INSTITUTIONAL REFORM AS A KEY DRIVER IN THE DELIVERY OF MODERN LAND ADMINISTRATION

Tuesday, 21 March 2017

03-05 Building Institutions for Land Administration Services

J 1-050

Peter Ritchie
Senior Consultant
GIS/Transport Nigeria
pritchie@gistransport.com

CONTENTS

1   EXECUTIVE SUMMARY

The Kaduna Geographic Information System (KADGIS) is the largest GIS project in Nigeria. An ambitious government target of titling all land in the state has required the speedy establishment of a service agency capable of maintaining significant production levels together with a revenue management system to prevent leakages.

To make this possible complete institutional reform was required, with the old ministry closed, and a law established the agency, and a Director General reporting directly to the Kaduna State Governor. The presentation of comprehensive rules and regulations at stakeholder outreach meetings provided assurance and guidance for the general public and professionals.

This paper will illustrate the importance of political leadership in the delivery of a transparent, service delivery oriented land agency, with appropriate resources committed for implementation, and relevant local experience informing fit for purpose project management.

Building on the lessons learnt in the implementation of GIS projects in Nigeria, including the Abuja Geographic Information System (AGIS) in the Federal Capital Territory (FCT), and the Nasarawa Geographic Information Service (NAGIS), the Edo Geographic Information Service (EGIS), and the Kano Geographic Information Service (KANGIS), **GIS/Transport Limited** commenced the Kaduna Geographic Information Service (KADGIS) project in November 2015.

To meet these service delivery expectations KADGIS requires a strong project management team working across many disciplines. The GIS/Transport project team comprises 16 expat experts (9 permanently based in Kaduna), with an additional three Nigerian experts and 10 support staff, delivering digital aerial mapping, physical refurbishment, technical infrastructure, software development (land administration system and geographic information system), capacity building and training, and wholescale institutional reform – the foundation of a sustainable KADGIS.

Kaduna State is in Northern Nigeria with an extent of over 48,000 square kilometres, with Kaduna Metropolitan Area covering over 2,000sqkm, and estimated population of 12 million predominately Muslim people.

Founded by the British in 1914 as the administrative capital of the Northern Protectorate, Kaduna benefit from grid layouts and pumped water, following then town planning best practice. Subsequently, despite a number of masterplans, Kaduna has suffered from the development of many unplanned, high density districts, and a general degradation of municipal infrastructure.

The old Ministry of Lands was closed upon the commencement of the project and the land, survey and town planning institutional structures have been streamlined, with all policy and statutory functions brought together in one body (Policy Unit) within KADGIS. The separation of policy and statutory functions from operational and production functions is key to providing quick and efficient services.

In addition to the institutional reform other activities commenced concurrently in November 2015, including [data as of end September 2016]:

- Digital aerial acquisition and mapping (48,000 sq. km)

  The Kaduna Metropolitan Area of 2,000 square kilometres has been captured in 10cm resolution (with 1m contour lines), and the remaining 46,000 sq.km in 25cm resolution (with 2m contour lines), road centre lines. Digitising (and correcting) administrative boundaries, gathering place names and points of interest, is all on going work. A draft state map has been generated (including land use), with data now being processed to produce detailed land use maps.

  In addition to the production of maps related to land administration, maps have been produced for different sectors including mining, (all mining lease areas digitised), rail line and road planning, agriculture, forestry (all gazetted forest reserves digitised) and telecoms.

- Physical refurbishment

  In the KADGIS Annex over 1,200 square metres of office space has been completely refurbished, with 74 computer seats, dedicated transformer

installed for mainline power supply, two generators to ensure 24/7 power supply.

Three file archives have been relocated to the KADGIS Annex to create one centralised file archive, which now comprises over 100,000 land files, 60,000 survey files and 80,000 maps (TDPs, layouts), and registers.

The KADGIS Service Centre is undergoing the complete refurbishment of 2,632 square metre office space; Block A, comprising 1,357 sq.m is scheduled for hand over in January 2017, providing 20 customer service points and an additional 60 computer seats for production.

