

# LAND INFORMATION MANAGEMENT IN CUSTOMARY LAND IN BOTSWANA

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## ABSTRACT

Customary land in Botswana is administered by Land Boards whose functions are stipulated in the Tribal Land Act of 1968. Tribal land in Botswana constitute seventy percent of the total land mass and therefore its management is crucial to the way Botswana develops. The tenure characteristics of tribal land together with the limited technical know-how in Land Boards have created unprecedented land problems. Urban villages are seeing a rapid sprawl with the demographic increases of between sixty and seventy percent in a ten year period. Such increase in population alone is a grim reminder to planners and administrators to ensure that land is prudently managed so that planning can be done effectively. This paper explores attempts made to improve land administration in these areas with special emphasis on the role that spatial information can play to improve the effectiveness of Land Boards. It covers a project done between the Land Board and the University of Botswana and discusses some technological issues that will help improve land management in customary land.

## INTRODUCTION

Botswana as any African country is undergoing rapid urbanisation.

In terms of Land Tenure land in Botswana can be categorised into the following groups:

- Tribal Land; this is the largest tenure system as it consists of 71% of the country
- State land accounts for 23% of the country and consists of national parks, game reserves, forest reserves, towns and townships
- Freehold tenure accounts for 6%

With rapid urbanisation we can see that they would be pressure on stateland. Land that will really come available then will be tribal land. Tribal land, however, is not as well planned as the towns. Government has recognised this problem and has promulgated a National Settlement Policy with an overall goal of providing a “comprehensive set of guidelines for national physical planning and to provide a framework for guiding the distribution of investment in a way that reflects the settlements’ population size, economic potential, level of infrastructure and settlements role as service centres.”( GoB, National Settlement Policy, 1998) One of the objectives is stated as reduction of the rate of migration to towns. Towns and cities have had better infrastructure and services adding to the high demand for serviced land in towns. In order to improve the standards in the rural areas which consist of the bulk of the country there is need for proper land management. Land Management itself

requires information. Information for land management will be spatial in nature. Is spatial information being taken seriously?

## **LAND ADMINISTRATION IN TRIBAL LAND**

Land in tribal land is administered by Land Boards who are empowered to do so through the Tribal Land Act of 1968. In principle the core functions according to a Government document are:

- **Land Administration** – essentially involves administration of the land allocation process through undertaking such tasks as the issuing of certificates and leases, the arbitration of disputes and recording minutes of various meetings.
- **Surveying and Registration** – involves provision of professional and technical services advice on land use planning, surveying, land and plot demarcation, assessments and valuations, borehole investigations and beacon identification

The functions of the Land Boards according to Section 13 (1) of the Tribal Land Act are:

- a) The granting of rights to use any land;
- b) The cancellation of the grant of any rights to use any land including a grant prior to the coming into operation of this Act;
- c) Hearing of appeals from, confirming or setting aside any decision of any subordinate land authority;
- d) The imposition of restrictions on the use of tribal land

As can be seen from these functions the Land Boards roles do not include planning of land although they have power to cancel any grant of rights if it is perceived that the grantee of such rights has failed to observe restrictions imposed on him under Section 13(1)(d) or under the provision of any law relating to town and country planning or good husbandry (Section 15(b)).

## **DEMAND FOR LAND IN PERI-URBAN VILLAGES**

The demand for land will be high in areas that are near the towns and cities. These areas are classified as urban villages. The urban villages that surround the city of Gaborone are Tlokweng and Mogodisthane. The population of Tlokweng in the 1991 census was 12,501 whilst it is projected at 20,998<sup>1</sup> in 2001 (CSO projections, 1997). This signifies a rise in population of 67% in 10 years. The population of Mogodisthane was 14,246 in 1991 and was projected as 22,957 signifying an increase of 61%. To put this in perspective the projected growth in this ten year period for Gaborone is 68%. Most of this growth is attributed to migration from rural areas to towns and urban villages near towns like Gaborone. This demographic picture require a concerted effort on the part of the government to look at improving the standard of living in the tribal areas because the standard of infrastructure and services is below that obtaining in towns.

