

# CADASTRAL SYSTEMS AND THEIR IMPACT ON LAND ADMINISTRATION IN KENYA

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## ABSTRACT

The mandate of the Kenya Government in its objective to achieve sustainable development is to reduce poverty by half by 2015 and transform the country into a newly industrialized nation by the year 2020.

This paper reviews the cadastral systems that have been formulated and implemented in Kenya ; the different concepts and techniques used in the preparation of cadastral survey plans and maps; and the impact of the cadastre as a source of spatial data in support of land administration processes. The paper focusses on the role of the cadastre in the implementation of the strategies on the eradication/ alleviation of poverty and industrial transformation.

In conclusion, the paper looks at the future of the cadastral systems in Kenya in light of the new technology. The paper recommends cadastral reforms that require to be undertaken to meet the needs of the present generation and to foster national development targets.

## 1. INTRODUCTION

The development objectives, strategies and policies to guide sustainable development effort in Kenya are based on the National Poverty Eradication Plan whose goal is to reduce poverty by half by 2015 and the Government's articulated vision of a newly industrialized nation by the year 2020.

This paper reviews the cadastral systems that have been in operation; their impact on the administration, management and control of land; and their contribution to the promotion of sustainable developments in Kenya. The paper will conclude by forecasting the future of the cadastre and recommending reforms necessary to achieve the expected development goals set by the two plans on poverty eradication and industrial transformation.

## 2. REVIEW OF THE CADASTRAL SYSTEMS

The genesis of the Kenyan cadastre was the establishment of a survey section and the appointment of a Chief Surveyor in 1903 to superintend the demarcation and survey of plots that had been alienated in Nairobi and the enactments of four Ordinances, namely :

the Land Titles Ordinance, 1908; the Crown Lands Ordinance 1915 and the Registration of Titles Ordinance, 1918 and the Land Surveyors Ordinance, 1923. These Ordinances guided the land tenure policies for the next fifty years. The post second world war saw the individualisation of land ownership and mobility in the transfer of land in areas held under customary law by Africans through the process of land consolidation. After independence the land policy was to accelerate land adjudication in trust land areas and to transfer land ownership from foreigners to indigenous populace through land settlement programmes.

Cadastral systems were formulated to support the above policies through the following land administration programmes:

- Adjudication of lands at the Coast.
- European Settlement in the White Highlands
- Land Consolidation and Adjudication programmes
- Land Settlement programmes
- Sub-division of large scale farms and group ranches
- Alienation of town plots
- Land Registration programmes

The programmes were designed on the principle that major operations affecting land cannot achieve their ideal maximum efficiency or production without utilization of survey maps and without security of tenure. Each programme had to contain a component of land survey. Land registration was the end process and ultimate goal.

The above programmes are hereinafter reviewed:

## **2.1 Adjudication of Lands at the Coast**

The Land Titles Ordinance 1908 made provision for and required all persons who claimed land or interest in land at the coast to come forward and prove their titles. A certificate of title was granted by a land court to those persons that proved their claims. Any unclaimed land or land in respect of which the claims were rejected was deemed to be crown land and available for alienation. The Ordinance provided for a surveyor to demarcate and define the boundaries of both adjudicated and unclaimed land as directed by the Recorder of Titles. Surveys were done by compass and chain with connections to very few control points. The beacons were either wood or of poor materials which did not resist weather and disappeared in the course of time. The adjudication, demarcation and survey processes were slow and expensive. The indigenous Africans were excluded from launching any claims to the land they occupied. Many areas were not covered by the adjudication allowing them to be classified as government land. This has contributed to landlessness and perennial squatter problems at the coast.