- Staff reassignment and training

142 staff have been assigned to KADGIS (KADGIS staff will total 350; 250 computer seats by July 2017); 107 have been trained in a variety of skills including file management, scanning, geocoding, digitising, geo-referencing, cartography, ICT, customer service and administration. Supervisors have been identified (through performance related criteria) to lead unit's and production teams.

Regardless of seniority (in the civil service ranks) staff are assigned duties with close supervision, with an emphasis on 'on the job' training, with performance determining roles and responsibilities.

All mass data capture, production and field work is undertaken by the trained staff.

- Technical Infrastructure.

Servers, Local Area Network, Wide Area Network (microwave link between two KADGIS sites), 80 computer seats (200 by July 2017).

- Software development

GIS/Transport propriety land information system (Merlin) customised to automatically concur with KADGIS Regulations, linked to File Tracking Management System (FTMS), customised Quantum Geographic Information System, Cadastral System, and PostgreSQL

The use of open source software will support the sustainability of KADGIS.

- Mass data capture

  Initial activities focus on digitising the file archive which contain records going back to the early 20th century. There are many gaps in these records (missing files, missing registration books, missing layout plans, etc.), but with cross referencing of data now possible, KADGIS has a more complete picture of the information available.

  So far over 18,000 files have been merged and entered into the FTMS, and over 9,000 files have now been captured into the LIS and Electronic Document Management System (EDMS).

  the Cadastral System has over 15,000 Title Deed Plans (TDPs), 300 layout plans (LPs), 200 other maps and over 60,000 beacons. Thirty-two district administrative boundaries have been digitised and over 600 billing areas defined.

Modern, responsive customer service (not common in Nigeria) will be a hallmark of KADGIS, with easy to understand application forms and guidelines, quick processing and the delivery of secure products. A temporary customer service office opened in September 2016 to process applications.

The automated systems and new fast procedures will also ensure that all legal and statutory requirements are met, and the inter-switch bank payment platform will secure revenues while delivering real time monitoring. Links to other government agencies such as the Kaduna Inland Revenue Service will provide for sharing client information for tax purposes.

Two systematic land titling programmes have already commenced:

- Systematic Property Registration

  This programme commenced in August 2016. A fifty-person strong field team is deployed to unplanned, high density districts (generally low income families) to encourage and help occupiers and claimants to obtain their land title at concessionary rates. Public displays are held where citizens and other right holders can view the applicant details and cadastral information. Offer Letters are delivered to the applicants setting out the terms and conditions; to date over 1,000.

- Systematic Recertification

  Mass data capture indicates that around 38,000 old land titles exist in Kaduna state, with all now compelled to obtain a new digital Certificate of Occupancy in the next 12 months. The systematic recertification programme was launched in second week September 2016, with the Governor himself surrendering his old land title in a media event.

Three other programmes will commence in the coming months, including Direct Land Allocation, Regularisation of Customary and Local Government Titles and Regularisation of Planned, Unapproved Layouts. In addition, a Development Lease Programme, aimed to encourage residential, agricultural and industrial site development will be launched.

Implementation has not been without challenges, with delays in the identification and hand over of buildings for renovation, resistance to institutional reform and change management, withholding of information, general lack of capacity and skills, and failure to meet the project payment schedule (compounded by a weak Naira devalued by 50% against the US$ in the last six months).

Yet despite these difficulties the production and finance targets for the second quarter of 2017 remain ambitious, with production set at over 1,000 registered Certificates of Occupancy per week, and N1 billion revenue generated per month. A realistic achievable target of 50,000 titles for 2017 will make Kaduna state the leader in modern land administration in Nigeria.

The KADGIS Project is a response to the immediate need to provide Kaduna State with a modern and efficient land administration backed by automated systems and a fully trained staff that can produce secure land titles and increase Internally Generated Revenue (IGR).

Strategically KADGIS will gather, collate and digitise all geospatial data, store this information in a central database, and, through the KADGIS Service Centre, deliver products including maps, reports and analysis, supporting informed decision in all Kaduna State Ministries, Departments and Agencies (MDA).

The existing land, survey and town planning institutional structures will be streamlined with all policy and statutory functions brought together in a Policy Unit, collocated with KADGIS, with coordinated and effective policy making, and simple statutory procedures geared to support KADGIS operations and the quick generation of products.