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<sup>1</sup> The National Census of 2001 will be held in October

The villages near towns like Gaborone and Francistown are facing numerous settlement problems.

In 1991 the government appointed a commission to look into Land Problems in Mogodisthane and other Peri-Urban Villages. The commission was tasked with responsibility of checking patterns of ownership of land, frequency of change of ownership and use without the involvement of the land Board and claims on unused and used land among others. Their findings then reflected the fact that there was an influx of squatting into these villages due to a number of reasons e.g. proximity to the city where opportunities abound, failure by the Department of Surveys and Mapping to deliver sufficient number of plots, failure of the Botswana Housing Corporation to deliver enough houses etc. These problems still persist to date.

### **Method of Demarcating Tribal Land**

The Department of Civil Engineering of the University of Botswana carried out a research in Methods of demarcating tribal land in Mogodisthane in the Kweneng District. The objectives of the project were;

1. To design appropriate methods for demarcating rural land for land inventory
2. To investigate community participation and the use of community structures in land adjudication
3. To examine the traditional concepts of boundaries, in view of the fact that rural landholders do not like to share common fences with their neighbours.

The main focus of the study was on the functions of the Board as relates to the Land inventory.

Six functions can be identified as

1. Land Allocation
2. Land Registration
3. Land Use Planning
4. Land Use Monitoring
5. Land Acquisition
6. Land Adjudication

To carry out these functions effectively Land Boards need to have the right information at that right time. It is said that Land Boards do not have easily accessible information showing what piece of land has been allocated to whom and for what purpose (Nkwae & Maphale, 1998). Indeed sustainable development cannot be attained without sound land administration (UN-FIG, 1999) and sound land administration is only achievable with proper land information

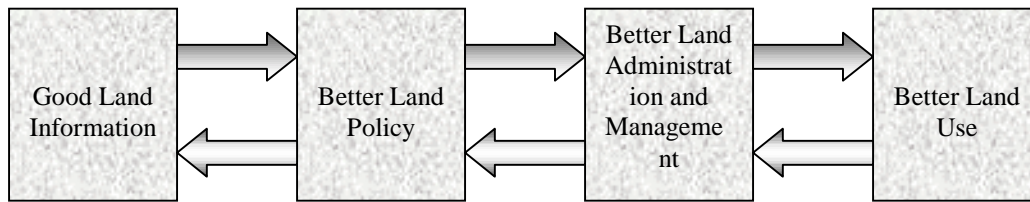


Figure 1: Good Land Information for Good LandUse (after UN-FIG)

## THE STRUCTURE OF THE LAND BOARD

In order to have an understanding of who uses land data in the Land Board a typical structure of a Land Board is shown below. To have an effective information system that will better serve everyone in the land board it is important to know who uses Land information. It could be said that all the sections in the Land Board except for the support services use Land data for their work. We however concentrate on the Land Surveying and Registry section in this discussion.

