in Annex 1) on what the law should include. The legal review and (if necessary) amendment or drafting process need to ensure that each of these items is addressed adequately, such as 'creation of the registration system', 'appointment of person responsible', 'nature and effect of registration', 'public access to information in the system (subject to privacy concerns)', etc. In this context, 'adequate' does not mean detail – the details can be left to regulations.

It is often a good idea to include only a **minimum in the law** and provide most of the detail in the regulations, particularly in the early stages of developing a new system. This is because many aspects will evolve with time and experience, so flexibility is needed. If the law is too detailed and prescriptive, then it will constrain innovation and best practice. Ultimately, the details can be transferred to the law if necessary.

The enemies of innovation: Professors of Law and others

Registration projects often seek to introduce new ways of doing things – more efficient approaches, better information sharing, more protections and greater access for users. In a small number of cases, completely new concepts are introduced to land laws, such as private ownership of land, and then reflected in the registration law. Thus, open, creative and user-focused ways of thinking are commonly required.

In practice, where a major new law is to be drafted, the task will often be given to lawyers who are well experienced and know what they are doing. This makes sense. However, sometimes, these lawyers do not have these necessary qualities or perspective to embrace the necessary reforms. Rather, they can often be defenders of the existing system and resistant to any substantive change because the existing system is what they know and what they have built their careers on. All proposed changes are met with arguments as to why this or that is impossible and why it goes against the fundamentals of the legal framework or society. For such people, all change is a threat and they see that their task is to minimise these dangerous reforms. The lawyers are not doing this for any improper motive but rather to avoid problems. And it is not just lawyers who can be an impediment to reform. People who have known only one way of doing things can be a roadblock to change.

Experienced and knowledgeable lawyers and specialists have an important role to play, but they should not lead the process. That task belongs to the people who are charged with achieving the overall goal of the reforms. Thus, the multi-disciplinary team that includes lawyers and specialists should be chaired by someone with the overall vision and supported by others who can help realise the reforms.

Commonly Contentious Issues

There are some areas of a registration law that will be contentious. For example, expect heated discussion when it comes time to drafting the provisions dealing with **parcel areas**, including whether such information should even form part of the records. There are commonly discrepancies between the areas shown on legal documents and the areas measured, either larger or smaller, which give rise to arguments between lawyers and surveyors about which is correct, and potential problems with beneficiaries if they see that their area as shown on a map is smaller than what their deed says. It is important to highlight the financial consequences of the area issue to the agency or ministry, and to make it clear that in other countries, the land registry has been found liable to compensate anyone who suffers a loss because the precise area shown in the records was unavailable. Or a new law could suffer a fatal public relations blow if people see that the area of their land has been reduced. For more

discussion on this point, see the World Bank publication Systematic Property Registration: Risks and Remedies, pages 58-60 (book reference 38 in Annex 1).

Privacy and access to information in the register is another contentious and sometimes emotional issue. Each country, and people within countries, have their own views about privacy. Some are horrified that anyone could know what property they own by inspecting the register because financial affairs are regarded as confidential. Consequently, you can face serious resistance to opening up the register for public inspection. There are *numerous* responses to this issue so there is plenty of room to develop a unique solution that reflects the values of the country, while still pursuing the ambition of an informed market and associated economic efficiencies.

Customary and informal rights can be other contentious areas. They commonly present difficulties with not only identifying but also adequately recognising the rights that people understand themselves to have in a registry system that may not be (legally or otherwise) equipped to record such rights, particularly if an outside model is imported without regard to local conditions. The situation is made doubly difficult if the customary and/or informal rights exist over land held by others whose rights are derived from a parallel system, such as government leasing of public land to investors or grants of public land to developers. Custom and informal rights exist around the world and have presented particular practical difficulties in registration projects across Africa, the Pacific, the Americas and Asia. So at least there is a body of knowledge and experience in how to deal with such challenges. For lawyers used to European legal systems, the multitude of rights that can exist in other legal systems can present real conceptual challenges. As noted above, a local lawyer and sociologist can be major assets in such circumstances.

It is important for the lawyers to understand the real life impact of the law that they are drafting. While recording one person's legal rights is important, unless the process is done in a fully informed manner, doing so can deny other people their (often long-held) rights, such as issuing a title to one person when multiple people have rights over the land, trees, wells, pathways and other features. From a gender perspective, women's rights can sometimes be discounted in the face of rights claimed by men. Therefore, at the design stage and in monitoring, it is important for the lawyer to work with at least one sociologist, as well as the local lawyer, to understand the context. Working out how to create or modify the legal framework to adequately protect these rights is not only a legal challenge but a political, ideological and practical one, with numerous interest groups (one both sides) wanting their views to dominate.

Dispute resolution should be a particular focus of the law, with at least one option for people to have their dispute or grievance addressed without the need to go to court. Preferably there would be several, ascending levels of means to resolve disputes, beginning with administrative reviews, through non-judicial mediation and arbitration, and then finally the court system. The law should create the framework for an efficient system of settling the disagreements that invariably occur, primarily in relation to first registration but also for subsequent disputes, particularly boundary disputes. See Section 21 of the VGGT (book reference 9 in Annex 1). A basic understanding of the existing alternate dispute resolution laws and systems and also the court system is required before beginning work. Similarly, it would be useful to talk to those who operate and use the systems to see if they are functioning well. There is no need to create a new system for resolving disputes if an adequate one already exists.

The land sector is well known as a major area for **corruption**, as discussed in Chapter 5. The Transparency International/FAO publication Corruption in the Land Sector (book reference 36 in Annex 1) not only summarises the many ways in which corrupt behaviour can be found in the land sector but also makes suggestions on how to deal with this international phenomenon. One such action involves the improvement of the land governance framework, which is supported by the laws, to introduce greater transparency, accessibility and accountability in the administration of land. The need to promote these three aspects of land administration should be constantly kept in mind when drafting new laws or amendments.

Gender issues will also be contentious if only because almost every official will tell you that there is *no gender inequality* in the country, so stop wasting our time with it! The constitution, they will tell you, declares men and women to be equal, so that is the end of the story! And all laws are drafted in a gender neutral way, so stop trying to mention women! The only way to counter such beliefs is, in the author's experience, with hard data that show women are under-represented as property owners. Key areas of law that are relevant are: the right to own property independently (so that women can own property by themselves); inheritance provisions (to ensure all inherit equally); family law (often noting that both spouses are deemed to own the matrimonial property); divorce laws (to understand how property should be split); and the nexus between civil and family laws and the registration laws (to ensure that women can be recorded as co-owners and that both owners must agree to a sale). If you fail to address gender issues adequately in the law, there are many other avenues, including the regulations, directives and publicity materials, plus operational and educative activities that can be used to re-right the imbalance. It is unrealistic to expect that displacing beliefs that have existed for millennia can be accomplished in a short time, so prepare yourself for an extended challenge, and remember that the challenge is well worth it. Similarly, observations can be made about linguistic, religious or other minorities and also other vulnerable people, including children. There are numerous useful resources available to you, including the FAO Technical Guide N° 1: Governing Land for Women and Men[20] and the Gender in Agriculture Sourcebook.[21]

Transitional provisions, which cover the move from the old system (or law) to the new system (or law), are rarely understood, including by lawyers in many countries. However, in terms of affecting existing rights, the transitional provisions (and consequential provisions) can be the most important. Discussion on how existing rights and obligations are to be carried forward to the new system (or law) should not be left to the last minute when everyone is exhausted. Likewise, you might struggle to convince local lawyers and officials in some countries that you need to specify which old laws are overridden by the new law. Often, they simply say "any law inconsistent with this law is void". This is lazy and creates the confusion down the track that we should always try to avoid.

Listen to the people on the ground and reality check everything

Either from arrogance or insecurity, lawyers can sometimes think that they know it all and that the opinions of others can be ignored because they really don't understand. Maybe all specialists are the same but in the case of lawyers, it can be made worse if lawyers only talk to lawyers and they thus confirm their supposed superiority to everyone else. Using specialist legal terms and Latin expressions only serves to exclude non-lawyers. Finally, lawyers are often under pressure to deliver the law, and do not have the time for broad consultation.

However, no one knows it all, and lawyers would be well served to actively pursue input from those with other types of knowledge. The consultation process should be introduced at a very early stage of drafting so that basic concepts and relationships can be reality tested. Rather than leaving this to the initiative of the lawyers, the consultation should be established in the work plan, and it should be supported by the inclusion of a range of people on a drafting committee. This approach will also improve efficiency as wrong approaches can be quickly and easily dispensed with before the law is finalised. Taking the draft law outside the land registry headquarters to local offices, user groups, bar associations, civil society groups and others is another mechanism for reality checking. Although somewhat time consuming, it can be a more efficient approach than adopting a poorly drafted law and then going through the process of amending it.

The **benefits** of clear, well drafted laws are not just for the public who are subject to the laws. Staff also benefit greatly by having a law that clearly sets out their powers, responsibilities and limits. Even if the

[20] (http://www.fao.org/docrep/017/i3114e/i3114e.pdf
[21] https://openknowledge.worldbankorg/handle/10986/6603

substance of the law does not change the rules to any degree, a clearer, better expressed law gives staff greater confidence, makes it easier to train them, and provides them with an authoritative reference point when giving advice or information to the public (who often do not believe the officials – sometimes with good cause).

Focus on the common cases, not the exceptions, and try to keep it simple

It is easy for lawyers (and other professionals) to make things complicated. The complications are often the interesting bits and what we study in law school. The exceptions are more challenging than the general principle, and lawyers learn where the dividing line exists. If the law were perfectly clear, the role of lawyers would be much diminished. So, there is a bias to make things complicated, which also shows how accomplished the lawyers are. Further, there can be a desire to cover every situation so that no problems will arise. Similarly, it is easy to make the structure and language of the law complicated if the exceptions occupy the primary focus of the drafters, resulting in laws that are difficult (or even impossible) to read and understand.

This approach reverses how most people would deal with a situation. Normally, we come up with a general rule, and then we deal with problems as they arise. So too with laws. The focus should be on the common cases, which are what 99 per cent of the population will experience, and not the one per cent. This is not a radical proposition but it is one that is easy to forget when deep in the process of drafting a law. It should be kept in mind throughout the drafting process.

Regulations and Technical Directives

Drafting of the **regulations** should take place in parallel with the preparation of the law or amendments. This is to ensure that nothing is missed. Often, in discussions about what should appear in the law, some items are considered too minor or technical, but unless they are recorded in a draft regulation they can be lost. Leaving the drafting of regulations until later is also inefficient – it means that the work must be done again, sometimes by a different team. At a minimum, a list of matters that were identified, discussed and (possibly) decided during the drafting of the law should be created. That list can then be used as a guide to the content of the regulations.

It is also a good idea to draft the regulations in parallel with the law because in some legal systems, you will need to specify the topics on which regulations will be drafted. Unless there is a 'hook' in the law on which to hand the regulations, it might not be possible to adopt the regulations you need.

If possible, the law should make allowance for the head of the registration agency to issue **technical directives**. These would be binding on those using the system and provide the details of procedures, formats, document and plan requirements, and other operational or technical matters. The main advantage of such directives is that they can be quickly and easily updated as the procedure or technology changes.

Manual, Publicity, Training

The lawyers, particularly those who prepared the law or amendments, should be involved in the preparation of the **operational manual** and procedures. They should have a good understanding of the law and how some of its provisions interact with other provisions and with other laws. At a minimum, they should review the material produced by others to ensure that it is consistent with the law. They can also review the **publicity material** that is to be issued to update internal and external stakeholders of the changes. Often, the lawyers will be called on to deliver some **training** on the law.

Budgets

The project budget for on-going policy and legal input does not have to be large. Costs include the wages of the lawyers and others who are to be engaged (assuming that the registration agency's employee lawyers are not available). The main costs can be associated with consultation and publicity, such as workshops and events, although even here there are many ways to save money, such as taking a slot at a local bar association meeting or using local news coverage instead of advertising.

In drafting legislation, the lawyers should also have an eye on the registration agency's budget and other resources. There is no use developing a law that is way beyond the scope of the agency to implement, either due to financial constraints or human resources limitations. This point is tied to reality checking the law, as discussed above.

Continual Reform Process

Lawyers should also be involved in the on-going operations of the registration system because the law needs to be subject to continual improvement. They will often be aware of the difficult or newly developing issues because the operations people should be referring such matters for a legal opinion. Where necessary, appropriate amendments to the law can then be drafted.

Major legal reforms take time

Substantial legal reforms, such as a new system of registration, can involve major changes, introducing new concepts and new ways of doing things. Often, it establishes a whole new approach and no one in the jurisdiction really knows what will happen.

The expectation, particularly from management and politicians, is that the new system and law will emerge fully formed and perfect. The leadership wants to promote an image of competence and confidence, so a thoroughly suitable legal basis is essential to them. Technical people will therefore come under pressure to get it right from the start.

Experience has shown that it is very rare for the first version of a new law to be perfect. It is almost impossible for anyone to imagine every combination and permutation of events, how things will operate in practice, and what new demands or changes will arise. Well experienced specialists will have trouble, let alone the novice lawyers who are sometimes assigned the task of drafting the law. So, it should be expected that the first version of the law will need to be changed after one or two years of experience. And another round of changes could be expected in a few more years. In fact, major reforms commonly take three iterations of the law before things settle down to a satisfactory, workable system. This is normal, so don't be surprised, and let the client know that you are comfortable with it. This will ease what will be inevitable and ensure that the final outcome is an improved and more workable law. Going forward, ensuring that there is a policy and legal component in a project will give cover for the development of the needed reforms.

Of course, in reality, a law is never finished because needs and demands are constantly changing. When I worked as a lawyer at the Sydney Land Titles Office, we changed the Real Property Act 1900 almost every year, as new policies or needs emerged or as technology changed. Ensuring the capacity within the registration agency to manage this process can be an important long-term benefit from a project, making the results more sustainable and bringing flexibility and nimbleness to the legal framework so that it better serves the community into the future.

Final Thoughts

How to Engage with the Lawyers

Law is one of the few, perhaps the only, profession in which everyone has an opinion and gives advice to the experts. How many times have I heard, "I am not a lawyer but …" and then been given some legal advice? I have rarely heard someone say "I am not a surveyor/brain surgeon/rocket scientist but …" Many surveyors study one or two courses of land law, which they think equips them to give legal advice (on just about any topic), so perhaps the universities are to blame.

Of course, law (unlike many other areas) regulates how we do things, so everyone should have an opinion. Law is just the vehicle and, even though it has many technical rules that non-lawyers do not know about, the basis is policy, and everyone should have an opinion on policy matters.

The challenge for non-lawyers and non-specialist lawyers is to know when to stop and let the specialist lawyers take over – to know what you do not know! There are numerous rules on drafting laws that only lawyers study and often it is only the specialist legal drafters who know about those rules. There is also usually an internal logic to laws and looking at one article in isolation is risky.

In conclusion, don't say "I am not a lawyer but …". Instead, say "This is an important policy/operational matter and I think …" You will avoid upsetting the lawyers and focus on the real issue, not the way someone has chosen to express it in a law.

Tip to External Reviewers: there is no single best way to do something

It is easy to think that the way we do something is the best and that all other countries should copy us. This is the mistake that almost all new consultants fall into and it is easy to understand why: theirs is the system they know; it (often) works well in their country, and it is all that they can offer to the conversation. And it is true that the systems in countries of consultants are usually pretty good.

However, there is no monopoly on good laws or systems or ways of doing things. There are also cultural, historical and legal factors that are unique to each country and that might justify an alternative way of doing things.

So, when reviewing a system or law, keep in mind that just because it does not look the way others do, it could still be workable and appropriate. The task is to test what the law is saying against the policy objective or process that is required, and then ask whether the law supports or authorises it adequately. This is a mentally challenging task, especially when there are hundreds of articles in a law.

You should only intervene when there is something seriously wrong, even if staying quiet makes you look like you are adding nothing (because there are no serious problems) and thus not assisting as you would like. In the same vein, I have found that a prioritised list of comments, beginning with the most serious issue, is the best way to structure a meeting to discuss a draft law. The readiness of people who have spent long hours drafting a law to listen to (and possibly accept) an outsider's comments is very limited, and it may well be that you only get to the second or third point before you have lost their attention and engagement. Thus, nit-picking is fatal to the process because it takes up time and focuses attention on matters that really do not matter. The challenge is to know what are the really serious issues, and this takes some time and contemplation, time which is often not available due to project budgets and timetables. It would, however, be better to postpone a meeting on discussing a law until you have been through that thought process: you often get only one chance.

Summary

This chapter has looked at some challenges that lawyers will encounter when attempting to develop the legal framework for a more efficient and effective registration system, and it has (hopefully) provided some tips on how to deal with these challenges. In summary:

- Do your due diligence in advance of your first visit to a country. Find, read and assess all the relevant laws; ensure that key laws are properly translated.
- Get a local lawyer and possibly a sociologist to help.
- Consider not only what the laws say but what they don't say – what is missing.
- Start with the constitution (obviously) and see how you can work within its parameters. Then review the other land related laws and also the laws of general application, such as civil law, family, divorce and inheritance laws.
- Take extra care where multiple legal systems have existed.
- In developing the legal framework, try to work with what you have at first, while at the same time working on substantial reforms (if they are necessary) that will take time to be considered and adopted.
- Make sure a multi-disciplinary team works with the lawyers and that policy-makers understand that they have to make the policy decisions and do so in a detailed manner. Try to exclude those who cannot accept that change is a good thing.
- There are plenty of materials around on how to deal with legal issues and draft laws well. You just need to look for them.
- There will be many contentious topics, such as parcel area discrepancies, dispute resolution, corruption opportunities, gender issues, customary and/or informal rights. So, expect many arguments and discussions, which are often time-consuming.
- Don't forget the transitional and consequential provisions in a law.
- Reality check the draft with people who know how the system works or should work. And focus on the more common cases, not the unusual or unique cases.
- Try to draft the regulations in parallel with the new law or amendments so that nothing is missed, and you do not lose valuable time.
- Expect up to three iterations of the law to be adopted before it takes a final form.
- There is no single best way to do something, so have an open mind.

Chapter 7 Boundaries and the Cadastral Survey

Gavin Adlington

Introduction

As mentioned in Chapter 1, boundaries, boundary markers and surveys have been necessary for identifying properties and their ownership for centuries. *The primary purpose of describing or surveying a boundary is so that the location of that boundary can be found when someone is unsure of the extent of the land (such as a new owner) or there is a dispute.* From earliest days, deeds that record transfers of ownership always included a description. This is sometimes in simple terms such as the 'field at Anathoth' referenced in Chapter 1, and sometimes by 'metes and bounds', where the 'metes' specify the distance and direction of a boundary and the 'bounds' describe the boundary itself or the abuttal with someone else (e.g. running along the main road or adjacent to the field owned by Mr X). More recently, reference to a recorded or registered plan is more likely, with reference to markers that exist at corner points and/or coordinates of the corner points.

Boundaries do change with time. Stream or river routes change, and roads or paths get moved. Hedges grow and expand in size, and treelines can move as old trees die and new ones sprout. Sometimes a boundary feature is moved (often unintentionally) when a fence is replaced, or the original markers get displaced or lost, and natural development occurs that effectively moves the boundary as was once known to a new place. Sometimes a fence erected for other purposes, such as keeping animals in an enclosure, becomes a boundary unintentionally. In some instances, this is deliberate. I recall my own law lecturer at college telling me that he had moved his fence several metres into a field next door. He then waited the 12 years required to obtain a prescriptive right (through adverse possession) and then claimed that land as his own. I once set a question for a survey licensing exam that said, "A boundary location is only fixed for 12 years. Discuss." No-one chose to answer that question though.

In Malawi, as in the UK, they had a 12-year prescription period, so the land within any commonly accepted boundary location that had not been challenged and was occupied peacefully in an uninterrupted manner could be acquired through adverse possession. When undertaking a survey, the cadastral surveyor should compare the existing possession and usage with the documentation to see if a prescriptive right might exist and advise the owner accordingly. The laws for claiming prescriptive rights vary considerably by country.

When reviewing this document, Tony Burns (a very well-known and experienced land surveyor), suggested that the purpose of describing or surveying a boundary might be better expressed as *".. to provide clarity over the land that a set of rights, responsibilities and restrictions apply to".* In the case of disputes, the surveyed land and measurements are just one piece of evidence. It varies by country of course, but priority is usually given to what was publicly accepted. If the previous owner can be found, and he or she clearly describes or points out what was transferred, then this is clear evidence. If neighbours have accepted the position of a boundary for many years then this is also clear evidence. Next in priority come the markers that show the boundary, including the walls, fences, hedges or pathways or the monuments that have always been accepted by the local population. Then follow descriptions in the deeds, and, finally, the details on the plans and the coordinates are taken into account. In fact, it is all just evidence that a judge will consider. However, it seems that the intention of the original parties, common usage and public acceptance as understood by physical features on the ground are the most critical factors. In New South Wales, their standard text, 'Legal Aspects of Boundary Surveying as Apply in New South Wales' by Hallman, states in section 13.13:

> The courts have established precedents granting priorities of weight where two or more of the following boundary features present conflicting evidence in the hearing of the dispute. These in order of priority:

1. Natural boundaries
2. Monumented lines
3. Old occupations, long undisputed
4. Abuttals
5. Statements of length, bearing or direction.

What are you sitting on?
As a novice surveyor, I recall conducting a field survey for a new property that abutted onto a very large piece of land (over a hundred hectares) for which the survey had been done many years before. I used all my technical skills, because the old survey used 'southings and westings' (we were in the Southern Hemisphere) instead of eastings and northings that were later used with a different coordinate system. It was unlikely that corrections for curvature of the earth or reductions to sea level had been taken into account when the original survey was concluded. I took all this into account in my complex calculations and derived the position where the key monument should be. The calculations were made in the field shortly after completing my survey. I calculated the position of the monument and pointed out the spot where my team should dig to see if the monument was still there. They didn't move. So, I got up and pointed to the exact spot to dig and said 'Just here. Dig about half a metre down just in case it got buried', and then went and sat down again. Again, this experienced crew did not move. They just looked at me with confusion, then one said, 'Excuse me sir, what are you sitting on?' and sure enough there was a large brick monument. Monuments were usually concrete and quite small, but this must have been how they made boundary markers in those earlier days. At least my calculations and survey brought me to within about 5 metres of the old mark, so I should have been satisfied! The brick monument took precedence over the very precise coordinates that I had just derived.

Boundary Survey for a Registration System

There are different specific instances in which boundary surveys are required, and they often require different methodologies for the survey:

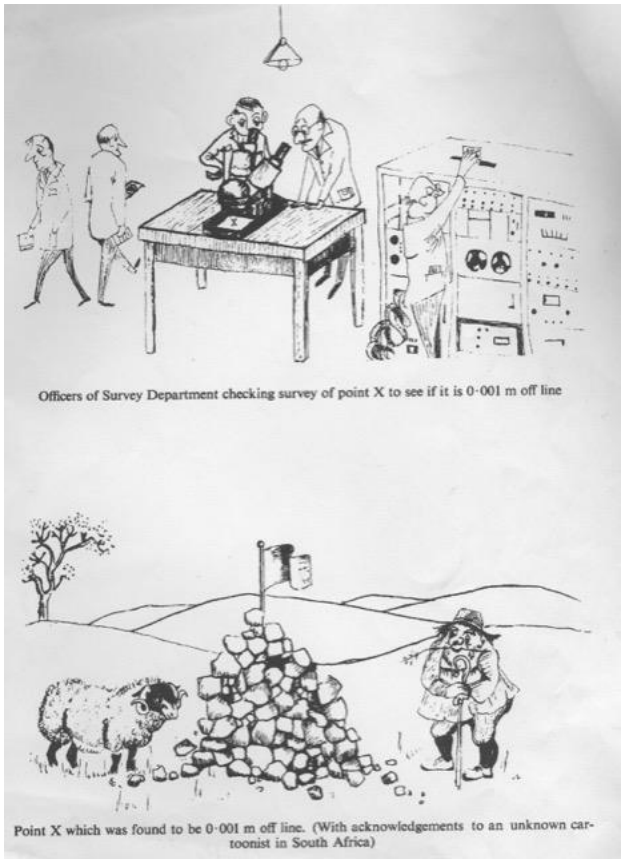
(i) On-going changes in an established system. Most countries already have established systems that function to some extent. Even in the most under-developed country, there is some system operating in urban areas or for major farms because historically, people have obtained legal documents to their rights and some description of the property and its boundaries are included. Whenever a piece of land is sold, divided, consolidated with another plot or assigned by government, a new survey will need to be done. It is likely that other previously surveyed plots will exist nearby and the location of these will need to be checked to make sure that the new plots do not overlap with the pre-existing plots. (If the property involves the sale of the whole piece of land it is usually optional for the buyer to have a survey done and they generally would not if the boundaries are clearly seen when inspecting the property.) In many countries only a government surveyor or a person licensed to carry out surveys are permitted to do so.

(ii) Registration for the first time. If a new system is being put in place, especially if a new Register of Title is being introduced and properties are to be registered for the first time, then it is normal for a (cadastral) index map to be produced. This will provide a clear mapping of every parcel of land to ensure that it is uniquely defined and identified with a unique number[22]. There should be no overlaps or unexplained gaps between

[22] The unique identification number for parcels or property units is required so that different systems in a national spatial data infrastructure have a common standard, but they have always been required to ensure that it is absolutely clear what is being sold, leased, mortgaged, etc. and thus different owners, etc. are not recorded for the

parcels. The parcel of land should also be uniquely linked with one legal record that describes the legal rights to that property. In this instance, there are basically two methodologies:

a. Sporadic registration. Properties are registered for the first time on a request basis or when a transaction occurs. Each survey is done as and when needed and then included within the register. The survey is usually paid for by the client and is completed by a government or a licensed surveyor as noted in (i) above.



Peter Dale (one of the reviewers for this book) provided this cartoon that he included in an article for the Survey Review in about 1974/75. It shows how illogical it can be to try to get very precise and highly accurate surveys for situations that do not require it. It illustrates how the on-going problem of making sure that surveys are 'fit for purpose' has been an issue for a very long time.
{The top cartoon shows the survey specialists checking why there is a discrepancy of a millimetre in measurement for the position of a boundary marker, while the marker itself, shown below, does not require that level of precision.}

Figure 6: Cartoons on Boundary Marker Precisions (Survey Review 1974/75)

b. Systematic registration of all land in a specified area. In this instance, it is most common that a set geographical area is declared to be subject to registration (usually under a law that specifies how this is to be done) and all properties in that location are to be registered. It requires public support and a program to systematically go through every deed, legal record and plan for that location and to survey all properties to be included in a new complete cadastral index map. It is a very different operation from the examination or survey of a single (or a few) properties as described in (i) and (ii)a

same parcel or property unit. As such they are a fundamental requirement. The format of the number varies substantially and is dealt with in detail on pages 355-358 in book reference 7 in Annex 1. In practice, having long numbers or sequences of numbers and letters or geocodes in the identification number can be confusing and are rarely understood by the public. Complex combinations also increase the chance of mistakes when the number is transcribed by hand. In the old paper-based systems a logical structure for the parcel identifier was very important, but I have increasingly seen computer-generated sequential numbers used in newly developed systems, which could be randomly generated. For accessing the database or for the enquiries, members of the public will rarely refer to the unique parcel identifier or registration certificate number. A simple address, owner's name, postcode, etc. are more user friendly for searching to find a record. Also, I have often seen registration office staff getting very annoyed when they have to use long and complex unique parcel identifiers because of the frequency with which they are mistyped into the system.

above because thousands of properties may need to be included in the process *every day*. For this reason, different methods must be used to undertake the survey using the 'fit-for-purpose' methods outlined in book reference 16 and 17 in Annex 1. In fact, it is quite impossible to survey or examine the legal documents for the properties in the same way as used for (i) and (ii)a because of the scale of the work and the costs that might be involved. The only place that I know of where the survey for systematic registration was done using the same methods that might be used for individual surveys is in the Seychelles, where the survey of the 12 000 properties involved took five years in the early 1980's. However, they had to register every property with a 'provisional' title because of the time and difficulty that would have been involved in accessing and checking all the legal documents.[23] The registrar would change each provisional title to full title once a transaction was approved for registration after the parties had brought in their legal documents for checking. The book reference 16 of Annex 1 (Fit-For-Purpose Land Administration) describes how systematic registration was done for Rwanda, Ethiopia and Kyrgyzstan, primarily using aerial photography methods and simple ground checking. In fact, the same (or very similar) methodology has been utilised for most mass registration programs that were a success since the 1960's. This included almost the entire post-socialist block of Eastern Europe and Central Asia (including the former Soviet Union) covering some 300 to 400 million properties in a period of about 20 years using 'fit for purpose' methodologies.