The new institutional structure has been supported by the passing of the KADGIS Law, establishing KADGIS as leading to the development and publication of policy and regulations, together with revised fees, rates and rents.

KADGIS will support Good Governance, Transparency and improved Service Delivery across all Kaduna State MDAs, benefiting all stakeholder groups, professional associations, business and industry, and the general public, irrespective of rank or status.

Modern, responsive customer service will be a hallmark of KADGIS, with easy to understand application forms and guidelines, quick processing and the delivery of secure products backed by the electronic systems and databases. Customer interface will be provided by Service Points in Kaduna, Zaria and Kafanchan, with all services available via the website.

The automated systems and new fast procedures will also ensure that all legal and statutory requirements are met, delivering better results in a reliable manner, while retaining existing elements or processes that work, aligned these to the new systems.

The project will provide the Kaduna state government with an Enterprise GIS solution that can support the delivery of services and products to all Kaduna state MDAs, professional bodies, stakeholder associations and the general public.

Ultimately the KADGIS Services will cover all areas and all technical, natural and socio-economic aspects of Kaduna state. The first phase the implementation is focused on comprehensive digital mapping of Kaduna State, and the establishment of a central service agency, e-payment and revenue collection platform, and a specialised end-user Policy Unit including survey, lands, town planning, finance and other land related government

organisations, supporting the implementation of modern land administration and management, property registration, town planning and mapping services.

To ensure quick operations, fast acceptance, visible results and early benefits, selected aspects of the KADGIS are bundled in a Fast Track package with training in technology and standard operating procedures for all participants, and an accelerated Data Services Package, together with the opening of a Service Point for customers in Kaduna Metro.

KADGIS Service Centre will provide a common platform with ICT, GIS and mapping services for all Kaduna State MDAs, organisations, professionals and citizens. A common spatial platform for all mapping, analysis and visualization tasks will be the only official source for geospatial data on Kaduna State, empowering the Kaduna state government with actionable data, providing a foundation for transparency, and a strong contribution to e-Government.

Digital aerial mapping will be derived from Orthophotos, with 10 cm resolution covering the metropolitan areas of Kaduna, Zaria and Kafanchan, and 25cm resolution covering the rest of the state. The Orthophoto coverage includes a digital terrain model and the contour lines that are essential for 3D representation of water courses and water bodies required for environmental and engineering planning.

Mapping products will include a State-Map 1:25,000 with transportation, hydrology, place-names and land-cover, an Orthophoto map and a modern Kaduna Metro guide.

The Zonal Offices and Area Offices operated by the former Ministry of Lands, Survey and Country Planning will be closed, with all functions and services delivered from KADGIS Service Points; all land file archives and other documents and records will be transferred to KADGIS for digital capture, with all files and records then housed in a consolidated archive. Existing staff will be assessed for future statutory roles, with a number of suitable candidates transferred to KADGIS Service Points.

Importantly, by the end of 2017 KADGIS will provide employment for over 200 professional staff (computer seats, focused on production), 100 field staff, all trained to the highest standards, with 50 additional support staff.

At the Handover to the Kaduna state government by the consultants KADGIS will be fully equipped and manned by a competent and fully trained staff, able to operate the systems and deliver the services and products without the continuous external intervention of consultants.

2   PROJECT OUTLINE

2.1   BASIC PRINCIPLES

A number of basic principles will guide the implementation of the project, including Simple Processes, Better Services and Better Results together with the vision of the Kaunda state government as outlined in the Restoration Master Plan. The Restoration Master Plan provides a number of the focal points in the development of this proposal, characterised by consolidation of institutions and activities, and fast track implementation with tangible deliverables. Sustainability is at the heart of each and every component.

2.2   MOTIVATION

KADGIS will improve access to land and manage land based resources for sustainable development, while strengthening land rights to increase productivity and secure livelihoods, fulfilling a number of the key objectives of the Kaduna State Restoration Master Plan.

Realising these objectives will be achieved by providing all stakeholders, including farmers, business and industry, and homeowners with the means to secure their land tenure, and build an enabling environment for investment.