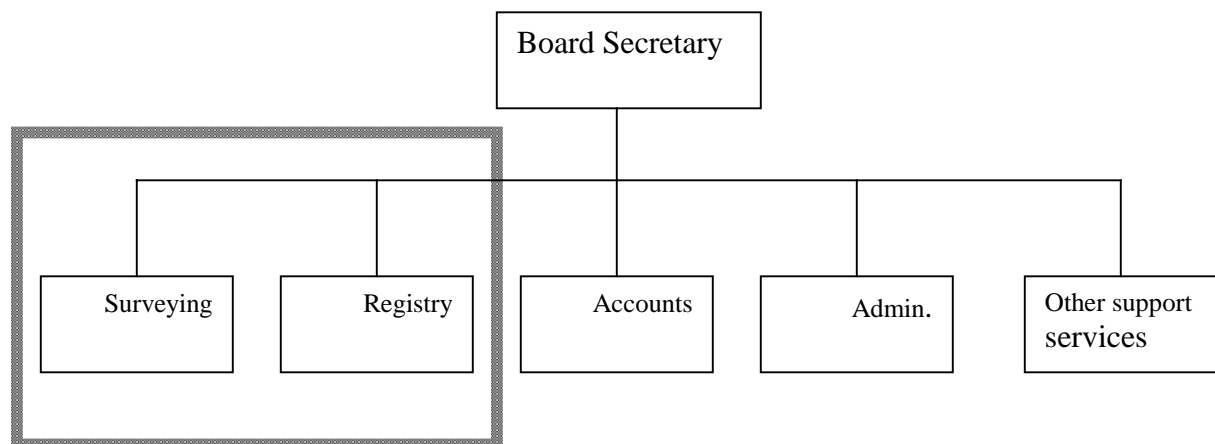


Figure 2: Structure of Land Board

## LAND HOLDING IN TRIBAL LANDS

Traditional tenure system on tribal land hinges upon a three-fold division of land into residential land, ploughing land and grazing land. (Presidential Commission on Land Tenure, 1983). Some portions of land can also be leased on common law.

Land in the tribal areas constitutes either unoccupied land or existing villages. Planning and Management of unoccupied land is not as complex as that of existing villages.

## Unoccupied land

In these areas Land will normally be identified by the Land Board and planned by the local planning authority (the District Council). After planning approval the Land is then surveyed either by the Land Board surveyors or the private surveyors. Cadastral Survey computations are done using a software package called Z-Menu by Compuplot and are therefore stored on the computer. Graphical survey data is then imported as DXF into a CAD package (Microstation) in which embellishments can be made. Figure 3 shows a typical layout DXF file that was imported into a CAD package.

