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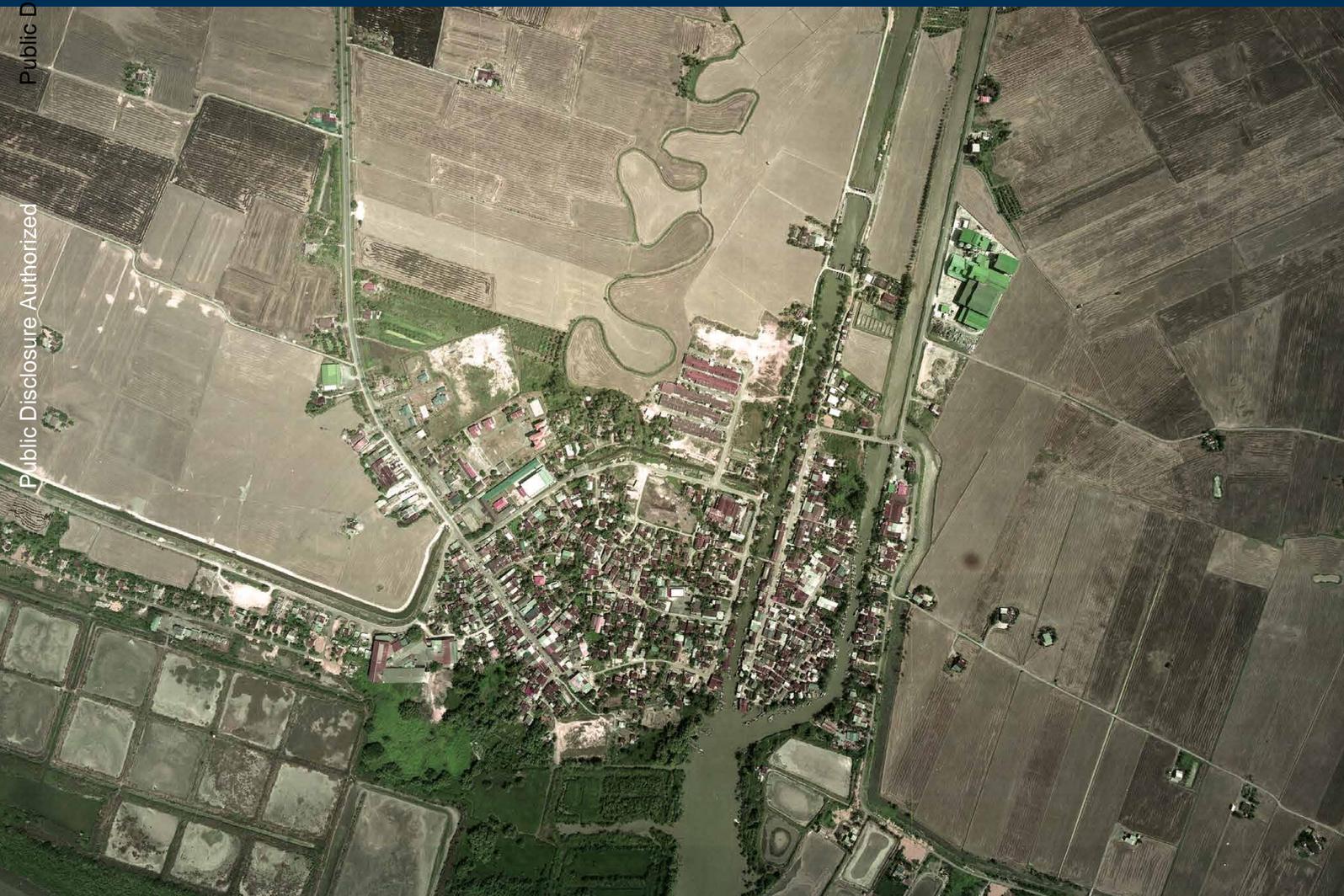
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NOVEMBER 2017

THE MALAYSIA DEVELOPMENT EXPERIENCE SERIES

Enhancing Public Sector Performance

Malaysia's Experience with Transforming
Land Administration



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About KNOWLEDGE & RESEARCH

The World Bank Group's current partnership with Malaysia is focused on knowledge-sharing. It is centered on support for Malaysia's vision to join the ranks of high-income economies by 2020 through inclusive and sustainable growth, and to share its lessons with developing countries.

In March 2016, the World Bank Group officially launched its Global Knowledge and Research Hub in Malaysia. The Hub is the first of its kind, serving both as a field presence in Malaysia and as a global knowledge and research hub. It focuses on sharing Malaysia's people-centered development expertise and creating new innovative policy research on local, regional and global issues.

Knowledge & Research reports are flagship work emanating from the teams based in the Malaysia Hub.

The Malaysia Development Experience Series captures key lessons from Malaysia relevant for emerging economies in Asia, Africa and elsewhere that are transitioning out of poverty and into shared prosperity.

Cover Photo: Aerial shot of Kuala Sanglang in Perlis. Photo courtesy of Ministry of Natural Resources and Environment, Malaysia.

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Please contact **Kathrine Kelm**, the lead author of this report, at kkelm@worldbank.org if you have questions or comments with respect to content.

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The report is based on information as of February 2017.

Foreword

Franklin D. Roosevelt once said: *"We think of our land and water and human resources not as static and sterile possessions, but as life-giving assets to be directed by wise provisions for future days."*

Those words continue to ring true today. Land represents one of the key sources of wealth for a country with economic, social and environmental dimensions. Transparent and efficient land administration and management systems allow land assets to be maximized for economic growth, sustainable development, food security and social cohesion. Providing for secure land rights is embodied in the Constitution. Land-related investments have enabled Malaysia's transformation over the past three decades in both the rural and urban areas.

Realizing efficient delivery of land administration services is a strategic goal for Malaysia and for the Ministry of Natural Resources and Environment. Providing reliable and affordable access to information on land rights and technical cadastral aspects have allowed the land market to grow and function as an economic driver for the country.

Malaysia offers lessons for other countries seeking to transform their economies using land. Coordination through the National Land Council and a strong focus on consensus have facilitated technical, legal and institutional solutions, despite the challenges that Malaysia faces with the division of responsibilities for land administration between the State and Federal level. In addition, the adoption of digital technology for land information has transformed service delivery, as evidenced in the World Bank Doing Business Rankings.

Malaysia moves forward to be amongst the top countries in the world in economic development, citizen well-being, and innovation by the year 2050. The Prime Minister said recently in the Global Transformation Forum: *"The National Transformation Program aims to generate benefits for all Malaysians. It is key that no Malaysian gets left behind; that the needs of all our people are met; and that all communities, whether large or small, are able to contribute to and share the wealth of the country."*

In this process, a highly concerted effort between the Federal Government and the State Government is crucial to bring about a total revamp in land administration. Gone are the days when archaic statutes and intricate procedures were part-and-parcel of Malaysia's land administration. Current land policies are dynamic and visionary, trying to take into account the needs of a globalized economy.

It is an honor that the World Bank is documenting lessons from the progress Malaysia has made with reforms for land administration. I believe the experiences and solutions will be instructive for other countries facing many of the same issues.

YBhg. Dato' Sri Agizan Bin Ahmad
Secretary General
Ministry of Natural Resources and Environment

List of Acronyms

3D	Three dimensional
4D	Four dimensional
CAMA	Computer Assisted Mass Appraisal
C-DAC	Centre for Development of Advanced Computing (India)
CORS	Continuously Operating Reference Station
EPU	Economic Planning Unit
eTaPP	Management System of Federal Land and Division Archives
FIG	International Federation of Surveyors
FT	Final Title
GDP	Gross domestic product
GI	Geospatial Information
GIS	Geographic Information System
GNSS	Global Navigation Satellite System
ICT	Information and Communication Technology
IGR	Inspector General of Registration (India)
INSPIRE	Infrastructure for Spatial Information in Europe
IT	Information Technology
JKPTG	Department of Director General of Lands and Mines
JPPH	Jabatan Penilaian Dan Perkhidmatan Harta (Valuation and Property Services Department)
JUPEM	Federal Department of Surveying and Mapping
JV	Joint venture
KL	Kuala Lumpur
LG	Local Government
LGA	Local Government Act
LGDC	Local Geospatial Data Centre
MaCGDI	Malaysian Centre for Geospatial Data Infrastructure
MAMPU	Malaysian Administrative Modernization and Management Planning Unit
MDEC	Malaysia Digital Economy Corporation
MNRE	Ministry of Natural Resources and Environment
MoF	Ministry of Finance
MRA	Multiple Regression Analysis
MyGDI	Malaysia Geospatial Data Infrastructure
MyGOS	Malaysia Geospatial Online Services
MYR	Malaysian Ringgit
NaLIS	National Infrastructure for Land Information System

NGDB	National Geospatial Data Centre
NGMP	National Geospatial Master Plan
NLC	National Land Code
NRE	Natural Resources and Environment
NSDI	National Spatial Data Infrastructure
OSC/PBT	One Stop Center
OECD	Organisation for Economic Cooperation and Development
OGC	Open Geospatial Consortium
PPP	Public-Private Partnership
PTG	Pejabat Tanah dan Galian (Office of Lands and Mines)
QT	Qualified Title
SARITA	Stamps and Registration Information Technology Based Administration (Maharashtra, India)
SDGs	Sustainable Development Goals
SDI	Spatial Data Infrastructure
SHTB	Sistem Hasil Tanah Berkomputer (Computerized Land Revenue Collection System)
SPOC	Single Point of Contact
SPTB	Sistem Pendaftaran Tanah Berkomputer (Computerized Land Registration System)
SGDC	State Geospatial Data Centre
SPPT	Sistem Pemodenan Pentadbiran Tanah (Modernized Land Administration System)
UKAS	Public Private Partnership Unit under the Prime Minister's Department
UN-GGIM	United Nations Committee of Experts on Geospatial Information Management
VGGT	Voluntary Guidelines on Responsible Governance of Tenure of land, fisheries and forests
VGI	Volunteer Geographic Information

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Executive Summary

This report is part of the series focusing on documenting the lessons from Malaysia for other developing countries in improving their public sector management. These lessons include those at the center of government – such as the delivery unit method applied to the implementation of the national priorities¹, or implementing the elements of performance-based budgeting – as well as deeper analysis of specific approaches in various sectors. Strategies for improving public sector performance will differ in education, health, public transport, or land administration. Yet at this sectoral juncture, public sector management has the most direct impact on service delivery and citizens' outcomes.