## **2.2 European Settlement in the White Highlands**

The Crown Lands Ordinance 1915 prescribed the policy and procedures of alienating crown land to the white settlers. It was through this ordinance that the British Government implemented its policy of European settlement in the Kenyan Highlands. Crown land was allocated through direct grants by the Governor or sold by public auction unless the

Governor ordered otherwise. It was initially mandatory for the land to have been surveyed before alienation. This requirement was changed after the Government realized that a lot of development was being hampered by the slow pace of settlements caused by backlog in surveys due to dearth of surveyors. A procedure was introduced whereby successful applicants were authorized through a letter of allotment to occupy and develop the land pending survey and issuance of title deeds. The policy of disposing land through auction was discontinued. A Land Board was created to be advising the Governor on application for and proposed disposal or grants of agricultural land. All Crown grants were to be compulsorily registered and survey was demanded before registration. A survey deed plan was attached to every crown grant. Survey was undertaken under the provisions of the Survey Ordinance while registration was effected under the provisions of the Registration of Titles Ordinance. The two ordinances provided for fixed boundaries whereby land was demarcated by permanent survey marks and the position of the survey marks accurately determined by mathematical computations.

### **2.3 Land Consolidation and Adjudication**

The processes of land consolidation and adjudication were formulated to transform land in trust land areas from the customary land tenure to the statutory freehold tenure. They were the strategic processes that brought the security of tenure to lands that were reserved and occupied by the indigenous Africans.

The operation of land consolidation consisted of first the ascertainment of what land each person was entitled to and second, allocating in a planned layout, a single plot of land equivalent to the plot or to the aggregate of the plots where these were more than one to which each person has been found to be entitled. Land consolidation process includes fragment gathering and preparation of record of existing rights; the preparation of an allocation plan showing the intended arrangements of consolidated holdings and the demarcation on the ground of the boundaries as reflected on the allocation plan. Maps to support registration are prepared by tracing these allocation plans and are known as demarcation maps.

To improve on the accuracy of demarcation maps in some areas, a process known as “Re-fly” was initiated. The proprietors of the consolidated lands were requested to plant hedges on their boundaries and where these hedges grew and were air visible, aerial photography at the scale of 1/12500 was taken and from these photographs, after ground control was provided by means of triangulation or trilateration, maps at the scale of 1/2500 were produced photogrammetrically showing the boundaries. Ground survey methods were used to mark and plot the missing boundaries. These types of maps were known as registry index maps.

Land consolidation proved to be a slow process that would not achieve the desired targets. The Government appointed a mission of Land Consolidation and Registration in Kenya (1965-66) to find ways and means of accelerating land consolidation. The mission recommended that the ascertainment of land rights be carried out by the process of land adjudication. Mapping techniques were designed to produce maps to support the system.

Aerial photography at the scale of 1/12500 was taken covering the area under adjudication. These photographs were enlarged five times and the enlarged photographs, at the scale of 1/2500, forwarded to the field where surveyors identified and marked the boundaries of the adjudication parcels on the enlarged photographs. The boundaries that were not air visible were plotted on the photographs by estimation. Maps were produced by making direct tracings of boundaries as depicted on the enlarged photographs. These maps were known as preliminary index diagrams. (PIDS).

In group ranch areas, boundaries are adjudicated to follow natural features where possible. These boundaries are identified on the published Survey of Kenya 1/50 000 topographical sheets. Maps are produced by direct tracing of the boundaries as they appear on the topographical sheets. Small public purpose plots are shown as either insets or on separate cross-referenced sheets plotted on larger scales. Rectilinear boundaries are marked with permanent corner beacons and plotted by identification of details appearing on the topographical sheets or by simple survey methods. These maps are known as registry index maps – range (provisional).

## **2.4 Land Settlement**

A cardinal land policy of the Kenya Government has been to transfer land ownership within the White Highlands from foreigners to indigenous landless citizens with the aim of improving their standards of living. To achieve this objective, many types of settlement schemes were initiated that include; the One Million-Acre, Shirika, Haraka, Sugar Settlement Organisation, Ol Kalou Salient, Magarini and Lake Kenyatta settlement schemes.