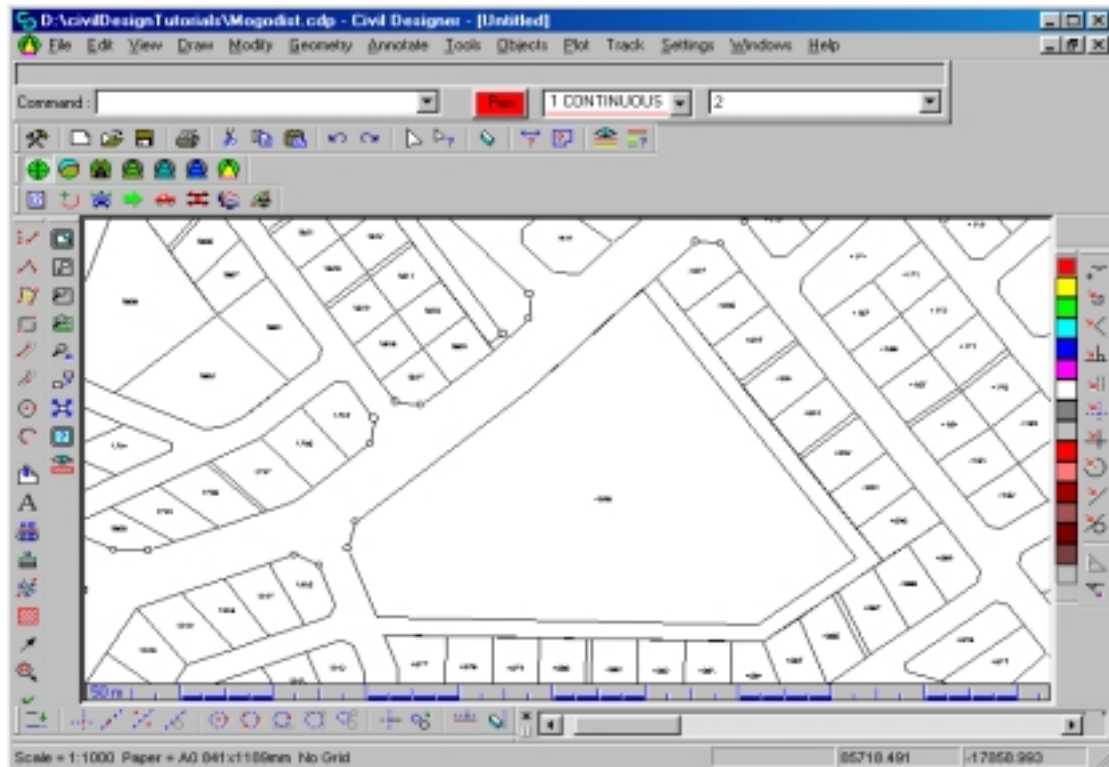


Figure 3: Screen cut of DXF file showing unoccupied plots

Diagrams, Working plans and General Plans as required by the Land Survey Act are prepared using CAD. This data is retrievable but is not linked to the allocation and registration of the land.

## Settled Villages

In areas where settlement has taken place the situation is slightly more complicated. As indicated earlier the tenure characteristics in these areas include customary law tenure and common law leases. The practice in most Tribal Lands is that when an applicant applies for land in an area which is not planned (typically, an already settled area) the Land Board must inspect that area and if found suitable for a particular use an applicant is issued a Certificate of Customary Land Grant based on a Sketch plan drawn by the Technical

officer in the Land Board. If the applicant wants to have a Title Deed i.e. converting to common law, s/he then has to apply to have that piece of land surveyed. We can, therefore, identify two routes in the way land is registered.

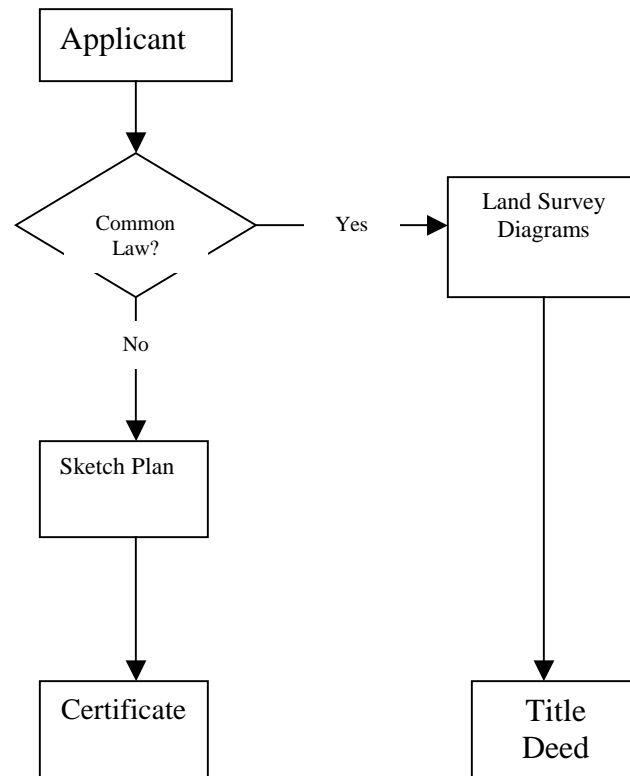


Figure 4: Two routes of Land Registration

These sketch plans that are prepared are normally not linked to a database and thus are not easily retrievable. It is only when a full survey is done that these parcels can be linked to the other surveyed parcels. This means that if most applicants apply to obtain the Certificate of Customary Land Grant only, which do not require a cadastral survey, the graphical information will not be properly captured. This can create problems for planning or re-planning of these areas.

## DATA CAPTURE

In our project field data collection consisted of demarcating existing plots using GPS and administering a questionnaire on land inventory. The GPS data on the existing plots was then imported into Microstation. Since the object was to create a link between the graphical plot data and the land inventory the Microstation data was then imported into ArcView. (The full technical details are in another paper being prepared by Ezigbalike).

The Land inventory was stored in MSAccess and this was then linked in ArcView. It was then easy to query the system for unoccupied land, ownership and payments of required fees etc. The GIS was able to provide spatial analysis capabilities. What was important was

the aspect of graphically showing the decision makers how many plots were squatted upon, how many were vacant and so on. Statistical data could also be extracted easily in ArcView.