This report focuses on land policies and land administration services because they are key for good governance. They are fundamental for secure land rights, developing land markets and managing land resources in a manner that best contributes to economic growth, efficient public sector service delivery, environmental protection, and social cohesion and security. Land and buildings generally represent between half and three quarters of the national wealth in all countries. The importance of secure land rights and good land administration have been recognized in several international forums including the 2030 Sustainable Development Goals (SDGs), the United Nations Committee on Food Security and the World Bank/International Federation of Surveyors (FIG) *Fit for Purpose Land Administration* publication.

However, approximately 70 percent of the world's population does not have access to affordable land administration systems to secure their property rights. Many governments

lack even basic land information systems to secure land rights, support private sector development or improve public sector service delivery. Common challenges preventing developing countries from establishing systems to provide quality land administration include complexity and costs in establishing comprehensive land records and maps. Recent advances in surveying, mapping and ICT technologies have made the task of addressing these challenges easier and cheaper. There are many success stories globally to learn from, but each country and its land tenure system is unique and there is no universal model for land administration. Technical solutions need to be fit-for-purpose and governance of institutions needs to be sound.

Peninsular Malaysia offers several examples of programs and initiatives that have led to improved land administration systems and services. Other developing countries may find the Malaysian experience instructive since it is a relatively large country that has implemented a series of reforms to transform from a low to a middle income country in a relatively short time period. Malaysia performs well for land administration globally. It ranks 42 out of 190 jurisdictions in the ease of registering property in the annual World Bank Doing Business ranking.

The institutional and legal context for land administration in Malaysia spans both Federal and State mandates as well as multiple institutions and agencies. The 1957 Federal Constitution defines the rights and responsibilities of the federal government, the member states of the federation and citizens. For land administration, the Constitution recognizes a two-tier governmental

¹ See World Bank, 2017a. *Driving Performance from the Center: Malaysia's experience with PEMANDU*. Washington, DC. <http://documents.worldbank.org/curated/en/318041492513503891/Driving-performance-from-the-center-Malaysia-s-experience-with-PEMANDU>

structure on Peninsular Malaysia and Federal territories. Land and land-based resources come under the purview of the state, which means that each State government has the authority to legislate on land matters including agriculture, forestry and the land registry. However, cadastral mapping and systems come under the purview of the federal government, and both federal and state governments share jurisdiction over other areas such as town and country planning, rehabilitation of mining land, housing, drainage and irrigation. This complexity has implications for governance of land rights, land market functions and improving public sector service delivery. However, while land is predominantly a state matter in Malaysia, the federal government has the power to make laws for the purpose of uniformity.²

Despite the complex legal and institutional structure, Malaysia is a success story in delivering efficient land administration services. In particular, Malaysia has established a cadastre and land registration system on Peninsular Malaysia that enables efficient provision of land administration services. The key takeaways from the Malaysian successes include:

- **The introduction of qualified titles**, which allows registration without a formal cadastral survey, was a successful mechanism to overcome key constraints, such as the limited number of government and professional surveyors and the perceived high cost of formal surveys. Over time, the standards and processes for cadastral surveys have been improved and a national program for the conversion of qualified titles to final title has been introduced and is largely successful. Thus, Malaysia's experience shows
- **Business-process re-engineering** is an effective tool to make significant changes to service delivery. When implemented with strong political support, it provides the means to break down strong 'silos' in systems that have evolved over long periods of time. The effectiveness of these improvements is reflected in the improving Doing Business Ranking.
- **ICT tools** can be effective in standardizing processes, improving service delivery and making spatial and textual data available for broader use in government and society. Going forward, the introduction of the ICT system e-Tanah (e-Land) and the development of clear interfaces to other systems, particularly the mapping system e-Kadaster, will improve services and help generate the spatial and textual data that Malaysia needs to successfully implement the National Spatial Data Infrastructure (NSDI).
- **PPPs can potentially offer an innovative business model for governments to consider.** However, due consideration needs to be made around the governance of the design, contracting, implementation, monitoring and impact. Ensuring secure property rights and a well-functioning land market are a cornerstone for economic development and social stability.

² Due to the significant differences in land administration structures between Peninsular Malaysia, Sabah and Sarawak, this report focuses only on Peninsular Malaysia.

Learning of Malaysia's challenges can be equally instructive. Key lessons for other countries include:

- **When possible, an integrated cadastre and registry system is suggested.** Malaysia has a complex institutional arrangement for land administration, with divided responsibility for the cadastre and the land registry. Therefore, The National Land Council was set up to provide a mechanism for formulating national land policy. However, since this mechanism has a strong emphasis on consensus, it involves rigorous prior consultations between federal and state authorities in overcoming the significant gaps in land administration data and system integration. Cadastral and land registry data and systems need to be integrated in order to provide complete and accurate land administration data to both public and private users. The most efficient way to ensure seamless integration is to have a single system for the information under a single authority. In the absence of an integrated institutional structure, a strong coordination mechanism with mandatory compliance for data integration is critical, and has been successfully instituted for Malaysia.
- **An effective NSDI requires a clear policy and legal framework in order to define the roles and responsibilities of data suppliers and users.** Over the past decades, Malaysia has developed its NSDI through guidelines and standards; however, there is still no national NSDI strategy or law. The majority of agencies and organizations that provide or use geospatial data are motivated by their own mission and do not necessarily subscribe to

national policy objectives. Sharing information in a fully transparent manner is not common and as a result information exchange is limited. While governments may choose to start NSDI development prior to a formal policy and legal framework, developing a mature and efficient SDI requires clear mandates, roles and responsibilities for all parties.



CHAPTER 1

Why is There Global Interest in Efficient Land Administration?

Land and buildings generally represent between half and three quarters of the national wealth in all countries.

Good land policies and quality land administration services are fundamental for secure land tenure, a well-functioning land market and sustainable management of land resources which in turn contribute to economic growth, efficient public sector service delivery, environmental protection, and social cohesion and security.



The importance of secure land rights and good land administration have been recognized in several international forums and agreements including:

- The 2030 Sustainable Development Goals (SDGs) where three of the SDGs specifically refer to secure land ownership and by extension highlight the need for good land administration. (see Box 1)
- The 2013 Voluntary Guidelines on the Responsible Governance of Tenure of land, fisheries and forests of the United Nations Food and Agriculture Organization/ Committee on Food Security, which links food security to good land governance and systems. (see Box 2)
- The 2014 joint World Bank-International Federation of Surveyors (FIG) publication 'Fit for Purpose Land Administration' which defines the Fit for Purpose approach to design to build sustainable land administration systems. (see Box 3)

Land administration³ underpins efficient land management⁴ and sustainable development. The land administration systems in OECD countries have evolved over long periods of time, typically over a century, usually from fairly simple systems that operated in limited areas to sophisticated systems that cover the whole jurisdiction and provide a comprehensive range of land administration services. Basic land administration services consist of spatial aspects (cadastral mapping) and legal aspects (registration of rights, responsibilities and restrictions) which, when combined, create a land information system. More sophisticated systems expand services and link land information systems to other key registers such as the civil, business, planning and fiscal registers. Geospatial or location-based information further enhances the ability to analyse and manage land related information in a 3D environment and over time in 4D applications. These ever more sophisticated systems rely on the establishment of a spatial data infrastructure (SDI) which are made possible through the adoption of standards for inter-operability and data exchange between public and private users for a variety of uses.

However, approximately 70 percent of the world's population does not have access to affordable systems to secure their rights. Many governments lack even basic land information systems to secure land rights, support private sector development or improve public sector service delivery. Common challenges preventing developing countries from establishing systems to provide quality land administration include complexity and costs in establishing comprehensive land records and maps. Recent advances in surveying, mapping and ICT technologies have made the task of addressing these challenges easier and cheaper, but the main obstacles to providing quality land administration services typically relate to legal hurdles, institutional fragmentation and resistance to change. There are many success stories globally to learn from, but each country and its land tenure system is unique and there is no universal model for land administration. Technical solutions need to be fit-for-purpose and governance of institutions needs to be sound. Finally, high quality land administration requires sustainable financing and institutional structures to implement and maintain the reform and support the development of new solutions.