Two different survey techniques have been used to support these schemes. In the million acre scheme, the Survey Department was responsible for the production of topographical base maps at the scale of 1/2500 on which the planning officers of the Department of Agriculture were able to produce plot and scheme layouts. After the approval of the layout plans, the soil conservation units of the Department of Agriculture transformed the plots to the ground and settlers were authorised to occupy the plots. When the scheme area is fully demarcated, i.e. all plots have physical boundaries, the area is title mapped using photogrammetric methods at the scales of 1/2500. Registry index maps at the scale of 1/10000 are produced from the photogrammetric machine plots to support registration. In all the other settlement schemes, maps are produced by the demarcation and survey of plots using ground survey methods. Whereas considerable delays are encountered in the production of maps to support registration, the occupation of plots by settlers go hand in hand with demarcation and settlers are able to develop their plots awaiting issuance of title deeds.

## **2.5 Sub-division of Large Scale Farms and Group Ranches**

Where the Government was unable to purchase land for settlement in the White Highlands, Kenyans organised themselves into groups, formed companies or cooperatives, and bought farms on a willing buyer willing seller basis from foreigners. Initially these farms were

managed as single entities. However due to political, social and economic factors that saw the mismanagement of many farms, the Government decided that all these large scale farms be sub-divided to their members/shareholders. Similarly, the group ranches that had been adjudicated and incorporated were to be dissolved and land distributed to individual group ranch members.

A mammoth exercise of subdividing the large scale farms and group ranches was launched. It was carried out by the joint efforts of the Survey Department, Land Adjudication Department surveyors and licensed surveyors. The sub-division surveys were carried out by ground survey methods and maps prepared by tracing the demarcation sheets. Emphasis was laid on the physical demarcation of the plots on the ground and the necessity of the proprietors to fence/hedge their parcels as the demarcation exercise was being completed. The implementation of this programme was riddled with many disputes that were precipitated by poor record of books to show members and their shares in these farms, the pressure on the surveyors to complete the exercise expeditiously and the low accuracy of the registry index maps—range (provisional) in the group ranches. Pertinent survey principles were occasionally overlooked. The role of the surveyor was not fully appreciated and his insistence on producing quality maps was rejected; a decision that in the long run will jeopardize the use of the maps in land management.

## **2.6 Alienation of Town Plots**

The Crown Lands Ordinance, 1915 made provisions on the procedure to be used in the disposal of land within townships, with the aim of providing land within urban areas for the orderly development for residential, commercial, industrial and special purposes. Adequate provisions for transportation, utilities, public purpose and recreation areas was to be incorporated. Land was initially disposed off through grants by the Governor or through auctions after the land had been planned, surveyed, and advertised through gazettelement. The procedure of alienating town plots through auctions was abandoned in preference to the allocation of the plots through selection committees chaired by Administration Officers (Provincial Commissioners and District Commissioners) of the area the land is situated. No town plot could be allotted without an approved development plan. The survey of the plots was executed under the provisions of the Survey Act that demands survey marks defining boundaries be determined by accurate surveys and their position be derived using mathematical computations. The Survey Act and its Regulations sets out clearly how these surveys should be conducted. The surveys are done under the direction and control of the Director of Surveys who is empowered to approve all such surveys. Survey marks are easily re-established if lost or damaged. The process of alienating town plots is on-going. The plots are allocated through direct grants by the President or Allocation Committees chaired by Provincial Commissioners in municipalities or District Commissioners in other urban centres.

The biggest challenge experienced in the disposal of plots in the urban areas is the unauthorised occupation of land by squatters. This has led to the mushrooming of informal settlements and slums in towns. These settlements are built in hazardous manner without access and basic amenities. Their occupants are normally very poor and live in squalid

conditions. The Government has endeavoured to regularize these informal settlements but is faced with daunting administrative problems. Some of these problems include the control of immigration from rural to urban areas, the identification of the genuine squatters; the relationship between the landlords and tenants and the technical physical planning and surveying constraints in these areas if minimum destruction to structures was to be observed while providing minimum basic infrastructure and social amenities.