When undertaking any of the work above, it is usually done or overseen by a government or licensed surveyor. As the 'systematic registration' approach referred to above requires hundreds, or even thousands, of field workers doing this work, the people actually working in the field would be trained for the purpose in a few weeks and then sent out to do the work. The government or licensed surveyor would then just oversee its completion.

It is often thought that the survey side of a systematic registration project is the most difficult, time consuming and expensive part. In fact, this is not usually true. Time is taken to publicise, check the legal documents and the 'root of title' together with any encumbrances (such as mortgages and rights of way). Time is also required to visit every property to make sure that the person being registered is the true legal owner and agrees that the rights and the locations of the boundaries (often demarcating them with a marker or paint when unclear) are correct. The survey is the easy part, unless the methods for doing the survey are badly chosen – and not 'fit for purpose'.

It should also be noted that the accuracies and methods required in more rural areas or in high density informal areas may be different from those required in locations with more expensive real estate. In my experiences in Malawi in the 1970's to 1980's, rural surveys for systematic registration were based on survey traverses that needed an accuracy of 1:1000 and positional accuracy of one metre. In high density informal areas, we used new orthophotography and took offsets from the buildings themselves to graphically mark the parcel boundaries on the orthophotomap. In Thailand, the largest scale cadastral map in rural areas is typically 1:4000 scale line-maps and most boundaries have traditionally been charted under regulations to plus and minus one millimetre at map-scale (plus and minus four metres on the ground). The Thais do have provision for the use of total stations and the preparation of survey plans – first order surveys – but most boundaries are charted graphically – second order surveys. The Thais place corner marks and the locations of corner marks are decided by agreement of the landowners, provided they do not encroach on public land. Where a mark needs to be replaced, the prime process is through the agreement of the landowners on the position for the relocation of the mark – not the survey records, which are only a reference.[24]

[23] When reviewing this book Stig Enemark referred to another case in Bhutan, where the whole country was surveyed between 2009 and 2012 using GPS control points and total stations. About 160 000 households were registered.

[24] Information on Thailand provided by Tony Burns when reviewing this book.

Licensed Cadastral Surveyors – Why do You Need Them?

In the 21st century surveying is so simple that you often wonder why countries require special qualifications and issue licences before a person is allowed to practise as a surveyor. With the right equipment you can measure a corner point of a property in a few seconds to within a few centimetres of accuracy – and you can train a moderately intelligent person to do that in a day.

A Brief History of Survey Measurement

Of course, it has not always been like that. There have been various 'revolutions' in survey work that have gradually made the work faster and easier. The very early work would have just used ropes of a certain length, wooden poles and rough angle measurements. However, if we move rapidly forward to the 18th century, we see the beginning of more sophisticated equipment and the use of coordinate systems when countries were building national cadastres and more accurate survey measurements were being made. This required the use of theodolites to accurately measure angles, special tapes to measure distances for 'controlling' surveys and various other pieces of equipment like plane tables, compasses, chains, optical measurements using vertical staves and the like. A lot was not standard, for example a 'rod' (straight piece of wood used to measure field boundaries) might be a certain length in one municipality, but a different length in another. The survey methods and equipment used were really designed to give a rough measurement so that the physical feature marking a boundary (line of trees, fence, stream, rock, brick pillar, etc.) could be found. If you got to within a few metres of the monument (or 100 metres in more rural very large properties) from your survey, then that would be good enough. It was the monument at the corner of the property that was key. As time went by measurements became more accurate and surveyors began to use the position of the stars or sun to calculate the latitude and longitude of a point and took greater care to survey more accurately. It was all quite complex and needed well-educated professionals to do this work.

Figure 7: Surveying team in France, 1908, using theodolites for fixing a control point and plane tables for recording topography and parcel boundaries.

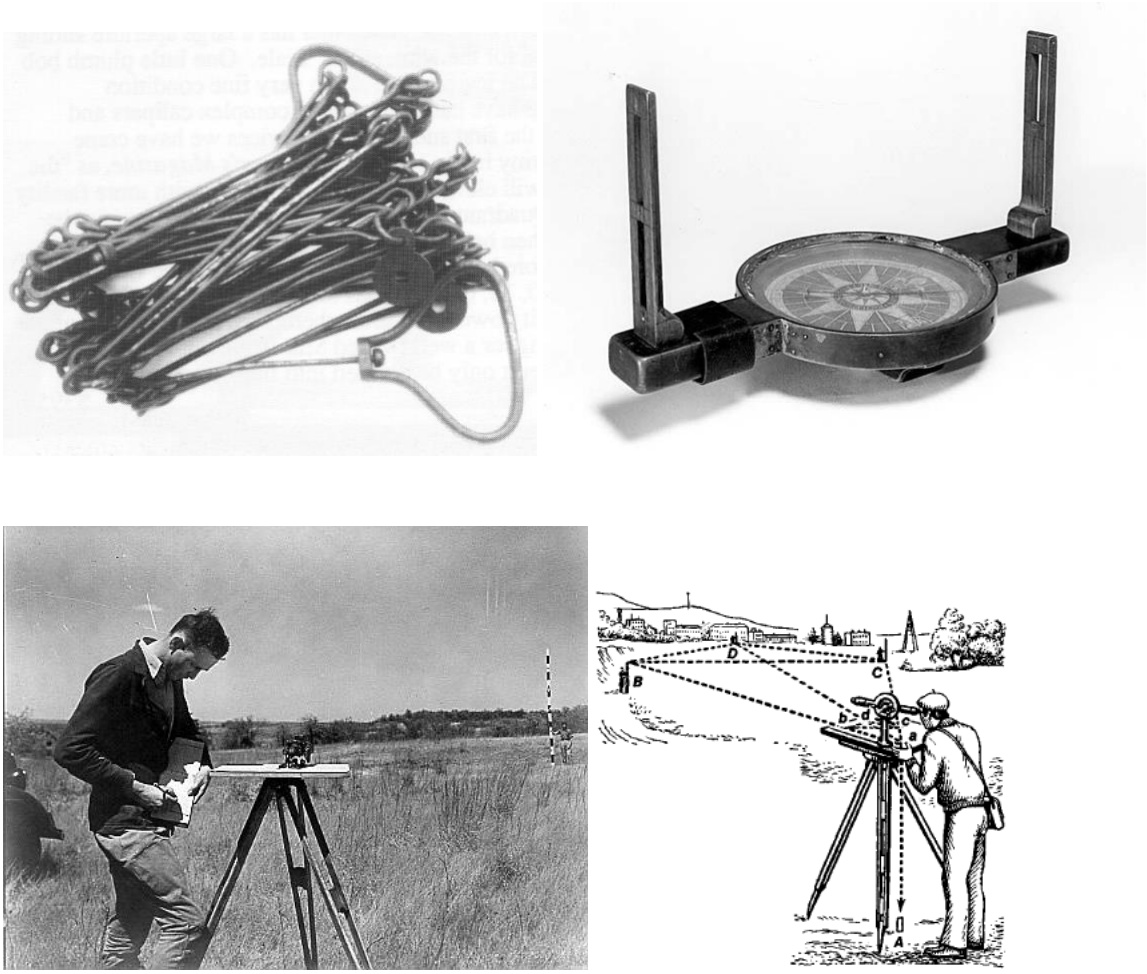


Figure 8: Chain and compass for surveying (above) and plane tables (below) – very common through until late 1960's

Figure 9: Sajen A Frame

Sajen A frame. Commonly used in rural areas. The base is 2 metres wide and the handle at the top allows rapid measurements of 2 metres at a time. It folds down into a long stick that can easily be carried.

It is really when you get into the middle of the 20th century that you see equipment being used that is accurate enough to relocate a boundary with any degree of accuracy. National coordinate systems became more common and equipment was more accurate. Many surveyors will remember the times when there was a need to locate a boundary and the owners regarded you as a magician because you went out to the field and located an old concrete or stone marker or just an iron rod buried in the ground, in a place where neighbours had been arguing about where a new fence must go. Very often it was the case that you would say, 'Just clear that undergrowth over there and there should be a concrete marker with CP2 (or something) written on it.' And sure enough, there it would be. Then you would go and find CP1, CP3 and CP4 in the same way.

Revolutions in Surveying Methodologies

Aerial Photography

The first big revolution came when it was apparent that aerial photography could be used to directly locate and measure boundaries quite accurately. In the UK, property boundaries had been marked on topographic maps since 1897, but it was not until after 1950 that the Ordnance Survey GB began using aerial photography and the science of photogrammetry to produce the topographic maps as a standard procedure and for updates. As far as I know, the first instance of using aerial photography to undertake systematic registration of title was in Kenya in the 1960's. Owners were required to plant hedges (and the government even had a hedge inspection team to make sure that the hedges were planted and watered) so that aerial photography could be flown and the boundaries plotted from the imagery. Malawi in the 1970's and other countries, including Thailand in the 1980s, used similar photogrammetric methods for their programs. For systematic registration, it became normal because it was far cheaper and faster than measuring every property on the ground. Aerial imagery has a very important and useful function in quality control – it is immediately clear and apparent by overlaying a cadastral plan on a photomap if the plan is incorrect. If the boundary lines drawn on the plan do not match the physical location of the property on the ground as visible on the photomap, then they are probably wrong!

Until very recently, it was too expensive and slow to use photogrammetric methods for recording property boundaries unless many thousands of properties were being surveyed at the same time. You still needed very experienced and professional surveyors to oversee this work. It should be noted that photogrammetric methods are not always the best answer. In the Caribbean in the late 1960's through to the mid-1980's, major programs for systematic registration primarily used compasses and tape measures to measure properties. (As in Turks and Caicos, British Virgin Isles, Anguilla, Antigua, St. Lucia, Cayman Isles.) The vegetation is so thick in these tropical countries that images from the air do not help. When I visited St. Lucia in 1991, they described how they had prepared their index maps from compass and tape measurements without destroying the banana groves that covered the countryside. They had differentiated on their index maps between boundaries that they were sure about because owners had been present and the 'provisional' boundaries produced when the owners could not be present and they had to estimate where they thought the boundary was located. The provisional boundaries were drawn using a dashed line. Once a new survey was completed, they would just erase the dashed line and replace it with a solid line. They had no problems with the boundaries produced in this way.

Electromagnetic Distance Measurement and the Total Station

The second revolution came with Electronic Distance Measurement (EDM) that enabled long distances to be measured using infrared or microwave technology. The first equipment came out in the late 1950's, but it was still very expensive, specialised equipment well into the 1970's, and it required a separate theodolite to measure angles. It made survey work much quicker and much more accurate. It also coincided with a time in which national coordinate systems were now common and there would be

a requirement for all surveys to be linked to that system. More powerful computing systems (really just high-performance calculators) came out around the same time and this drastically reduced the time it took to do all the calculations necessary to complete surveys. The *total station,* which combined in one machine the angle measurements, distance measurements and more computing power, came into common usage in the 1980s. This made survey work even quicker. However, it was still very complex and required people with very good technical skills to utilise the equipment.

The Wild T2 Universal Theodolite was the most common theodolite for angle measurement from 1921 through to 1996. It would be accompanied by a steel tape for measuring distances or, from the 1960's onwards, electronic distance measurement equipment.

Figure 10: Wild T2 Universal Theodolite (Pictures from the Archive of the Wild Heerbrugg AG, apart from the tape which was found from general Internet search)

Figure 11:Variety of EDM Equipment

Figure 12: Leica Total Station GEFOS and Leica Viva GS 14 GNSS receiver (pictures from Internet search)

GPS and Satellite Based Positioning Systems

The third revolution came with Global Navigation Satellite Systems (GNSS), which most people know as GPS (Global Positioning System) - although that is the name of the system put in place by the USA. The Russians have an equivalent known as GLONASS, China has BeiDou and the European Union has Galileo. Most equipment uses more than one of these systems to get the coordinates of a point. The equipment was initially very expensive and required two sets; one to be established on a known base station and the other to be used as a rover, linking to the base station. GPS really only came into full use after President Clinton opened the system fully for public use (without degrading the signals) in 2000. Prior to this, the signals were deliberately degraded for public use and the accurate signals could only be utilised by the military. Since then the cost of GNSS systems have been gradually reducing and they are being more frequently used. Continuously Operating Reference Networks have been established so that a central provider (often the government) provides the known base station information country-wide and companies or individual surveyors only need to utilise rovers to get real time survey coordinates. The big advantage is that you no longer have to have triangulation pillars on hill tops, correct measurements for slopes or reduction to sea level, or to make lots of complex calculations to ensure that resultant coordinates are correct. It is a black box technology that basically just gives you an answer quickly. The actual equipment needed for survey grade measurements (accuracy of a few centimetres) is very different to what you will get from mobile phones and hand-held GPS (accuracy of maybe 3-20 metres depending on which part of the world you might be in), but this is changing rapidly as this equipment improves. Measurements do not really need highly specialised people anymore.

21st Century Technology

The fourth revolution uses drones to undertake aerial surveys of small areas quickly and with great accuracy and new LiDAR systems that generate accurate three-dimensional images from equipment that can be mounted on a helicopter, car or drone. High resolution satellite imagery provides aerial images that are precise enough for locating boundaries with sufficient accuracy for even high value urban areas, and often this can be purchased cheaply from a library of records or (more expensively)

ordered on-line. The software prints the map, including all boundary features that were visible, without much user interface and employs automated recognition software that can recognise boundaries, buildings and many other features.

Watch this space! Mobile phones are becoming more sophisticated and accurate so that anyone will be able to walk to a point and get an accurate coordinate (not quite there yet). More new technology (that we have not yet even dreamt about) is likely to come soon.

So, Why do We Still Need Licensed Surveyors?

The answer is that we do, but maybe not so many, because the actual measurements can now be done by people with minimal training. The licensed surveyor can oversee a larger number of assistants that actually do the measuring. However, the licensed surveyor still has some very important roles:

i. The property descriptions in deeds and cadastral maps could have been done by any of the methods referred to above at various times in history, and it is important to appreciate the origin of the surveys so that decisions about where the boundaries are, or should be, can be made by understanding the context. (See my example above about 'What are you sitting on?' and the one below 'He's dropped a chain'.)

ii. New surveys will often abut, and maybe overlap, with old surveys. It is very common that the original deed or title was issued many years ago and subdivisions have been done since then. Tracing the history of title and the subdivisions and whether current usage fits with older documentation may create issues that need to be solved through agreement and following legislation. Principles of mediation may be required and there are set ways of creating new agreements about boundary locations between parties. The licensed surveyor would normally have to pass examinations showing their understanding of land laws and to have been apprenticed to a licensed surveyor for a couple of years. So, they should have learned how to deal with disputing neighbours, at least to some extent. Land is a very valuable asset and mistakes can be very costly to correct.

> He's dropped a chain!
> I recall a case when a dispute between parties concerning a triangular piece of land had to be adjudicated. Both sides had deeds, one much newer than the other, and both were based on surveys carried out by licensed surveyors. There was no apparent problem with the surveys. The problem was on the ground where neighbours disagreed. One side of the disputed triangle was about 20 metres in length and another side had a long row of mature trees running along its length. I immediately thought the line of trees was probably the boundary, which meant that the older survey was probably wrong because it did not match the current location of the tree line and that the newer survey just assumed the old one was correct and adopted the incorrect line. Then, I remembered that a 'chain' used in many old survey methods was 66 feet long, which is about 20.1 metres. The original surveyor must have made a simple mistake. Instead of recording a distance of (say) 6 chains and 37 links, he recorded 5 chains and 37 links probably, because he miscounted the number of times that he had laid the chain out. The new surveyor just adopted the boundary as shown on the neighbour's earlier plan. There were no old survey records to check, but enquiries from the person who originally sold the land (who was now in his eighties) confirmed that indeed the row of trees was the correct boundary when he sold the land, and the new surveyors who were now representing both parties to the dispute agreed that the original surveyor from long ago must have "dropped a chain".

iii. The modern licensed surveyor is often also required to ensure that properties conform to town planning legislation and planning layouts, and to deal with other professionals, such as

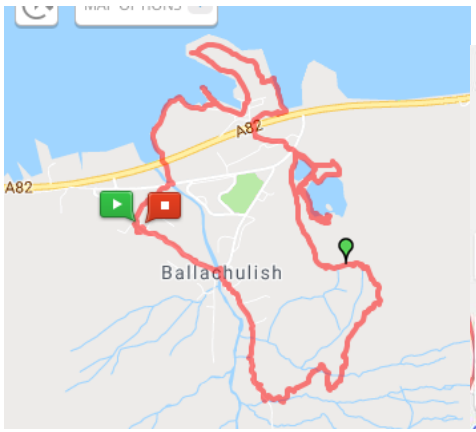
engineers, putting in roads (that have to meet road reserve criteria) or pipelines, understand the wayleaves[25] for utilities, easements (such as servitudes) and licenses that are relevant, and then to ensure that the boundaries and records reflect all these things.

iv. The licensed land surveyor understands 'errors' and where they come from. There are always errors in survey work. There can be gross errors (mistakes), random errors (small errors from normal survey work and equipment used that may be positive or negative and effectively cancel each other out over the survey work period) and systematic errors (errors, usually in the equipment, that are always in the same 'direction'.) A very simple example of a systematic error is if a tape measure has been distorted through long usage and has stretched. Then every measurement would be recorded as too short. Surveys can never be perfect and systematic errors always exist because of something in the equipment or surroundings. One surveyor I was responsible for had completed his survey work, but the work turned out to be "too" accurate, with over 1:1 000 000 accuracy (i.e. one centimetre error over a distance of 10 kilometres, when 1:10 000 was more likely and to be expected because systematic errors always exist). I checked and found an error in a measurement (a mistake) that had compensated for the accumulated systematic errors that were normal.

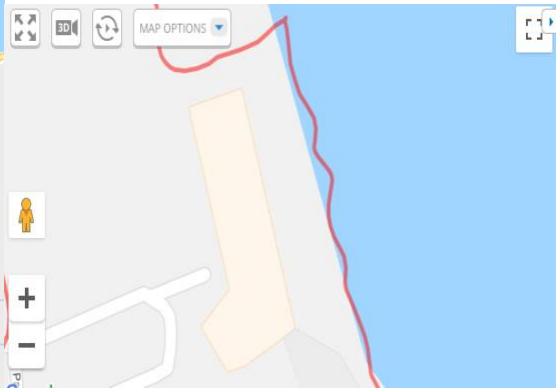
Can I walk on water?

Another example of a systematic error is when I use my mobile phone to track the distance I walk. Every time a signal comes in on my GPS it may be 3-7 metres 'out'. This gives the impression in the App that you are drunk, as if you can't walk in a straight line. (You only see this if you expand the image to a bigger scale.) It can be amusing when walking beside a river as the number of times you apparently 'walk on water' is amazing. I find that the App always shows that I walked almost 10 per cent further than I really did walk. This has implications if using simple mobile phones or handheld GPS for measuring boundaries. It is fine to do so, especially for large parcels in lower value areas, but it is important to know what you get in terms of accuracy. Such methods are suitable for a record that can be used to relocate a boundary on the ground (like a path, tree line or stream) but less useful for locating an exact position in time of dispute. Having said this, the speed at which such simple and inexpensive equipment is improving in terms of accuracy is likely to make such methods as just 'walking around' a boundary with a mobile phone much more accurate and more common over the next few years.

The picture of the whole 'parcel'



The picture of one boundary expanded. It should be a straight line along the lakeside wall.



[25] Wayleave – a right of way granted by a landowner, generally in exchange for payment and typically for purposes such as the erection of telegraph wires or laying of pipes.

v. As a follow on to the above, there have been many new innovations in surveying methods over the years – but they often have limitations. Licensed surveyors should know what these limitations are. For example, when GPS equipment began to be used some twenty years ago, I came across people using hand-held GPS to record boundaries, when this equipment could only record a point to 20 meters (they are better now, and 3 metres is usually possible). However, they were using it for boundaries that were only ten metres wide and did not know that this was not appropriate. Google Maps and other satellite based imagery is very useful for recording boundaries, but it must be recognised that some do not rectify for errors from slope or sea level, unless specific additional corrections (or rectification) is done. If the satellite image has large value spatial resolution[26] then accuracy may not be sufficient, but the expert needs to know this. There are now global digital elevation models that can be used to rectify images, but you need to know their limitations and what you get in terms of precision and accuracy. There is nothing wrong with using any form of technology or the use of approximate boundaries, but it is important to know what you get as a result and what reliance you can place upon the end result.

vi. Licensed surveyors have to have integrity and they can often identify when something irregular has occurred. Often you just know that something is wrong because it looks wrong. In one case, I checked a simple survey that caused me concern and I discovered that the surveyor made up all the measurements in his car because it was raining; he did not want to get wet. In another case, a surveyor had to undertake a survey of a large site in rough terrain that would have required hacking through a great deal of underbrush to do the necessary measurements. He completed his survey, had the survey approved by the Surveyor General and all was in order. Some weeks later another surveyor had to go to a nearby site and thought he would use the same survey lines that were recorded in this previous survey – so that he did not also have to hack through the undergrowth as well. When he got there, he found no evidence of any cut lines or that any survey work had been done. The previous surveyor had fabricated all his observations, measurements and calculations in order to avoid an unpleasant time in the bush. His license was rescinded.

Licensed surveyors are effectively now managers rather than measurers. Apart from ensuring that cadastral survey work meets the legal and functional requirements, they are increasingly involved in wider discussions. This is especially true as countries develop their spatial data infrastructure and integrate the information and services provided by other agencies. For example, if aerial photography is being flown for a systematic registration of title program, then the ministry of agriculture or water department or disaster risk management unit should be included in discussions as the specifications are developed, so that the funds expended can be shared and provide a greater benefit. Town planners and local government authorities would be other key users. Also, there can be implications for methods used during systematic registration. For example, in Kenya the idea of planting hedges and taking aerial photographs of the landscape was good from a surveying perspective, but there was a lot of criticism about how it changed the landscape and reduced the farmland available and also the flexibility of land use that had previously been possible. In the central region of Malawi we used *dambo* edges as boundaries (a dambo is a wide valley comprised of wetlands that often flooded during the rainy season), but the location of the edge of a dambo could be indistinct on the ground by tens of metres. In more recent times this land has become very valuable for market gardening and grazing and that has created tensions between the community and the owners of the adjoining land. The surveyor needs to take these issues into account too – looking to the future as well as the social and practical implications of the work they do.

[26] Spatial resolution refers to the size of the smallest feature that can be detected by a satellite sensor or displayed on a satellite image. It is usually presented as a single value representing the length of one side of a square. The 0.3 metre resolution of Worldview 4 images may be usable in locations where the 5 metre resolution in the older SPOT or RAPIDEYE satellite images are not.

Fixed and General Boundaries

In much of the literature about boundaries, the terms 'fixed' and 'general' boundaries are often used. There are many definitions about the terms, but the 'general' boundary term came about in 1875 in England and Wales (as mentioned in Chapter 1), because trying to 'fix' boundaries created disputes where none previously existed. Neighbours were asked to specify exactly where their boundary was and then it was discovered, for example, that one neighbour thought that the centre of the hedge was the boundary, while the other thought all of the hedge was his or hers. For centuries people had been happy with their hedge, wall or fence, and now it seemed that a great deal of money was being spent to 'fix' boundaries, only to make matters worse and clog the courts with disputes. Some Commonwealth countries have adopted the term in their laws in order to distinguish between physical boundaries that were adopted in the plans prepared (usually in order to cut the costs and time for recording) and boundaries that had been measured more precisely by ground survey and agreed with neighbours. In many countries the difference between being able to register a property and not being able to register a property is the ability to be able to use the 'general boundary' concept. Book reference 16 on Fit-for-Purpose Land Administration in Annex 1 deals with this issue in much more detail.

The terms 'fixed' and 'general' boundaries are usually misunderstood, with the assumption that a fixed boundary is more accurate than a general boundary. It is not necessarily so. It is more *precisely* specified, but not necessarily more accurate. So, for example, the north side of a wall is agreed by both neighbours to be the actual thin line that is their boundary; they agree, sign the necessary document and register the fact. They now know precisely where the boundary is, but it is no more accurately measured than the original 'general' boundary – the wall. There is also a misconception that in some way a fixed boundary is better than a general boundary. Again, not true. I recently came across a situation where the boundaries of every parcel in a large development were 'fixed' with accurate coordinates and long steel rods placed to mark the corner points, and the rods were banged into the ground and flush with the ground. The survey was examined and approved by the Surveyor General. Unfortunately, no one other than the surveyor that placed them knew where these rods were, and the developments went ahead without taking any notice of the fixed boundaries. The de facto boundaries now bear little relationship to the survey plans, town plans or deeds.

A general boundary is usually a feature like a wall or hedge or fence or stream. It may not be known which side of the feature that the boundary lies (i.e. to the left side of the wall, the centre of the wall or the right side of the wall), but it doesn't really matter, and no one can miss where the wall is or build a house across it without someone stopping them. For most cases, the general boundary is perfectly adequate. The Land Registry of England and Wales estimated that as of June 2, 2014 there were 23 872 035 registered titles; only 1176 include an entry in respect of determined or fixed boundaries. (Data from an enquiry I made to the Land Registry at that time.) This implies that only five in every 100 000 properties have needed to 'fix' *one* of their boundaries since the year 1875 and therefore brings into question the economics of requiring every boundary to be 'fixed'.

In most of the world there is no such concept as a fixed boundary or a general boundary. They are just 'boundaries' that are described in different ways. An Austrian colleague advised me that they retain four levels of accuracy in their cadastre so that they know how reliable the survey work is. Level 1 covers the graphical record produced long ago either from the original surveys or updates when they first conducted the surveys over a hundred years ago. Level 2 refers to the records where the older surveys and graphical works have been transformed to fit the current national coordinates and cadastre system. Level 3 includes properties that have actual measurements based on coordinates. Level 4 includes properties that are considered legally and technically accurate with the owners' agreement. Levels 3 and 4 are often in high value or urban areas, but still almost 50 per cent of properties in Austria are recorded as Level 1 or 2. In this example only level 4 is really 'fixed', because it has been accurately surveyed and the owners have agreed to the boundary and this has then been documented. However, when discussing with a German colleague once, we agreed that in fact it would not be *really* fixed until a second surveyor came along later to locate the boundary markers that had been previously placed and

the new survey agreed with the old one. This is because humans make mistakes. So, if you really want (almost) certainty you will need to take this second confirmatory step. Maybe, then, the 'guaranteed area' referred to in Chapter 6 can become a reality.

