

Geo-Information for Sustainable Development in Ghana The Role of the Land Surveyor as Agent for Revenue Collection

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Key words:

ABSTRACT

Geo-information are used in a number of different disciplines for a broad range of applications. Any discipline, or interdisciplinary, concerned with spatially related data benefit from this technology.

The provision of utility service and infrastructure in sustaining development in Ghana is hindered by lack of Geo-Information, especially in the rapid growing areas .The need for available and accurate information as a basic tool for economics, planers in providing cost effective and sustainable land use plans in the country cannot be over emphasized.

The role of the professional land surveyor in sustaining development in Ghana encompasses a wide spectrum of activities. This includes technical interpretation of data and surveying of developmental plans, determination of relative positions and elevation of surface structures and collecting all other information needed for planning of revenue collection.

This paper discusses the role professional land surveyor as an agent in increase revenue collection in Ghana on the current and potential uses of Geo-Information data. The following application areas are mention; property and land parcel data; utilities; transport, facility, and distribution planning; civil engineering; agriculture and environment.

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INTRODUCTION

Technological developments in the acquisition and processing of Geo-Information data have changed the field of land surveying drastically in the last decade. These developments have led to time and cost effective data acquisition processes, subsequently leading to increasing volume of data being collected. Ghana as a country however, has suffered a setback in the proper acquisition, management and processing of Geo-information data to support the rapid pace of development

The rate of growth of localities has been so rapid as compared to the rather slow rate of the provision of utility services and infrastructure. As a result, the monitoring and collection of revenue is very inefficient. The primary motivation for the development of parcel-level data and Land Information System was to improve the assessment records and the collection of property taxes by the District Assemblies.

This paper discusses the use of Geo-information to support data management by the professional land surveyor as agent in revenue collection. It also looks at the role the land surveyor plays in the management of developmental plans or schemes for Chiefs and other individual landowners. By incorporating geo-information into this management system, it will facilitate the quick update of land records hence tackling the problem of double sales of land and the subsequent multiple registration. This will help to reduce land litigation, which is common in our land and will also assist the District Assemblies to increase their revenue collection. Having identified the magnitude of the problem of property taxation in Ghana we believe that the inadequate assessment system being used presently could be improved through the development of a Land Information System (LIS) based on an accurate and up to date Land Title Registration Map.

COLLECTION AND PROCESSING OF DATA

There has been much improvement from the traditional methods of land surveying as a result of the introduction of modern survey equipment. Thus all the surveying activities in the land administration in Ghana are influenced by the technological know how and the handling of the survey equipment.

The modern technology of Geo-information data acquisition has revolutionised the land surveying profession in sustaining development in the land delivery sector.

However, the old methods are not completely defaced as some of the methods are complimented with the modern methods. This has brought about a complete review of labour,

time and cost involved in the processing and the transfer of information in land administration issues.

In Ghana today, the main objective in land administration is to;

- a) provide and collect information on the environment to check its degradation so that the next decade of human settlement are not at risk
- b) minimize the issue of land litigation
- c) maximize revenue collection on land use
- d) provide information on the trend and pattern of land use which can be used in the preparation of 5 or 10 year strategic plans for the District capitals with respect to revenue collection.

Thus the services of the professional land surveyor to provide rapid and accurate survey data for processing and presentation for a sustainable development cannot be over emphasized.

THE NEED FOR RAPID AND ACCURATE SURVEYING

Large amounts of processed field data, which are always required from the modern professional land surveyor for almost all the land administration activities, must be rapid since this information is what keeps the land use in process. Development today is dynamic which no mechanism can be developed to halt it, hence the need for rapidity.

The purpose of survey, being to process and transfer geo-information for positional and directional structures, must be accurate so as to reduce land litigation.

Present with us today, is the ability to capture other very important information apart from the Surveyors normal planimetric information. It is possible to collect information like parcel segment, Environment Segment, Tax Roll segment, Geo Segment, Address Segment, Legal Description Segment etc. The availability of accurate topographic and planimetric data means planners, engineers and Land Users do not have to acquire new data for every new development project. Thus the problem of lost of revenue will be the problem of the past.

THE NEED FOR SUSTAINABLE DEVELOPMENT

In line with the need for sustainable development,

1. Survey data on segments must be obtained directly from the field in the process of determining, recording and dissemination information about ownership, value and the use of land when implementing land management policies.
2. The data must be obtained so as to determine the rights and other attributes of the Land.

3. The survey and description of the parcel, their documentation and the provision of the relevant information in support of the land markets e.g property rate.
4. All necessary additions must be provided for easy interpretation on account of the purpose of information transferred.

THE ROLE AS AGENT FOR REVENUE COLLECTION

The statutory duty and role of the Professional Surveyor as agent for revenue collection include the following;

Demography;- The Professional Land Surveyor is needed to geo-reference the geographical information on the behavior and pattern of the population, migration, growth etc which can help in future planning of projects with respect of revenue collection. I.e. a budget can be drawn based on available information. The traffic information on a particular road may be incorporated to be able to project and monitor its revenue generation.

Ghana is endowed with a lot of tourist scenes and it is the responsibility of the Land Surveyor to provide the various assemblies with accurate location of these areas and land information (roads, vegetation, landscape, etc). The Land Surveyor is required to provide a detail survey map (Utilities Map) of parcels covering the location of customers, so that they can be tracked down during revenue collection.

The Land Surveyor with current technology in survey instrument can prepare up to date maps of residential areas which can be further classified into a category for levy distribution to generate income. With this map together with attributes, land revenue collection with regards to property rate can be collected. The various District Assemblies could be linked where they can use this geo-information for their developmental plans.

These accurate information from the Land Surveyor could assist in knowing the exact amount of electricity load, volume of water, number of telephone lines, types of drainage systems, etc to be distributed or provided in a particular area. This will solve the problem of assessment, which has resulted in the loss of revenue to the District Assemblies and for that matter the Central Government.

The Land Surveyor can also generate a Digital Terrain Model (DTM) of all parcel or areas during planning stages in order to define the true nature of the land landscape. This can show the pattern and direction of the flows of the drainage systems and pragmatic measures can be taken to avert the disasters associated with heavy down pour during the raining seasons in Ghana .If Planners and Land Developers will really seek the assistance of the Professional Land Surveyors during the preparation stages of the land layout schemes, the nation will really save so much money that goes down the drain for poorly planned schemes which results in the spring up of slums in urban areas. It will also help to generate accurate database for any other future development and service supply.

CONCLUSION

In conclusion, I will use the ‘**WYANDOTTE COUNTY, KS EXAMPLE**’ in the US where major problem to delinquent and non-tax payment. The large amounts of delinquent taxes subsequently become a serious potential issue.

One Professional Land Surveyor used geo-information to estimate that as much as \$9 million was owed to a metropolitan City in revenue. This was started by the creation of a base map, which served as cadastral overlay. This was achieved by the use of photogrammetric data compilation using analytical stereo plotters but today, faster process can be achieved by the use of Digital Photogrammetric Workstation (DPW) or orthophotos.

Cadastral Maps showing details such as building roads and utility poles and contours. In the attribute section, 86 primary data elements were used as shown in the table below. The sample maps below shows assessment parcel section and Quarter-section Maps.

Later other information was added on, such as soils and geological. With this example in one year the revenue collected due to the ability to monitor revenue collectors and the payments exceeded ten-year (10years) revenue estimated to be collected.

The Professional Land Surveyor in Ghana could also act as agent today to assist in increasing revenue collection to sustain the dynamic development in our dear nation.