The following procedures are used in the regularization of tenure in the informal settlements:

- The area of the informal settlement is defined and demarcated.
- Surveyors undertake topographical survey of the area by ground survey methods picking all physical and man made features. All structures are surveyed with indications whether they are permanent or temporary.
- The Provincial Administration with the help of social workers carry out a census to determine who are the genuine inhabitants of the area.
- The topographical map is availed to physical planners, who in consultation with the Provincial Administration and a committee nominated by the local residents prepare a development plan. Major decisions on the number of plots the plan should accommodate, the structures to be demolished to cater for infrastructure and amenities and the beneficiaries of the planned plots are made by the committee of local residents under the chairmanship of the Provincial Administration with the technical advice from the physical planners.
- Once the development plan is finalised and approved, the surveyors are again called to demarcate and survey the plots in accordance with the development plan and a registry index map is published based on survey to support registration.

## **2.7 Land Registration**

The registration of a person as the proprietor of land confers on that person the absolute and indefeasible ownership of that land with all its rights and privileges. Land registration therefore creates security of tenure and provides incentives for better use and development of land. It has been a long-standing policy of the Kenya Government to make land registration a key prerequisite to all land reform programmes.

There are two written laws relating to the registration of transactions in land or title to land namely:

- The Registration of Titles Act
- The Registered Land Act

The Registration of Titles Act was enacted in 1918 to provide for the transfer of land by registration of titles. The proprietor of land desiring to transfer or otherwise deal with a portion of it is required to deposit with the registrar a map or plan with several measurements marked thereon certified by a surveyor. No registration can proceed if this requirement is not fulfilled. The standard of survey is very high to enable land to be unambiguously identified and resulting to very few boundary disputes. When such disputes

occur, they are resolved by surveyors re-establishing the survey marks in their original position.

The Registered Land Act was enacted in 1963 with the aim to provide land owners with the security and proof of title and to create a methodology of transferring interests in land. The responsibility of preparing and maintaining maps to support this registration vests with the Director of Surveys. The Act introduces a concept of general boundaries whereby the map is deemed to indicate the approximate situation only of the parcel and cannot be altered without the authority of the registrar. Any dispute arising as to the position of the boundary is determined by the registrar after receiving any evidence he considers relevant. The map information can only be considered as part of the evidence and the registrar is not bound to accept the evidence adduced by the surveyor in his interpretation of the map.

### **3. THE IMPACT OF THE CADASTRE ON LAND ADMINISTRATION**

The impact of cadastral systems on land administration is assessed by examining whether the objectives of the programmes were achieved and whether the survey maps were of sufficient accuracy to support land registration effectively and efficiently. Maps are considered suitable for land registration if they can unambiguously identify on the ground a plot shown on the register or they can assist in the relocation of a boundary should it be lost or damaged. These two factors will be used as the benchmark to evaluate the effectiveness of the cadastral systems applicable to Kenya.

The cadastral system used in the adjudication of lands at the Coast under the provisions of the Land Titles Ordinance was deficient and consequently: -

- the re-establishment of beacons is very difficult and unreliable;
- the demarcation did not provide for roads of access to serve individual parcels precipitating many planning problems during sub-divisions and provision of infrastructure.

The programme for the settlement of European settlers was successful in that the goals set were achieved: All the land set aside as White Highlands had been alienated, surveyed and registered by the time Kenya gained its independence. The only constraint experienced in the implementation process was delays in the execution of surveys. Owing to very many number of land grants and transactions caused by the influx of white settlers after the second world war, a considerable delay took place between the time when the grant of land is approved and that by which the land was surveyed and deed plans issued. However, the constraint slackened off by bringing into use the letter of allotment concept. The survey maps produced had measurements and bearings between survey marks whose positions were determined by coordinates. Lost or damaged survey marks were re-established in their original positions as the standard of survey was of a very high accuracy. The allocation of land was not systematic necessitating production of individual deed plans for each parcel of land and the adoption of a sporadic system of registration.