Summary

This chapter focuses on the purpose of surveying a boundary, which is primarily to relocate a property boundary when there is doubt about its location or there is a dispute. If the boundary is physical, such as a wall, fence, stream, tree line or hedge, it is usually only necessary to be able to relocate that feature. If the neighbours are satisfied about the location of the boundary then it is counterproductive to start telling them that the boundary is elsewhere or that they must specify precisely where that boundary lies – to the centimetre. In fact, most courts around the world consider the commonly accepted locations and evidence from the community as more important than coordinates or lines found on drawings and plans.

It needs to be noted that the surveying methods that can be used for 'one off' surveys for registering one land parcel, which is often paid for by the customer, is a very different proposition to having to measure millions of properties in a mass systematic registration program that is funded (usually) by the government. You cannot use the same methodology because of time and cost constraints, so different methodologies have to be used.

There have been four revolutions in the way to measure property boundaries. The original simple methods were replaced with more accurate and precise methods using equipment that was invented in the early nineteenth century and gradually improved over the next 100 years. These were replaced for mass systematic survey by aerial photography for registration purposes after the Second World War, and then by EDM and angle measurement devices for individual surveys in the late 20th century. The use of GNSS systems has been prevalent in the 21st century for both systematic and sporadic registration programs and the latest technology using drones and LiDAR is coming into much greater use as we write. High resolution satellite imagery is now readily available and provides adequate information on boundaries for most purposes. The next phase is likely to be simply 'walking the boundary' with mobile phones that have accurate GNSS systems and high resolution imagery built within them.

Now that surveying work is so simple, the question arises, *why do we need licensed surveyors at all?* It is more because of history and the fact that old surveys used old technology, and it is necessary to have someone who can understand this and how errors occur. The licensed surveyor should also understand the law, appreciate how to adhere to town plans and other legal requirements when preparing plans showing property boundaries and any relevant easements. Their role to measure can be delegated to lower grade technicians, but their overall tasks dealing with disputes and ensuring that legal requirements are met cannot. We may need far fewer of them, but as yet surveyors are still required.

Chapter 8 IT Systems for Cadastre and Property Registration

Rumyana Tonchovska

Introduction

It is often challenging to implement an information technology (IT) system for property registration and cadastre and there are many lessons which have been learned. The World Bank investments in IT for property registration and cadastre in their Europe and Central Asia region exceeded US$ 900 million over the past 20-25 years (56 per cent of the overall investments in land projects in that period - US$ 1.6 billion). In 2019, nearly all the countries in the region had IT systems for property registration and cadastre (with different levels of complexity), apart from one or two, where the systems are still under development. The World Bank *Doing Business* report in 2018 stated that one of the most effective improvements in registering property around the world had been through using electronic services. The same report indicated that in 2018 property registries used electronic files in 61 per cent of the 190 economies, as measured by *Doing Business (*Digital submission of files could be done both via e-services or at the local offices*).* Innovative technology contributes to better governance of land tenure through improved services from efficiency, effectiveness, transparency, limiting opportunities for corruption, accountability, accessibility, equity and cost perspective, making those services more affordable for all. Innovative technology applied to land records and geospatial information improves knowledge-based decision-making and widens the means for data dissemination and access to land records. E-governance in geospatial data management is an area of rapid innovation in developed economies, and emerging economies have the opportunity to leap-frog ahead in this area. It is potentially game-changing for supporting development as it allows governments to integrate planning, taxation, disaster risk management and climate change monitoring, mitigation and adaptation in new ways with great savings in time and funds, while improving overall service and governance.

Computing capacity and cloud technology are increasing, connectivity is improving and now more than 7 billion mobile SIM cards are registered globally. High and very high resolution (VHR) satellite imagery with a resolution up to 30 cm/pixel can be obtained in a few weeks, days or even in several hours. Drones can be used to produce cadastre maps, when needed, with a very high resolution and in a short period of time. Machine learning, artificial intelligence (AI) and cloud computing are now being used to process the VHR imagery and extract the building footprints, using the new imagery together with the historical imagery for shadow and cloud recovery. These technologies can be used also for surveying property boundaries for the registration process, including first time registration, sub-divisions and automatic change detection. Nowadays, the available technology can generate huge amounts of data in a short period of time, which previously would have taken a year or longer.

However, establishing a well-functioning IT system has never been an easy and straightforward process. There have been tears and unhappy people following the very frequent failures in system development. This is something that happens in all sectors, not just land registration and cadastre. In 2017, Geneca published a study "*Why up to 75% of Software Projects Will Fail*",[27] showing that 75 per cent of business and IT executives surveyed admitted that their projects were either "always" or "usually" "doomed right from the start".

Related: 2018 Software Development Trends That You Can Count on Continuing Into 2019.[28]
There are various classical reasons for IT systems failure, such as poor communication, unclear requirements or often changes of the requirements, unrealistic expectations, poor project and contract management, lack of senior management support and several others. One additional reason to consider,

[27] https://www.geneca.com/why-up-to-75-of-software-projects-will-fail/

[28] See also reference: **Related:** 2018 Software Development Trends That You Can Count on Continuing Into 2019. This link addresses some of the latest trends in computing that are currently accruing, including blockchain and Artificial Intelligence (AI).

when planning the implementation of an IT system for property registration and cadastre is that the increasing transparency, which is often a result of implementing electronic systems, can affect the interests of powerful groups who have been benefitting from the way that the old systems are working. In my experience, big IT companies normally fail to deliver the systems on time, or within the initial scope and budget, as some of them underestimate the complexity of the system and come up with low cost and unprepared teams. Those companies that offered a realistic price often did not get the contract because the tender procedures and the selection criteria were not well defined and, sometimes, corruption was involved. It proved also during my many years of experience in implementing complex IT systems for property registration and cadastre that Big Bang is not Better. In many countries, using a modular, incremental approach worked better than implementing huge IT systems in one single contract. Another serious issue we are facing is the limited institutional capacity to manage complex IT systems development, implementation and maintenance. The uncompetitive government salaries compared with the private sector for highly qualified experts, the lack of training or access to the new technology in the government agencies are additional reasons for failures to successfully implement systems.

This chapter provides some tips to consider at the time of a new project's preparation, which may include:

- software development, things not to forget at the time of development of the technical specifications;
- how to manage the system development and its implementation, and plan for system sustainability;
- the use of emerging technology, which now allows you to do things differently from ten years ago.

These are grouped in the following main sections:

1. Initial Considerations
2. How to Make it Happen!
3. New Technology to Consider.

Initial Considerations

The IT System is just a Tool

Building a complex IT system with a modern architecture will often take years and a lot of money and the existing services may not improve at all. The IT system is just a tool, like a pen, for doing something. It is a very advanced pen, but a pen, nonetheless. If the processes are complicated, the IT system will not simplify them automatically, unless you change the legal framework to introduce simplified procedures and allow access to data and e-services, using the advantages of the automation. If the data are poor, missing or inaccurate then the system development does not fix that unless specific additional interventions are made to correct and improve the data quality. If corruption is a problem and the office staff do not want to deal with that then they will find ways to retain their bad practices. You may consequently continue to have backlogs, long waiting time at the offices, unclear rules, mistakes in data, people in the coffee bars near the offices 'helping' citizens to get their properties registered, etc. You need to think about what benefits the IT system could bring, how you could improve transparency, simplify the procedures, staff and offices' performance monitoring, etc. Think about something simple, relatively quick and visible, which helps to resolve some of the most critical issues, makes the government look good and at the same time provides better services to citizens. What would be the improvements for the staff at the offices, the clients, the management, the government and municipal authorities, the private sector and the general public?

Setting and maintaining property registration and cadastral systems is technically complex, time consuming and requires political support, strong leadership, a legal framework that supports the use of

technology and allows for simplification of business processes, and continual investments in institutional and human capacity. Remember that the IT system is just one of the tools to achieve something.

Political will is critical

You need a champion[29] at a high-level. Leadership, management skills and capacity follow on from that.

I was visiting one of the cadastre offices in Belgrade, Serbia at the end of 2018 and I asked a woman, who was waiting in line: "Why are your visiting the office?" She was not a happy customer as it was her fourth visit to the same office to register a mortgage and she was not sure if this would be her last visit. She started to blame the office for corruption. The head of the office was next to me and explained to the woman that this was the official procedure.

Changes occurred and six months later, in early 2019, I found out that no one visits the cadastre office anymore for registering a mortgage. A new notary law was passed in Parliament, making it mandatory for notaries to operate only digitally and that mortgages should be registered only by notaries. The operational procedure for mortgage registration was changed, the existing IT system was modified, notaries were already using digital signatures and they had access to various government registers. The staff at the registration offices got digital signatures and were trained – all in six months! Digital transformation is high on the Serbian government's agenda, aiming to provide more transparent and accountable digital services by 2020 that meet the expectations of citizens and the needs of the economy. Various changes of the legal framework have also been initiated by the government and adopted by the parliament to support the digital transformation in Serbia.

The Federal Service for State Registration, Cadastre and Cartography of the Russian Federation (Rosreestr) is the largest property registration and cadastral authority in the world. One of their first big achievements was to start accepting applications for the issuing of extracts (copies of property registration and cadastre certificates) by any office for the entire territory of Russia. You don't need a perfect IT system to do that, but you do need a legal framework, allowing one local office to issue a certificate for the property under the jurisdiction of another local office. Rosreestr introduced a **Trust Line** for direct reporting on corruption and other irregular cases and a **Single Help Line, '***Call toll-free within Russia'*, for legal advice offering a 24/7 help desk, covering nine time zones! This is what the clients need. If you put yourself in the shoes of another person (the customer), who is not familiar with the property registration procedures and who has never dealt with any property issues before, then what would you need? It is similar to what you would expect when you go to a bank and ask for cash. You are not interested to know the legal base, the bank procedures or the bank IT system, you just need to get your cash. All this became possible due to the high level political support, which led to legal changes, financial support to the reforms, merging three institutions, dealing with property registration in 2008 and creating Rosreestr. This resulted in going from zero e-services in 2009 to all services available online in 2013. Huge reforms require significant investments as well as legal, institutional, technological and cultural changes. (The *Client Oriented approach is a big nationwide program for all government sectors in the Russian Federation*.)

Corruption and IT systems

As mentioned in the previous chapters, land is the third most corrupt sector globally. The IT systems increase transparency and that often negatively affects the interests of powerful people. This transparency could be achieved by putting data online or through the workflow, which can tell you at any step in the process where the documentation is and for how long it is kept at that step, or to provide

[29] See more on the 'Champion' in Chapter 4.

information about some other blockage that may have occurred. You know who is performing well and who is not.

In one of the Eastern European countries, the IT system was successfully implemented after several unsuccessful attempts to do so, and the IT team, the head of the agency and the Bank supervision team were so happy. The happiness lasted just a day or two. After that a severe, negative media campaign started against the agency and the IT system. The agency investigated and found that the journalist, who was supposed to be the author of the negative articles, did not exist. A high-level person was behind the scene trying to scupper the new IT system. There had not been a single complaint by citizens or professional organisations (notaries, surveyors, real estate agents, banks). The government organised a massive public relations campaign to explain the benefits of the new system and set up a crowdsourcing mechanism for people to check their records and report errors.

The lesson learned:

- Prepare your massive media campaign before launching the IT system and do not expect that your success is going to make everybody happy. There will be people who will try to destroy the IT system.
- Do not push too hard initially for transparency as you may scare some influential people and they can try to block in various ways the IT system development. The IT system takes a lot of time to develop and to bring the digital data to the central level. Once this is done, you can implement a new e-service every week at a very low cost. Make sure that you are ready, when the 'door is opened', and that there is a political will to do it. It could be the case that the door will be open for a very short time. Go fast, because the opportunity may disappear when management changes or corrupt officials realise that their past practices are no longer possible. Once the data have been online for several months, there is no way back. Try to survive the first several months, without killing the system, as you might need another ten years, if you start again from the beginning, before you reach the stage where you are now.

One Size Will Not Fit All – Fit-For-Purpose

The IT systems for property registration and cadastre differ from country to country, because of differences in the legal framework, institutional arrangements, policies, locally suitable technologies, local capacity, data structures and culture. Each country has its own challenges and priorities. Most of the countries in the world have digital records, maintained by IT systems with varying levels of complexity, different data structures and different technical platforms. It is not an exception to find that there are several IT systems in use in one and the same country with different data structures or even, in some cases, where only one IT system is in use, but different offices are using the system in different ways. My biggest surprise was to find recently in one of the Western Balkan countries that each employee in the same office was using a different version of the system and there were different issues with each of the different versions. There are many reasons for that, but it usually stems from weak management and a lack of experience.

Why is it so Difficult?

Is it about the complexity of the technology?
There are few limits to what technology can achieve today. I would not start planning the development of an IT system, thinking too much about the underlying technology, technical platform or licences and architectures. If the system design follows good international practices and standards, you can change and migrate the technical platform with limited cost and time. In one of the Western Balkan countries, the IT system was developed in-house, using open source licences. This was not well accepted by the government at that time, with the argument that there was no local knowledge about the open source licensed software and the IT system may not be secure enough. The key priority was to keep the system running, not to fight with the government about the platform. The technical platform was changed in

40 days by three local programmers and an international adviser. This was possible only because the IT system design was right, and we mainly only had to change the data layer.

The next government did not like the IT system because they had different priorities and wanted to use open source licences, so we explained that we could migrate it back in 40 days with a small additional cost.

However, this may not always be the case, and it depends on which elements of the architecture are changed. For example, changing a database (e.g. Oracle to Microsoft SQL or to Postgres) could be relatively easy, because for example they are all based on SQL92 standard. However, there are examples where a choice for software development tools and languages will be cumbersome to change after development/deployment.

The point here is: do not start by thinking about technologies, licenses and technical platforms, before you decide what your needs are. Technologies are changing very fast anyway.

Big Bang Does Not Mean Better

Experience has shown that systems that are developed internally or through local contractors are more successful than major contracts from big international suppliers. However, the sustainability of the system must be considered before starting the development. Sufficient local capacity to manage the software development and to continue the on-going development, modify systems as demand changes and to be affordable to maintain the software are all key considerations. If the system is developed in a modular approach, then each module can be implemented once it has been fully tested and piloted. The prioritisation of the modules is important as well as the selection of the pilot offices to test the modules. The pilot offices should be selected in a way that will allow you to cover different types of offices with different level of complexity and with different sizes. You also need to consider the existing capacity of the pilot offices and the willingness of the management of the pilot offices to invest time to test the new IT system and provide feedback. It is time consuming and requires extra effort when testing and piloting the IT system. So the selected offices should be aware of the extra volume of work and they should also be aware of the benefits of the new IT system in order to keep motivation high. Pilot results, evaluation and lessons learned from the pilots have to be analysed before starting the national roll out. There is more on this important issue in the section on software development and implementation below.

Everyone Has a Right to Make a Mistake

People learn much faster from their mistakes. Once they eventually succeed, the results are more sustainable than when someone else has done the work for them, so that when the project closes, the government is completely dependent on external support, which they cannot afford! It is always good to try new ideas or new approaches. Some may succeed, others not. If you never try, then you will never know. Therefore, my advice is to let new ideas go ahead if there are no very obvious reasons why they cannot work.

IT Project Management

IT project management has been problematic in most of the countries where I have been working. Most of the managers, and even the staff assigned to manage the software development, did not have a good understanding of even one project management methodology. The IT experts often speak a technical language, which managers do not understand, and the managers will either ignore them or blindly trust them; which is wrong in both cases. It is good practice to have an IT director as a member of the senior management team of the agency, working together with the senior business managers, who can understand the IT systems being built and identify when IT systems are not being developed appropriately or IT experts are not performing.

If the design and development of an IT system looks too abstract to you, then my suggestion is to think about the steps in building a new house and the skills and expertise needed in each of the steps. There are lots of similarities between the steps in building a house and building an IT system. (See diagram below).

If you plan to build a new house, you always start with the conceptual design, followed by the detailed design with a bill of quantities, selection of the construction company and the independent company to supervise the construction, construction and supervision, acceptance and building use certification, warranty and maintenance. The company that builds the house is never the one that develops the detailed design, and an independent supervision of construction is a must. It is similar to this in the case of an IT system: you hire a software development company and you need an independent quality assurance and control expert/team to do the supervision.

The PRINCE methodology was initially designed for managing building construction projects and later adopted by the UK government's Central Computer and Telecommunications Agency in 1989 as a mandatory project management methodology for IT project management. In 1996 PRINCE2[30] was developed in consultation with about 150 European organisations and is a generic project management framework and widely adopted for project management.

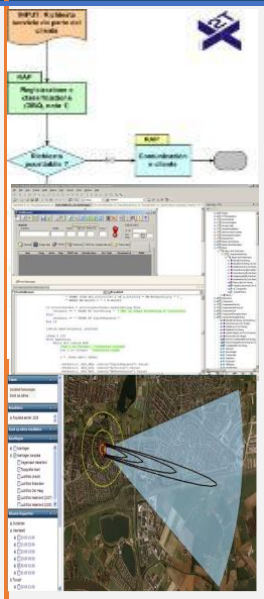
Building a House		Building an IT System	
	**Step-1: Preparation** Conceptual Design; Detailed Design, Bill of Quantities; **Step-2: Tendering/Contracting** • Construction • Supervision of construction **Step-3: Construction and Supervision** **Step- 4: Final Acceptance** **Step-5: Warranty and Maintenance**		**Step-1: Preparation** Conceptual Design/ICT Strategy Development; Detailed TS, cost/time estimation; **Step-2: Tendering/Contracting** • Construction • Supervision of construction **Step-3: Development and Supervision** **Step- 4: Final Acceptance** **Step-5: Warranty and Maintenance**

Figure 13: Steps in building a house and building an IT system

Software development has seen an explosion in the number of available *Information Systems Development Methodologies* (ISDMs). There is no independent database that describes these ISDMs and indeed it is not even clear exactly how many of these methodologies are in existence. Different

[30] **PRINCE2: Projects IN Controlled Environments** is a structured project management method and practitioner certification program. PRINCE2 emphasises dividing projects into manageable and controllable stages. It is adopted in many countries worldwide, including the UK, Western European countries, and Australia.

types of development situations need different methodologies. What is important for the staff at the government agencies managing software development contracts is to have a good understanding of one or more software development methodologies and always to hire an independent quality assurance consultant, who is familiar with the software development methodology that is used for the software development in their specific case.

Step 1: Preparation

There are no questions or doubts as to whether you need to hire an architect to do the conceptual design of a building and later on the detailed design and bill of quantities when you have to build a new complex building. However, when you need to develop complex software, not everyone realises how important the first step is. This includes:

a) Information Communication Technology (ICT) Strategy development – you have to decide on the priorities on the methodological approach (in-house development or outsourcing); what would be the technical solutions based on the existing communication infrastructure; and cost that could be afforded, what is the local capacity and how are you going to ensure the system sustainability in the long term;

b) Business processes re-engineering – the IT systems provide a new opportunity to structure the services differently and to simplify the processes. You should make sure that you are not simply automating the paper-based system, as you will not get much return from the investments made. This, however, may require some legal changes. You need to ask yourself which of the legal changes could be implemented within a year and which are the long-term wishes;

c) Data model development – this is critical for the system interoperability with other key government systems and registers in the long-term. You need to develop a national standard, based on the international standards. You need to test the new data model to make sure that you can migrate the existing digital records, if any, and interoperate with other government systems;

d) Technical specifications development – this needs to include user and technical requirements, system integration and system interoperability with other systems, training and capacity development, data migration and data validation, quality assurance and system acceptance procedure. You need to develop an indicative plan and have a cost estimate. Step-by-step approaches have proved to work better than big complex IT systems development in one contract;

e) Assessing data quality – the best IT system will not bring the expected changes and benefits if the data are of poor quality. You need to plan data quality improvement in parallel with the software development – this is crucial;

f) Data digitisation – if you have a good system without digital data this is still good, but to get the benefit form the system, you need digital data. You need to plan data digitisation in parallel with the system development and ensure that it complies with the agreed data model;

g) Project Management, Contract Management, Quality Assurance and Quality Control, Cybersecurity – you need to plan sufficient resources for technical support, as government agencies do not usually have the necessary skills and experience and it is not their core business. Independent quality assurance is a key success factor.

Step 2: Tendering/Contracting

a) Bidding documents preparation – if you have existing technical specifications then you need to think about the selection criteria and the standard bidding documents, which are suitable for the ICT systems design, development, supply and installation. You need to think about the

approach to liquidated damages and establish clear milestones, linked to the acceptance and payment;

b) Tender evaluation – you need to check carefully all references of the bidders. If you notice that the price is too high or too low, then you have to ask for a detailed cost breakdown and make sure that the bidder understands the scope and the complexity of the system.

Step 3: Software development and Supervision

a) Contract management is critical - you need to establish a clear management and reporting mechanism and set up a requirements tracking system. This is an aspect of project management where many projects fail;

b) Quality Assurance and Quality Control – you need to hire an independent quality assurance and quality control certified expert or company to help with the major phases of acceptance.

Step 4: Final Acceptance

a) Preparation of final acceptance – you need to agree on the acceptance criteria in advance and you need both business experts and IT technical experts to participate in the final acceptance. Test cases and scenarios should be developed and agreed in advance. The best is to have a quality assurance expert to guide you during the final acceptance;

b) Final acceptance – you need to make sure that all the user requirements and the technical requirements, as per the contract, are fully met and that the software documentation is provided and corresponds to the final version of the software. You need to ensure the transfer of the source code and the corresponding intellectual property rights, as per the contract conditions.

Step 5: Warranty and Maintenance

a) Service Level Agreement - usually this is part of the contract, but prior to the final acceptance, you need to prepare together with the contractor a detailed Service Level Agreement. This covers the warranty period and if requested in the contract, the services covered as part of the maintenance;
b) System sustainability - this includes many different elements: network, hardware, licences, capacity development, help desk support, system maintenance and modifications, etc. The best approach is to establish a sustainable business model and funding streams to ensure the system's operation in the long term. The business model should be simple and not rely on having high quality IT experts with government salaries. All associated costs to keep the system running and to provide further upgrades need to be justified and sources of financing identified. Some countries introduce small charges for their online services to reinvest in the IT system and keep it running. Other countries rely on state budget or donors' support, which is not well accepted by the donors and is not sustainable. Too often donors provide capital for IT investments, but do not provide on-going revenue streams to sustain the IT investments. It is important to plan as part of the project design implementation measures that ensure system operation for the long term. Those have to be in place before the project closure.

Make it Happen

This section provides various tips and details on critical elements for the successful implementation.

ICT Strategy

There are no two ICT Strategies that are the same. My advice would be to think about:

WHAT you would like to achieve? Services are the key. Think about whether the legal framework supports your goals and, if not, then move this goal to the mid-term or long-term priorities. Undertake something practical, which can be achieved within the time, money and human resources that you have.

WHO is going to manage it? Who in the government agency should be involved and what are their strong and weak points? Plan sufficient capacity development and technical support, not just on the IT matters, but on the legal; who from the permanent staff will be involved and what additional support is needed, as well as procedural issues.

HOW is it going to be managed? A clear management and reporting structure should be included, together with the roles and responsibilities of management, developers and those involved in quality control. Strong project governance arrangements, as recommended in PRINCE2, are essential.

WHEN and HOW MUCH? Do not forget to set up priorities, a project plan and prepare a cost estimation. Be realistic as to what can be achieved with the funds and time available. Include key performance indicators to measure the success. Identify the key risks and mitigation measures to completing the system. Add a chapter for business continuity and add money for this work. This should start right from the beginning, as it may require legal and institutional changes and, for sure, funding.

What?

Technical Aspects - What is your concept?

This **section** discusses the biggest challenges you are facing –what issues are you trying to resolve? What is your concept? The answer depends on who you are asking? Is it the head of the office, the Minister of Finance or the Minister of Justice? Is it the courts or the clients at the offices? The problem could be issues with backlogs, lack of information, lack of data for property taxation, the high volume of complaints, disputes, a huge number of court cases, long waiting lines at the offices, slow service provision, corruption or something else? What you would like to change in the next three to five years? Think about SERVICES and DATA availability, accessibility and data quality.

If you are a head of an office or a Minister in charge, know what the challenges are, and which ones are at the top of your priority list for the next three to five years. Look at the top government priorities, align your strategy and speak the language of the politicians. Consider what would make them look good and assess whether it can be achieved within their expected mandate. Will that make the customers' lives easier?

The IT systems for cadastre and property registration are complex because they cover many different processes; the legal framework is complex, there are issues with data quality, the old systems are not often well documented and there are issues with the intellectual property rights - just to mention some. Also, the procedures are often not unified, the data quality is not good, and historically data are usually kept on paper. Systems are often not linked, and you will find lots of mistakes in: names and addresses; changes which are done on paper (but not digitally); maps kept in one system and legal data in another system and these data do not match, etc. You can't resolve all these critical issues in a short period of time.

One of the technical questions, which usually comes at this stage is whether or not to use cloud technology, and if yes, is it secure enough? My experience is that most of the government agencies are not willing to use cloud technology, unless there is a government cloud or a government mandate for using cloud technology. In such cases, the cloud solution appears much more sustainable and it is easier to maintain the systems without the need to plan big infrastructure investments every eight to ten years.

In **Croatia**, for example, the government decided to establish government cloud services and invested in a private company to establish a government cloud. A Council of Ministers Decision was issued, making it obligatory for all government agencies to use the government cloud and stopped all further investments in the agencies' data centres. This was well accepted as the company also took over the IT specific tasks, such as cybersecurity, provision of the necessary licenses and cloud space based on the needs, and maintenance of the technical infrastructure. In **Albania**, the government established the National Agency for Information Society to coordinate the development and administration of state information systems and established a national data centre to host the government IT systems. This was a good step towards achieving systems sustainability. The same agency is in charge to decide whether the cloud services can be used and if yes, which ones.

Think Big and Act Small!

Adopt a STEP-BY-STEP and Fit for Purpose approach

We had cases when a new IT system was supposed to be ready at the end of the project, but the contract was delayed and eventually cancelled. So, after several years, the government received nothing. The government realised that they couldn't manage big IT contracts and that the contract management capability was constrained by having few people at the agency who spoke relatively good English. The development and the implementation aspects of the IT system under the next project were split into several smaller contracts, which proved to work better.

In parallel, you have to work on data digitisation and data quality improvement, which takes time and money. For example, when the Russian Federation was developing a Unified System for Cadastre and Property Registration, they worked in parallel on database integration, data digitisation, data quality improvement and modification of existing IT systems to improve service delivery nationwide. When the new IT system replaced the old ones, the change was not that noticeable from outside, as the citizens had already been receiving good services; just the technologies were different and there was a unified database.

Another simple idea, which worked very well in Russia, was to introduce an IT system for interagency exchange of information – this was a simple web portal, through which each agency could send electronic requests for data to any other government or municipal authority, and get a response in a maximum of three days (some agencies were working on paper, so they needed time to prepare the online response). This solved the problem of citizens not being obliged by law to bring any documents to the office if they were issued by any other government or municipal authority. The documents must be supplied directly by that other authority.

You need to find out where the bottlenecks are and then look for a technical and business solution. Do not go for the most expensive one, as it could be much simpler than what you would imagine. Once you know what you want to achieve, you need a good IT expert to advise. This person should be familiar with property registration and cadastre IT systems and know what has worked well in other countries. He or she will make several suggestions as to how the IT system could be designed and implemented and how much time and money it would involve.

