

# **The Land Surveyor in National Economic Development Planning**

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**25 October 2016**

## **BACKGROUND**

Land surveyors have an important part to play in national economic development planning. They set the information foundation that has integrity and is reliable, robust and can be used for socio-economic planning, land use planning, fiscal and other national development policy.

The foundation is built on the concept that land is the source of all material wealth and from it we get all the things that we use of value. It is the key to our existence and its distribution and use is of vital importance.

Historically, civilisation profiles man's effort to satisfy his material wants - the wants started with simple food and shelter. Beyond these simple needs developed the desire for elaborate food, dwelling place, fine clothing, comforts and luxuries. As society evolved and became complex and sophisticated, land ownership became the source of wealth generation when invested, the security it affords and social / economic power and prestige it may confer.

Land surveyors produce cadastral plans, mapping services, geodetic surveys, sea level monitoring (**note the economic impact of climate change**) and other types of measuring services. However, we will focus on cadastral surveys as this survey produces and defines the limitation of property rights of the smallest registerable land parcel. Rights and interests are the benefits or enjoyment in real property that can be conveyed, transferred, or otherwise allocated to another for economic remuneration. Rights and interests are recorded in land record documents. The spatial information necessary to describe rights and interests includes the cadastral surveys and legal descriptions.

An important feature of the unit of the parcel record is that it gives a distinctive appellation and so provides a means for any information regarding the parcel to be recorded. The core set for the development of a land information system will therefore be the base mapping, the title records and the cadastral plans for each parcel unit.

## **MANAGING DIGITAL INFRASTRUCTURE**

One of the critical issues in the development of a digital land information system is the management of the digital data infrastructure for long term utility. The Lands and Surveys Division is currently

developing and testing a Cadastral Map Information System (CMIS) which is the start for the development of a comprehensive national land information system.

It is without exaggeration to say that the Lands and Surveys Division have successfully established good standards and protocols for construction of the CMIS with the potential for the integration of other spatial databases that are necessary for the creation of a truly sustainable national land information system to assist with national development policies.

In the field of infrastructure and construction, there is a logical requirement for all of the many types of digital data created. All spatial digital data created in connection with infrastructure projects is tied to a particular physical location on earth. This obvious fact can serve as a superb organising paradigm for infrastructure project data. After all, whether a project is on local control, a globally geo-referenced datum such as WGS84, or the national datum, it is ultimately on some sort of grid or coordinate system. And translation from one datum to another has proven to be a nearly trivial problem in today's computerised world. For this reason, geo-referencing has the potential to be an effective, long lasting data standard underlying the collection and management of all infrastructure project data.

The Lands and Surveys CMIS have developed an interface that is spatially organised which is usually the easiest way to organise and retrieve data. This method more or less, will eliminate location and retrieval complications.

Organising data such as survey plans, title documents, survey control data, video, inspection reports, point clouds, soil data, etc., by selectable location of interest, will acknowledge the simple fact that projects exist in space—that is, everything really is somewhere. Project managers and engineers involved in infrastructure projects will benefit from this concept.

## **LAND AS A COMMODITY**

As a commodity, land has a unique feature, namely, it is immovable and cannot be destroyed. In creating a cadastral plan or map, cadastral records are created so that the unit of land can be located readily, surely and unambiguously at any time on the ground. In the circumstances, the land parcel is the fundamental unit in a cadastral information system / land information system in a digital environment.

The land surveyor is the first land science professional to lay the foundation for the development of a parcel-based land information system where a number of technical and socio-economic information can be overlaid – fiscal, legal, planning, land use, CSO data, etc.

The integrity of the land surveyor's information is the strength of the development of a national land information system that can be used at the macro level of socio-economic national planning and the micro level for infrastructural development where the information is readily available for the decision making and development of business plans and project financing.

Time is money, and the information that will be readily available will be landowners name, property location, general land use, planning restrictions, valuation, soil type, and other critical information that will be required for decision making and budgeting.

### **NEED FOR DIGITAL LAND ADMINISTRATIVE SYSTEM**

Poor land records are causing the government to lose millions of dollars in property tax revenue annually as a number of parcels are not registered with the District Revenue Office due to the creation of new parcels by illegal subdivision. Some of the negative effects of this situation are the sterilisation of real property collateral, an inefficient land market, loss of property value and loss of millions of dollars in annual revenue to the State.

Land markets are made up of a constantly developing portfolio of legal interests and transaction types, including both direct and derivative interests. The general rationale for land markets is that, under appropriate institutional frameworks, they will tend systematically to move land towards the most economically efficient ownership and use. The range of types of interests and transactions in land is typically related to the level of sophistication of the related functions in the economy, particularly in the context of the financial services and related professional sectors.