3 Land administration is the processes of determining, recording and disseminating information about ownership, value and use of land and its associated resources. Source: <http://www.fao.org/in-action/herramienta-administracion-tierras/glossary/l/en/>

4 Land management is 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.

Source: <http://www.fig.net/resources/publications/figpub/pub11/figpub11.asp#1>.

BOX 1

The Sustainable Development Goals (SDGs): References to Secure Land Rights



Goal 1. End poverty in all its forms everywhere

By 2030, ensure that all men and women, in particular the poor and the vulnerable, have equal rights to economic resources, as well as access to basic services, ownership and control over land and other forms of property, inheritance, natural resources, appropriate new technology and financial services, including microfinance



Goal 2. End hunger, achieve food security and improved nutrition and promote sustainable agriculture

By 2030, double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists and fishers, including through secure and equal access to land, other productive resources and inputs, knowledge, financial services, markets and opportunities for value addition and non-farm employment



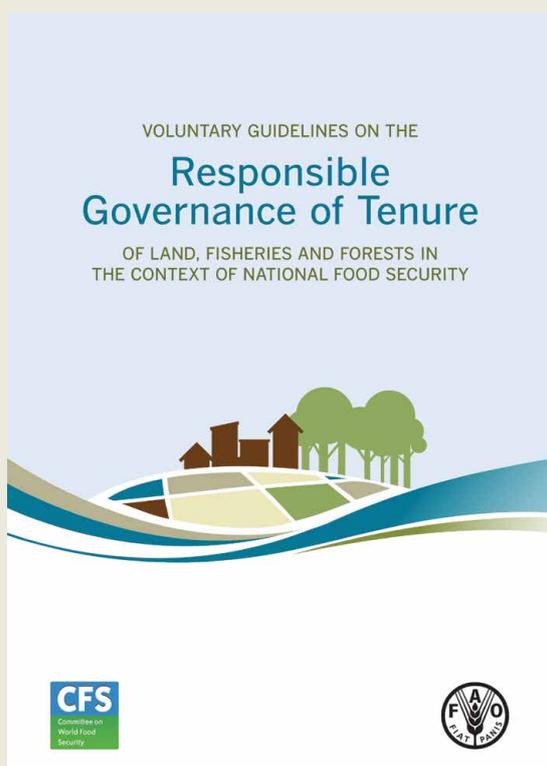
Goal 5. Achieve gender equality and empower all women and girls

Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws

For more information about the United Nations Sustainable Development Goals, see the website at <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

BOX 2

Voluntary Guidelines on the Responsible Governance of Tenure of land, fisheries and forests (VGGT)



The 2012 Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests (VGGT) promote **secure tenure rights and equitable access to land, fisheries and forests as a means to achieve food security, eradicate hunger and poverty and support sustainable development.**

The VGGT serves as a reference guide for internationally accepted standards for the responsible governance of tenure, achieving sustainable livelihoods, social stability, housing security, rural development, environmental protection, and sustainable social and economic development. They also set out a framework that governments can use when developing their own strategies, policies, legislation, programs.

The full document is available at: <http://www.fao.org/nr/tenure/voluntary-guidelines/en/>

BOX 3

Fit for Purpose Land Administration

In 2014, the joint World Bank-FIG document on Fit for Purpose Land Administration was published. The Fit for Purpose approach is designed to build sustainable land administration systems. An excerpt notes:

“The document stresses that the approach used for building land administration systems in less developed countries should be flexible and focused on citizens’ needs, such as providing security of tenure and control of land use, rather than focusing on top-end technical solutions and high accuracy surveys. A fit-for-purpose approach includes the following elements:

- **Flexible** in the spatial data capture approaches to provide for varying use and occupation.
- **Inclusive** in scope to cover all tenure and all land.
- **Participatory** in approach to data capture and use to ensure community support.
- **Affordable** for the government to establish and operate, and for society to use.
- **Reliable** in terms of information that is authoritative and up-to-date.
- **Attainable** in relation to establishing the system within a short timeframe and within available resources.
- **Upgradeable** with regard to incremental upgrading and improvement over time in response to social and legal needs and emerging economic opportunities.

A country’s legal and institutional framework must be revised to apply the elements of the fit-for-purpose approach. This means that the fit-for-purpose approach must be enshrined in law, it must still be implemented within a robust land governance framework, and the information must be made accessible to all users.”

The full document is available at: <https://www.fig.net/resources/publications/figpub/pub60/Figpub60.pdf>



CHAPTER 2

Why is Malaysia's Experience Worth Learning From?

Peninsular Malaysia offers several examples of programs and initiatives that have led to improved land administration system and services.

Other developing countries may find the Malaysian experience instructive since it is a relatively large country that has implemented a series of reforms to transform from a low to a middle income country in a relatively short time period. Malaysia may offer more relevant examples of reforms than small city states such as Singapore or Hong Kong, or developed nations like New Zealand.



Malaysia performs well for land administration globally. It ranks 42 out of 190 jurisdictions in the ease of registering property in the annual World Bank Doing Business ranking, which is a good assessment in relation to other countries in the region (see Figure 1). The Doing Business Report notes that steps to increase this ranking would be those that reduced the number of procedures and the time necessary to register a transaction. The ranking for the quality of land administration is also high at 27.5 out of a maximum of 30 points, with points lost due to the separate cadastral and registration databases, the lack of publicly available statistics on transactions and the lack of a mechanism to compensate those acting in good faith who suffered losses without going to the courts.

FIGURE 1. Doing Business 2018 Rankings and Assessment⁵

Economy	Ease of Doing Business Rank	Registering Property	Procedures (number)	Time (days)	Cost (percent of property value)	Quality of the land administration index (0-30)
Brunei Darussalam	56	136	7	298.5	0.6	18
Cambodia	135	123	7	56	4.3	7.5
China	78	41	4	28	3.6	19
Hong Kong SAR, China	5	55	5	27.5	7.7	27.5
Indonesia	72	106	5	25	8.4	11.5
Lao PDR	141	65	4	53	1	10.5
Malaysia	24	42	8	13	3.5	27.5
Myanmar	171	134	6	85	4.1	5.5
New Zealand	1	1	2	1	0.1	26
Philippines	113	114	9	35	4.3	12.5
Singapore	2	19	6	4.5	2.9	29
Taiwan, China	15	18	3	4	6.2	28.5
Thailand	26	68	5	7	7.3	18
Vietnam	68	63	5	57.5	0.6	14

Source: World Bank

Peninsular Malaysia's success in land administration can be contributed to several factors. One example is the introduction of a simplified process to complete the systematic registration of land in the country. The government introduced the concept of qualified titles in the legal framework to remove the requirement of a formal, accurate cadastral survey for registration. Allowing registration based on qualified title reduced the time and cost of registration, resulting in a successful initial registration campaign that strengthened land tenure security and facilitated development of the formal land market. The government has subsequently introduced programs to upgrade qualified title to final title. The introduction of qualified titles with eventual upgrading to final titles is a good example of fit-for-purpose land administration principles and can be considered a valuable methodology to quickly register land rights and boost land market activity.

A second example is the investment in IT systems and digital data to improve service delivery.

The government has embarked on a national digital agenda covering key services and sectors of the economy, including land administration. From clear national policy to targeted investments in IT systems and data, Malaysia is building the necessary foundations for e-government. The investments in IT systems are also being used to overcome some of the complex legal and institutional responsibilities for land administration by introducing the integration of cadastral and registration information. This digital land information system further supports advanced data management and analysis through the Malaysian National Spatial Data Infrastructure (NSDI) and other applications such as the valuation and taxation of property. The positive results are reflected in the Doing Business rankings and general confidence of both the public and private sector with land administration functions and services. These aspects are discussed in more detail in Chapter 3.

⁵ Data downloaded 8 November 2017 from Doing Business pages: <http://www.doingbusiness.org/rankings> and <http://doingbusiness.org/data/exploretopics/registering-property>





CHAPTER 3

Malaysia's Land Administration: A Primer

Institutional and legal context

The institutional and legal context for land administration in Malaysia is complex and spans both Federal and State mandates as well as multiple institutions and agencies. This complexity has implications for governance of land rights, land market functions and improving public sector service delivery.

Malaysia, like many countries that gained independence from colonial administration, inherited a dual land tenure system. The Straits Territories of Penang, Malacca, and Singapore (a part of Malaysia till 1965) became part of the British Empire in the 18th century. The Malay States on what is now Peninsular Malaysia operated as sovereign states under Malay Sultans with separate policies and laws. The British Protectorate which comprised the four Malay States of Selangor, Perak, Negeri Sembilan and Pahang became the Federated States of Malaya in 1895 while the other five Malay States (Johor, Kedah, Perlis, Kelantan, Terengganu) accepted the status of protectorates between 1914 and 1930. The Malayan Union was formed in 1946 by combining the Federated and Unfederated States of Malay with the settlements of Penang and Malacca under the sovereignty to the British Crown. The Malayan Union was restructured as the Federation of Malaya in 1948 which achieved independence in 1957. Malaysia was formed as a new Federation in 1963 when the Federation of Malaya united with Sabah, Sarawak, and Singapore.