Who?

Governance Aspects

Who is in charge of managing the design and development of the IT system?

Look at the organisational structure of the beneficiary institution and include in the ICT Strategy a temporary structure to manage, monitor and report on the progress of the system design and implementation. A typical management structure would have three levels and a quality assurance mechanism (see also PRINCE2 for project governance arrangements):

The first and highest level is a **Steering Committee** (SC) in charge of strategic decisions defining priorities, resolving risks, approval of main deliverables and budget.

The second level is the **Project Management Body** (PMB) in charge of day-to-day management.

The third level comprises working groups, contractors and individual experts.

Plan sufficient budget (about 10 per cent of the cost for the software development) for consultancies to support the IT contract management, IT project management, quality assurance and quality control, cybersecurity, help-desk, network and communication, training, business change management, and capacity development. Remember that this is a technology and know-how transfer exercise and the government agencies usually do not have sufficient knowledge on the latest technological trends. It is not their fault, as it is not their core business.

How?

Methodological Aspects

How will the IT contracts be managed and what capacity will be needed?

Adopt a methodology for managing the design, development, implementation and maintenance of the system. The two basic, most popular methodologies are: 1) *Waterfall*: which might be more properly called the 'traditional' approach, and 2) *AGILE*[31]: a specific type of Rapid Application Development and newer than Waterfall. Both of these are usable, mature methodologies and each has strengths and weaknesses. Although, AGILE is becoming the preferred methodology that delivers what the business needs and involved end users in the development process.

Waterfall is a linear approach to software development. In this methodology the sequence of events is gather and document requirements; design; code and unit test, etc. Each of the events represents a distinct stage of software development, and each stage generally finishes before the next one can begin. There is also typically a stage gate between each; for example, requirements must be reviewed and approved by the customer before design can begin. The danger of this methodology is that the business doesn't know their business requirements in sufficient detail at the start of the project and what is eventually delivered doesn't meet their needs.

AGILE is an iterative, team-based approach to development. This approach emphasises the rapid delivery of an application in complete functional components. Rather than creating tasks and schedules, all time is "time-boxed" into phases called "sprints". Each sprint has a defined duration (usually in weeks) with a running list of deliverables, planned at the start of the sprint. Deliverables are prioritised by business value as determined by the customer. If all planned work for the sprint cannot be completed, work is reprioritised, and the information is used for future sprint planning. The PRINCE2 project management methodology has recently been extended to include PRINCE2 AGILE.

You need to define the standards to be respected. Decide on the development approach: in-house or outsourcing? Set up standards for managing different types of IT related contracts: software development, hardware supply, communications, maintenance contracts, user training, help desk support. Set up standards and guidelines for unification of working procedures. Establish monitoring and reporting mechanism. Plan staff training.

[31] https://www.agilealliance.org/agile101/

When and How Much?

Define priorities, cost estimation, deadlines, key performance indicators and risks.

Ownership of the ICT Strategy

I remember a case when I found a good ICT Strategy developed by a consultant, but it was never accepted by the government. The government decided to develop their own ICT strategy, which was detailed and like a university book, but they owned it, they understood it, and this is what they wanted. I did not like the new strategy, but I just suggested some tips, only where some very important elements were completely missing. Then we said: let's do an action plan. The whole scientific book was condensed into a one page Excel table with specific activities for improving the network, upgrading the existing IT systems, design of new services, training and other simple tasks. The agency was then leading the work, going to international events and presenting their story and gaining confidence that they could do it! It was the government's success story ultimately.

Give the government a chance to do it in their own way, if it is not too wrong. There are often better ways to do the work, but it is important to have ownership. Help them to lead and take responsibilities. The biggest failures in IT systems globally have come from decisions that were not made rather than the wrong technical decisions. Remember that it is the services that are important, not the technology!

Data Model and Data Migration

The data model is as important as the foundation of your house. Once you have the general scope of the system, you can start with the design of the data model. As the ISO 19152:2012 - Geographic Information - Land Administration Domain Model (LADM) is a relatively new standard (November 2012), most probably the existing digital data are not in line with this standard. you will therefore need a senior expert with experience in LADM to assess the existing data models and design a new one to cover the scope of the IT system. You will also need a local expert to work with the senior expert to test the new data model in order to make sure that the existing digital data can be migrated into the new one. You may have an ideal data model, but you still need to migrate the data from the old data model into the new one. This will require some modifications of the new data model. For example, the addresses in the new data model will be structured to include the country code, country name, town code, town name, etc. However, the old data model could have just one field for the address and it may not be easy to extract all the fields that you have in the new data model. Therefore, testing the data model with the migrated old data is important. Once the new data model is developed and tested, you may start upgrading the old IT systems to the new data model.

In **Vietnam**, for example, several IT systems are in use in different provinces and the government decided to implement a unified system nationwide. This would take several years. The advice was to develop a national data model and set it as a standard, and then to provide a transitional period for all provinces to upgrade their systems to the new data model. It should be a core data model. This will speed up data migration when the new IT system is ready, will also allow establishment of an integrated central database and will support the data exchange, data sharing and e-services provision.

Business Processes Re-engineering

One of the most common mistakes made in developing an IT system is to just automate the processes used in the paper-based system. It is essential that the processes are redesigned based on the advantages that are possible with computerisation, while making sure that the business of registration is fully catered for. Technical Specifications (TS) were problematic in almost every country. The systems are complex, technologies are complex, and the legal framework is complex and sometimes not clear enough. Often the concept of the scope of the IT system is not clear. The suggestion is to plan a small

contract for six to eight months to look at the existing business processes and discuss the optimisation and business process reengineering within the existing laws. Laws can change, but it will take time. The team should comprise of mainly business experts (mainly lawyers/registrars and surveyors within the agency concerned) along with an IT expert, who can advise the business experts on what is possible with the locally suitable technology.

Bidding Documents

You need to prepare TS covering the data model, the business process, non-functional requirements, such as cybersecurity, system performance, system interoperability, quality assurance requirements, system integration (hardware, application software and licenses), type of training and number of staff to be trained, data migration and validation, piloting and roll out, system acceptance criteria and indicative plan. Always include details about the system integration in the TS and describe what this means and who is in charge of putting together the application software, licences, hardware and communications. You will have several contracts on which the system performance depends, like hardware and licenses supply and installation, application software and network connections, so you need to clearly define who is the system integrator and what this includes. The best solution is for the software developer to be the system integrator, providing the minimum hardware and communication requirements, the necessary licences and being responsible for leading the process of integration and putting the system into operation. This responsibility should also include a certain period of system operation.

The bidding documents have to include clauses for intellectual property rights and liquidated damages (the risk to encounter severe delays or to fail to provide some functionality when developing software is often quite high). A budget for change requests (primarily for small changes that are not envisaged in the TS) should be set aside. Make it clear when the warranty period starts and what is included. The same applies for the maintenance. If available, use the standard bidding documents, including general conditions for IT systems development and implementation.

Tendering and Contracting

No matter if you decide to develop the IT system in-house or to outsource the development, you need to have clear Technical Specifications (TS) and well defined selection criteria. Quality requirements should be included in the selection criteria, such as the key experts and references for completed systems with similar size and complexity. Request CVs of the key business experts, the senior project manager and the senior quality assurance expert. If you are going to outsource the development then include in the selection criteria the cost for the maintenance per year, including licenses, even if the maintenance will not be part of the contract. Use General Conditions for ICT Systems supply and installation, if available. The World Bank has standard bidding documents for International Competitive Bidding for supply and installation of IT systems. The selection criteria are very important.

Check all references by calling and checking whether an IT system with similar complexity has been developed by bidders with similar contract duration, cost and scope. If you feel that the bidders are underbidding then you can ask for a detailed cost estimation, including the number of days per type of expert and unit cost. If the case is the opposite, when you believe the cost is too high, then you still have to ask for detailed cost estimation and proof of the experts' fees from the company records. The best is to ask advice from a senior procurement expert, specialised in IT systems tendering and contracting at the time of preparation of the bidding documents and the selection criteria, as well as during the tendering and the tender evaluation.

Big contracts appear to be risky and we found that most of the big and well-known companies failed to deliver on time, within the initial scope and with good quality. In most cases, they were using smaller local companies to do the job or were hiring junior experts, who were left to manage the software development without senior experts. At the end of most of the big contracts, the big companies lost

money and the scope of the system was significantly changed. The contracts were extended multiple times.

You need to have clear phases in the TS and have deliverables that are usable at the end of each phase in case the contract fails before completion. For example, a new data model with tested data migration can be phase 1; Document Management System in use for the front offices initially could be phase 2; interoperability with the old systems in use – phase 3; e-services, which are most needed – phase 4, etc. Split the TS into smaller contracts or incorporate smaller phases with liquidated damages in each phase of one contract.

Software Development and Implementation

Local Capacity to Manage the Complex IT Systems Design and Implementation

In most of the countries where I have been working, the government capacity to manage the development and implementation of complex IT systems was low. The implementation was usually problematic. In several cases, the contractors underestimated the complexity of the system and they came up with a low bid price. In other cases, key experts were replaced after the start of the contract with experts who did not have the same level of experience. In one such case, the contract was cancelled after several years of not delivering the expected results. In other cases, the contracts were extended several times; new changes of the key experts were requested by the purchaser, which led to further delays, reduced scope of the contracts, and in all cases the companies lost money. The contract management from the purchaser side is very important and there should be an independent quality assurance and quality control expert/company separately contracted.

Once you have the contract signed, you need a senior IT contract manager with previous experience in cadastre and property registration systems development and implementation. You will need to plan funds for a quality assurance and quality control expert, IT contract management expert, cybersecurity expert and several others. It is not necessary to have any full-time international experts as you will create dependencies. It is better to get full time local experts, who are eager to learn and work on a big project with innovative solutions. Often the local experts move on to better jobs for higher pay after learning to develop or manage complex IT systems. There are cases where the government agency has managed to find and keep motivated staff to work on the IT system implementation, but those are exceptions.

Plan a sufficient budget for IT specific training, and also for basic IT training of the local office staff and for procedural and legal training. The workflow and the way the office operates change as IT systems are developed and the staff at the local offices may not understand why the change is happening. There is no point in training them on the use of the IT system before the legal and procedural training is done, and it is better to have both carried out together. Plan funds for training of key professional users – notaries and other legal professionals, surveyors, banks, real estate agents, tax authorities and also high level government officials.

Technical Quality Audit

If you plan to extend the existing IT system, you will need to complete a quality audit of this existing IT system. Even if you intend to build up a completely new system then it will take several years, and the existing IT systems will be in use as temporary solutions. The quality audit will identify the key bottlenecks and provide recommendations for improvements. Some will be needed urgently while others may wait or not be considered. You will better understand whether the system is suitable as a long-term solution: for example, can the system handle the volume of data you are expecting in the next ten years? Can it be upgraded by another company (transferability)? Is it secure enough?

Also plan a quality audit after the first few months; when the new IT system is under development and at the end of the contract. The first audit is an investment in the future system, so there will be time to improve the system and do it right. The second audit is just before the acceptance, so you know what you are going to get. Be aware that only part of the key findings can be improved at the final stage.

Final Acceptance

The Final Acceptance is an important step and requires specific knowledge on how to prepare and how to complete it. Here you need an experienced quality assurance expert to guide you through the process and help you to prepare and complete the final testing and acceptance. The acceptance procedure should be included in the contract as well. You need to define in advance the maximum number of critical errors and non-critical errors before you can reject the system acceptance. The **acceptance criteria** have to be documented before the actual development starts. The acceptance criteria are the conditions that a software product must meet to be accepted by a user, a customer or other IT system. This includes both functional and non-functional criteria. Well-written acceptance criteria help avoid unexpected results at the end of a development stage and ensure that all stakeholders and users are satisfied with what they get. Test cases should be developed and agreed prior to the final testing. A data validation methodology has to be developed in order to cover all possible scenarios.

System Sustainability

Plan to establish a sustainable business model as part of the ICT Strategy to ensure the IT system's continued operation in the long-term. The business model should be simple and not rely on having high quality IT experts with government salaries. You can outsource all that is not typical work for the property registration and cadastre office and plan for several experts in the business model, focusing on the strategic business needs/update, the ICT Strategy and standards. Those who know the procurement procedures can help to write the terms of reference. Additionally, at least one person is required to be in charge of managing all maintenance contracts, the help desk and all supporting activities, and to keep the existing IT systems running. If you are planning to implement a new system or upgrade the existing one then you will need a temporary project manager who could get support from the technical unit dealing with the systems maintenance and help desk and from the strategic unit to draft the terms of reference and standards. All the rest could be outsourced, but you need to keep the management in house, including contracts management.

In the World Bank funded projects, they advise the governments to plan a small project sub-component for IT system sustainability and include indicators that are measuring the sustainability as part of the project's success. Sustainability could be mentioned as part of the project development objective and in some cases, we had legal covenants in the loan agreement requiring the establishment of a sustainable business model by the mid-term of the project. It is not a good practice to use project funds for system maintenance. There are various models to ensure the sustainability of IT systems, including Public-Private-Partnership; legal provisions, which define what percentage of incomes from services that can be reinvested for the IT system maintenance and further development; establishing data centres for all government institutions to optimise the cost for the main data centres (which could be hosted both by the private company or the government institution) and others. See chapter 9 for further information.

Data Quality and Data Availability

You will find often that the senior managers do not understand the difference between the IT system and the data. In one of the Balkan countries, when the government was changed after the elections, the first thing they intended to do was to plan the development of a new IT system for property registration, as they learned from the notaries that the existing IT system didn't work. The World Bank team investigated the complaint and realised that it was based on the lack of data. We advised that there is an IT system, which has e-services and works well, but only 10 per cent of the data was in the system. The rest was on paper. Thus, when a notary requested information online, he or she got it automatically

from the system in only ten per cent of cases. For the other properties, the data was not digital, and the system indicated that you had to wait three days to get the data. Sometimes the local offices had no time to digitise the data for the property in three days and they responded later - or never.

We explained to the new government that the IT system was good, but most of the data were not in the system. To keep the service good, you need to monitor what is happening. The IT system can produce a report, showing the response time per office and even per request separately. At the end, it is a management issue and a capacity issue, not a technical issue. You always need to plan a component for data quality improvement and data digitisation. The old data may not be of good quality, much will be still in analogue form and it takes a lot of time and money to have good data quality. Setting priorities is important. You may not need all records to be digital and not all areas are of high economic interest.

Important Systems/Sub-Systems and Modules

Document Management System (DMS)

Start with the simplest modules, for example, a DMS using off-the-shelf products, including open source (there are many available). This can start with the front office functionalities and use the DMS to enter all incoming and all outgoing documents and establish interoperability with the existing applications for the back office operations. That will allow you to have a central database of all applications and all decisions made. It will be a central web portal, where all incoming applications and all outgoing documents are registered by staff at the local offices or by online applications of external users (for example notaries and surveyors). This will require Internet access. If it happens that not all offices have Internet access, the smaller offices can be just front offices, taking and giving analogue documents to the clients and sending the analogue documents to a larger office, which has Internet access. This was successfully introduced in Russia, long before the Unified IT system was implemented. You can use different technologies to send the documents, even by car (as was the case in Romania some time ago).

A recent example is **Serbia** – they have various IT systems in use for maintaining the geospatial data and the legal data and some offices have been updating the maps on paper only. They decided to start with a DMS and after that they linked it to the existing old applications. As a result, the services improved, the management improved, and they now have information at central level for all incoming applications and decisions issued. The application processing time is visible and the funds collected from the services are also visible – all in one place. Now they are linking the DMS with the Civil Register, Address Register, Business Register, Tax Authority, the Geoportal, the central point for the notaries' access and others. It has become the main IT system with small investment and impressively in a short period of time. Despite the fact that it is a temporary solution, it provides the same services as the future integrated system will eventually provide. The new integrated system is under development, but the services are already available!

Module for Notaries and Other Legal Professionals

Notaries and other legal professionals are key users of the IT system and the development of a simple module for submission of digital requests for information and submission of applications in digital format should be considered as a priority. It could initially cover the simplest processes, which will lead to fewer visits to the offices and faster and better service provision. In Albania, the notary module was designed jointly between the chamber of notaries and the property registration agency and the software developed by a young IT expert in a very short time. In Serbia, the notary module was developed over several months by upgrading an existing IT system and notaries are now working only with digital forms and applications. However, many other countries have waited until the whole IT system was developed and after that have tried to convince the notaries to submit the applications in digital format.

You don't need to wait years, as the data submitted in digital form by notaries and legal professionals are usually of good quality; the applications can go directly to the back office for approval.

Module for Surveyors

Surveyors are key users of the IT system and the development of a module for surveyors to submit the cadastre records in standard digital format should be considered as one of the priority modules. Surveyors usually prepare their cadastral records in digital form, but submit all information in analogue form, or sometimes in both analogue and digital form, but not in a standard structured format. A surveyor's module is simple to develop but has a huge positive impact on the workload at the local offices and the quality of data. If the quality of data is good then the surveyors usually download the parcel(s) and the neighbouring parcels and split or merge those, and then upload the results. This allows you to keep the data quality, good. It is not necessary to wait until the new IT system is ready. You can use the existing regulations for a cadastral report and develop a standard for digital cadastral reporting in GML[32] file format and develop a small module for the surveyors to generate the GML file format from the most popular applications (surveyors often use AutoCAD, ArcGIS or some other special application). You should provide this tool with some short training and ask surveyors to deliver the cadastral reports in the standard GML format. Even if the law requires paper-based reports, instead of scanning those then you get them digitally from the surveyors.

Consider the case that a highway is being built. There are many properties affected. If the cadastral plans and reports are delivered in digital form it is only necessary to upload the file. You will then have all information in digital format, including scanned documents and coordinates. The IT system will do some automatic validation for parcel overlapping and other consistency checks. It can be processed in minutes, rather than waiting weeks, or months in some cases, to check paper documents. In **Ukraine**, the time for processing an application for registration of a new parcel went down from an average of a month and a half to 21 minutes. It is not always necessary to change the law to make the submission of digital reports and plans obligatory. It is a question of training surveyors. In **Croatia**, the submission of digital reports and plans online was introduced in January 2019. In the following March, 52 per cent of all cadastral reports and plans nationwide were submitted online and by September digital submission had reached 62 per cent.

E-Government

You can start offering e-services long before your system is ready. For example, you can agree with the notaries and legal professionals to send the requests for extracts electronically or you can develop a simple e-service for digital extracts for information (not digitally signed, if this is not possible). They can check the status of the property and prepare documentation, then ask you to digitally block the property for a short period until they physically visit the office to deliver the application with all supporting documents. This saves two visits to the local office. If you don't have digital data for this property, then you can scan and send the information digitally. Albania started with this simple service and gradually developed additional services for notaries. Payment can be agreed on a monthly basis or by opening a bank account, where clients can deposit some money as credit for future services You can then register the client and give a password, which will be valid until the credit is used up (this was used in Bulgaria until the e-payment service was implemented). If there is an e-government e-Gateway then you have to use the authentication, payment and interoperability with other systems, if available. It is always good to coordinate your IT system design and development with the office in charge of e-Government, even if they are at a very early stage of development.

[32] GML: The GML file type is primarily associated with Geography Markup Language. It is used for modelling, transport, and storage of geographic information; it provides a variety of kinds of objects for describing geography including features, coordinate reference systems, geometry, topology, time, units of measure and generalised values.

Interoperability with Key Registers and Systems

This is very important for data quality. Mistakes are always possible if you are typing the addresses and names of citizens or businesses. If there are existing digital registers, then you need to plan the interoperability with the property register and use their structure in the data model. Key registers to consider are: Civil Register, Business Register and Address Register – you need to know their structures at the design stage of your IT system. The property registration and cadastre systems need data from the Civil Register, Business Register and Address Register, so the IT system should be interoperable with those registers, if they are digitally available. The data from the property registration and cadastre systems are needed by the tax authority and other government and municipal authorities, courts and others, which have different levels of automation or no IT systems at all.

It is common for a registration and cadastral office to receive many enquiries from the tax authority, courts, municipalities and other government agencies. They are often not paid for the service and on paper it requires a lot of manual work at the local offices. It could be much quicker and simpler, for example, if they send an e-mail or connect via e-services to get this information. Another simple idea is to have an agreement with the *Post Office* to enter all the requests in the front office web-based system. You can print the extracts from your IT system, put on the stamp, dispatch the documents with return receipt, and then enter the number of the receipt into the IT system. Croatia piloted this service recently in one of their largest offices and now is planning a roll out in all large offices. You should be proactive and try to convince ministries and municipalities to work digitally, but this will take time, as the legal framework may need to be changed and the procedures of many of those institutions may work on paper only. Think about a simple solution which can be implemented quickly and look for political support. The property registration and cadastre system should be interoperable with the e-Government portal and the National Spatial Data Infrastructure Geoportal, if it exists.

Cybersecurity

The e-Government agency is usually responsible to ensure the cybersecurity of the network and the e-Government data centres, and to set up the government standards for cybersecurity. However, each agency implementing an IT system should consider the government standards and develop its own cybersecurity rules/instruction, based on the government standard, if they exist. This is currently a hot topic and the involvement of high quality cybersecurity experts is a must. Each agency has its own specific processes and staff with different roles and different authorities. There is a need for development and implementation of a cybersecurity strategy/policy and action plan, covering: 1) people; 2) processes; and 3) technologies. The monitoring of the implementation of the cybersecurity action plan is very important, as well as the regular update of the cybersecurity strategy, as the technology is developing so fast; new viruses and cyber-attacks can be detected every day, not to forget people and companies who have access to the systems and data.

The Republic Geodetic Authority of **Serbia** has recently implemented a cybersecurity platform (early detection of IT incidents platform), which provides a real-time analysis of security alerts to detect user, IT system or network behaviour anomalies or potential cyber-attacks, and which correlates events and indicators by using the internal and external data sources. It is also important at the stage of designing the IT system to consider data access only through services and not direct access to the database. You also need to establish a monitoring mechanism to monitor the work of the system administrator and the companies who maintain the network and the IT system.

Gender and Youth Disaggregated Data

The IT systems for property registration should provide gender and age disaggregated reports per cadastral zone and nationwide. The best way is to link the property register with the Civil Register of individuals (if available in digital form) from where gender and age information could be obtained, and disaggregated reports produced. This is not a task for the old records, which may not be in digital form.

In cases where the Civil Register is not digitally available or cannot be linked to the property register due to lack of agreements between the institutions or legal constraints, the easiest method is to introduce into the database a gender field (1/0 or F/M) and add this information at the time of the application submission. It will be just one click. Start with the incoming documents; it will then be possible to monitor the effects of the measures taken by the government to improve gender equality for women and youth property ownership and control.

Since 2013, all **Western Balkans** countries are generating gender disaggregated reports per cadastral zone and nationwide. The policy makers were initially confident that as gender equality was supported by law, they had no issues with gender inequality, but were then surprised to find out that in some of the countries approximately only 15 per cent of records nationwide have women as owner or co-owner, going down to 3 per cent in some rural areas. Various good practices have been implemented in the last five to six years, including changes in the laws to make it mandatory to register spouses, lowering the fees for women to register and other actions that are contributing now to the achievements of the United Nations Sustainable Development Goals and the related indicators.

Digital Archives and Data Conversion

It will not be a surprise to find out that the agency you wish to support already has some digital archives. They will often ask for financial support to digitise the old records. It is easy to start building your digital archive, but it is not easy to make it work and keep and maintain it in the long-term. You need to decide which documents should be kept in the digital archive and for how long. You need to set up priorities – from which offices to start, how many years back would you like to digitise the old archive (could be just the active record or 10-15 years back), and it all depends on the funds available and the issues that you would like to resolve. Change the laws, if needed, but plan to keep digitally only the documents that are documents establishing rights, for example, contracts or decisions, if they are not digitally signed. Digitising of incoming documents should be one of the first things to plan in order to have a cut-off date and stop the paper archive growing. If you already have an IT system for property registration then you can develop a module for scanning incoming documents as part of the business processes and require digital submission of applications by the professional bodies (notaries, lawyers, surveyors) and by the individuals.

After you decide which documents to digitise and for how long to keep them in the archive, you need to think about the digital standards, including metadata, the size of the files and the digital file format, in order to ensure easy access to the huge digital archive in the future and to ensure that the digital records will be still readable in the long term with the changes of technology. Use PDF/A[33] format (ISO standard), which identifies a 'profile' for electronic documents that ensures the documents can be reproduced exactly the same way using various software solutions in years to come. Please note that it does not define an archiving strategy or the goals of an archiving system. Avoid scanning in colours and use a sufficient number of indexes to allow searching by several parameters.

The existing data need to be properly modelled with data entities, attributes and relationships. I have seen in one of the Western Balkans countries, which had its land books scanned, that you can find the book but not a specific record in the book or the link to another book for the same property. I have also seen scanned digital records for a building, where you can find the building in the digital archive, but not the separate apartment in the building. You have to think about what information you need when you are searching for documents and develop a simple application where you can store the scanned data and enter the metadata (which describes the data). It can be part of the existing document management system or just a simple access table. Often, the indexes include the file names and folders' names. This

[33] PDF/A: is an ISO (ISO19005) standardised version of the Portable Document Format (PDF) specialised for use in the archiving and long-term preservation of electronic documents. PDF/A differs from PDF by prohibiting features unsuitable for long-term archiving, such as font linking (as opposed to font embedding) and encryption.

is not the best choice. You need to think in the long-term, when huge volume of documents will be stored and the system performance can slow down when you are retrieving archived documents.

Digitising archive documents is a good moment to do some more data entry, for example, the object identification, the right holders names and others. In **Ukraine**, for example, more than 16 million land certificates were scanned using OCR[34] (optical character recognition). The most critical information about the objects and the right holders was digitised and included in the database, in addition to the scanned documents. This information was included in several places in the paper certificates and the information was retrieved several times from different sections of the certificates and automatically compared, prior to the validation by the office staff. The scanning of 16 million certificates, data entry and data validation was completed in five months, working in shifts and using students for the scanning of documents and data entry and office staff for data validation.

If you are using digital signatures, then it is good practice to digitally sign the documents going to the archive to guarantee that it is the same as the original. Blockchain can also bring value here. For example, for storing the hashes[35] of the documents to identify any unauthorised changes to the original documents.

The digital archive system should not be an isolated IT system. It has to be interoperable with the property registration and cadastre system and provide e-services. The historical documents are used by the local offices, but also by courts, notaries, general public, surveyors and other government and municipal institutions. Plan to provide access to the digital archive as soon as you start digitising the records; do not wait until all is digital.

Software Products for Field Data Collection, Systematic Registration and Customary Rights

Systematic registration has its own workflow and business processes. It can be developed as a separate module of the property registration and cadastre IT system or a separate IT system. However, it is recommended to make sure that both IT systems are interoperable and have the same core data model, to ensure that once the process is completed, the data can be migrated into the property registration and cadastre IT system for maintenance of the changes. There are several software products that can be used by communities for digitising the community rights, supported by different organisations: **OpenTenure**, supported by UN FAO; **Cadasta**, supported by DFID (UK Department for International Development); **MAST** (Mobile Applications to Secure Tenure), supported by USAID; **STDM** (Social Tenure Domain Model), supported by UN HABITAT; and **ODK**, (Open Data Kit), supported by the University of Washington.

[34] OCR: Optical character recognition or optical character reader (OCR) is the electronic or mechanical conversion of images of typed, handwritten or printed text into machine-encoded text, whether from a scanned document or a photo of a document.

[35] Hashes: Hashing is the process of taking an input of any length and turning it into a cryptographic fixed output through a mathematical algorithm.