## **SPATIAL INFORMATION AND SUSTAINABLE DEVELOPMENT**

While the small GIS created seemed to work well it apparently was not in use. It was perceived to be a project for surveyors and therefore with very little relevance to the day-to-day operations of the Land Board. The demand for land is so high that most of the work done involve the survey of planned land and its allocation. The system proposed focussed on collecting land inventory data on existing settlements. This might not be a priority insofar as it does not impact on land allocation. The danger with this however is that land already allocated will be difficult to monitor and as more land is allocated the more difficult it will be to assess how sustainable the development is.

Whereas it is recognised that GIS is useful in all kinds of application which involve processing and analysing spatial data (Ezigbalike & et.al.) we can notice its lukewarm acceptance in this project. This is perhaps because the project was seen in the context of improving the work of the surveyor. The next step for us is to see how all the players in the Land Board and other institutions that use spatial data are using the land inventory. There is need for the institutional issues to be tackled if an effective system is to be put in place. As Dale & McLaughlin have pointed out the operation of Land Information System entails two separate sets of issues, the technical and the institutional. (Dale P., & McLaughlin J.D.).

At the time of writing, the Government of Botswana had put out a tender for the development of Tribal Land Integrated Management System. It is to be hoped that such a system will address the institutional issues that will make or break such a system. Nkwae & Maphale, raised the issue of cooperation between institutions in Botswana as cardinal to the success of an LIS.(Nkwae & Maphale, 1998, pg79). The UN-FIG Barthurst Declaration also recommended thus:

*Encourage all those involved in land administration to recognise the relationships and the interdependence between different aspects of land and property. In particular there is need for functional cooperation and coordination between surveying and mapping, the cadastre, the valuation, the physical planning and the land registration institutions. (UN-FIG, 1999, pg6)*

Indeed there is need to link the technologies in surveying, mapping and IT to the planning and management process. We envision a system that will not be seen to be a tool for the technocrats but will be used by all who manage land.

Spatial data in the tribal land is collected either by way of cadastral survey diagram or sketch plan depending on how that land will be held. These diagrams and sketch plan tend to be ends in themselves. "The primary role of cadastral surveying and mapping is to support the establishment of the spatial cadastre and in turn support the manner in which

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the population relates to land.” (Williamson, 2000). There has to be this recognition that a sketch plan or the diagram is part of the spatial cadastre. The project carried out some systematic adjudication by measuring existing plots. Systematic adjudication is said to be more efficient and effective (Williamson, 2000) although as indicated earlier it is not seen as a main function due to the high demand of land. It would however positively contribute to the establishment of a spatial cadastre.