The Federal Constitution of Malaysia, adopted in 1957, defines the rights and responsibilities of the Federal government, the member States of the Federation and citizens. Article 13 embodies the fundamental right of property

ownership and provides that no person may be deprived of property save by law and that no law can provide for compulsory acquisition or use of property without adequate compensation. For land administration, the Constitution recognizes the two-tier governmental structure that exists in Malaysia. Article 71 guarantees the sovereignty of the Malay Sultans in their respective States and each State has its own constitution. The Constitution clearly delineates and demarcates the sphere within which the two levels of government operate. The two-tier governmental structure refers to the Federal and State Government, and consequently, the powers granted to them by the Constitution.

The extent to which the Federal and State powers are distributed is found in the Ninth Schedule of the Constitution. According to the Ninth Schedule, land and land-based resources come under the purview of the State, which in turn means that each State government has the authority to legislate on land matters. The Schedule lists the following as being under the purview of the State government: land, agriculture, forestry, local government as well as turtles and riverine fishing. By extension, the state is responsible for the land registry. Other areas such as town and country planning, rehabilitation of mining land, housing, drainage and irrigation are placed under the concurrent list, which means that both the Federal and State governments share jurisdiction over these matters. Meanwhile, cadastral systems come under the purview of Federal government. For Federal territories such as Kuala Lumpur (KL), both the land registry and cadastre are under the jurisdiction of the federal agencies. This division of power remains a backbone to the federation structure of Malaysia.

While land is a State matter, the Federal Government has the power under Article 76(4) of the Constitution to make laws for the purpose of uniformity. The National Land Code (NLC) of 1965 was enacted under this provision to provide a uniform system of tenure for the 9 States on Peninsular Malaysia and the Federal territories. Article 91 in the Constitution provides for the establishment of a National Land Council made up of the Minister as chairman with one representative appointed by the Ruler of each State plus no more than 10 representatives appointed by the Federal government. Currently, the chairman of the National Land Council is the Deputy Prime Minister. The National Land Council is to meet at least once annually and is charged with a number of key responsibilities including the formulation of national land policy, matters related to the utilization of land and land legislation. Under the NLC, land is classified into (a) above shoreline and (b) foreshore and sea bed. The above shoreline is further classified into (i) town; (ii) village and (iii) country. The land uses are: (a) agriculture; (b) building; and (c) industry.

There is a separate legal basis for land tenure in Sabah and Sarawak. The 1930 Sabah Land Ordinance applies in Sabah with land classified into: "town land"; and "country land". The State holds the allodial right to all land, ownership applies only to the surface, possession is the root of title and rights are transferable by inheritance. The law provides for customary tenure. The 1958 Sarawak Land Code applies in Sarawak and provides for registration under a Torrens system⁶ with land classified as interior area land; native customary land; and mixed zone land. *Due to the significant differences in land administration structures in Sabah and Sarawak, this report will focus on Peninsular Malaysia only.*

Malaysia provides several examples of programs and systems to secure land rights, facilitate a well-functioning land market, and provide efficient land administration services. All states on Peninsular Malaysia operate a Torrens system of registration administered by District Land Offices and coordinated by the Office of Lands and Mines (PTG) in each State. The Federal Department of Surveying and Mapping (JUPEM) is responsible for undertaking cadastral surveys within Peninsular Malaysia with the support of licensed land surveyors.

The land administration system in Malaysia has been developed internally, largely without outside assistance. It was estimated in 2016 that there were 7.3 million land parcels in Peninsular Malaysia and that 98 percent were surveyed and registered. Most of the titles registered in 2016 were final tiles with less than 500,000 qualified titles.⁷ There has been a steady increase in the number of titles registered. The number of titles increased from 3,324,009 in June 1986 to 5,721,616 in 2008.⁸

Key factors contributing to Peninsular Malaysia's success in registering rights are: provision of qualified titles; investment in IT systems; and computerization of land records. The provision for qualified titles in the National Land Code was followed by a rapid systematic registration process. The investment in IT systems and business process re-engineering has enabled Malaysia to standardize the procedures to register rights in order to provide more efficient services. The computerization of land records has provided a basic dataset to support a Malaysian National Spatial Data Infrastructure (NSDI) and other data analysis applications such as the valuation and taxation of property. These aspects are discussed below.

6 The Torrens title is a system of land registration in which a register of land holdings maintained by the state guarantees an indefeasible title to those included in the register. Land ownership is transferred through registration of title instead of relying solely on deeds. It was originally used in Australia. See Box 4 for more details.

7 Cadastral Template for Malaysia - <http://www.cadastraltemplate.org/cadastraltemplate/malaysia.php>

8 The numbers are quoted by Ganason A, Land Administration System in Malaysia: Single Title System: A Stimulant to Land Administration Reform, J. Pentadbiran Tanah (2011:46).

BOX 4

What is Land Registration and the Torrens Title System?

Land registration is the official recording of legally recognized interests in land. There is no universal system of land registration but it is generally accepted that there are two different approaches, deeds registration or title registration. From a legal point of view the key difference between the two approaches is that under a deeds registration system the documents recorded in the deeds registry are the evidence of title while under a title registration system the register itself is the prime evidence of title. A title registration system is often supported by a state guarantee but this is not universal. The state guarantee supports the indefeasibility of title while providing a mechanism to compensate those acting in good faith who are disadvantaged by the operation of the title register. Typically a title registration system provides more certainty and requires less effort by those seeking information or dealing with property rights. With advances in technology and the application of this technology to tasks such as the computerization of deeds and other records, production of digital maps, linking the textual and spatial data in the registry and providing online access to data and information, the difference between the two approaches is blurring. Generally the move in any significant upgrade to a land registration system is to title registration but very efficient and reliable deeds registration systems operate in many countries, including South Africa and the Netherlands. Regardless of the approach, it must be recognized that there are many forms of both deeds and title registration systems.

The Torrens title system was introduced by Sir Robert Torrens in South Australia in 1858 as a system to record property rights that was significantly simpler than the traditional system under English land law of proving a chain of title through a series of deeds. Under the Torrens title system a registered proprietor holds an indefeasible title 'subject to such mortgages charges, leasehold or other lesser estates as may exist or be created affecting the land.' (Torrens R, Gawler H, 1859:9). Ruoff (1957:8), lists the three principles that apply to the Torrens title system:

- **The Mirror Principle** where the register accurately and completely reflects the current facts that are material to the title.
- **The Curtain Principle** where the register is the sole source of information for those investigating the title.
- **The Insurance Principle** under which those who suffer loss caused by private fraud or by errors made by the staff in the registry receive compensation.

Torrens title has been widely adopted by jurisdictions administered by Britain. Torrens title was introduced in Malaysia by the British and is the tenure system implemented under the National Land Code. However in Malaysia the principle of insurance is not applied.

Source: Authors

Qualified Titles

Qualified titles are a mechanism to quickly complete the systematic registration process.

The land registration systems that were established prior to the formation of Malaysia required the preparation of accurate survey plans. There was a limited number of qualified surveyors in the country which was a serious constraint on the ability of the State authorities to register land holdings. Largely to address this constraint the NLC introduced the issuance of either final titles or qualified titles. The NLC specifies that qualified titles can be issued for alienated or sub-divided land in advance of formal cadastral surveys⁹ and have the same status as final titles except the boundaries are provisional and a qualified title cannot be sub-divided or consolidated.¹⁰ A qualified title is converted to a final title by a formal cadastral survey.¹¹

The qualified title process enabled a relatively rapid completion of land administration information that secured land rights and facilitated the land market.

In the early stage of implementation, many qualified titles were issued on the basis of sketches prepared by non-surveyors which allowed State governments to rapidly complete the initial cadastral map and register land rights. The introduction of qualified titles was done in part to overcoming the challenge of limited capacity since there was a limited number of qualified surveyors, and the perceived high cost and time associated with engaging their services. At the same time, from a traditional land administration perspective, qualified titles create a different challenge because many were created based on sketches prepared by non-surveyors and

the fact that the spatial data for qualified titles was not recorded in the national cadastral map series.¹²

Despite the less accurate mapping associated with qualified titles, they have been accepted and trusted by land owners, government institutions and the private sector, including financial institutions which provide credit secured by the properties.

Over time, the government has introduced programs and requirements to upgrade qualified titles to final title.

In 1990 the NLC was amended to require a pre-computation plan showing the intended new boundaries based on computation from existing survey data and other relevant data, where the linear misclosure of the computation is not less than one part in four thousand.¹³ Qualified titles are now surveyed by district surveyors. There are currently more than 450 licensed surveyors in Malaysia, with 15-20 new surveyors licensed each year. To improve the delivery land system in land matters that comes under the purview of state administration, the federal government set up a special task force in 2004, encompassing 1,000 contract personnel to help clear backlogs cases which included the conversion of qualified titles to final titles. This program has reduced the number of qualified titles substantially (see Figure 2 below). The land owner is charged a fee for the survey to convert a qualified title to final title for the first alienation, but this fee has not been revised for 34 years and the cost of cadastral surveys is substantially underwritten by the state in the case where the survey is carried by district surveyors. In the case where the survey is carried out by licensed surveyors, the fee has not been revised since 1997.