Four different types of maps namely registry index maps, demarcation maps, preliminary index diagrams and registry index maps range (provisional) are produced to implement

land settlement, consolidation and adjudication programmes. Apart from the registry index maps, survey standards have been compromised in the production of the other three types of maps thus reducing their importance and efficacy as instruments of land registration. The Government does not guarantee the area of parcels as shown on the register only the parcel's existence on the register. The proprietor has the onus of maintaining his boundaries and enclosures.

The low accuracy attained in these maps can be attributed to the following factors:

- The field survey work is not carried out under the Survey Act and the direction and control of the Director of Surveys.
- The survey work is performed by junior surveyors from the Departments of Land Adjudication, the surveyors have very minimal training. Their work performance depends on job training and field experience.
- The use of unrectified aerial photographs. The areas derived from these enlarged photographs are not precise and have error margins of up to twenty five percent.

The intention of the authors of the Registered Land Act was to have all the other laws on land registration superseded by this Act. It had been anticipated that the Act would apply as the substantive law and would be operational throughout the country within a period of six months. This intention has never been realized up to now. The main constraint impeding the conversion is the preparation of registry index maps by the Director of Surveys that are necessary to support registration. The Registered Land Act introduced the system of general boundaries whereby a map is not an authority on boundaries. This system has enhanced the evolution of many boundary disputes and litigation.

On recapitulation, the encumbrances encountered in the formulation and implementation of the cadastral systems in Kenya can be attributed to the persistent shortage of surveyors and their inability to cope with the survey demands. An auxiliary constraint has been the failure of surveyors in Kenya to remonstrate with policy makers and to convince them of the importance of survey and maps on all matters related to the management of land. To avoid being blamed for causing delays in programme implementation, surveyors have occasionally succumbed to public pressure to produce maps urgently in total disregard of survey regulations and procedures.

In spite of these constraints, cadastral survey maps to support land registration that guarantees ownership and security of tenure have been the primary cause for:

- 1.4 million parcels of land comprising 7 million hectares being registered through land consolidation and adjudication programmes.
- Settlement of 120,200 families in 325 settlement schemes comprising 960,000 hectares of land.
- 400 groups ranches being incorporated covering an area of 3 million hectares
- 250,000 plots having been allocated, surveyed and owners issued with title deeds.
- Sub-divisions of 2700 farms with a total acreage of 2.2. million hectares. The resultant sub-divisions are now settled by individual proprietors.



The above achievements have fostered good land administration and contributed significantly to the sustainable social and economic developments of Kenya.

#### **4. THE ROLE OF THE CADASTRE ON POVERTY REDUCTION AND INDUSTRIAL TRANSFORMATION**

The Poverty Reduction Strategy Plan establishes that:

- The poor constitute more than half the population of Kenya.
- More than three-quarters of the poor are in rural areas and comprise small farmers, pastoralists in arid and semi-arid areas and agricultural labourers.
- Almost 50 % of urban households consider themselves poor and live as squatters or tenants in informal settlements dominated by slums.
- The major characteristics of the poor include landlessness.

The remedy to alleviate poverty is for the poor to secure access to land in both rural and urban areas. This can be accomplished by reviewing the present land tenure reforms to address the priorities of the vulnerable poor and devising policies and procedures that will entail:

- Acceleration and completion of land adjudication in all districts where the process is on-going.
- Settlement of squatters in available government land especially at the Coast.
- Initiation of a crash programme to finalize the sub-division of all company and co-operative farms and group ranches.
- Regularization of the squatter informal settlements in urban areas.