Yellow	Partly available		OpenTenure	Cadasta	MAST	STDM	ODK
Green	Available						
Red	Not available						
Functionality							
Workflow management							
Dispute handling							
Property management							
Systematic Registration							
Spatial unit management							
Map spatial information							
Manage rights and right holders							
Digital document management							
Search, retrieve and display							
Reporting							
System Qualities							
Security							
Maintainability/Flexibility							
System administration							
Survey form templates							
Multiple languages							
Other							
Multiple operating systems							
E-mail notifications							
Data import/export							
Offline use of data							
Downloadable Installers							
Host Web data server							
Support							

Figure 14: Overview of the available comparative solution[36]

The UN FAO has developed a SOLA Suite of Applications, based on Open Source licences, which has separate modules for systematic registration and registration of property rights, and is freely available.

New Technology

Technology is always evolving - what may seem cutting edge now could very well be obsolete in just a few years. The IT systems should follow the new trends in data capture. For example, they should support the use of data captured with drones and VHR satellite imagery (the imagery is captured from different angles and data processing is needed), 3D imagery and LiDAR data.

One evolving technology in recent years is Blockchain. There are several countries that are using or testing blockchain technology for property registration and cadastre, with different levels of complexity, and trying to resolve different issues, such as cybersecurity and corruption. In all cases, this is complementary to the classical IT systems and not replacing the existing IT systems. For example, in the Russian Federation, blockchain technology is used for registering new land plots in the Far East.

[36] FAO and COWI report, 2019.

There is a new government program in the Far East for free distribution of one hectare of land to people who would like to live there. Those are new data and they are recorded through blockchain at the time of the first registration. Serbia intends to use blockchain technology for storing the hashes of the right establishing documents as a preventive measure for falsifying the original right-establishing documents. Georgia is using blockchain technology in parallel to their property registration system, which adds an additional level of security, and is using smart contracts for the processing of payments, linked to the transactions: the money is kept in an escrow[37] account and upon a positive decision for registration, it is transferred to the seller or, in case of rejection, the money is sent back to the buyer.

The point I would like to make here is that it is important to think about the main challenges that you would like to deal with and what is the most suitable technology, which can you afford and what are the major risks? The sustainability of the IT system should be considered at the time of deciding on the technology, which is not only related to the financial resources, but also to the local capacity to respond in the short-term and to maintain the system in the long-term. Public-Private-Partnership has to be considered as an option, as the private sector is normally much faster at responding to demands and has the necessary flexibility to test and use new technologies. Also, what is the level of cybersecurity? At a minimum, is it better than the classical IT system? Smart contracts are also a good idea for registering new objects, but you need to test how many resources will be needed in 50 years from now and if it is affordable for the country. Think about security and affordability. With this technology, you can do some things better, but the risks are also there if you are not familiar with the selected architecture.

Summary

This chapter emphasises the importance of having high level political support and business experts involved at all stages of the design in the development and implementation of an IT system for property registration and cadastre. Senior IT contract managers and independent quality assurance experts should be hired to help the purchaser to manage the complex contracts. The adoption of a step-by-step approach for system development has worked well.

Technologies are available, they are changing quickly, and the cost is going down. The business and required processes and services should be driving the data and applications/software and the technology (the machinery and equipment) on which these run. Technology should be aligned with business, data and application needs, and not the other way around. The implementation of a complex IT system takes time and money and therefore it has to be planned in small steps, which allows the responsible agency to provide better and faster services. Think about quick wins, which help resolve some of the biggest challenges. The level of corruption in the land sector is high and therefore transparency is not always well accepted by those who benefit from the status quo. The old records are often in analogue form or in different formats, if digital. You need to think about data digitisation and quality improvement in parallel with the design of the new system.

A good way to start is to have a new data model and develop small modules for professional users to submit/receive information in digital form (legal professionals, surveyors, government agencies, municipalities, banks), and to plan to establish a web portal for access to information. Get an experienced team to help with the design of technical specifications and the selection criteria and later to help with the IT contracts management and also quality assurance and quality control.

[37] Escrow: Escrow is a legal concept describing a financial instrument whereby an asset or escrow money is held by a third party on behalf of two other parties that are in the process of completing a transaction.

Key Messages:

- Political will is critical. You need a champion at a high level.
- Technologies are available. Think about services and data first.
- Fit-For-Purpose – the most complicated IT system does not always bring the change needed.
- Think Big, Act Small. Adopt a step-by-step approach.
- Establish a clear management and reporting mechanism.
- Plan support for IT contracts management and independent quality assurance and quality control.
- Adopt a national data model standard for the property register, based on LADM.
- Adopt a modular approach – no need to wait until the whole system is ready.
- Plan sufficient funding for IT training together with legal and procedural training. The IT training alone does not bring the results, as people may not be familiar with the new workflow.
- Plan measures to deal with the cybersecurity, personal data protection and intellectual property rights in parallel with access to data.
- Plan to establish a sustainable business model before the system is fully implemented.

Chapter 9 Land Information Services

Robin McLaren

The previous chapters have helped readers understand how to efficiently create and maintain land registration and cadastral data, how to build robust and sustainable ICT solutions to manage these data and to deliver land administration services to customers. However, this is not the end of the journey. Further significant value can be added by integrating these data into a wider and more comprehensive Land Information Service (LIS) to support the extraction of knowledge and insights. This will lead to more effective policy making, decision making and contribute significantly to achieving the Sustainable Development Goals. Chapter 9 explores how to achieve this challenge and deliver significant economic, societal and environmental benefits.

Context of Land Information Services

Land Administration agencies have traditionally been at the heart of initiatives to facilitate comprehensive LIS that provide interoperable information about all aspects of land and the marine environment to support an integrated approach to land management and ensure the sustainability of land and marine environment within a country. This will then drive evidence based policies and decision making and provide knowledge and insights and not just data.

Before describing the experiences of implementing LIS and associated land information infrastructures, it is worthwhile understanding the context and role of LIS in delivering good land governance and sustainable development.

Land governance is about the policies, processes and institutions by which land, property and natural resources are managed. The organisational structures for land governance and administration differ widely between countries and regions throughout the world and reflect the cultural and judicial setting of the country and jurisdiction. The judicial and institutional arrangements may change over time to better support implementation of land policies and good land governance. Within this country context, the land governance activities may be described by three components: Land Policies, Land Information Infrastructures and Land Administration Functions, in support of Sustainable Development as shown in Figure 9.1 below.

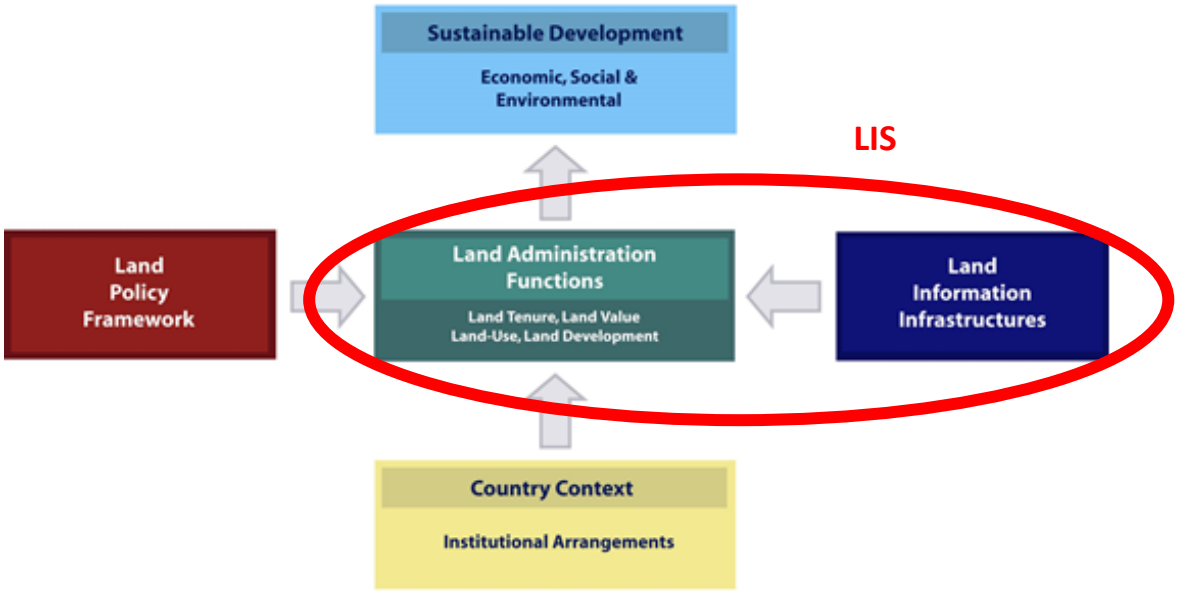


Figure 9.1: Land Governance and Administration (Enemark, 2004, Williamson et al. 2010)

Land policy is a part of the national policy on promoting objectives such as economic development, social justice and equity, and political stability. Land policies may be associated with: security of tenure; land transactions and access to credit; sustainable management and control of natural resources and the environment; the provision of land for the poor, youth, ethnic minorities and women; land use and physical planning; real property taxation; and measures to prevent land speculation and to manage land disputes. Although a National Land Policy should ideally be established before embarking on the definition and implementation of a LIS, a more pragmatic approach is to incrementally create the National Land Policy over time.

Sound land governance requires a legal and regulatory framework, operational processes and capacity to implement policies consistently within a jurisdiction or country in sustainable ways. In this regard, land administration systems and associated LIS provide a country with an infrastructure for implementing land policies and land management strategies in support of sustainable development. The operational component of the land governance concept is then the range of land administration functions, delivered through LIS, that include the areas of: land tenure (securing and transferring rights in land and natural resources); land value (valuation and taxation of land and properties); land use (planning and control of the use of land and natural resources); and land development (implementing utilities, infrastructure, construction works, and urban and rural developments).

These functions interact to deliver overall policy objectives, and they are fundamentally facilitated by access to the appropriate land related data and services – normally called Land Information Services (LIS). LIS require access to a comprehensive land information infrastructure on the built and natural environment that are integral parts of a National Spatial Data Infrastructure (NSDI). More recently (2018) the United Nations – Global Geographic Information Management (UN-GGIM) initiative has created an Integrated Geospatial Information Framework (IGIF) that is being used as a framework to implement NSDIs.

This chapter focuses on experiences in designing and implementing LIS and the underlying land information infrastructure. LIS are complex and particularly difficult to implement due to the wide range of interoperable land information required, and the diverse set of stakeholders involved in creating and managing the land information. Many LIS initiatives have failed by being too ambitious in the early implementation phases, not adopting a sustainable business model and not having sufficient political support to mandate data standards and to build effective partnerships across the public and private sectors.

The LIS Origins

In 1977 the city of Basel in Switzerland had a vision of a digital mapping IT system to manage their cadastral and land registration data and to link it to their mainframe computer managing their valuation data. The solution would also have a surveying module to support the maintenance of the data through cadastral surveying. A Scottish company, Ferranti-Cetec Ltd, won the contract and delivered the world's first LIS. The solution, Cadastral and Land Use Management Information System (CLUMIS), was also subsequently delivered to the city of Munich, in Germany. The Author was one of the software programmers on this project using DEC PDP/11 computers and the assembler programming language. Unfortunately, the company migrated to focus on CAD / CAM rather than LIS and Scotland missed out on a global Geographic Information System (GIS) corporation!

In 1979 Prof. Peter Dale published an article in the Survey Review on "A Systems View of the Cadastre" linking the ownership, value and use of land to conditions within the physical, economic and social environment. It was a bit ahead of its times and it took a decade before cadastral people began to see the bigger picture. But the article was considered the trigger for all further work on land information. The vision of a National Land Information Service (NLIS) for the UK was first conceptualised by Peter at the AutoCarto London conference in 1986. This envisaged fast and easy access to an authoritative,

accurate and comprehensive record of all land and property in the UK. We are still waiting for the solution! The LIService of LIS emphasised that LIS were focused on delivering high quality services rather than more generic GISystems.

Across the Atlantic in Canada, parallel LIS visions were emerging…..

Dr John McLaughlin of the University of New Brunswick developed the Multi-Purpose Cadastre concept as part of his 1975 PhD thesis at University of Wisconsin, "The Nature, Design and Development of Multipurpose Cadastres". Then in the early 1980s, the Multi-Purpose Cadastre concept was further developed by John through working with a group of academics who came to New Brunswick from afar and combined European traditions and standards with North American advanced technology. This initiative was also helped by a group of revolutionaries in Canada eager to re-engineer some very dated, almost Dickensian institutions. The Multi-Purpose Cadastre concept received a lot of traction courtesy of the US National Academy of Sciences and John's ideas continued to evolve and morph into the larger concept of land information management and LIS. This concept and its components were also heavily influenced and refined by programs and individuals across the EU, North America, Australia and New Zealand, with the cultivation of international networks and friendships leading to an important FIG Commission III International Symposium on "The Decision Maker and Land Information Systems" held in Edmonton, Canada in 1984. In 1985, at the CASLE Conference in Kuala Lumpur, it was agreed that there was a need for a book on the subject and Peter Dale and John McLaughlin were approached to write 'Land Information Management'. The book appeared in 1988.

The Multi-Purpose Cadastre concept at the time related to large mainframe computers (coming out of the original databank ideas). However, distributed networks and new paradigms were emerging and research in New Brunswick and Tasmania (David Coleman, Peter Zwart, YC Lee and David Palmer) helped John to elaborate the NSDI concept. The NSDI concept was finally introduced by John as a keynote speaker at a national conference in Ottawa in 1991 (McLaughlin, John. "Towards a National Spatial Data Infrastructure." In *Proceedings of the Canadian Conference on GIS*. Ottawa). John therefore took our inward looking, technically oriented profession and mind-set to a new and much more meaningful place within society. Building on this concept, Service New Brunswick developed a very early and innovative LIS. This triggered the LIS era with early implementations in Australia and Canada providing the foundations for many subsequent National LIS worldwide.

Fast forward to 2018 and the United Nations – Global Geographic Information Management (UN-GGIM) endorsed an overarching strategic framework called an 'Integrated Geospatial Information Framework' (IGIF). This provides the overarching strategic messages and more expansive and integrated national framework, particularly focusing on policy perspectives and elements of geospatial information.

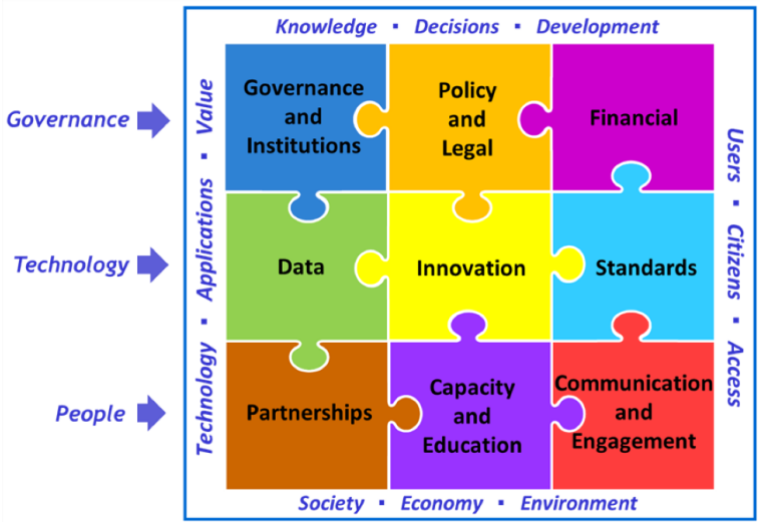


Figure 9.2: Integrated Geospatial Information Framework (UN-GGIM, 2018)

The IGIF is anchored by nine strategic pathways within three main areas of influence: governance; technology; and people. These nine strategic pathways seek to maximise the innovative and integral nature of geospatial information by making it available and accessible to governments, communities, businesses, academia, and civil societies. This provision serves to innovate, co-create and develop new products, services, and applications that deliver new knowledge for evidence-based policy and decision making.

The IGIF has a very ambitious set of objectives to provide "*a strategic guidance that enables country specific action plans to be prepared and implemented. The Framework aims to assist countries to move towards e-economies, e-service and e-commerce to improve services to citizens, build capacity for using geospatial technology, enhance informed government decision making processes, facilitate private sector development, take practical actions to achieve a digital transformation, and to bridge the geospatial digital divide in the implementation of national strategic priorities and the 2030 Agenda for Sustainable Development*".

This is the first of three separate, but connected, documents as illustrated below. The Implementation Guide is complete and was endorsed in 2020 and the Country-level Action Plans are works in progress and are being developed through case studies.

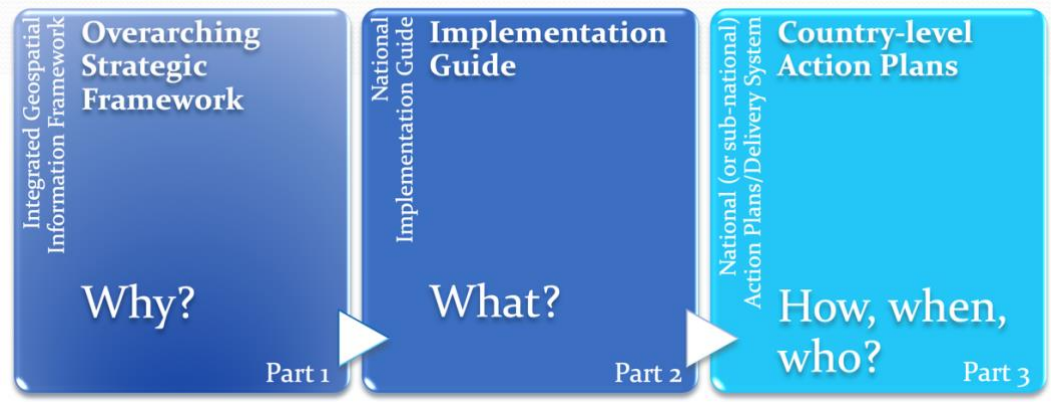


Figure 9.3: Suit of IGIF documents (UN-GGIM, 2018)

Land Administration is an integral component of UN-GGIM and there is a current initiative to link and integrate land administration with IGIF. The nine IGIF Strategic Pathways are also critical for good tenure governance. The UN-GGIM Working Group on Land Administration is developing a Framework for Effective Land Administration and builds on the SDGs, Voluntary Guidelines on Tenure and the IGIF. This uses the same nine IGIF strategic pathways and defines the importance of having all on place to make Land Administration work effectively. The concept due to be endorsed in 2021 is illustrated below:

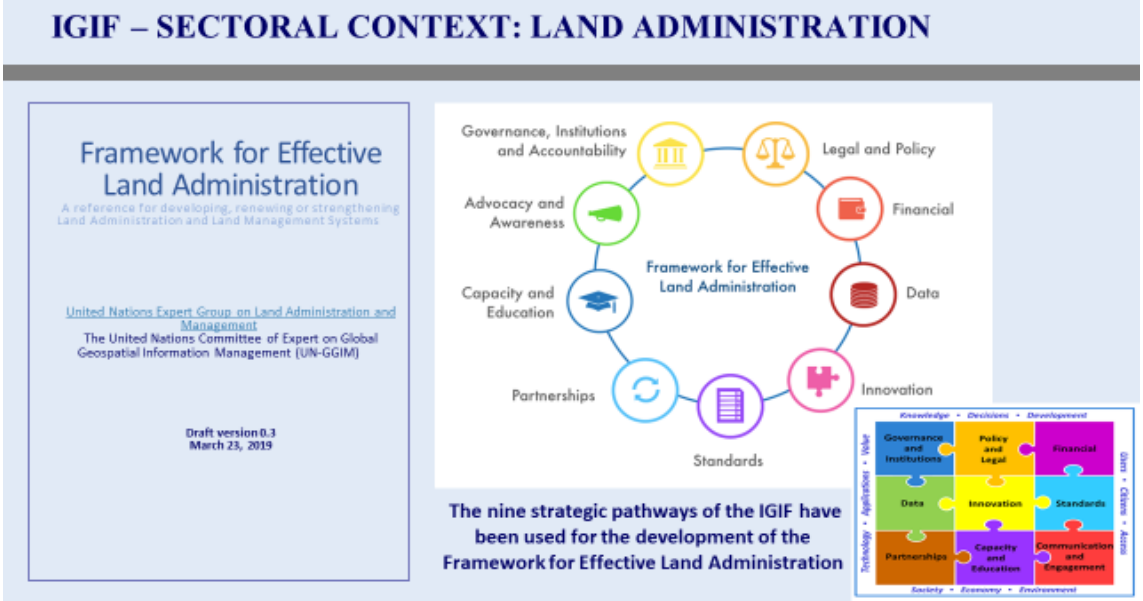


Figure 9.4: Framework for Effective Land Administration (UN-GGIM, 2019)

The LIS Drivers

There are two basic approaches that have been adopted in developing LIS. The most common approach simply creates land / geospatial data and hopes that the data will be used by the public and private sectors and information services will emerge. This approach is behind the EU directive on Infrastructure for Spatial Information in Europe (INSPIRE) (https://inspire.ec.europa.eu) with the majority of countries just producing dedicated websites to support the discovery and access of the land / geospatial data. The subsequent development of information services is ad hoc and not always successful.

The alternative approach is to drive the development of the data and services within the LIS to support priorities for government land policies. This much more focused approach generates greater political support and funding, raises the profile of the LIS initiative, is not too ambitious and is generally more successful and sustainable. This was the initial strategy adopted within the Canadian Geospatial Data Infrastructure where the initial focus was on supporting sustainable development and the environment, First Nation issues, public health, and public safety.

In Hungary in the early 1990s, the Author was technical advisor to the Government for the implementation of the PHARE[38] program in the land administration domain. The initial investment in the LIS was to internally manage the cadastral and land registration data of restituted properties across over 100 District Offices. However, to support the creation of a land market in Hungary, which was part of the EU accession requirements, it was decided to initially deliver information services to the financial services, to encourage the development of the mortgage market and build a land market. This was a highly successful, initial information service and led to many more being developed.

The World Bank helped a country in the Balkans to identify their priorities through investigating:

- The national economy to determine what sectors contribute most to the overall GDP of the country;

[38]Created in 1989 as a pre-accession instrument financed by the European Union as the **Poland and Hungary: Assistance for Restructuring their Economies** (**PHARE**) program. It was later expanded to cover ten countries.

- The political agenda with government leaders to determine key policy objectives and the associated intervention framework;
- External influences, such as political, economic, social, technological, legislative and environmental, e.g. accession to the EU; and
- Existing business case approaches for national projects that have been prepared and appraised by decision makers.

Six priority sectors were identified for strategic investment in an Integrated Land Management program: Energy and Mining; Transport, Telecommunication, Infrastructure and Urban Waste; Tourism; Agriculture and Fisheries; Economic Zones; and Priority Development Areas.

In contrast, a country in the Middle East has prioritised the identification of government land for housing Internally Displaced People and some small island states have focused on mitigating climate change as their priority.

Selling the LIS concept within a country requires politicians and senior decision makers to be convinced of the benefits of the investment. However, land professionals normally use a very technical professional language that is quite different from political speak. Therefore, it is recommended that economists form part of the LIS team to conduct robust socio-economic analyses, create strong value propositions and use the appropriate language to convince decision makers.

Experiences in Implementing LIS

LIS Governance Arrangements

Strong and high level governance of LIS programs is key to success. As in project management methodologies, LIS programs need a Program Board, i.e. a National LIS Advisory Committee. The mandate of a National LIS Advisory Committee is to oversee the creation and maintenance of a complete and sustainable LIS. The committee's purpose will be to ensure that the LIS supports the needs of the country through coordinated and collaborative planning, sustainable business model and funding, sharing of resources and information, and endorsement and promotion from the work plans of key institutions. The committee should include representatives from key public sector agencies, the private sector, the academic sector and civil society.

To be inclusive, there is a tendency for these committees to be very large to engage with a large number of stakeholders. These large committees then become very unfocussed and inefficient. It is recommended that these high level committees are limited to less than ten stakeholders and representatives should be very senior with responsibilities for finance and resources within their organisations. The chair of the committee should be from a ministry / agency critical for the delivery of the LIS. In Denmark, this was the Ministry of Finance and this lead led to sustainable funding of the LIS program within government.

Over time, the services being developed for the LIS will change and this is an opportunity to change the composition of the high level committee.

Supporting the high level committee should be a series of Working Groups, focused on different aspects of the LIS, e.g. ICT, capacity development, communication, finance, data, etc.

A recent transition in governance arrangements has seen separate LIS / NSDI governance arrangements being merged into wider government arrangements, such as Government Digital Transformation strategies. This is a positive move as land / geospatial services are perceived as mainstream.

LIS Fuel – Unlocking Data to Improve Public Policy

A key success factor in implementing a LIS is ensuring that the underlying data are fit-for-purpose, findable, accessible, interoperable (comply with agreed national standards), reusable and maintained. Only then can innovative land information services be built from a diverse set of land / geospatial data. Too often projects fail or are seriously delayed due to inadequate data or insufficient budgets to support data improvement programs.

In many projects, 75 per cent of the LIS budget relates to investments in data. A good example is in The Netherlands where an initial cost / benefit analysis was conducted in 2002 around the creation of six key registers: Register of Persons, Cadastral Register, Register of Companies, Register of Addresses, Register of Buildings and Register of Topography. Although the municipal personal records and the cadastre existed and only required small adaptations, the other registers required substantial investments. For example, the Register of Buildings was created from scratch and cost Central Government €48M and the Municipalities €84M. The total level of investment was estimated at around €446M (cash value prices 2002). The following significant quantifiable benefits were identified:

- Efficiency gain at the users' side through easy access: €149M
- Less fraud: €346M
- Efficiency gain information managers: €11M
- Efficiency gain citizens for submitting data only once: €73M
- Need for less acquisition of data: €1M
- New applications business sector: €11M

The total quantifiable benefits were €591M (cash value prices 2002). The analysis concerned a period of 20 years and the return on investment was 9 per cent, while the costs and benefits break even after 12 years.[39]

The financial model underlying the LIS initiatives must integrate the on-going costs of maintaining the data. Without this essential revenue for data maintenance, the currency of the data quickly erodes, and the value of the LIS rapidly diminishes as users confidence in the LIS is lost.

It is important to expose the data to the users of LIS as soon as possible so that feedback on the quality of the data can be harnessed to continually improve the quality of that data. Under the perfection mentality, often embraced by the surveying community, data have to be 'perfect' before they can be exposed for use. This approach significantly increases the cost of LIS programs and delays the launch of new services. Wherever possible, the Fit-For-Purpose approach to data should be adopted where a Minimum Viable Product is initially introduced to the market and then improved over time, when there is market demand.

One innovative way of improving the quality of data is through crowdsourcing with citizens. During the World Bank-funded land administration program in Ukraine, 16.8 million ownership documents (35 million pages) were scanned, indexed, data entered, verified and uploaded to a secure database environment in just five months. The agency was well aware that the quality of the data was limited and decided to expose these records to their customers openly via web services to crowdsource improvements to their records. An on-line service for reporting errors was created. During the first month of operation, 11,000 errors were reported, and 8,000 records were corrected. The feedback from customers provided the Agency with an insight into the types of errors prevalent within their records. For example, out of 88 errors reported, 56 were found to be similar. This led to the automatic correction of over 2,000 errors. Automatic tools for error identification, classification and correction were subsequently created.

[39] Molen, P. van der (2005). Authentic Registers and Good Governance. Proceedings FIG-Working Week, Cairo, Egypt.