9 NLC, section 176.

10 NLC, sub-section 176 (2). There are some additional restrictions for qualified titles, for example section 118 restricts erecting buildings on agricultural land registered with a qualified title.

11 NLC, section 189.

12 Zulkifli et al, 2015

13 That is the vector summation of the bearings and distances previously measured or computed for each boundary in a closed-polygon or parcel is required to result in a vector misclosure that is less than 1/4,000 of the sum of the measured distances.

FIGURE 2. Peninsular Malaysia: Qualified Titles Converted (December 2014 to June 2015)

#	State	Total QTs	Converted	Balance	Converted
1	Wilayah Persekutuan Kuala Lumpur	73,247	73,247	0	100%
2	Negeri Sembilan	418,585	399,005	19,580	95%
3	Johor	765,767	716,840	48,927	94%
4	Melaka	135,560	123,791	11,769	91%
5	Selangor	1,328,549	1,196,898	131,651	90%
6	Pahang	607,960	518,794	89,166	85%
7	Terengganu	223,122	191,130	31,992	86%
8	Pulau Pinang	307,097	247,259	59,838	81%
9	Perlis	64,794	52,620	12,174	81%
10	Perak	581,138	458,370	122,868	79%
11	Kelantan	244,009	163,931	80,078	67%
12	Kedah	537,960	354,462	183,498	66%
		5,287,788	4,496,247	791,541	85%

Source: JKPTG

The introduction of a process that combines qualified titles with final titles offers a good example of Fit-for-Purpose land administration principles. Under the Fit-for-Purpose principles, governments are encouraged to adopt policies and procedures to rapidly develop their land administrations systems and allow for upgrading over time. The qualified title approach adopted in Malaysia facilitated rapid registration and secured land rights, and the subsequent final title process has facilitated upgrading and combining the information for various purposes.

Despite the success in quickly completing the land administration information and a special

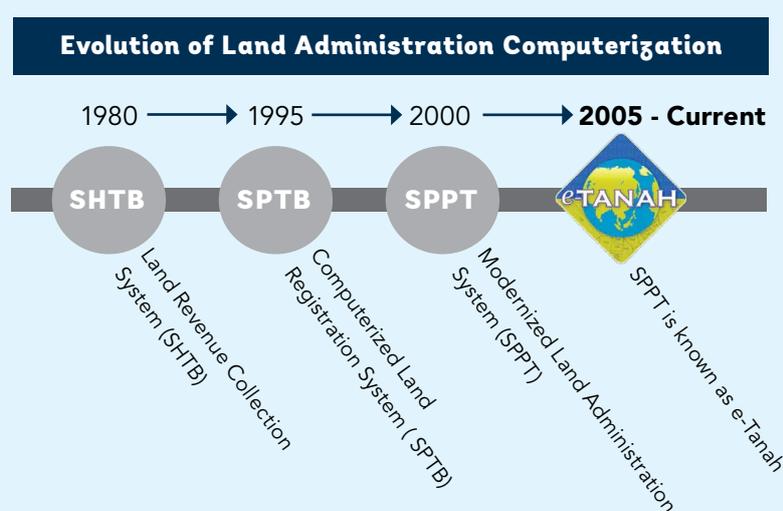
task force for conversion of qualified titles to final titles, there has been little pressure from land owners or land market actors to convert titles. In addition, States continue to issue qualified titles. As a result, some challenges have emerged, including the fact that the spatial definition (boundaries) of the qualified titles are not recorded in the national cadastral map managed by JUPEM at the Federal level. Thus, the duality between Federal and State land information and systems remains and there is not a single, definitive map for the country. This duality could lead to gaps and overlaps in information and increased collection and maintenance costs for both the Federal and State governments.

Investment in IT systems, digital data and business process re-engineering

Malaysia has also been progressively introducing digital land record management and other technologies for land administration. For cadastral data, JUPEM has invested in the technical infrastructure to create accurate digital maps and manage cadastral data using modern technologies. Cadastral surveys are recorded in the national cadastral map series based on the national geodetic datum. JUPEM implemented a geodetic adjustment in 2000¹⁴ and has established a Continuously Operating Reference Station (CORS) network with 72 stations that provide Global Navigation Satellite System (GNSS) data to support a wide range of precise survey and positioning needs and has plans to increase this network. Accurate positioning is necessary to allow precise measurements for development of the NSDI, spatial data integration and applications such as 3D modelling.

Business process re-engineering has been essential in improving service delivery. In 2010 Malaysia was ranked 86 in registering property with a property transfer taking 144 days and this ranking spurred JKPTG into a major business process re-engineering exercise.¹⁵ Among the initiatives introduced was the "single piece flow" which was an adaptation of factory production line procedures. JKPTG led a team to re-engineer the processes. The old practice of moving documents in one bundle from one point to another was stopped and a new system introduced to move each application from station to station. A checklist of relevant documentation was introduced and a public awareness campaign undertaken. In four months the land administration system managed to register 61.12 percent of property transfers on Peninsular Malaysia in 2 days. Improved record handling systems were also introduced and this greatly reduced the effort required by staff to access and check archived records. The obligatory use of the Malaysia identity card (MyKad) and thumbprint readers were introduced in all land offices as a means of reducing fraud and forgery.

FIGURE 3. Evolution of Land Administration Computerization



Source: JKPTG

¹⁴ https://unstats.un.org/unsd/geoinfo/RCC/docs/rccap19/crp/E_Conf.102_CRP5_UNRCC_2012_Country_Report.pdf

¹⁵ Ismail, Ganason, 2011:39

For land registers, JKPTG provides oversight for the registration system that is implemented by the State authorities on Peninsular Malaysia. There have been five stages in technical evolution of land administration systems in Malaysia and a planned sixth stage, as shown in Figure 3:

1. Prior to the 1980s: Manual land title registration supported by manual cadastral systems with hard-copy maps and card indices;
2. 1980's: Introduction of computerization with the creation of the first digital cadastral databases, electronic indices and Land Revenue Collection System (SHTB);
3. 1995: Introduction of computerized land registration systems (SPTB) in all State land registries on Peninsular Malaysia;
4. Early 2000's: The introduction of web-enabled land administration systems with the integration of different government functions such as planning, taxation, land development and local government. Examples included e-Cadastre and Modernized Land Administration System (SPPT);
5. 2005: The introduction of a web-based land titles system e-Tanah (e-Land) linking SHTB and SPTB in Penang, followed by Malacca and planned for expansion in Kuala Lumpur (KL);
6. The development and implementation of iLand planned from 2020 as a vision of integrated, spatially enabled land information available on the internet.

The development of the ICT systems such as SPTB has been a key strategy in standardizing the systems used and in improving the quality of the land administration services provided by the States.

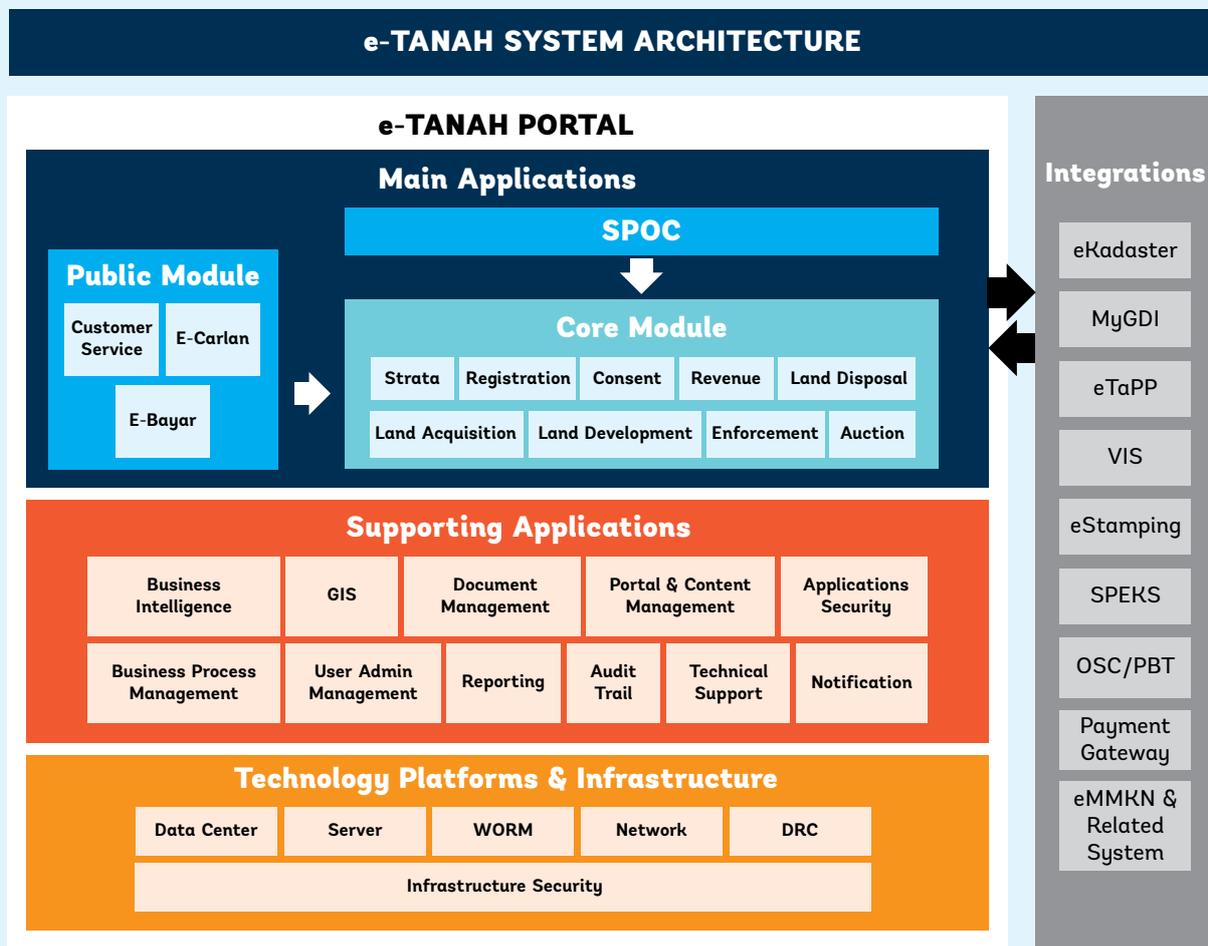
SPTB is operating in all State land registries on Peninsular Malaysia and it is this software that provides the basis for the strong ranking under the Doing Business Report documented above. Nevertheless, the system does have a number of problems and JKPTG has been promoting the development and implementation of a new digital system called e-Tanah (e-Land) to addresses these issues. The drivers for the development of e-Tanah have included: (i) a large and unwieldy volume of paper records; (ii) increasing use of technology by both the public and private sectors; (iii) concern about the delays in manual registration processes; and (iv) the demand from users for greater spatial accuracy.