Land Adjudication is not taking place in nine (9) districts of Tana River, Ijara, Garissa, Wajir, Mandera, Isiolo, Marsabit, Moyale and Turkana. This vast area of 331,370 square kilometres (57 % of the Kenyan territory) is arid and occupied by pastoralists who are dependant for their livelihoods on communal grazing land. The area is not suitable for the present system of land adjudication. The government has appointed a Land Allocation Review Committee to examine and advise on land tenure and use policies. The committee should advise on the grazing rights of the pastoralists by recommending the system of land tenure reforms applicable to these arid rangelands.

The implementation and finalization of the above programmes will impinge on poverty reduction. The programmes cannot be successfully undertaken in the absence of mapping, survey and registration. In this regard, the cadastre will be a vital instrument and a source of spatial information in the battle to reduce poverty.

The desire and vision of the government is to transform Kenya into a newly industrialized nation by the year 2020. To achieve this objective, one of the strategies, advocates formulation of a public policy framework that addresses issues on basic infrastructure, land use, access to land/premises and access to credit. The provision of infrastructure is one of the major functions and responsibilities of the government. The government proposes to increase public investments in this area. The areas that are to be included in the infrastructure investment programme envisaged are the energy sector, roads and road

transport, water development, postal services, telecommunications, railways, ports and civil aviation. On land use, the government is to draft a comprehensive land policy that will cover issues such as setting aside public land for industrial use, facilitating land purchase by industrialists, speeding up the issuance of title deeds and enactment of laws pertaining to land and physical planning to foster efficient land use. Law on physical planning has already been promulgated and is operational. On access to land/premises, the government and local authorities are to identify suitable commercially viable sites that can be let or leased or allocated in block to informal enterprise as appropriate and that infrastructure in terms of access roads, water and power should be provided. The government will encourage an expansion of more formal sources of credit through specialist agencies to access credit. The collateral lending by formal banks will require the acquisition of title deeds.

The plans of action to implement the programmes earmarked in the above policy framework will require cadastral, topographical and engineering survey maps. The cadastre will be a necessity in support of physical planning activities and a prerequisite to access to land, premises and credit. The infrastructure will be constructed on land whose ownership and compensation will have to be determined by the use of the cadastral plans. Accordingly, the cadastre will be paramount in the industrial transformation process in Kenya.

## **5. CADASTRAL SYSTEMS – THE WAY FORWARD**

The central objective of cadastral systems is to produce, maintain and distribute current and accurate geographical data in support of land registration to ensure people have security and ownership of land rights and interests. To achieve this objective, major constraints will have to be surmounted. This poses major challenges which require adequate preparation and foresight. The very important ones are the handling of survey data; the application of new technology and the methodology of delivering services.

Currently, the amount of cadastral data held by Survey of Kenya, which is the custodian of all survey records that include survey plans, field notes, computations, registry maps and aerial photographs is immense and is stored and retrieved manually. The manual systems of managing such a huge collection of data that has accumulated over a century has progressively become very inefficient and time consuming.

The survey profession has been very conservative in adjusting to new technology. The common equipment used by cadastral surveyors includes EDMs, theodolites, and chains. Computations and draftsmanship are done manually. Maps to support land adjudication are derived from unrectified and enlarged photographs. New methodologies of carrying out surveys; recording, storage, processing/management analyzing and dissemination/display of data/results must be developed. This will require the identification and acquisition of modern plant and equipment by both government and licensed surveyors. The Survey Act will need to be amended to provide the necessary legal framework for the anticipated change in survey procedures, standards, methods and equipment.

Spatial data in the form of topographical large scale base maps is required to support land use planning. There are 1783 designated urban, rural and market centres in Kenya. Base maps covering fifty percent (50%) of these centres have been produced for land use planning. These maps are used by physical planners to guide development in these centres. It is essential to produce base maps for the remaining urban areas to foster physical planning. These maps should be prepared through digital mapping.