The Czech Republic cadastral agency has opened up a consultation with their customers where they can report errors in the data and provide proposed corrections. As part of this engagement, the agency has colour-coded the boundary points defining the parcels based on their accuracy, where green boundaries are high quality and red boundaries are poor quality. This quality classification has been achieved by combining the digital parcel boundaries with digital orthophotomaps to identify the level of discrepancies. Customers can then decide if they want to involve surveyors to upgrade the quality of their boundary definitions.

Remember that once you open the crowdsourcing door, you have to support the process well and the door can't be closed again! Otherwise, you will lose the trust and good will of the citizens.

High resolution satellite imagery is becoming pervasive and is opening up opportunities for new approaches to capturing and maintaining land parcel data. The combination of using AI based algorithms with satellite imagery is supporting the automatic extraction of parcel boundaries. Although in its infancy, the approach is proving successful and will hopefully accelerate the completion of security of tenure for those presently excluded.

Sharing Data

One of the basic premises of LIS is that land / geospatial data custodians will make their data interoperable, through the adoption of agreed standards, and share their data. However, this depends on trust amongst the LIS stakeholders and the adoption of a culture of sharing. This is not always guaranteed despite the appropriate legal frameworks and decrees. In one Middle Eastern country, the LIS program was stalled because the stakeholders did not trust each other and did not share any data despite a decree from Government. It is recommended that a LIS prototype / pilot be created early in the program to expose these non-technical issues that can be showstoppers.

There has always been considerable tension between institutions managing the land registration and cadastral data and institutions managing the fiscal cadastral data. The institutions should clearly share data, but too often they pursue their independent data collection solutions. This is still happening in some Balkan countries.

Key Registers Underlying LIS

Several countries, including Denmark, the Netherlands, Lithuania and New Zealand, have initiated and driven their LIS initiatives through the creation of what are termed 'Key Registers'. These interoperable registers include information about individuals, businesses, real properties, buildings and addresses, for example, and underpin a wide range of public services and business applications. The vision is that these data are to be the high-quality common foundation for public sector administration, efficiently updated at one place and used by everyone – including the private sector. Open data will benefit public sector efficiency as well as innovation and value creation by society in general. With basic data as a new digital raw material, commercial products can be developed, and public information and services can be improved, providing for greater insight and stronger democracy.

A good example of this implementation model in supporting key registers is in Denmark[40] where there is a long-established practice of public authorities registering various core information referred to there as "basic data". The potential to use such core information to drive efficiency in government was recognised relatively early. In 2002, one of the first initiatives to progress this agenda was the decision to make official Danish Address data "free of charge" at the point of delivery.

[40] Summary paper available at https://eurogeographics.org/wp-content/uploads/2018/04/EGAR-2017-Denmark-GA.pdf

The European INSPIRE directive in 2007 provided fresh impetus to the Danish Government for widening this initiative in order to cover other basic information. There then followed an extended period during which standard EU-wide data specifications were developed and regulations to support INSPIRE written into national legislation.

By 2012, the Danish Ministry of Finance had taken the lead in pushing forward this "joined up" information agenda under its Basic Data for Everyone initiative (Danish Government and Danish Local Government, 2012). This report identified the potential of access to public data as being an important contribution towards modernising the public sector and its interactions with the public and businesses.

Even if basic data are made accessible for everyone, the public authorities will still have to spend resources on producing, maintaining and ensuring the quality of the data. This work will still have to be financed to ensure the continued availability of quality basic data. Therefore, the Government and Local Government Denmark have agreed to redistribute the costs of basic data, so that public authorities contribute to basic data via their allocation or block grant.

To support this investment, the government commissioned the creation of a business case[41] for the basic data initiative. This concluded that free access to good basic data for everyone is good business; for the public sector and for society in general. Once the initiatives have been fully implemented in 2020, revenues for society are expected to be approximately Danish Kroner DKK 800 million (US$ 94 million) annually. Private sector revenues will be up to DKK half a billion (US$58 million) annually, and it is expected that, for example, the real estate, insurance, financial, and telecom sectors, as well as GPS (sat-nav) manufacturers, public companies and entrepreneurs will be among those to benefit hugely from the initiatives. See figure below.

TOTAL PUBLIC-SECTOR NET SURPLUS/DEFICIT

DKK MILLION	2013	2014	2015	2016	2017	2018	2019	2020
Ministries	-108	-81	-50	-26	3	9	29	42
Municipalities	-24	24	79	143	165	169	174	175
Regions	1	11	23	33	43	43	43	43
TOTAL IMPACT	**-131**	**-45**	**52**	**149**	**211**	**221**	**246**	**260**

TOTAL NET SURPLUS/DEFICIT, BY SECTOR

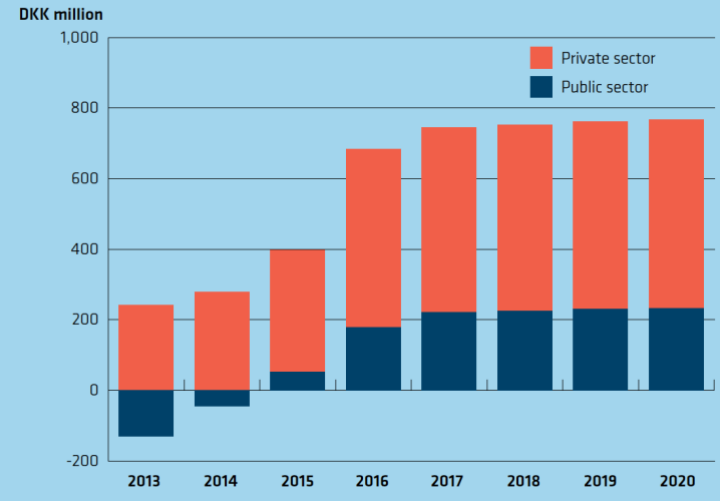


Figure 9.5: Business Case - Basic Data for Everyone

[41] https://en.digst.dk/media/14139/grunddata_uk_web_05102012_publication.pdf

Similar Key Register investments have been made by the Netherlands, Lithuania and New Zealand, for example, with similar success and benefits. New Zealand is Nº 1 in the World Bank *Doing Business* report for registering property. Registration is achieved in one day. Less, really, because it is all digital. All the 'searches' are done online and answers are available immediately - provided at minimal cost by the local government. Then the agreements are signed, lodged online and registered while you wait. All their records are digital and available.

Building Partnerships

Since no single organisation can build a LIS, collaborative efforts are essential for the success of any LIS initiative, and particularly so when the voluntary model, as opposed to the mandated model imposed by Governments, is adopted to implement the LIS. Cooperation and partnerships across different levels of the public sector and with the private sector are an important means at every stage of development for collecting, building, sharing, and maintaining geospatial information.

To support the formation of effective and productive partnerships, it is recommended that a set of guiding partnership principles is established and agreed across all the partners. A good example is the set of principles created to support partnerships within the Canadian Geospatial Data Infrastructure (CGDI) program (see Good Practice text box).

Good Practice
Canadian Geospatial Data Infrastructure (CGDI)

Principles for Data Partnership:

1. Data should be collected once, closest to the source and in the most efficient way possible.
2. Data should be as seamless as possible, with coordination across jurisdictions and boundaries when possible.
3. Data should be collected, processed and maintained according to international standards.
4. Partners should contribute equitably to the costs of collecting and managing the data and should be allowed to integrate the resulting information into their own databases and distribute it to their stakeholders.
5. There should be an attempt to harmonize terms and conditions for use where practical.
6. Partnerships between agencies should be simple and support the principles of the CGDI, open to the participation of interested stakeholders within any level of government, the education communities or the private sector.
7. A group or agency within each province and within the federal government should be designated to promote and coordinate the development of a common geospatial data infrastructure, both within its jurisdiction and between jurisdictions.
8. CGDI is national in scope and must meet the needs of a wide range of geospatial user communities, data producers and different areas of the private sector.
9. CGDI must consist of a set of coordinated and interrelated policies, practices and possibilities that build on the vision.
10. Agreements between agencies will normally be negotiated on a case-by-case bilateral or multilateral

Sources of land information are increasingly being produced and integrated by the private sector. For example, Rightmove (www.rightmove.co.uk) in the UK supports users to easily find the areas that match their budget and needs. However, LIS are still perceived by many countries to be solely within the public sector's domain. There is a reluctance to open up public sector data to private sector partners through appropriate legal frameworks and partnership agreements to develop a diverse range of services for citizens and businesses. Countries are encouraged to adopt an open market arrangement to develop LIS.

Think Beyond Data to Services and Insights

Too often countries believe that by making land information discoverable and accessible that this is the end of their journey in delivering a LIS. A prime example of this thinking is the INSPIRE EU directive that has, over the past decade, mandated EU countries to deliver a wide range of geospatial data on dedicated websites. Rarely has this spatial information been subsequently used to deliver meaningful applications and services to policy makers, businesses and citizens – just delivering the data has ticked the EU box.

Designers of LIS should support the concept of applications / services that lead customers (citizens and professionals) through a business process and provide them with answers rather than expecting them to perform the analyses themselves using geospatial data. A great example an application to assess the potential of installing solar panels on buildings (http://www.uvek-gis.admin.ch/BFE/sonnendach/?lang=en) developed jointly by the Swiss Federal Energy Office, MeteoSwiss and swisstopo (National Mapping Agency). The user is unaware that the application makes extensive use of geospatial information, including Digital Elevation Models and 3D buildings data. It is the answer that the user is interested in. This the real value-add of LIS.

Data Driven Innovation through data science is accelerating the extraction of knowledge and insights from geospatial data. A good example is the Geovation (https://geovation.uk) initiative in the UK, where accelerator programs, community events and hands-on development resources help guide start-ups from initial vision to sustainable growth.

ICT Infrastructure

LIS depend on ICT infrastructure to provide an efficient, highly distributed network of information systems that are interoperable to access services – a services-oriented architecture. This ICT infrastructure is normally part of a common government wide infrastructure to support Digital Transformation. Representatives of the LIS program need to be represented on these government ICT infrastructure committees to ensure LIS specifications are being designed into the common infrastructure.

How to Finance a LIS

The range of approaches to financing LIS is very diverse. These variations are primarily influenced by fiscal policy, other policy frameworks and regulations imposed by governments, institutional arrangements and relationships, and the maturity of the geospatial information markets and associated suppliers of products and services.

National institutional arrangements play a significant role in shaping the approach to financing LIS. There are three types of mechanisms that normally underpin institutional arrangements:[42]

- In hierarchy-based institutional arrangements, patterns of interaction have two main drivers: authority, operationalised in administrative orders, rules and planning on the one hand, and dominance and authority as the basic control system on the other. This is typical of arrangements in Middle Eastern countries, for example.
- Market-based institutional arrangements are based on competition, bargaining and exchange between actors. The price mechanism, incentives and self-interest of actors steer activities of

[42] National Institutional Arrangements: Instruments, Principles and Guidelines, UN-GGIM Working Group on National Institutional Arrangements, July 2017 http://ggim.un.org/ggim_20171012/docs/meetings/GGIM7/Agenda%207%20NIA%20Instruments,%20Principles%20and%20Guidelines.pdf

different actors by creating an 'invisible hand'. This more open market arrangement is operated in the UK to some degree, for example.

- Network-based institutional arrangements take the form of cooperation between actors, where inter-organisational relations are ruled by the acknowledgement of mutual interdependencies, trust and the responsibilities of each actor. A great example is the Norwegian cost sharing model.

At one extreme in financial approaches, some countries will require full cost recovery associated with operating the LIS. This will require a government department / agency to obtain revenue raised from license fees for access to geospatial products and services by the public and private sectors. The level of cost recovery demanded by governments also varies and, in these situations, central funding is used to finance the short fall of operational costs not covered by revenues from license fees.

The costs of implementing and operating the LIS is sometimes shared across public sector geospatial providers and user stakeholders. A good example of this shared financial model operates in Norway and is described below.

Although the level of revenues demanded from departments / agencies is being controlled and subsidised by government, the capability of raising revenues may well be limited by market demand, market competition and the level of added value that the government department / agency is allowed to provide though products and services. Some governments have a clear distinction between public good[43] data and value-added products and services to clearly differentiate between the remits of the public and private sectors.

Ironically, even though income from the licensing of data may be the most tangible result for a government department / agency, it may not overall be the most significant benefit, and the associated costs may hinder the wider use of data in government or by the private sector.

At the other end of the spectrum, some governments are adopting Open Government policies and improving access to public sector geospatial information. Under this policy, governments will centrally fund LIS and support data free for re-use since the resulting products and services support wider economic benefits to justify the approach. These Open Government initiatives normally have three main strands:

- **Open Data:** offering government data in a more useful format to enable citizens, the private sector and non-government organisations to leverage it in innovative and value-added ways;
- **Open Information:** proactively releasing information, including information on government activities, e.g. civil servant salaries and budgets, to citizens on an on-going basis to increase transparency; and
- **Open Dialogue:** giving citizens a stronger say in Government policies and priorities and expanding engagement through Web 2.0 technologies. For example, "It's Your Parliament" (www.itsyourparliament.eu) gives citizens a unique overview of the votes cast in the European Parliament. You can find and compare voting records of Members of the European Parliament and political groups, make your own comments and cast your own "votes".

The opening up of governmental data, free for re-use, has been justified on economic grounds since access to these data will have major benefits for citizens, businesses, and society and for the governments themselves. This public sector sourced data can include geospatial data, statistics, meteorological data, data from publicly funded research projects, and digitised books from libraries. Some of the benefits include:

[43] A public good is a product that one individual can consume without reducing its availability to another individual, and from which no one is excluded. Economists refer to public goods as "non-rivalrous" and "nonexcludable." National defence, sewer systems, public parks and other basic societal goods can all be considered public goods

- **New businesses can be built on the back of this data**: data are an essential raw material and can be integrated into a wide range of new information products and services, which build on new possibilities to analyse and visualise data from different sources. Opportunities for re-use have multiplied in recent years as technological developments have spurred advances in data production as well as data analysis, processing, visualisation and exploitation. Facilitating re-use of this raw data will create jobs and thus stimulate growth;
- **Greater Transparency**: open data are a powerful instrument to increase transparency in public administration, improving the visibility of previously inaccessible information, informing citizens and business about policies, public spending and outcomes; and
- **Evidence-based policy making and administrative efficiency**: the availability of robust public data will lead to better evidence-based policy making at all levels of government, resulting in better public services.

Countries therefore have a wide variety of good practices in business models and financing arrangements to choose from across the world. However, the adopted model must be compatible with the government's fiscal and funding capabilities, not be too draconian to limit the wider use of geospatial data in government or by the private sector and be truly sustainable.

Norway – Cost Sharing Model[44]

Experience in Norway offers an excellent example of the impact of high-level political support, a long tradition of co-operation, and institutional adjustments on the business model adopted. The Norwegian Mapping Authority (NMA) obtains most of its revenue through central governmental funding, with only a small portion of revenue coming from sales; most data are free and open data. The funding model is stable and secures production and maintenance of many kinds of data, including physical infrastructure, hydrography, elevation, place names, cadastre, building registers, address register etc.

Geovekst is a 15 - 20-year-old joint funding regime in Norway for financing detailed, reference geospatial data where several stakeholders have agreed on long-term co-operation. National, regional and municipal public organisations and some public/private organisations, with given specific service and infrastructure responsibilities, cooperate by joint funding of geospatial data. This participation includes 422 municipalities, the NMA, road authorities, agriculture authorities and others. The actual share of investment from each party varies somewhat from one year to the next. This joint investment leads to cheaper data capture and management and more standardised data, resulting in better services to end users.

The joint funding focuses on the production and maintenance of accurate, reference geospatial data, such as large-scale topographical maps, cadastral parcels, buildings, transport network, other infrastructure, land cover data, orthophoto and height data from LiDAR acquisition. More than 95 per cent of all municipalities participate in the program, with only some major cities directly managing their geospatial information.

[44] https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=1&ved=2ahUKEwip-fC8_I3fAhXIAsAKHSU5D4UQFjAAegQICBAC&url=https%3A%2F%2Fwww.conftool.com%2Flandandpoverty2018%2Findex.php%2F09-01-Lillethun-1069_paper.pdf%3Fpage%3DdownloadPaper%26filename%3D09-01-Lillethun-1069_paper.pdf%26form_id%3D1069%26form_version%3Dfinal&usg=AOvVaw1imdGGRhwtICFS6FtkGIxI

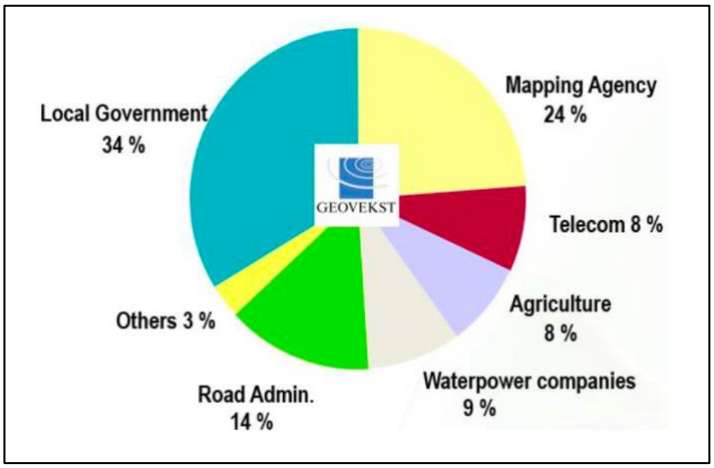


Figure 9.6: Geovekst Data Sharing Stakeholders

The Value Proposition

LIS can play an important role in improving productivity, supporting sustainable development and mitigating and managing the impact of natural disasters in both developed and developing countries. A key challenge for policy makers and program managers has been in evaluating the net benefits of policy change or investment in these solutions.

There are many methodologies[45] for evaluating the economic impact of policy change and/or investment in the field of geospatial information, but no single best practice solution has yet been identified. Benefit-cost analysis (and its variants) will continue to be essential for project-scale investments because it is widely understood and so offers a mechanism for comparison of heterogeneous investment choices.

The Strategic Pathway 3 Finance in the IGIF Implementation Guide provides an excellent description of the steps typically conducted to perform a socio-economic analysis to justify investments in LIS.

The socio-economic analysis identifies and defines the expected benefits. However, benefits realisation management needs to continue to monitor the delivery of the benefits during the LIS implementation. This requires a Monitoring and Evaluation Framework to be established prior to implementation to ensure that the corresponding strategy and action plan is delivering the Key Performance Indicators and the predicted benefits. Feedback from the benefits realisation monitoring process at key milestones will allow changes to the LIS program to be applied to optimise the benefits. These changes may, for example, abandon elements of the LIS since it is not delivering benefits, or accelerate elements since they are delivering greater than expected benefits.

At the end of the LIS implementation project or at key milestones, the delivered benefits will be evaluated to determine if the IGIF benefits have actually been realised. Benefits realisation management should be considered a business change process.

[45] Economic and Financial Modelling of the Impact of Geospatial Information - Techniques and Results for land administration in developing Nations' https://www.conftool.com/landandpoverty2017/index.php/04-11-Smart-426_paper.pdf?page=downloadPaper&filename=04-11-Smart-426_paper.pdf&form_id=426&form_version=final

Determine Current State of Key Stakeholders

Before embarking on the transition to a LIS, it is essential that the stakeholders' organisations are baselined to establish their current land / geospatial data and information services maturity and capabilities. This will allow a clear action plan to be created that will support the transition.

The World Bank Group has established a methodology and corresponding analytical toolkit to support the use of the IGIF and incrementally create NSDIs customized to specific countries and priorities. The graphic below illustrates the sequence and relationship of these analytical tools used to arrive at the implementation of the NSDI. The symbology shows the analytical tools (in orange), key inputs (in blue), the IGIF in purple, outcomes (in green) and uses arrows to different types of information flows.

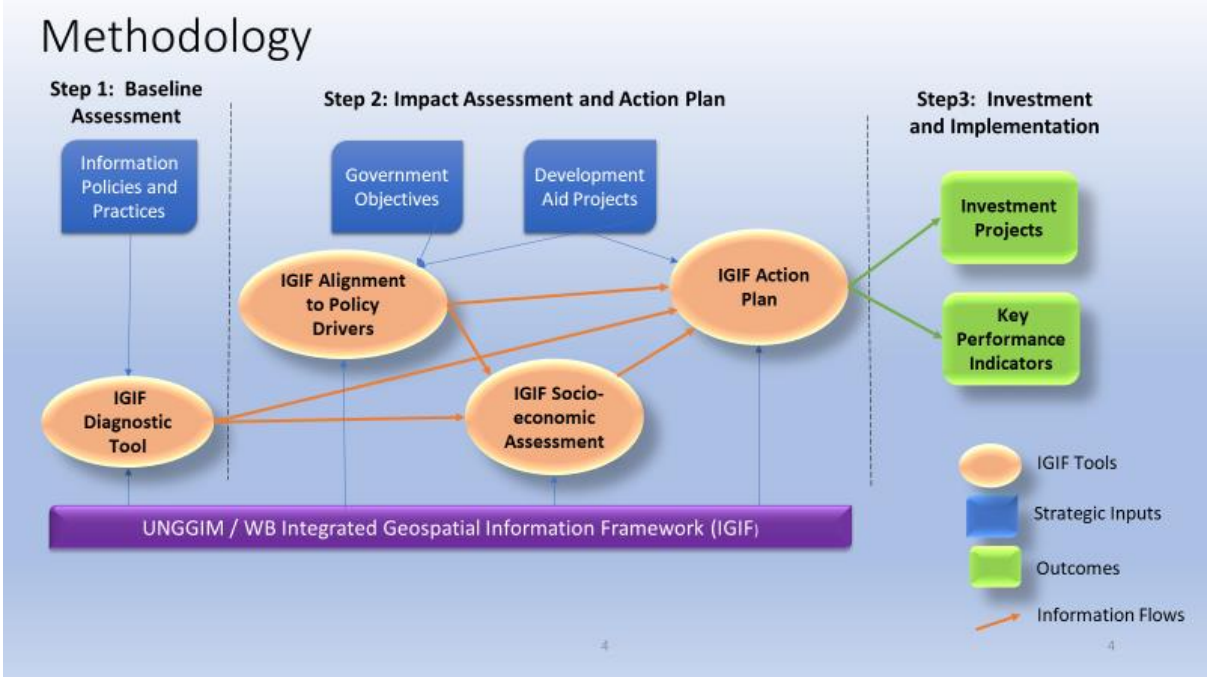


Figure 9.7: World Bank IGIF Implementation Methodology

The IGIF Diagnostic Tool package supports a standard measure and approach to assessing a country's NSDI readiness and geospatial-maturity, initially at national level.

Within the tool, a series of 99 questions have been defined and grouped into 9 main categories, aligned with the strategic pathways of the IGIF:

- Governance and Institutions (10)
- Policy and Legal (11)
- Financial (9)
- Data (14)
- Innovation (11)
- Standards (8)
- Partnerships (8)
- Capacity and Education (9)
- Communication and Engagement (9)

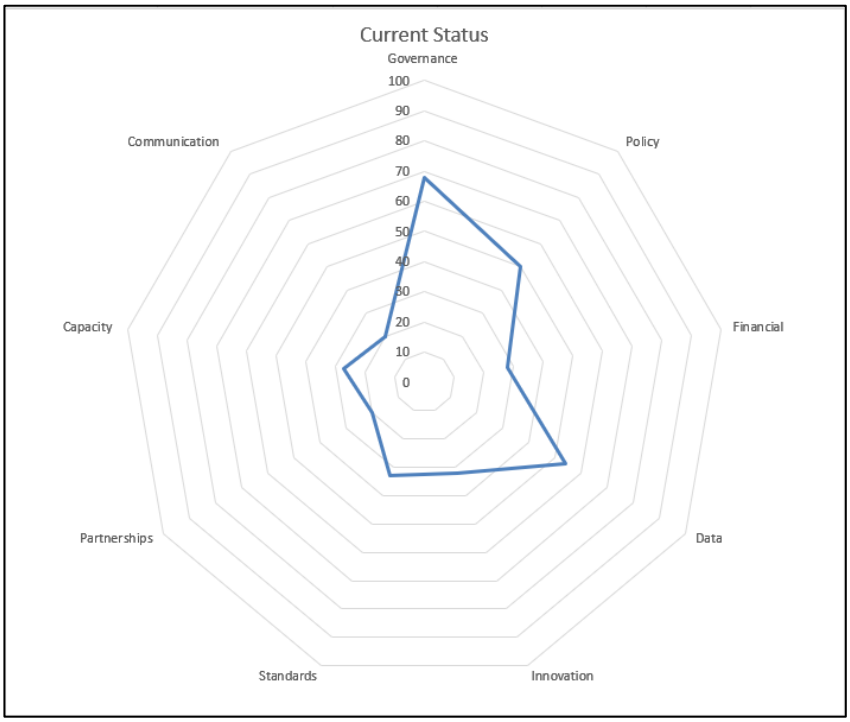


Figure 9.8: Example of Summary of IGIF Diagnostic Tool Results

The results (summarized in a diagram illustrated above) allow countries to identify missing or underperforming elements of their NSDI and to support the preparation of action plans with investment programs to maximize the benefits of this critical part of the information infrastructure. These action plans will also need to be informed by the results of the Alignment with Policy Drivers and Socio-Economic Impact Assessment tools.

Although this IGIF Diagnostic Tool is not specifically designed for a LIS, the majority of the diagnostics are directly related.

Capacity Development

Effective capacity development is fundamental to the success of LIS. Society must understand, through well-targeted communication campaigns that these information services are secure, can be trusted and can deliver significant benefits. Formal organisations, such as government agencies, private sector and community based organisations, need to ensure awareness and up-to-date skills of their members and staff. The largest change will be focused on the public sector where this may involve some institutional and organisational reforms. Governments need to implement capacity development measures across their land institutions.

Summary

Comprehensive Land Information Services (LIS) supported by interoperable information about all aspects of land and the marine environment provide services to support an integrated approach to land management and to ensure the sustainability of land and marine environment within a country. LIS drive evidence based policies and decision making and provide knowledge and insights - not just access to data.

The land information infrastructure on the built and natural environment is an integral subset of a National Spatial Data Infrastructure (NSDI). More recently (2018) the UN-GGIM initiative has coined

the term Integrated Geospatial Information Framework (IGIF) that will eventually replace the term NSDI. It should be noted that the UN-GGIM Working Group on Land Administration is developing a Framework for Effective Land Administration and builds on the SDGs, Voluntary Guidelines on Tenure and the IGIF.

There are two basic approaches that have been adopted in developing LIS. The most common approach simply creates land / geospatial data and hopes that the data will be used by the public and private sectors and that information services will emerge. The alternative approach is to drive the development of the data and services within the LIS to support priorities for government land policies. This much more focused approach generates greater political support and funding, raises the profile of the LIS initiative, is not too ambitious and is generally more successful and sustainable.

A recent transition in governance arrangements has seen separate LIS / NSDI governance arrangements being merged into wider government arrangement, such as Government Digital Transformation strategies. This is a positive move as land / geospatial services are perceived as mainstream.

A key success factor in implementing a LIS is ensuring that the underlying data are fit-for-purpose, findable, accessible, interoperable (comply with agreed national standards), reusable and maintained. Only then can innovative land information services be built from a diverse set of land / geospatial data. Too often projects fail or are seriously delayed due to inadequate data or insufficient budgets to support data improvement programs.