The concept of e-Tanah has been developed with a public portal that includes:

1. Customer Service (services and procedures, enquire online, complain, check status and seek help);
2. e-Carian (e-Search) focussed on Private Title Search as specified in section 384 of the Land Code; and
3. e-Pembayaran (e-Payment) for the payment of quit rent¹⁶ online, uploading of payments to State e-Commerce facilities, processing of credit card payments and checking the status of quit rent payments/arrears.

¹⁶ Quit rent is a form of property tax imposed on owners of both freehold and leasehold land, paid yearly to the relevant land office of each State Government.

FIGURE 4. e-Tanah System Architecture



Source: JKPTG

There will be an internal portal in e-Tanah for the use of officials in undertaking their work. This portal includes:

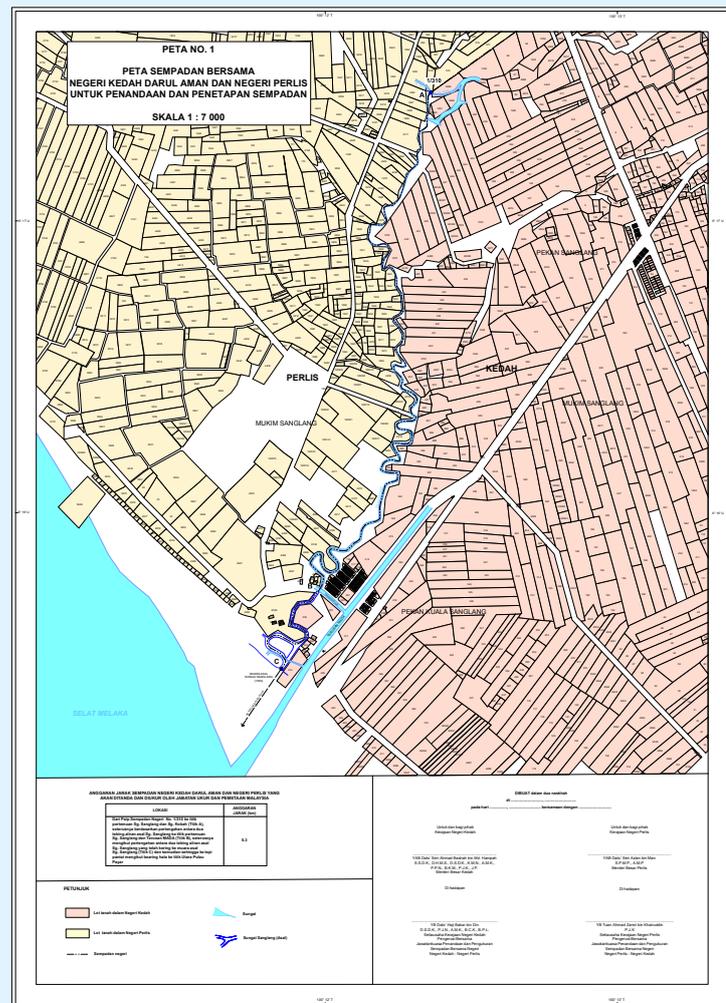
1. Single Point of Contact for one-stop service centres and core modules;
2. Land Disposal Module;
3. Land Development Module;
4. Land Acquisition Module;
5. Title Registration Module;
6. Strata Title Module;
7. e-Consent Module;
8. Auction Module;
9. Revenue Module; and
10. Enforcement Module.

The key concept behind further development of e-Tanah is to integrate land registry data with other core systems. These systems include e-Kadaster; MyGDI, and e-Stamping, and future enhancements are planned including e-Dealings and e-Lodgements. The software system will also facilitate the integration of the registration data with other key data sets including the national cadastral map series which is maintained federally by JUPEM.

However, the development of e-Tanah has taken longer than planned and has not been accepted by all State governments. While various versions of e-Tanah have been developed and implemented in Penang and Malacca, neither investment has resulted in a system that other States are prepared to adopt. Although e-Tanah is being developed under the coordination of the National Land Council, States have autonomy in adopting the software. The perception from one State government, for example, raises concerns about aspects of the e-Tanah as implemented in Malacca and Penang, including concerns about compliance with customer requirements and the fact that the strata records are still maintained manually.¹⁷ Land registration in Penang and Malacca is undertaken under the National Land Code (Penang and Malacca Titles) Act of 1963 and this may a factor in delaying the other states on Peninsular Malaysia who implement land registration under the National Land Code of 1965. The provisions of the National Land Code of 1965 also needed amendment to support the introduction of improved ICT systems. In 2008 the National Land Code of 1965 was amended to add Section 5D and a 16th Schedule to support the implementation of an Electronic Land Administration System. As a result, some States are developing their own, parallel systems with no assurance that the systems are compliant with national standards or allow system interoperability.

In response to the limited success with e-Tanah to date, a new e-Tanah pilot will be implemented in Kuala Lumpur as a model that the other states on Peninsular Malaysia can adopt. The National Land Council has decided that a new pilot will be undertaken to develop e-Tanah. This pilot will be undertaken in Kuala Lumpur which is a federal territory where the Federal Government has clear authority for land registration. A new ICT application will be developed

FIGURE 5. Cadastral Map of Sg. Sanglang in Kedah



Source: JUPEM

¹⁷ Since 2016, however, the latest amendment of the Strata Title Act has enabled strata transactions to be implemented in Malacca and Penang. All manual records were then converted digitally in both states.

BOX 5

PPPs for Land Administration

There isn't a single definition for Public Private Partnerships (PPPs), but they can typically be described as the joining of private and public sector organizations in order to develop or deliver improvements to a public service. This arrangement usually involves the sharing of both risks and revenue, and is conducted over the medium to longer-term.

In the context of Land Administration, there are a number of examples of PPP implementation, typically on the land registry side where private operators may join government in a Joint Venture (JV) or similar arrangement to either digitize and operate, build (an IT system) and operate, or just streamline and operate existing land registry functions. Examples include:

Ontario, Canada: A PPP Joint Venture (JV) Teranet was formed to digitize paper-based land records and automate processes into an electronic title system. The JV came about after the provincial government had made little progress, digitizing only 250,000 of an estimated 4 million records in 7 years. The JV was a 50/50 partnership, with equal equity contributions (paid in cash by the private partner, and in kind - hardware and software - by the government partner). Ownership of data was retained by the government, however the business model included not only a share of property transaction revenue, but an exclusive license to use the data, enabling the development of new products and services from repackaged land data. Through time, Teranet has evolved from a PPP with the government of Ontario in 1991, to a share capital corporation in 2003, to a publicly traded company in 2006 and ultimately in 2008 to a privately held corporation owned by Boprealis Infrastructure and the Ontario Municipal Employee Retirement System. Financially the partnership made money for Ontario. In 2010 Teranet paid Ontario C\$1 billion for a 50-year concession.