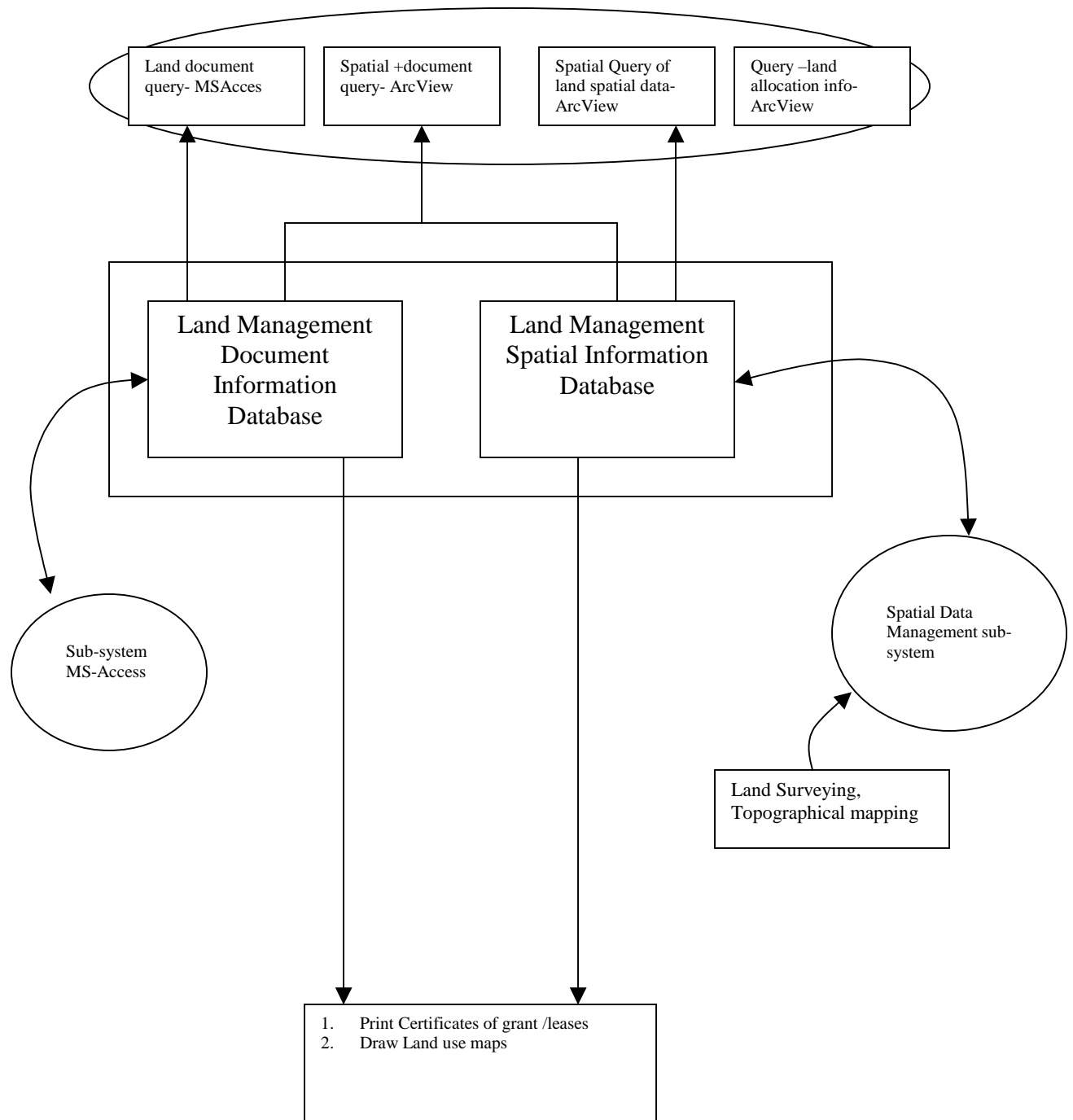


Figure 5: Land Information system component (adapted from Dongliang & et.al)

The figure shows a conceptual system that has two database kernels as its backbone. It is adaptable for use in the mentioned functions of the Land Boards. Further it is expected that this system can be used or linked to the District Planning Office who could use it for their physical planning.

The Government of Botswana has recognised that effective management of any resource requires information. It is for this reason that they have tendered for the establishment of a tribal land management system. There is no doubt that effective management of land requires spatial information which is up-to-date. In trying to improve the Land Information systems it will be important to ensure that those that collect information on land realise that the information is to be used in a greater system. Land Boards with GPS equipment are fairly advanced in the collection of data. Attribute data might not be a main focus for most of the land boards but there is need to move into this as the best use of land can only be achieved by having relevant land information.

## **CONCLUSION**

Spatial Information management in the rural areas of Botswana is about to take ascendancy. Issues of introduction of new technology in Data Collection are being addressed by the purchase of new equipment such as GPS receivers and total stations. With regard to data processing and analysis all government departments involved in spatial information handling have settled for ArcView as the GIS software. The new Tribal Land Management System to be implemented will hopefully embed the GIS and make the system a true spatial information system. We are however aware that sustainability of a new Land Administration Systems requires human resources qualified in these areas. We expect the Government, in tandem with the acquisition of this technology, will address the issue of human resource development. The Land Management system being proposed must be seen in the light of sustainable development. Although as (Dale & McLaughlin) have pointed out land Information is no panacea for the ills of the environment they state that those with better information stand a better chance of making and implementing better decisions. We cannot agree with them more.

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