It is important to expose the data to the users of LIS as soon as possible so that feedback on the quality of the data can be harnessed to continually improve the quality of that data. Under the perfection mentality, often embraced by the surveying community, data have to be 'perfect' before they can be exposed for use. This approach significantly increases the cost of LIS programs and delays the launch of new services. Wherever possible, the Fit-For-Purpose approach to data should be adopted, where a Minimum Viable Product is initially introduced to the market and then improved over time, when there is market demand.

One of the basic premises of LIS is that land / geospatial data custodians will make their data interoperable, through the adoption of agreed standards, and share their data. However, this depends on trust amongst the LIS stakeholders and the adoption of a culture of sharing. This is not always guaranteed despite the appropriate legal frameworks and decrees.

Several countries have initiated and driven their LIS initiatives through the creation of what are termed 'Key Registers'. These interoperable registers include information about individuals, businesses, real properties, buildings and addresses, for example, and underpin a wide range of public services and business applications. These have been very successful and delivered significant benefits.

Since no single organisation can build a LIS, collaborative efforts are essential for the success of any LIS initiative. To support the formation of effective and productive partnerships, it is recommended that a set of guiding partnership principles is established and agreed across all the partners.

Designers of LIS should support the concept of applications / services that lead customers (citizens and professionals) through a business process and provide them with answers rather than expecting them to perform the analyses themselves using geospatial data.

Countries have a wide variety of good practices in business models and financing arrangements to choose from across the world, including the open data model. However, the adopted model must be compatible with the government's fiscal and funding capabilities, not be too draconian so that it limits the wider use of geospatial data in government or by the private sector, and be truly sustainable.

Selling the LIS concept within a country requires politicians and senior decision makers to be convinced of the benefits of the investment. However, land professionals normally use a very technical professional language that is quite different from political speak. Therefore, it is recommended that economists form part of the LIS team to conduct robust socio-economic analyses, create strong value propositions and use the appropriate language to convince decision makers.

Effective capacity development is fundamental to the success of LIS. The largest change will be focused on the public sector where this may involve some institutional and organisational reforms. Governments need to implement capacity development measures across their land institutions.

Annex 1 - List of books and reading materials

Land Registration and the Cadastre

Gavin Adlington

	Major Books providing history, theory and practice			
	Book Title	***Author***	***Date***	***Comment***
1	*Land Registration*	Sir Earnest Dowson and VLO Sheppard	1952	This book is still a seminal work in this area. It includes a lot of the basic principles of land registration, its evolution and examples from many countries around the world, including in depth reviews of India, England, selected European countries, Scotland, South Africa and some of the French Colonies. It outlines the differences between private conveyancing, registration of deeds and registration of title and compares them. It goes into detail about land law and legal rights, including Sharia and the Waqf. Early work and considerations for introducing land titling in Egypt, Palestine, Iraq, India, Malaysia, the Caribbean, Kenya, Cyprus, Ceylon, Nigeria, New Zealand, Sudan, Syria, Uganda, USA, Zanzibar and several other places are covered. Although this book is dated, it provides very useful background and sound theory from a legal perspective. 211 pages.
2	*Land Law and Registration*	S. Rowton Simpson.	1976	The other seminal work that was a follow-on to Dowson and Sheppard**.** It is basically an update of the Dowson and Shepard book. It includes the fundamentals of land rights and land records, processes of land transfer and the key differences between private conveyancing, registration of deeds, registration of title and the concept of *overriding interests*. It goes into detail about English land law and registration and conveyancing before addressing the Australian Torrens system and referring to countries that introduced systems similar to Torrens. There is a chapter on Registration of Deeds, focussing on Scotland, South Africa and Hong Kong. The book goes on to address the cadastre, cadastral surveying, the European Cadastre, boundaries and maps, and compares and contrasts the different systems with respect to guarantees and indemnity, compensation, forgery, sporadic and systematic registration, general and fixed boundaries, conversion between systems, limited and qualified titles, customary tenure, organisational issues, forms, ledgers and certificates of title, powers of registrars, fees, surveying methods for boundary surveys and procedures for registration. There is an appendix describing land records in France and Germany, the land data bank in Sweden and computerisation in Sabah, Malaysia. In volume 2 it includes sample laws on Land Registration and Adjudication of Title, particularly with reference to Kenya, Sudan, Malawi, and Turks and Caicos. This book is also dated, but it is the most comprehensive and detailed work focussing on land registration that can still be used as a guide for any student or practitioner. Volume 1 runs to 726 pages.

3	*Land Information Management.*	Peter Dale and John McClaughlin	1988	Focus changes from paper-based systems of deeds and title registration to providing 'information' for management purposes and the changes that are brought about through greater possibilities of automation. The book focusses on changes needed in third world countries. It is more focussed on the 'survey' aspects than the 'legal' aspects of books 1 and 2. It starts with a review of the importance of land information, land registration, the fiscal cadastre, the 'multi-purpose cadastre', survey networks, mapping and surveying, digital mapping and data management. It then addresses economic benefits, institutional issues and management arrangements. There are case histories on Malaysia, Thailand, Germany, Canada and New Zealand, plus annexes that provide a check list for evaluating cadastre systems and requirements for the multi-purpose cadastre. 266 pages.
4	*Land Registration and Cadastral Systems*.	Gerhard Larsson.	1991	This book is written by a Swede and focusses much more on the European model. It starts with information about why land information is so important and the concept of the land information system. (LIS). It introduces the concepts of the cadastre and land registration and has a very good chapter on the historical development of cadastral and land administration systems. The following chapters outline the cadastre from European perspective and then a chapter on land registration in English speaking countries. The book goes on to further explain the benefits of cadastre and land registration systems and what to do when setting up such systems. It then discusses in depth cadastral surveying, adjudication of title, registration, organisations and ways to simplify the processes. It has annexes on the land unit identifier and examples of automation in Sweden and Canada. 175 pages.
5	*Land Administration*	Peter Dale and John McClaughlin	2000	An overview of formal property systems and the role of property in the economic and social agenda. An in-depth examination of land administration infrastructure required to support modern property systems (sic year 2000), focussing on surveying, registration, valuation and land use control. 182 pages.
6	*Systems of Land Registration. Aspects and Effects.*	Jacob Arie Zevenbergen	2002	This book was prepared as part of a PhD study and it provides a good summary of land registration systems and its place in the economy of a country. The author addresses the problem that existing books and documentation focus mainly on English speaking countries with common law traditions and less on civil code countries and the European concept of the cadastre. It outlines the different systems and concepts for registration (including such things as 'negative and positive' systems, guarantees, priority, boundaries, etc.) and brings out the advantages and drawbacks of each type of registration system - also challenging the perception that some systems are necessarily superior to others and the need to make the best system work for the country concerned depending on its history, legal basis, traditions and other issues. The book has a chapter reviewing land registration using a 'systems analysis' approach and case studies for the Netherlands, Indonesia, Austria and Ghana. 210 pages.
7	*Land Administration for Sustainable Development*	Williamson, Enemark, Wallace and Rajabifard	2010	This book brings the concept of land administration up to date with more emphasis on the role of land administration in the economy, land management and good overall governance in society. The role that technology can now make in the sector is also addressed. The book discusses the principles, purpose and history of land administration and then shows how the topic has become an integral part of new systems that address the wider aspects of land information, land management, marine administration and the need for spatial data infrastructures. The book looks at land administration activities worldwide, including addressing issues relating to indigenous and customary tenures, slums in cities, implementing systems

				nationwide, and then the capacity development, education and institution building needed. There is a general chapter on land administration projects that have been implemented around the world and a cadastral template that can be used worldwide to assess systems, as well as a toolbox approach for addressing land administration needs in a country. The final chapters cover the design, management and monitoring of projects and the future trends in the sector. 487 pages.
	Key Reference Documents			
8	Framework and Guidelines for Land Policy in Africa	African Union, African Development Bank and UN Economic Commission for Africa	2010	Following on from the African Union Declaration on Land Issues and Challenges in Africa in July 2009, the framework and guidelines were developed. They provide a set of iterative processes that lead to policies and programmes for reform for African countries. It addresses the need to contextualise what needs to be done taking into account political, economic, social, cultural and demographic contexts. The countries then need to develop a vision and account for stakeholder involvement, funding constraints and human capacity constraints. They should engage with the public and civil society organisations and then the steps leading to policy development and implementation are outlined. Tracking progress with implementation using measurable indicators is addressed. 41 pages.
9	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security	Food and Agriculture Organization of the United Nations (FAO)	2012	These guidelines outline the policies and principles behind tenure rights and recording those rights, recognising the right to own or occupy land without harassment or discrimination, under the rule of law and with transparency and accountability. It covers private land, public land, indigenous people's rights, informal tenure, transactions and investments. Land acquisition, compensation, readjustment, consolidation, redistribution and restitution are included. It also addresses the principles of recording, valuing, taxing and regulating land usage and ownership and the resolution of disputes. There are also sections dealing with international transboundary issues, climate change, natural disasters and conflicts between nations. It is a fairly generic policy document and was adopted by UN Committee on Food Security in 2012.
10	The Land Governance Assessment Framework	Deininger, Selod and Burns	2012	This book provides a diagnostic tool for assessing the legal framework, policies and practices regarding land governance for any given country. It has been widely used to do such assessments for countries around the world and it includes sections dealing with: the Legal and Institutional Framework; Land Use Planning, Management and Taxation; Management of Public Land; Dispute Resolution and Conflict Management. The book explains how the assessments are to be done and provides examples for Peru, Kyrgyz Republic, Tanzania, Ethiopia and Indonesia. It also explains how the framework can be used to monitor progress with implementing the reforms that would be outlined in the framework.
11	Keys to Successful Land Administration	Mika-Petteri Torhonen	2016	This book provides the key lessons learned over 20 years of providing land administration projects in the Eastern Europe and Central Asia Region of the World Bank. This is probably the most successful and comprehensive program for land administration for a region that has ever been seen, covering 24 countries and 42 projects. It outlines the projects themselves covering farm privatisation, restitution and regularisation, then moves on to creating land registration systems at scale and looks at the economic impact of these projects. The key features and success factors of these projects are explained in detail. 45 pages.

12	FAO Publications	FAO		The FAO keep a very large list of publications addressing many aspects of land administration and governance. They are usually available if googled, but difficult to find on the FAO web site. They cover: (a) 15 papers and 22 YouTube videos about the VGGT and country specific progress with the VGGT; (b) A series of 11 technical guides covering gender, forest, consent, agricultural investments, governance and law, pastures, investments, commons, first registration, recording rights and valuation; (c) 10 Land Tenure Studies covering cadastral survey, leasing, rural development, gender, rural property tax, land consolidation, decentralisation for rural property tax, access to rural land after conflict, good governance and compulsory acquisition; (d) 12 land tenure journals running from 2010 to 2016; (e) 26 land tenure working papers on assorted subjects; (f) 3 land tenure manuals covering disaster risk management, alternative conflict management and land consolidation pilot projects; (g) 4 land tenure notes covering gender, leasing agricultural land, land consolidation and EU access issues; (h) 11 miscellaneous publications covering, among other things, gender, corruption, natural disasters, open source software, land grabbing and micro-regional planning; (i) 8 working papers on legal empowerment of the poor including country case studies; (j) 4 publications about customary tenure; (k) 47 other publications of a generic nature covering land issues; (l) 11 e-learning courses about land governance; (m) 8 YouTube videos (apart from the ones on VGGT) covering gender, commons and more general topics; (n) 25 annual or semi-annual reports from 1995 to 2009 on land reform, land settlement and cooperatives.
13	FIG Publications	International Federation of Surveyors (FIG)		77 detailed publications with definitions, policy statements and other guidelines including the FIG statement on the cadastre, constituting professional organisations, ethical principles and codes of conduct, women's access to land, standardisation, fit for purpose land administration, cadastre 2014 and beyond, 3D cadastres, etc. https://www.fig.net/resources/publications/figpub/
14	GLTN publications	Global Land Tools Network (GLTN)		129 papers and reports on the GLTN website, covering land issues relating to climate change, gender, conflict, valuation, planning, pro-poor policies, informality and slums, youth, non-state actors involvement, urban land management, the social tenure domain model, global land indicators, VGGT guidelines, acquisition and compensation, social and economic impacts, property tax and indigenous people in urban areas. There are several country case studies and detailed booklets on land in the Muslim world including principles and law and the place of women's land rights. Several publications address how to analyse and monitor land interventions and indicators are included. There is also a tool for costing and financing of land administration services (CoFLAS). https://gltn.net/category/gltn-publications/
15	LANDESA publications	LANDESA		39 papers mainly dealing with the rural sector, women's rights and legal aide. Several country case studies are included. https://www.landesa.org/our-research-publications/landesa-reports/
16	Fit-For-Purpose Land Administration – Guiding Principles for Country Implementation	Enemark, McLaren and Lemmen	2016	This specific GLTN publication provides guidance for closing the security of tenure gap that exists in most developing countries. It describes how to establish Land Administration Systems that can operate efficiently with a focus on developing countries. It particularly addresses the problems with the first time registration of a property in order to be inclusive of all the population rather than just the privileged few that that can afford the existing systems in use. The publication introduces a 'Fit-for-Purpose' approach that allows for building the systems within a relatively short time frame and at affordable costs. The approach is flexible, participatory and allows for incremental improvement over time. The publication,

				this way, provides structured guidance and key principles for designing the spatial, legal and institutional frameworks as a strategy for country specific implementation. 120 pages.
17	Creating a system to record tenure rights and first registration	FAO Technical Guide Nº 9	2017	This publication is singled out from the other FAO publications as it provides guidelines on how to create a registration system for the first time or when the existing system is dysfunctional and does not include many right holders. It identifies the stakeholders and explains the benefits of registration before going on to describe the type of rights that can be recorded and the beneficiaries. Options for first registration of those rights and the design of systems that can securely and safely record the rights and any transactions with those rights are covered. There is also a chapter on legal considerations and a review of developments occurring for future considerations. 63 pages.
18	Improving Ways to Record Tenure Rights	FAO Technical Guide Nº 10	2017	This publication is also singled out from the other FAO publications as it provides guidelines on the specific considerations when improving an existing registration system and making it work better for stakeholders and the public. It addresses customer expectations, office designs, management and business planning, staff skills and capacity, fraud and mistakes prevention, IT, policy and legal frameworks, and future expected changes. 84 pages.
	Other important books or publications, although some are now a bit dated			
19	An Englishman Looks at the Torrens System	Theodore B F Ruoff	1957	The author was a solicitor at the Supreme Court who visited South Australia on the centenary of the establishment of the registration of title system there that had been designed and implemented by Sir Robert Torrens, and so took his name. The book looks critically at the system and many of the basic principles of registration systems, such as the mirror, curtain and insurance principles, were first documented here. 65 pages. (Ruoff later became the Chief Registrar in England and Wales and wrote many additional papers and books on good practice in land registration.)
20	Cadastral Surveys within the Commonwealth	P F Dale	1976	This book deals in detail with all aspects of cadastral survey as practised in countries that have a historical link to the British common law systems and the way in which property descriptions, boundary surveys and the depiction of boundaries on maps of various sorts are made. It includes monumentation, the use of photogrammetric methods, integration with other data sets in the multi-purpose cadastre, survey administration and education and also describes the systems and principles used in 18 commonwealth countries (or regions). 281 pages.
21	Guidelines for the Improvement of Land Registration and Land Information Systems in Developing Countries	Habitat	1990	The focus of these guidelines is to English speaking countries of Eastern, Central and Southern African countries. The guidelines outline the historical development of land registration systems in these regions and the problems that must be addressed. Existing practices are outlines and institutional issues addressed. The way forward from a technical, legal and institutional perspective are outlined. Immediate and longer-term strategies for improvement and development are described. 58 pages.
22	Land Administration Guidelines	Economic Commission for Europe	1996	These guidelines focus on "Countries in Transition", meaning the ex-socialist block of Eastern Europe and Central Asia, including the former Soviet Union. The guidelines introduce the use of land as a resource and different systems for land administration and land management. It addresses legal frameworks, boundary surveying, valuation and property taxes, land-use planning and institutional

				arrangements. Procedures for introducing a land administration system are addressed and an annex using Hungary as an example is utilised. 112 pages.
23	The Effects of Land Registration on Financial Development and Economic Growth	Frank F. G. Byamugisha	1999	This paper lays out a theoretical and conceptual framework for demonstrating the linkages between real estate registration and financial and economic growth. It uses five linkages: (i) the land tenure security and investment incentive linkage; (ii) the land title, collateral and credit linkage; (iii) the land markets, transactions and efficiency linkage; (iv) the labour mobility and efficiency linkage; and (v) the land liquidity, deposit mobilisation and investment linkage. 15 pages.
24	The Mystery of Capital	Hernando de Soto	2000	This book made a very big impact when first published because it explains logically from an economic perspective why there is a fundamental need for effective land registration systems if an economy is to be successful. It explains "why capitalism triumphs in the West but fails everywhere else" and describes how other countries can be as successful if they would enable their 'dead capital' to work for them, utilising (among other things) more effective land registration systems. 288 pages
25	Land Registration as a Business	John Manthorpe	2000	This is in the form of a long paper produced by the ex-Chief Registrar of England and Wales. It examines how land registration needs to work like a business providing good and efficient services to customers. It addresses the use of the private sector in many roles, self-funding and the legal, institutional, financial, procedural and management aspects that lead to those good customer services. Examples from Norway, Canada, Netherlands, Austria and the UK are utilised. 55 pages.
26	Land Policies for Growth and Poverty Reduction	Deininger	2003	This book reports on the importance of land administration and management for economic growth, social cohesion and poverty reduction, plus the impact on governance and sustainable development. It addresses tenure security and land transactions and reviews the changes and impacts across Asia, Latin America, Africa and the former socialist block in Eastern Europe and Central Asia, all based on evidence provided by specific studies in these regions. 239 pages
27	Restrictions of Ownership, leasing, transfer and financing of land and real properties in Europe and North America	UN ECE Working Party on Land Administration/ Federal Land Cadastre Services of Russia	2003	This book provides detailed responses from 30 countries in Europe and North America about restrictions (or freedoms) to ownership, leasing, transfers, financing and investments in land. 193 pages.
28	Inventory of Land Administration Systems in Europe and North America	UN ECE Working Party on Land Administration/ HM Land Registry, UK	2005	An inventory and commentary from 49 jurisdictions in 41 countries about the responsibility for land registration services, cadastral and topographic mapping and land use in each country. For each topic the countries explained what the systems do, what records are kept, their coverage and precision, how they are administered, public access, private sector involvement, costs, financing arrangements, etc. 248 pages.

29	Land Administration in the UNECE Region – Development Trends and Main Principles	Economic Commission for Europe	2005	This book provides a thorough overview of land administration and land management specifically to provide guidance to "countries in transition" that were changing from socialism to more market-based system that included private ownership of land and property in Eastern Europe and Central Asia (behind what used to be called 'the iron curtain'). It is a useful guideline for all countries and includes the place of land administration and management within sustainable development. Policies, laws, institutions and the role of technology as e-society develops is included. The benefits of a good land administration and management system are described. The book also includes sections on valuation and taxation, sustainable land use, boundaries and cadastral survey, adjudication of title, management of organisations and personnel, spatial data frameworks and land markets. 104 pages.
30	Land Law Reform	Bruce, Giovarelli, Rolfes, Bledsoe and Mitchell	2006	Based on experiences from the World Bank and the experiences of the authors, the book aims to show how land law reforms can contribute to the reduction in poverty. The book emphasises the need to look at reducing poverty rather than just improving the economy (which can sometimes have only marginal impact on the disadvantaged). Specific chapters deal with reforms within lending programs from the World Bank, overcoming gender bias, legal frameworks benefitting the rural poor, economic growth from a pro-poor perspective and property rights from perspective of the environment and management of farmland and forests. 259 pages.
31	Real Property Transactions	Zevenbergen, Frank and Stubkjaer	2007	This book focusses on transactions involving real property primarily from a European perspective. It reviews transaction costs, including time, taxes and fees for a number of countries. It uses an ontology based modelling approach so that costs in several countries can be compared, but concludes that there are justifiable differences by country making real comparisons difficult. 279 pages.
32	Building European Spatial data Infrastructures	Ian Masser	2007	This book reviews the use of Geographic Information Systems across local government, utilities, transport, businesses, the environment, etc. across Europe and derives the need for a Spatial Data Infrastructure. It concludes with the importance of the (then) new EU INSPIRE directive. (Infrastructure for Spatial Information in Europe). 95 pages
33	Land Administration and Management Projects (LAMP) in the Europe and Central Asia Region (ECA) Experiences, Lessons Learnt and the Future Agenda	Adlington, Stanley. Palmissano, Sattana and Baldwin	2009	Presentation and paper made to the Conference on Land Governance in Support of the Millennium Development Goals in Washington DC, USA. The paper describes the land agenda in ECA, the economic impacts of the projects and the lessons learned, covering land policy and law, institutional development, Building Capacity, Automation and Information technology, Cadastral Surveying and Surveying Methodologies, Improving Services, Business Orientation, Transparency, Public Awareness, and Monitoring and Evaluation. The Key Issues for the Future Agenda are then described covering: the completion of the projects already started; integrated approaches with land management reflecting environmental and sustainable development concerns; Spatial Data Infrastructures that would underpin new products and services; using technology to improve the management and organisation of geospatial services; and support to governance and the quality and methods of service delivery. Annexes include a list of the 37 projects that had been concluded or were in operation at that time; the land registration as a business paper from Manthorpe (see Nº 25, above); and a summary report on each project outcome and results. 77 pages, excluding the annexes.

34	Assessing Spatial Data Infrastructures	Lukasz Grus	2010	This book was submitted as part of a PhD requirement. The complexity of Spatial Data Infrastructure (SDI) is outlined and an assessment framework developed. 157 pages.
35	Land Markets	Dale, Mahoney and McLaren	2011	This is a Royal Institution of Chartered Surveyors publication addressing the subject of land markets and their importance to the economy. It includes the key factors within land administration that must be provided and has an annex with examples comprising Bulgaria, Kyrgyz Republic, Lao PDR, Paraguay and Uganda.
36	Corruption in the Land Sector	Transparency International	2011	Working Paper #4 outlines the corruption that is endemic within the land sector. It identifies the linkages with overall government corruption and provides evidence that it is pervasive affecting recording of titles, fraud, forgery and unfair land acquisition and use. Examples and data provided. 12 pages.
37	Economic Impact of 20 Years of ECA Land Registration Projects	Satana, Torhonen, Anand and Adlington	2014	Paper presented at the Annual World Bank Conference on Land and Poverty in 2014 outlines with specific data the economic impact of registration projects in 13 countries of the ECA region where projects had been completed.
38	Systematic Property Registration: Risks and Remedies	Lamb, Endo and Stanley	2016	This publication focusses on some of the key issues to address during a systematic registration project, primarily from a legal and implementation perspective. It addresses some of the key issues, challenges to be faced and how they can be dealt with. 61 pages. http://documents.worldbank.org/curated/en/163361485942263162/Systematic-property-registration-risks-and-remedies
39	Securing Land Rights at Scale. Lessons and guiding principles from DFID land tenure regularization and land sector support programmes.	English, Locke, Quan and Feyertag	2019	This report provides a description of the projects recently funded by DFID in Guyana, Rwanda, Nigeria, Ethiopia, Tanzania and Mozambique and describes the key findings and lessons learned from these projects. The size and successes, and some of the drawbacks, of the projects in Rwanda and Ethiopia are particularly interesting for the lessons they provide. https://landportal.org/library/resources/securing-land-rights-scale

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Annex 2 - Abbreviations and Glossary

This glossary focusses on words and phrases utilised in this book. The definitions and descriptions are partly taken from the glossary in book reference 7 in Annex 1 (with permission of the authors) and some information supplied by Tony Lamb in his work for the FAO over the past few years. The glossary in book reference 7 contains more definitions and explanations.

Adjudication	The process of making a decision by applying the law to the facts as identified.
Adjudication of title	The process in which the parcel boundaries, ownership and rights to land are officially determined and then registered in a government run registry. Adjudication does not change the rights or boundaries, but rather it recognises rights and the location of boundaries that already exist.
Adverse possession	The occupation of another person's land without that person's permission, also known as 'squatting'. The possession by the trespasser, occupier or squatter is 'adverse' (in the sense of 'against') the owner. Adverse possession for a long period (usually set in law) gives the person possessing the land certain rights, the most common of which is the right of ownership over the land, although easements can also be created in some legal systems by long-term use.
Allocation	The process of assigning rights to land to a person (or corporation) within the rules defined by the land tenure system. Rights can be assigned by the sovereign power (nation state or indigenous) through original grants or through reallocations following expropriation, purchase or reallocation. Rights can also be allocated by private persons to others through sales, leases, inheritance, etc.
Allodial Title	A title that is authoritative and absolute, and not held through the State (as with a tribal king or paramount chief in many African countries). Land ownership in the USA is allodial. Contrast with 'fee simple' in which the rights are held subject to an overlord, such as the State or monarch.
Amalgamation	The joining or unification of two or more basic property objects (such as land parcels) into one object.
Appraisal	An estimation of the market value of real property using one of several methods.
Assignment	The process or the document of transfer of property rights from one person to another, for example in a sale, lease or mortgage.
Blockchain	A system in which a record of transactions made (usually using bitcoin or another cryptocurrency) are maintained across several computers that are linked in a peer-to-peer network. Some countries are experimenting with the use of blockchain for registration systems.
Cadastre	A key land administration record, which is based on land parcels, that is used for land management purposes. The International Federation of Surveyors (FIG) defines the cadastre as follows: *A cadastre is normally a parcel based and up-to-date land information system containing a record of interests in land (i.e. rights, restrictions and responsibilities). It usually includes a geometric description of land parcels, usually represented on a cadastral map, linked to other records describing the nature of the interests, and ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. valuation and equitable taxation), legal purposes …, to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environmental protection.* Related terms: *Cadastral index map:* a map showing all land within a specific area, including parcel boundaries, administrative boundaries, unique parcel

	identifiers, road reserves and administrative names. A map showing all the properties that are registered in the land registry can be known as a 'registry index map'. *Cadastral map*: an official map showing a land parcel's boundaries, its unique parcel number and, often, details of the adjoining parcels and roads. Cadastral maps may also show forms of land use such as buildings. *Cadastral surveying*: the identification, measurement and recording of land parcel boundaries and other objects.
Civil Law	A legal system originating in Europe as a heritage of the Roman Law. Core principles are codified into a referable system which serves as the primary source of law.
Collective Ownership	Situation in which the holders of the tenure rights are clearly defined as a collective group, whether as a group of individuals or as members of an association.
Common Law	A legal system originating from England which is based on judge-made decisions that provide authority through precedent.
Communal Ownership	Ownership of tenure rights by the community as a whole. It often includes rights to pastures and forest that the whole community can exercise but excludes private homes and fields. In communal ownership, members of the community have the right to use, but they might not have the right to transfer their right to others, or they may have very limited rights to transfer. Decisions about the communally owned rights are made by the community as a whole. A person obtains ownership of communal rights by becoming a member of the community, such as by birth or marriage. The names of the whole community cannot be listed on a register of rights and normally a representative group would be recorded in trust for the community.
CORS – Continuously Operating Reference System	A network of linked reference stations with accurate known coordinates that link with Global Navigation Satellite Systems (GNSS) and provide correction data to commercially available GNSS receivers so that these receivers can accurately record the coordinates of points to be surveyed.
Condominium	A system for dividing a property into parts that are owned by two or more individuals, with a commonly owned area, and also a "condominium association" (which is a type of company) to own and manage the commonly owned area. This form of co-ownership of property is common for apartment blocks and offices but can be also used for any type of property where there is some commonly owned area. Also known as "strata title" in some legal systems and "commonhold" in the UK.
Conveyance	A method or document whereby rights in land are transferred from one owner to another. *Also*, Conveyancer is the person who is permitted or licensed to prepare the documentation and register the transaction with the authorities.
Co-ownership	Where two or more people own a property together, with each person having the right to use the property without restrictions. A co-owner can usually sell his or her share without the other owner's agreement and can leave his or her share by inheritance to another person.
Customary tenure	The holding of land in accordance with customary law. Local rules, institutions and practices governing land have, over time and use, gained social legitimacy and become embedded in the fabric of a society. Although customary rules are not often written down, they enjoy widespread social acceptance and are generally adhered to by members of a local population. Customary tenure is usually associated with indigenous communities and administered in accordance with their customs.
CV – Curriculum Vitae	A brief account of a person's education, qualifications and previous occupations.
Deed	A document that has a legal effect when signed, such as a transfer of land or mortgage.
Deeds registry	A government run office at which deeds can be officially recorded. Often, a copy of the deed is kept at the deeds registry, and an indexing system allows anyone to find a deed in relation to a particular seller, buyer or (sometimes) property.