Maharashtra, India: In 1998, a local consortium which included the Centre for Development of

Advanced Computing (C-DAC – <https://cdac.in>) was contracted by the Department of Stamps and Registration of the Government of Maharashtra to build an IT system for the automation of the deeds registry, which was then rolled-out in 1999. The resultant Stamps and Registration Information Technology Based Administration (SARITA) has been operational since 2001, with automated registration implemented in 360 registration offices. Ultimately, C-DAC reports that the Build-Operate-Transfer PPP mechanism enabled eight private industries to run operations on a cost-sharing basis across all registration sites. The model directly resulted in significant reductions property registration times, with penalties applying to the private operators in case of delay, a mechanism that would not be possible under government operation. SARITA is reported to have helped to increase document registration from an average of 16 to 40 per day, with a consequent 10-15 percent increase in revenue. C-DAC reports that the Inspector General of Registration (IGR) Maharashtra is the highest revenue generating IGR of all Indian states (this has not been confirmed by other sources).

Other PPPs are documented elsewhere, with a useful summary in Torhonen et al. (2012) and Daniels (2017).

Key advantages of PPPs for land administration as documented by Daniels (2017) include:

- PPP is the right business solution as it enables government to utilize the private sector to provide low-cost, efficient services and to unearth new revenue opportunities
- Allow government to facilitate private sector investment in a way that free funds for other public needs
- Faster implementation of land administration reform
- Reduced costs as the PPP provides incentives to minimize costs over the full life-cycle
- Better risk allocation
- Better incentives to perform
- Improved quality of services

Source: Authors

with the close interaction with the State governments to ensure that the software system meets the needs of the States and is in a form that can readily be customized. In 2016, the Federal government launched a PPP arrangement for development of the new e-Tanah system. This approach is relatively new for land administration systems, with only a few examples available globally. PPPs offer the opportunity to attract private sector funding for land registration services, thereby reducing the burden on public sector financing especially for developing and maintaining an IT infrastructure and the necessary qualified personnel. However, it is important that the PPP is properly structured with an appropriate balance in risks and rewards. It is important that the government retains the rights to the data and ensures that the fees and charges for land administration services are affordable and not a barrier to participation particularly by those less well off. The experience in Ontario demonstrates that it is possible to establish a strong partnership with a private sector partner with strong finances and a focus on the long-term rather than short-term such as an agency that funds pensions.

Malaysia has experience and a well-established institutional structure for administering PPPs. Since 1983 the Public Private Partnership Unit under the Prime Minister's Department (UKAS) has administered over 800 PPPs, mainly for infrastructure projects such as ports, roads, airports, and large land developments. More recently ICT projects are coming under the PPP framework. For the e-Tanah system UKAS set up a Committee chaired by the Director General and with representatives from key agencies including Treasury, MAMPU (e-government), JKTPG and EPU (the Economic Planning Unit responsible for capital investments). The Committee and project team under JKTPG are holding user consultations with the States and other stakeholders to ensure their requirements are included. The project progress is reported to the National Land Council and in the Chief Ministers meetings.

While the details of the e-Tanah PPP are not publicly available, a few key elements have emerged. The PPP is structured as a 14-year concession, with the operator having 2 years for system development and 12 years to maintain the system, provide services and make a return on the investment. The Contractor is also providing the hardware and software but the system will be installed in a government data warehouse with a government disaster recovery system. The contractor is also responsible for converting any paper based records and for regular training and capacity building.

The contractor will develop the core system and provide the source code to Government so that the software can then be customized according to the requirements of individual States. The contractor is required to update the technology twice over the course of the concession ("technology refresh") and is required to develop 9 modules based on the competencies of the State land registry: registration, strata, revenue, consent, disposal, development, enforcement, state land acquisition, and auction in case of foreclosure. The mapping system, e-Kadaster, will remain a separate system under JUPEM that will be linked with the new e-Tanah along with other external systems such as inland revenue systems, courts, and bailiffs.

The financing of the PPP is based on an analysis of current transactions and revenue, cash-flow requirements and the lifespan of the ICT investment. The land offices will continue to collect fees from the citizens and the contractor will get payment from the government based on an agreed portion of the transaction fees and a regular fee/title to maintain the data. The Federal Government is covering the cost of the system design. At the end of the concession period the system will be transferred back to Government. The new e-Tanah database will include the historical land registration data and the data will remain in Government ownership. The system is expected to be piloted in Kuala Lumpur in 2017 and then rolled out to other States, including an upgrade to the existing e-Tanah systems in Penang and Malacca.

Developing and implementing a National Spatial Data Infrastructure (NSDI)

Institutions for NSDI have been established at national and local levels. The Malaysian Centre for Geospatial Data Infrastructure (MaCGDI) was established in 2002, taking over the work of the National Infrastructure for Land Information System (NaLIS). The Ministry of Natural Resources and Environment (MNRE) has established the NSDI called MyGDI, with a National Coordinating Committee which reports to the National Land Council and has, under MaCGDI, established a National Geospatial Data Centre (NGDC), State Geospatial Data Centres (SGDCs) and Local Geospatial Data Centres (LGDCs). MyGDI activities are undertaken at the national level by MaCGDI, with support from the various technical committees. MaCGDI interacts with MyGDI State Coordinating and Technical Committees which undertake SDI activities at the State level. JUPEM and JKPTG are the two main data providers to MyGDI.

Substantial work has been undertaken to develop technology, formulate policies, prepare guidelines and develop and disseminate standards. MyGDI includes technology, policies, standards and procedures for producing and sharing geospatial data, supported by a strong ICT infrastructure. MyGeoportal allows data producers and users to explore, view, access and evaluate geospatial information through the Metadata Catalogue called MyGDI explorer. The metadata are linked to a map service for visualization of the geospatial data. The information in the MyGeoportal guidelines and circular letters provide guidance to agencies in term of requirements and procedures for data sharing and dissemination. Standards exist for the majority of datasets and include three types of geospatial related standards: content standards, access standards and exchange standards. Although the NSDI mechanisms are not yet legally binding, the existing Circular letters and guidelines are clear and create a regulatory framework for the functioning of MyGDI in Malaysia.

Currently, geospatial data-sharing in Malaysia through MyGDI is limited to government agencies only (government to government, G2G). Private agencies and the public do not have access to MyGDI, but can request data directly from the relevant agencies. However, the cooperation of the Government agencies with utility data suppliers (utilities/gas/oil/telecom) to establish standards for utility datasets is an example of cooperation and coordination with the private sector. The Malaysia Geospatial Online Services (MyGOS)¹⁸ enables government users to use and share trusted geospatial data, services, and applications within their group of members.

The MyGeoportal provides access outside of government agencies and is widely used by many professional users. The 1malaysiamap application¹⁹ is designed for public use and enables citizens to search and provide information for points of interest such as shops, restaurants, hotels, and banks. The use of crowdsourcing or volunteer geographic information (VGI) is increasingly recognized as an important data source for information and the government plans to link the various systems for all public and private users in the future.

The Malaysian government plans to adopt a formal strategy and enact legislation for NSDI. The National Geospatial Master Plan (NGMP), which will set up a 10-year Strategy (2017–2027) for the implementation of NSDI policies, is currently being developed. MaCGDI has shared and discussed the Inception and Interim reports with other Federal and State agencies. A NSDI law is also being drafted and will formalize the structure, functions and monitoring and evaluation mechanisms. The 5-year National Plan (Eleventh Malaysia Plan 2016–2020) has allocated budget for implementation of the GMP.

¹⁸ <http://www.mygeoportal.gov.my/node/86>

¹⁹ <http://1malaysiamap.mygeoportal.gov.my/>

BOX 6

What is National Spatial Data Infrastructure?

Geospatial information (GI) has played an increasingly important role over the last two decades in supporting effective decision making to address social, environmental and economic issues.

Location is a critical piece of information because everything that takes place in the world happens at some location, however that is described – for example by an image, map co-ordinates, or an address. Location provides a common link to different activities and statistics relating to the same place, and allows different datasets to be combined, viewed, compared, and analyzed. Being able to access up to date, definitive and reliable GI allows decision makers to see where resources, infrastructure and people are located, and the environment they are in.

However, having access to such information and using it for evidence based decision making is by no means the norm; many countries lack the types or quality of GI needed, and even where it does exist, it can be difficult to find out what is available, whether it is fit-for-purpose, how to access it, who owns it, or how to use it. Facilitating such an environment often needs a degree of central or “top down” co-ordination, and the result is a Spatial Data Infrastructure (SDI), or where this is organized over a whole country, a National Spatial Data Infrastructure (NSDI). (Kelm et al, 2017:1).

Spatial Data Infrastructure (SDI) is a concept that facilitates and coordinates the exchange and sharing of spatial data and services (Harvey et al 2012:23). When organized at the national level SDI is referred to as NSDI. SDI is an infrastructure that provides a policy framework, access technologies and standards (Williamson et al 2010:229).

The concept of SDI was developed in the 1990s and has evolved through several iterations. Early SDI initiatives focused on data and data accessibility. Later initiatives evolved to consider product-based approaches and more recently SDI initiatives have shifted to more of a user-oriented approach with a focus on the management of data and applications. Regional efforts, such as those of the European Union to create the Infrastructure for Spatial Information in Europe (INSPIRE) create regional SDIs. In reviewing future trends in geospatial information management the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM) foresee:

- A focus on citizen services, better land management and the sustainability of services
- An increasing trend to bring together data from multiple sources including official statistics, geospatial data, satellite data, big data and crowd-sourced data
- Data availability is changing with a huge increase in the tracking and availability of real-time data – data is no longer just for mapping and delivery but for integration, analytics, modeling and aggregation
- Governments are moving towards being commissioners of information rather than creating it themselves.