At present, the cadastral systems are tailored in support of land registration and they only contain information related to dimensional measurements of a parcel. The market is now putting more emphasis on information related to the parcel of land e.g. land use, value, vegetation, communications, tenure, available utilities etc. The land information is required for various purposes: conveyancing, credit security, development control, land reform, environmental assessment, land market support etc. The future trend is to shift from maps and plans to land and geographical information systems with the primary professional duty of a surveyor being that of undertaking multi purpose cadastral mapping.

## **6. RECOMMENDATIONS**

Land is a very sentimental, sensitive and thorny issue in Kenya. Land reforms programmes that have been initiated have been implemented at a slow pace. The cadastral systems that support these programmes were designed in the 1950s and 1960s and are now antiquated and need complete overhaul. Lack of transparency and non-adherence to procedures and guidelines when distributing land has led to inequity in land ownership. Population pressure has forced the poor landless to squat on any available vacant space including areas prone to environmental hazards resulting in the creation of slums and depletion and degradation of natural resources. These factors have on occasions caused conflicts between the allottees and squatters and have threatened the security of tenure since no developments can be sustained on disputed land. Skirmishes have also been reported between agriculturists and pastoralists over differences in land rights.

In order to alleviate these problems, land distribution should be speeded up and carried out in a fair and transparent manner taking into account the concern of the landless poor. My recommendations to achieve this goal and address the pertinent issue that will arise thereof are as follows:

- The process of land adjudication, sub-division of company and co-operative farms and group ranches and the allocation of plots in urban areas including the regularization of the informal settlements should be considered as projects to be finalised and completed within a span period of ten years.
- Since the process of land adjudication is not suited for arid areas, another system of safeguarding the grazing rights of and providing security of tenure to pastoralists in those areas should be investigated and implemented.
- The Survey Department, which is a custodian of all cadastral records, should be rehabilitated through procurement of new technology and its operations computerized to foster the establishment of a land information system.

- Institutional changes should be made to empower the Survey Department to be responsible for the direction, control and supervision of all survey and mapping activities in support of land registration.
- The Survey Department should initiate a plan of action to produce topographical large scale base maps for the fifty percent (50%) of the 1783 designated urban centres lacking these maps. This data is urgently required for systematic planning in urban areas.
- Government should avail financial resources to implement the above projects.
- A strong and vibrant private survey profession should be encouraged by accelerating the rate of licensing surveyors and encouraging surveyors to merge and form companies and partnerships. Probability of establishing a School of Surveying to train post-graduate cadastral surveyors should be explored. Holders of qualifications from such a school should be exempted from examinations for licence.

## **7. CONCLUSION**

The preceding overview has identified and looked at the strengths, weaknesses, problems and pitfalls inherent in our cadastral systems and has established that we cannot afford to lag behind in the use of new technology and application of modern land information systems if we have to collect, process and disseminate accurate geospatial data in time. Consequently, we have to improve our present cadastral system to make it a simple, secure, efficient and up to date land information system. This will entail a heavy investment involving government funding. Finance will be very crucial in the successful implementation of our desire and since it is scarce, we have to compete for it with stakeholders in other sectors. For this reason, we have to sensitize and impress upon the government the importance and benefits of such a system for it to allocate the requisite financial resources. Our success will depend on the mode and channel we utilize to communicate and interact not only with the government but also with other stakeholders and decision makers involved in land administration.

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## **BIOGRAPHICAL NOTES**

Mr. Alexandrino Njuki has over 33 years experience as a professional Surveyor during which he has executed, supervised and managed many survey and mapping projects in the fields of:

- Cadastral surveys
- Engineering surveys
- Topographical mapping
- Land registration and administration.

He has worked with Survey of Kenya in various grades from staff Surveyor to Director of Surveys.

He is currently the Managing Director, and proprietor of a survey and mapping firm - The Black Bees, Licensed Surveyors and Business Geographics Consultants. He has participated in many local, regional and international conferences, seminars and workshops in the fields of land survey, mapping, land information management and land administration.

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