De facto rights	Rights that exist in reality or "on the ground" but do not follow the requirements specified in laws. They may be different from de jure rights.
De jure rights	Rights that exist because of formal law, which may be different from de facto rights.
Digitising	The process of converting analogue data such as graphic maps or paper documents into digital form, which often includes the capture of metadata about the maps or documents, such as the names, type of document, date and land parcel identifiers.
Disaster copy	A copy of the record that is kept in a secure location in case the main record is damaged or destroyed, for example by flood, fire or even theft. Also known as "disaster recovery copy" or "back up copy"
DMS – Document Management System	Term usually used in information technology to refer to a system for tracking, managing and storing documents in electronic form. It would also normally track different versions of documents and references to the persons who created and modified the documents.
Easement	A right to do something on another person's land on a non-exclusive basis, such as to walk or drive across the land. Known as "servitude" in many legal systems, particularly civil law systems.
EDM – Electronic Distance Measurement	Term used to refer to surveying equipment that measures distances using electromagnetic waves.
Eminent domain	In the USA and some other countries, the right of the government to take private property for public use, usually accompanied by the payment of just compensation to the property owner. See also 'expropriation'.
Expropriation	The compulsory deprivation or taking away of an owner's rights to property by the State. Common reasons for the expropriation of land include for public infrastructure such as construction of roads and railways, for easements for power cables and pipelines, for hospitals, schools and public housing. In some countries, it may also for example form a part of land reform policy to compulsorily acquire land for redistribution. The processes of expropriation, which is also known as 'compulsory acquisition' and 'resumption', vary from country to country, but they usually include obligations and timetables for the procedures, such as giving notices. In most countries, there is a constitutional guarantee that where property is expropriated, then the deprived owner will receive compensation. Other people with interests in the property, such as tenants, can also be compensated. The legislation will often include rules on the basis for setting compensation for the loss of the owner expropriated.
FIG	Fédération Internationale des Géomètres or International Federation of Surveyors, established in 1878, and is the UN recognised global organisation for the profession of surveying.
First registration	The process of investigating ownership and other rights, and locating the boundaries of land, which leads to the creation of a written (or digital) record in a government-run record-keeping system. First registration can be conducted by means of 'sporadic registration' or 'systematic registration. See also 'adjudication of title'.
Fit for Purpose	In developing and maintaining registration and cadastre systems, the term commonly used to promote the most logical approach to completing the task at a reasonable cost, time and level of precision in order to meet the needs of society – as opposed to an alternative view that precise measurements and detailed information are required in all instances.
Fixed boundary	The legal boundary of a property where the precise position or location has been agreed by the neighbouring parties and recorded in accordance with the rules and standards defined in law. A fixed boundary is usually defined by special marks or markers placed by a surveyor when the surveyor establishes the boundary, except where natural or artificial features are adopted. Natural or artificial features can include corners of buildings, fence posts, banks of rivers, etc. See Chapter 7.

General boundary	A boundary that is defined by a physical feature on the ground, such as a wall, fence, hedge, tree line or water course, but for which the precise location of the boundary line on the feature has not been officially determined.
Geodetic framework or network	A spatial framework of points whose position has been precisely determined on the surface of the earth.
Geocode	A set of geographical coordinates corresponding to a location. When utilised in registration and cadastre systems, the centre point of a parcel or object is sometimes geocoded and then used as a unique identifier for the land parcel or object.
Geodesy	The science of accurately measuring and understanding the Earth's geometric shape, orientation in space and gravitational field.
Geospatial data	Information that identifies the geographic location of features and boundaries. Geospatial technology refers to all the technology used to acquire, manipulate and store geographic data, such as remote sensing, GIS, GNSS (see below), etc.
GIS – Geographic Information System	A system for capturing, storing, checking, integrating, analysing and displaying data about the Earth that are spatially referenced. It is normally taken to include a spatially referenced database and appropriate applications software.
GNSS – Global Navigation Satellite System	The generic term for the system of fixing positions on the surface of the earth by measuring signals from satellites orbiting the earth.
GPS – Global Positioning System	The GNSS that was established and is maintained by the USA. Russia has a similar system called GLONASS, China has one called BeiDou and the European Union has one called Galileo.
Guaranteed title	A title for which the government registration authority is responsible for paying compensation if any losses occur in relation to the ownership, such as losses due to errors in the title and, in some countries, due to fraud. See 'indefeasible title'.
ICT – Information Communication Technology	Similar to IT (Information Technology), it is the term used to cover the inclusion of communications and integration of telecommunications in the IT part, which commonly refers to the software and hardware required for computer systems.
Immovable property	Land and the things that are permanently attached to the land, such as buildings. Known as 'real estate' in English (common law) systems.
Indefeasible title	A government record of title to land that cannot be challenged, even in court. Some indefeasible title systems have a small number of exceptions, and they also have a compensation system to cover losses due to errors or fraud.
Indemnity	An obligation to provide monetary (or other) compensation to the owner of land or other tenure right holder in case the land is taken, destroyed or damaged.
Informal tenure	Ownership and other rights and duties relating to land or other natural resource based on custom, tradition or some other form of non-official tenure rules. Informal tenure can be just as legitimate as formal tenure, but its source or basis lies not in the country's laws but in custom, tradition, etc. See 'customary tenure'. It may also refer to fairly recent ways of acquiring or transferring real property rights in urban or peri-urban areas where residents will not, or cannot, use more formal systems because of the complexity, cost or other difficulties in using formal systems.
Joint ownership	In English law, joint ownership is a sub-category of co-ownership with specific rules. Under joint ownership, when one owner dies, then the other owner(s) gets the land automatically, without the need for inheritance. Often, people use co-ownership and joint ownership interchangeably, particularly in countries with non-English legal (or common law) systems.

LADM – Land Administration Domain Model	ISO standard 19152:2012 that can be used specifically for establishing computerised land administration systems. See 'land administration'.
Land administration	The processes of determining, recording and disseminating information about land and the ownership, value and use of land. Land administration includes the set of systems and processes for making land tenure rules operational. It includes the administration of land rights, land use regulations, and land valuation and taxation. Land administration can be carried out by government agencies, or through customary leaders. Land administration, whether formal or informal, comprises an extensive range of systems and processes to administer: • Land rights: the allocation of rights in land; the delimitation of boundaries of parcels for which the rights are allocated; the transfer from one party to another through sale, lease, loan, gift or inheritance; provision of land related information to the public; and the adjudication of doubts and disputes regarding rights and parcel boundaries. • Land-use regulation: land-use planning and enforcement and the adjudication of land use conflicts. • Land valuation and taxation: the valuing of land rights, collection of revenues through based-on-land values and rates of taxation, and the adjudication of land valuation and taxation disputes. • Land development: the processes related to implementation of new neighbourhoods, utilities, infrastructures and construction works. These processes may include expropriation and any necessary planning and building permits etc.
Land certificate	In a land title registry, a document issued by the government to the owner, containing details of the land (such as its location and unique number), the owner's name and rights, and any obligations relating to the property. It is a copy of the record for the land that is kept in the registration system. The land certificate provides strong evidence of the owner's rights to the land.
Land consolidation	The process through which small parcels or shares in land are exchanged for one or more larger parcels that are approximately equivalent in value to the original holding. It creates parcels of more economic and rational size, shape and location.
Land management	The activities associated with making informed decisions about the allocation, use and development of natural resources. It includes resource management, land administration, land policy and land information management. The objective is to put the country's natural resources to best use and achieve social, environmental and economic sustainable development. The International Federation of Surveyors (FIG) has proposed the following definition: *the process of managing the use and development of land resources. Some of the critical, and sometimes conflicting, objectives that must be addressed by land management policies today include:* • *improving the efficiency of land resource use to support the rapidly growing population of many countries;* • *providing incentives for development, including the provision of residential housing and basic infrastructure such as sewer and water facilities;* • *protecting the natural environment from degradation;* • *providing equitable and efficient access to the economic benefits of land and real estate markets;* • *supporting government services through taxation and fees related to land and improvements.*
Land parcel	A specific area of land with defined boundaries. The boundaries are represented by a closed polygon. Also known as 'lot' or a 'plot' in some systems.

Land policy	The set of intentions embodied in one or more policy documents that are adopted by the government to organise land tenure and land use. Land policy will usually be guided by a set of basic principles, some of which owe their origin to international agreements, others to specific national circumstances. These principles can include: • encouragement of efficiency and promotion of economic development; • promotion of equality and social justice; • preservation of the environment and sustainable patterns of land use. Not all countries have a coherent, consciously integrated and formally stated land policy.
Land reform	A generic term for modifications in the legal and institutional framework governing land policy. Land reform is intended to deliver the desired changes in areas of politics, economics and society. The most common types of land reform are probably those dealing with reallocations of land and those redistributing legal rights of ownership. Land reform is generally a part of agrarian reform. There is a common perception that land reform is the prerogative of developing and transforming economies. The reality is that land policy and the legislative and institutional framework implementing that policy are constantly changing in all societies as political, economic and social circumstances change.
Land register	A record or list of each land parcel, which shows the ownership details and rights associated with each land parcel. The land register is also used to record the transactions with the rights. Changes to land parcel boundaries should also be recorded in the land register. The land register is usually open to the public to find out details of the land parcels, ownership and rights. Two main objectives of the land register are to protect rights in land and make it easier and cheaper to sell, leave by inheritance, gift, lease or mortgage those rights.
Land registrar	The official who is responsible for keeping the land register at the land registry office.
Land registration	The process of recording details of land parcels, the rights in relation to them and the ownership of those rights, usually in a government run registration office.
Land registry or registration office	The government institution or office responsible for the land register and land registration. The name of the office and the responsibilities vary considerably between countries, as does the staffing and equipment of the office. Land registry offices can be decentralised, with two or more around the country, or centralised, with a single office servicing the entire country.
Land rights	Entitlements that affect land, such as the right to use, to occupy, to sell and to leave by inheritance. More than one person may hold rights to a parcel of land, which gives rise to the concept of a 'bundle of rights' in English law.
Land tenure	The relationship, whether legally or customarily defined, among people, as individuals or groups, with respect to land and associated natural resources (water, trees, minerals, wildlife, etc.). Rules of tenure define how property rights in land are to be allocated within societies. Land tenure determines who can use what resources, for how long, and under what conditions.
Land title	An official document, which is usually issued to the owner by the land registry, showing the details of the land parcel, the name of the owner, the rights in relation to the land parcel, and the name and rights of any other persons, such as a tenant or lender. The land title provides evidence of a person's rights to the land. A land title can also be called a 'certificate of title' or 'title deed'.
Land use	The arrangements, activities and inputs people undertake on land to produce, change or maintain it. A more inclusive definition of land use is often used in practice and land usage is often monitored and restricted by local government. Any given area of land is usually used to satisfy multiple objectives or purposes. Land use information provides answers to one or more of the following questions concerning the current use of the land:

	• What: the purpose of activities undertaken - e.g. the specific products and services, that are sought. • Where: the geographic location and extent of the spatial unit under consideration. • When: the temporal aspects of various activities undertaken - e.g. the sequence of carried out operations like planting, weeding, etc. • How: the technologies employed - e.g. technological inputs/ materials such as fertilizer, irrigation, labour, etc. • How much: quantitative measures - e.g. areas, products. • Why: the reasons underlying the current land use - e.g. land tenure, labour costs, market conditions, etc.
Land use planning	The systematic assessment of land's potential, alternative patterns of land use and other physical, social and economic conditions, for the purpose of selecting and adopting land use options which are most beneficial to society and land users without degrading the resources or the environment, together with the selection of measures most likely to encourage such land uses.
Lease	An agreement between an owner (known as the landlord or lessor) and another person (known as the tenant or lessee) that gives the tenant certain rights over the property for a limited time. The rights usually include the right to occupy the property and occasionally the right to transfer the lease to another person, sub-lease, build on the property and mortgage the lease rights. A lease can be in writing or by oral agreement. It is usually for a fixed period and involves the payment of rent to the landlord.
Licensed Surveyor	A person (or company) who has completed a course of study and is professionally qualified as a land surveyor, and (usually) has passed a test demonstrating an understanding of land law. Once licensed, they are allowed to be responsible for undertaking parcel boundary surveys for attachment to a deed or inclusion in the cadastre as part of the registration index map. Not all countries require licensing, and in some countries only government surveyors are permitted to undertake property boundary surveys.
LIS – Land Information System	A system for acquiring, processing, storing and distributing information about land. The International Federation of Surveyors (FIG) has proposed the following definition:… *a tool for legal, administrative and economic decision-making and an aid for planning and development. A land information system consists, on the one hand, of a database containing spatially referenced land related data for a defined area and, on the other, of procedures and techniques for the systematic collection, updating, processing and distribution of the data. The base of a land information system is a uniform spatial referencing system, which also simplifies the linking of data within the system with other land-related data.*
LGAF – Land Governance Assessment Framework	A diagnostic tool to help diagnose and benchmark land governance factors to help countries prioritise reforms and monitor progress with those reforms. See book reference 10 in Annex 1.
LiDAR – Light Detection and Ranging	Remote sensing method that uses light in the form of a pulsed laser to measure distances to objects. It can be used for accurate mapping from the air (aeroplanes, drones or helicopters), on vehicles or carried on a back-pack.
M&E – Monitoring and Evaluation	To gather information on something from time to time, often using a pre-agreed set of indicators. The information can then be compared over time. The results would be evaluated so that decisions on changes to approach and outcomes can be made.
Monument	Also, boundary markers. An object placed on the corner or turning point of a property boundary to show the limits of the boundary. Occasionally on very long boundaries they may be placed 'on-line' between two corner points. Monuments may have to be made of set materials (such as an iron rod or concrete block) or have a specific size and shape, but are also often made from brick or local materials.

NGO – Non Governmental Organisation	Usually a non-profit organisation that operates independently of government and whose purpose is to address social or political issues. In land administration and management such organisations often monitor the fairness of any land reform measures to ensure that poorer members of society, the environment, women's rights, indigenous people, etc. benefit from the reforms.
Notary	A legally qualified person who formalises transactions with property. There are two main types of notaries: those in the German/Swiss tradition and those in the French/Spanish tradition. Their roles vary depending on the tradition, but in general, they make a transaction official by affixing their stamp and signature. In many places, they keep an archive of all transactions. They generally report to the Ministry of Justice. Not all countries utilise notaries for transactions with property.
Open Source	Software for which the original source code is made freely available and may be redistributed and modified.
Orthophotomap	A map that looks like an aerial photograph or satellite image, but which has been rectified to make it geometrically accurate. Similarly, orthophotograph, orthoimage, orthophotoplan.
PAD – Project Appraisal Document	Term used by the World Bank for the document produced by the World Bank team to assess (and appraise) a project prepared and proposed by a government body for funding or support. A list of PADs is contained in Annex 3.
PIU – Project Implementation Unit.	Also, PMU – Project Management Unit. The team responsible for managing and implementing a project. See Chapter 5.
PPP – Public Private Partnership	A long-term contract between a private party (usually a company) and a government entity (public body) that delegates some of its government responsibilities to the private party and in which the private party bears the risk and management responsibility for the task and remuneration is linked to performance. This arrangement has been utilised for land registration in some countries.
Prescription	The process of gaining rights over another person's land by occupying it over an extended period of time, either without the owner's permission or against the owner's objection. The period of time varies from country to country, and sometimes also depends on whether the occupation was innocent or not. Other terms used are 'prescriptive rights', 'adverse possession' and 'squatter's rights'.
Projection	In mapping this is the method of showing the features on the Earth (which is approximately spherical in shape) on a flat piece of paper. Any method for doing this will involve some distortions and the projection utilised will depend on the purpose of the map and the area covered.
Real estate or real property	In common law (English) systems, real property means land and any things attached to the land, including buildings, apartments and other constructions and natural objects such as trees. Known as 'immovable property' in civil law systems.
Regularisation of ownership	In cases of informal or illegal occupation of land, the process where the State recognises the rights as legal. The process is usually authorised by a law, and it gives the occupiers the ownership rights to the land. It commonly occurs in peri-urban areas where large numbers of people have established their homes, often out of necessity due to conflict, famine or natural disaster. Regularisation can also apply to buildings that were built without official permission. Regularisation is another form of allocation of land.
Restitution	The restoration of rights in land to a former owner (or that person's descendants) where the land was taken by the State. This occurred on a massive scale after the countries of Central and Eastern Europe changed from socialist economies to market economies and returned land (or paid compensation) to the descendants of the people who had land taken from them under communist regimes.
Root of title	The series of legal documents (or deeds) that prove ownership or other rights to a real estate object. The series of documents would normally show the transfer of the rights from the original grant through each transfer to the current legal right holder. In many jurisdictions it is not required to trace the root of title back to the original grant and a set time period is utilised so that if you can show uninterrupted and clear title going back for, say, 30 years it is considered that the root of title is complete.

SDI – Spatial Data Infrastructure	A framework of geographic data and metadata, users and tools that are connected in order to use the spatial data in an efficient and flexible way. It can also be described as the technology, policies, standards, human resources and related activities that are necessary to acquire, process, distribute, use, maintain and preserve spatial data.
Sporadic registration	Registering land and the rights associated with it on a case-by-case basis for the first time ('first registration'). Sporadic registration is usually based on a specific action of the owner of the property to start the registration process. The owner is responsible for submitting an application for 'first registration', and needs to provide all the necessary documents (such as a description of the parcel, often with a survey plan prepared by a surveyor), and evidence of the rights (such as ownership, any leases or mortgages, any easements or servitudes, which is usually prepared by a lawyer). Sporadic registration has the advantage that it may be less expensive in the short-term than systematic registration (for the government, at least) and that it tends to target most economically active property first. It has the disadvantage that it will take much longer to achieve complete coverage of all titles within the jurisdiction, it is more costly on a per parcel basis, and it is not such a public, open process as systematic registration.
Sustainable Development Goals	Developed by the United Nations as a blueprint to achieve a better and more sustainable future for all. They address global challenges including those related to poverty, inequality, climate change, environmental degradation, peace and justice. There are 17 Goals to be achieved by 2030. Land issues are covered within: Goal 1 to reduce poverty (target 1.4); Goal 2 to reduce hunger (targets 2.3 and 2.4); Goal 5 to promote gender equality (target 5.a); Goal 11 to provide sustainable cities and communities (targets 11.1, 11.3 and 11.7); and Goal 15 to improve life on land (targets 15.1, 15.2 and 15.3).
Systematic registration	Registering land for the first time ('first registration') using a systematic approach to surveying, adjudicating and registering parcels on a regular, area by area basis that covers all the land in each area. It has typically been done through a government program. Systematic registration is relatively expensive in budgetary terms due to the typically large numbers of parcels being dealt with, although on a per parcel basis the average cost may be significantly lower than with sporadic registration as a result of economies of scale. Systematic registration has the advantage that it will provide more comprehensive land information within a given time frame. It will also give more people improved rights more quickly, thus supporting the general development impact of increased security of ownership and reduced transaction costs.
Tenure	The relationship, whether legally or customarily defined, between people as individuals or groups, with respect to land and other natural resources. The rules of tenure define how access is granted to rights to use, control and transfer resources, as well as associated responsibilities and restrictions. Tenure is often expressed in terms of the rights (and also the duties) that someone has in relation to a particular parcel of land. Tenure is another way of referring to the rights to possess, occupy and use, harvest and collect produce, sell, gift, mortgage, lease out, leave by inheritance, etc. Tenure rights can also include the right to exclude others from occupying or using the land, particularly where a person has an exclusive right to all the land. There are also other cases where people are not the owners of the land, but they still have tenure rights, such as a use right, a lease or license, or non-exclusive rights, such as a right to collect food, water or other material from the land, even though someone else has the main rights related to that land.
Theodolite	A precision optical instrument for measuring angles between points. When undertaking a survey the process normally involved measuring angles using a theodolite and measuring distances using another means, then calculating the positions of points from this information. Theodolites are now rarely used as Total Stations (see below) and GNSS equipment are commonly utilised.
Title	The document giving evidence of a person's right to land, or 'entitlement', which is usually in the form of a document known as a "certificate of title", 'land title', 'title deed' or 'title certificate'. Title is also used to mean "ownership".

Title registration system	A government run system for recording properties, ownership and transactions with property rights. The title registration system shows details of the property and the name and rights of the owner and others (such as tenant, lender). The registration of title system differs from a deeds registration system because: 1) the transaction only becomes effective on registration, 2) the land registry issues an updated copy of the register (sometimes called a 'certificate of title') to the owner after it has registered a transaction, and 3) the registration of title system commonly has some form of guarantee as to the accuracy of the information. Because a transaction is only legally effective once it is registered, a person only becomes the 'owner' after he or she has registered the transfer or inheritance documents at the land title registry. This system has been described as 'title by registration', because it is the act of registration that makes someone the owner of the land. In a deeds system, which is 'registration of title', the person is already the owner by means of the deed, and he or she is simply recording his or her ownership at the deeds registry.
Total Station	A precision electronic and optical instrument, which now also includes computational capabilities, used for land surveying. It effectively combines the process of measuring angles and distances in one instrument. Some total stations include a capacity to do all calculations and drawings necessary for field survey work.
Traverse	A method of field survey in which a series of field survey points along a route from one known coordinated control point to another known coordinated control point are measured in order to establish a number of new known coordinated points. The methodology uses bearings (angles) and distances to calculate the coordinates of each subsequent point. Each coordinated point can then be used as a basis for surveying property boundaries, buildings or other features, and including them in a plan or a map.
TS – Technical Specifications	Documented requirements to be satisfied by a material or for a design, product or service. In this book the term has been used to refer to the production of an ICT system.
UN FAO	United Nations Food and Agricultural Organization. A specialised agency of the United Nations that leads international efforts to defeat hunger. It is the agency responsible for developing the VGGT (see below) through its Land Tenure unit.
Unique parcel identifier (UPI)	A number (or sometimes a combination of numbers and letters) that identifies a land parcel or unit in a certain area that is used only for that land parcel. Parcel identifiers sometimes incorporate letters or numbers referring to the administrative area, such as the district or province.
Urban planning	An approach to investigating and making decisions about how land will be used in urban areas, whether for housing, commerce, industry, recreation or other purposes. It aims to take into account all the urban society's needs and identify land that can be used to meet those needs in the most efficient and harmonious way.
VGGT	The Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security. See book reference 9 in Annex 1 for more details.
VHR – Very High Resolution	Term used to describe satellite imagery that has sub-metre resolution and can therefore be used for large-scale mapping and used for cadastral surveying and mapping.

Annex 3 - World Bank Funded Project Appraisal Documents for Land Administration and Management

Year	Country	Project Name
PAD dated 10/11/1997.	Romania	General Cadastre and Land Registration Project
(Earlier Projects used a different	Armenia	Title Registration Project
project document format)	Peru	Urban Property Rights Project
1998	Moldova	First Cadastre Project
	Guatemala	Land Administration Project
1999	Slovenia	Real Estate Registration Project
	Guatemala	Land Fund Project
2000	Philippines	Land Administration and Management Project
	Honduras	Access to Land Pilot
	Kyrgyz Republic	Land and Real Estate Registration Project
	Brazil	Land Based Poverty Alleviation Project
	Poland	Strengthening Land Administration and Registration Processes
2001	Sri Lanka	Land Titling and Related Services Project
	Bulgaria	Registration and Cadastre Project
	Panama	Land Administration Project
	Bolivia	National Land Administration (Supplemental)
2002	Cambodia	Land Management and Administration Project
	Croatia	Real Property Registration and Cadastre Project
	Nicaragua	Land Administration
	Laos	Second Land Titling Project
2003	Ghana	Land Administration Project
	Ukraine	Rural Land Titling and Cadastre Development Project

	Indonesia	Land Management and Policy development Project
	Honduras	Land Administration Program
	Malawi	Community-Based Rural Land Development Project
2004	Serbia	Real Estate Cadastre and Registration Project
	West Bank and Gaza	Land Administration
	Indonesia	Reconstruction of Aceh Land Administration System Project
	Mexico	Access to Land for Young Farmers
2005	Russia	Cadastre Development Project
	El Salvador	Land Administration II
	Philippines	Land Administration and Management II
	Macedonia	Real Estate Cadastre and Registration Project
	Tajikistan	Land Registration and Cadastre System for Sustainable Agriculture Project
	Moldova	Additional Financing for the First Cadastre Project
2006	Bosnia and Herzegovina	Land Registration Project
	Peru	Real Property Rights Consolidation Project
	Guatemala	Land Administration II
	Russia	Registration Project
	Bolivia	Land for Agricultural development Project
2007	Azerbaijan	Real Estate Registration Project
	Albania	Land Administration and Management Project
	Pakistan	Punjab Land Records Management and Information System Project
	Kyrgyz Republic	Second Land and real Estate Registration Project
	Turkey	Land Registration and Cadastre Modernization Project
2008	Cambodia	Land Allocation for Social and Economic Development
	Vietnam	Land Administration Project
	Montenegro	Land Administration and Management Project
	Malawi	Community-Based Rural Land Development Project
2009	Kosovo	Real Estate Cadastre and Registration Project

2010	Nicaragua	Land Administration Project Additional Financing
	Croatia	Integrated Land Administration System Project
2011	Ghana	Land Administration II Project
	Honduras	Land Administration II Project
	West Bank and Gaza	Second Land Administration Project
2012	Bosnia and Herzegovina	Real Estate Registration Project
	Pakistan	Punjab Land Records Management and Information System Additional Financing Project
	Philippines	Second Land Administration and Management Project Additional Financing
2013	Nicaragua	Second Land Administration Project in Support of Nicaragua land Program
2014	Tajikistan	Land Registration and Cadastre System for Sustainable Agriculture Additional Financing Project
	Uzbekistan	Modernization of Real Property Registration and Cadastre Project
2015	Serbia	Real estate Management Project
2016	Vietnam	Project for Improved Land Governance and Databases
2017	Liberia	Land Administration Project
	Kosovo	Real Estate and Geospatial Infrastructure Project
	Cote d'Ivoire	Land Policy Improvement and Implementation Project
	Indonesia	Program to Accelerate Agrarian Reform (One Map) Project
2018	Lebanon	Land Administration Modernization Project
	Nicaragua	Property Rights Strengthening Project
	Mozambique	Land Administration Project
	Moldova	Land Registration and Property Valuation Project
	Afghanistan	Land Administration System Project
2019	Columbia	Multipurpose Cadastre Project
	West Bank and Gaza	Real Estate Registration Project