The main benefits of creating effective NSDI include:

- Better planning, management and monitoring of activities by Government at all levels
- Supporting the creation of e-Government services for citizens that are cost-effective, efficient, accessible and transparent
- Avoiding the costly duplication of effort in establishing systems and procuring data by establishing a single authoritative version of each core dataset
- Providing datasets for all sectors to support their economic and social activities and for the development of new services.

Source: Authors



CHAPTER 4

What Can Be Learned From Malaysia's Experience?

Qualified Titles

Qualified titles provide a rapid, fit for purpose means to register land and facilitate the land market. The introduction of qualified titles in the Land Code was a successful mechanism to overcome key constraints in the national program to expand systems to formally record land rights, particularly the limited number of licensed surveyors and the time and costs associated with completing accurate cadastral surveys. Qualified Titles provided a mechanism to register land quickly and it was used on significant scale by State and private developers. The success can be linked to the fact that both qualified and final titles were clearly specified in national legislation, the procedures and systems used to register both types of titles were largely the same and there is a clear process to convert qualified title to final title. While the early process to issue qualified title based on sketches prepared by non-surveyors created some issues for land administrators (for example the sketches do not provide precise measurements), it had little negative impact on the perception by the public and the market about the security of tenure, as evidenced by stable market prices and the willingness of banks to provide mortgages using the qualified titles to land as collateral. Over time, the standards and processes for cadastral surveys have been improved and a special task force for the conversion of qualified titles to final title has been introduced and is largely successful. Introducing qualified titles to quickly register land is a good model for countries with limited capacity or qualified surveyors.

ICT Solutions and Data Integration

Data integration can be used to overcome complex institutional mandates and using ICT solutions for improved service delivery. The introduction of ICT solutions for land administration has facilitated two related improvements for service delivery. Firstly, system and data integration will help to overcome the complex division of responsibility between the federal and state governments for cadastre and land registration. When it is not possible to introduce institutional reforms and combine the functions for the cadastre and land registry under a single authority, then data and service integration can be a suitable solution.

Secondly, service delivery can be improved by introducing digital data and systems. JKPTG has been able to implement significant improvements through the development of ICT systems such as SPTB and plans for further improvements in the development of e-Tanah. The effectiveness of these improvements is reflected in the Doing Business Ranking. The introduction of e-Tanah and the development of clear interfaces to other systems, particularly e-Kadaster, will improve services and help generate the spatial and textual data that Malaysia needs to successfully implement the NSDI.

Data integration allows for improved applications using land and real property information. One example is for property valuation and taxation. Malaysia has a long history in terms of applying a tax on real property. Known as 'rates,' it is one of the

most important sources of revenue for local governments. While the majority of local governments in Malaysia still use a manual approach to the valuation of properties, the use of automated valuation methods using integrated land administration information is increasing within the larger local governments. However most local governments in Malaysia have not been able to update their valuation lists and the Department of Valuation and Property Services Malaysia (JPPH) has limited capacity to support local governments. In 2014 the recurrent property tax in Malaysia only contributed about 0.5 percent of GDP compared to the about 1 percent collected in OECD countries. The development and implementation of a national taxation policy for local government could provide the basis for increased property tax collection. The revision of the Local Government Act of 1976 and a shift in the basis of valuation for the rating system would be key elements in this new policy as would be support for the implementation of computer assisted mass appraisal (CAMA).

Public-Private Partnerships (PPPs)

The PPP model for land administration systems offers a new approach for land administration data and system integration. Due to the limited acceptance of the current e-Tanah system by States, the Federal government has launched a pilot, using a PPP arrangement, for development of the new e-Tanah system. This approach is relatively new for land administration systems, with only a few examples available globally. Malaysia has experience and a well-established institutional structure for administering PPPs under UKAS. While the majority of PPPs have been for infrastructure, ICT projects are also coming under the PPP framework. Malaysia combines the PPP contract management experience of UKAS with the subject matter input from the relevant technical agencies through the project Committee. The Committee and project team are holding user consultations with stakeholders to ensure their requirements are included and project progress is reported to both the National Land Council and in the Chief Ministers meetings. While the results and success of the PPP for land administration has yet to be assessed, the government has put in place the management, stakeholder coordination, monitoring and reporting mechanisms that have been the structure of other PPPs in the country.

National Spatial Data Infrastructure (NSDI)

There is a sound basis for development of the NSDI in Malaysia. A dedicated institution for NSDI has been set up which provides clear coordination and management functions through secretariats, steering committees, and working groups. The NSDI activities have been aligned to the e-Government agenda, and there is an open data initiative. Substantial work has been undertaken to develop technology, formulate policies, prepare guidelines and develop and disseminate standards in support of data inter-operability. Malaysia is one of the countries that is continuously working towards a

fully-fledged digital community and government, investing in a strong ICT infrastructure to manage data and link systems and information. Several systems have been developed and implemented using spatial based information with accurate mapping, framework data, metadata, and a geoportal to provide a single access point. Also, the Malaysian Government encourages geospatial information research and development by making annual grants available for innovative applications and solutions.

Policy and inter-agency coordination

Strong national level coordination is needed to manage complex institutional arrangements for land administration. Malaysia is a Federal state and under the Constitution, land is a State matter. The Land Code for Peninsular Malaysia was formulated by the Federal government under its powers to make laws for the purpose of uniformity but the States retain significant powers in land matters. Land rights on Peninsular Malaysia are recorded in State Land Offices. However, at the federal level JUPEM is responsible for undertaking cadastral surveys and managing the cadastral map series. The separate legal basis for land tenure and land administration in Sabah and Sarawak further complicates the matter. In an attempt to ensure coordination between the federal and State agencies and institutions responsible for land administration, the National Land Council was set up to provide a mechanism for formulating national land policy. The National Land Council enjoys high level leadership and has representatives from the state and federal level. However, since this mechanism places a strong emphasis on consensus, it involves rigorous prior consultations between federal and state authorities in overcoming the significant gaps in land administration data and system integration.

In order to benefit fully from a NSDI, efforts are needed to move beyond policies and standards. The majority of agencies and organizations that provide or use geospatial data are motivated by their own mission and do not necessarily subscribe to national policy objectives. Over the past decades Malaysia has developed its NSDI through guidelines and standards and the NSDI institution has been established. However, there is still no national NSDI strategy or law. While the NSDI agency is preparing a Geo Master Plan with a 10-year strategy (2017-2027) and a draft law to support NSDI, approval and implementation require further time and political support. Adopting an NSDI law will provide further basis for coordination around national-level objectives.

Data sharing and exchange are important prerequisites for efficient land administration. Aside from agencies being motivated by their own mission, sharing information in a fully transparent manner is not the main characteristic of the Malaysian administrative culture. While Malaysia has made some progress toward readiness for open data,²⁰ inter- and intra-agency communication is still linked to hierarchy and authority. As a result, information exchange is limited. The GMP will have to develop clear strategies to overcome these critical cultural and institutional barriers to the successful implementation of NSDI in Malaysia and the socio-economic benefits need to be fully recognized, discussed and quantified.

20 See World Bank 2017. Open Data Readiness Assessment (ODRA) for Malaysia.



CHAPTER 5

Summary and Conclusions: Key Takeaways for Other Countries

The following key strengths from the experience in Malaysia provide important lessons for other countries:

- a) The issuance of qualified titles with a lower standard for spatial definition can be an effective means of implementing systematic registration where the qualified titles and any subsequent dealings with these titles are managed in the same system that registers full or unqualified titles.
- b) Business-Process Re-Engineering is an effective tool to make significant changes to service delivery. When implemented with strong political support it provides the means to break down strong 'silos' in systems that have evolved over long periods of time.
- c) ICT tools can be effective in standardizing processes, improving service delivery and making spatial and textual data available for broader use in government and society.
- d) In a complex institutional environment there should be a clear, authoritative mechanism to formulate and implement land policy. This is particularly so where there is the need to ensure that the rights of the vulnerable such as indigenous groups are protected.
- e) PPPs offer an innovative business model for governments to consider but due consideration needs to be made around the governance of the design, contracting, implementation, monitoring and impact because ensuring secure property rights and a well-functioning land market are a cornerstone for economic development and social stability.

Learning of Malaysia's limitations can be instrumental as well:

- f) When possible, it is advisable to avoid complex national/state division of the cadastre and land registry. Cadastral and land registry data and systems need to be integrated in order to provide complete and accurate land administration data to both public and private users. The most efficient way to ensure seamless integration is to have a single system for the information under a single authority. In the absence of an integrated institutional structure, a strong coordination mechanism with mandatory compliance for data integration is critical.
- g) An effective NSDI requires a clear policy and legal framework in order to define the roles and responsibilities of data suppliers and users. While governments may choose to start NSDI development prior to a formal policy and legal framework, developing a mature and efficient SDI requires clear mandates, roles and responsibilities for all parties.

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