From a sustainable development perspective, land has the capacity for wealth generation, for attracting and locating investment, and for opening up vital opportunities for the development of the financial sector. Land is equally an asset for economic and social development, and particularly supporting land markets and revenue generation.

As professional land surveyors, we are quite aware that our land administration systems need to be re-engineered. For example, in many developing countries, land administration is still based on a relatively narrow land administration paradigm centred on land registration and cadastral surveying

and mapping. But efficient land information infrastructures are now required to meet the information demands for successful implementation of sustainable development. The Lands and Surveys Division has taken the initiative in developing a CMIS that is the first step in the development of a modern digital national land information system.

The Lands and Surveys initiative will eventually evolve to achieve increased revenue generation and collection by the State. It will also create the following:-

- (i) Development of a national land information system;
- (ii) Investment opportunities;
- (iii) A healthy land market;
- (iv) New economic activities;
- (v) Employment generation;
- (vi) Identify abandon land;
- (vii) Arrest of the issue of land grab of State land.

## **EVOLUTION OF THE CONSTRUCTION INDUSTRY?**

The State has committed to national infrastructure development programmes. The State needs to get value for money for its investment in development projects. The State therefore needs to commit and develop a robust means of measuring productivity. We know that no private sector organisation, faced with the disciplines of competing in the open market, would invest resources without a clear understanding of the rate of return.

In the circumstances, we have to examine current industry trends and future expectations for the construction and services industry, especially those dealing with processes to improve planning, design, construction, and operations / maintenance of civil infrastructure.

For example, transportation is a nation's lifeblood. Therefore the following must be noted:-

- Decaying transportation system is costly to our country;
- It costs the country millions of dollars annually in lost time, fuel and productivity;
- We must invest billions per year over the next 20 years to maintain and enhance our internal transportation systems;
- We have to understand the current rates of increase of the different modes of vehicular traffic expansion on the nation's road— what is the rate over a ten year period?
- Our economy is related to export trade –highly dependent on a strong, transportation system;

- What is the percentage of infrastructure projects cost that is related to rework from errors, omissions or delays due to requests for information!
- We have to look at urbanisation – what is the trend – is it increasing – what does it mean?
- Congestion – is building more roads the answer – it lacks logic;
- There is need to refocus and pay attention to repair, recondition and retrofit as part of our national strategic development programmes and as part of our budget control and cost management;
- We must have a vision - we must review and build on our 2020 Vision.

## **THE LAND SURVEYING PROFESSION IN NATIONAL DEVELOPMENT**

Land surveying is a land science profession – cadastral surveying is the most popular but it is a small module of the land surveyor’s training. It is the most visible part that the public sees and understands - the establishment of boundary lines and preparing cadastral plans to support a conveyance - is not the only function of a land surveyor.

However, land surveyors have a lot to contribute to national development – it is a profession whose knowledge and expertise are underutilised. The information that we generate form the base for the development of a parcel based land information system that integrates technical and socio-economic data. Land surveyors are expert measures and trained in spatial information management. Our training enables us to assist in the construction sector with their development programmes by putting together core datasets on the following: –

- Landownership, valuation, location of property boundaries, planning requirements and other critical data sets for planning, decision making (is the project feasible) and budgeting for development projects;
- We understand the effect of climate change and sea level rise and its effect on industries along the coastal areas;
- we understand tectonic movement and monitoring fault lines (Trinidad has a lot of fault lines) that produce movement patterns;
- We understand international boundaries.

We are a learnt profession that is willing to be part of the professional team that will contribute to national development planning.

### **Brief Bio - Fitzherbert Reyes is a Licensed Land Surveyor**

Fitzherbert Reyes is a Licensed Land Surveyor and a member of the Land Survey Board of Trinidad and Tobago, the Institute of Surveyors of Trinidad and Tobago, the Geographic and Land Information Society, Inc. of the United States of America. In addition to obtaining a Diploma and Professional Diploma in Engineering and Land Surveying respectively, he hold a Master of Sciences Degree in Land Information Management and Cadastre\* from the Polytechnic of East London (now the University of East London). He has experience working as a Land Surveyor not only in Trinidad and Tobago but also in Spain, France, Germany, The Netherlands, England and St Vincent and the Grenadines. He has held various positions in the Land & Surveys Division, including but not limited to Supervisor of Surveys, Supervisor of State Land, the Hydrographic Unit and the Project Manager for the Land Records Management Project). He is an expert in Land Information Systems / Geographic Information Systems / Land Management & Cadastral Science. He is also the principal author of more than 20 local and international consultancy reports and papers. Presently he is the Managing Director of the firm **Total Solutions Surveying Services Limited**.

*\*The Cadastre is a specialised discipline that deals with ownership, tenure, precise location, dimension, area, land-use, value of individual parcels of land and land management; the cadastre science is used extensively in dispute and lawsuits between landowners.*