It is important for KADGIS to respond to and play a role in the implementation of Kaduna State Restoration Master Plan, which sets out five priority areas:

1) Investment in Education, Healthcare and Social Welfare

2) Internal Security, Law and Order

3) Transparent Governance and Improved Service Delivery

4) Investing in Infrastructure for Economic Growth and Job Creation

5) Improving Agriculture and Natural Resource Management

The Restoration Master Plan details interventions that, to be successful, will require not only the political will that the government has in abundance, but informed decision making and strong project management that can deliver multiple components across many sectors in a coordinated manner, sequenced in a manner where the deliverables of each element can contribute positively to the implementation of other component parts.

One of the named projects for completion is the Kaduna State Geographic Information System (KADGIS) to "facilitate the expeditious titling of land…".

This proposal responds to the need for KADGIS to operate in a strategic manner that quickly delivers professional and efficient land administration, secure land titles and generate much needed revenue, while also contributing directly to the implementation of a number of other Restoration Master Plan components.

Fundamental is positioning of KADGIS as the Kaduna State Geographic Information Service, emphasising that KADGIS will lead in the provision of improved service delivery for all stakeholders and citizens, business and industry, and Kaduna State MDAs.

Importantly KADGIS will be leveraged to provide a central depository for all information and data that can support decision making across all Kaduna State MDAs, and in the delivery of the Kaduna State Restoration Master Plan.

2.3 BENEFITS

Enterprise GIS is an internationally accepted foundation for Good Governance, supporting Access to Information, and enabling informed decision making in all sectors.

Strong transparent land administration and secure land titles are fundamental building blocks for sustainable development.

Strategic Benefits

- **Good governance and transparency**: Access to information, including the publication of all laws and regulations, procedures and processes, fees, rates, rents and penalties. Access to state maps and city guides

- Sustainable Development

- Economic and budget planning

- Competitive advantage

- Improved public image

Operational Benefits

- **Service delivery**: Leading Kaduna State in the delivery of professional and competent customer service and products

- Staff training leading to greater capacity and sustainability

- Increased efficiency

- Improved MDA organisational integration

- Improved decision making

- Information and knowledge advantage

External Benefits

- **Increased investment and economic growth**

- Professionals, business and industry and citizens using the published data etc. for their own planning & decision making

The **KADGIS** Enterprise GIS will provide a central database for all geospatial data and information, and will deliver maps, reports and analysis, as well as processing capacity for multiple applications, including:

- **Land Administration**: Quick processing of secure land titles and the registration of land transactions

- **Town Planning**: The mapping of Layouts and Land Use, and supporting required field work activities.

- **Survey**: Modern survey tools and procedures including generating beacons and boundaries from digital images, and the provision of a Continuously Operating Reference Station (CORS) to support ground surveys.

- **Development Control**: KASUPDA, the proposed KAMMA and other agencies involved on development control will be provided with a direct link to land title and Title Deed Plans, providing vital information for monitoring and compliance.

- **Housing Estates**: A Site and Services Scheme will be introduced at the earliest opportunity that will encourage and support private sector development of housing estates

- **IGR**: Significant and quick increase in IGR from land titling and the registration of land transactions

- **Revenue Collection**: Common platform for the billing, collection and receipting of revenues from all land related activities

- **Forestry**: NAGIS and KADGIS have both digitised gazetted state forest reserves and resource beneficiaries. It is worth noting here that many forests have been subject to extensive deforestation, with a number of state forests completely turned over to agriculture (with significant erosion) and urban areas. No primary forests were identified. Work continues on sourcing information on cattle routes, grazing land, and local community lands; disputes between grazers and pastoral farmers is a major driver in community conflicts across Nigeria.

- **Agriculture**

- **Security**: Kaduna state has for many years been a significant centre for military bases, with over 100 facilities across the state. All military items have been georeferenced and boundaries digitised, aiding an ongoing rationalisation of the boundaries and extent of these bases, led by the military, which also takes into account local community encroachments. KADGIS aims to facilitate negotiations between military commanders and local communities that can result in securing base perimeters while also providing local community stability.
  In Nasarawa NAGIS has digitised all police stations and posts, crime hotspots and areas of insecurity, helping police commanders deploy their resources where most required.

- **Health**: Cooperation and discussion on the mapping of all healthcare facilities in support of primary healthcare is underway with two Gates Foundation funded programmes. KADGIS aims to turn this information into maps and reports that can support the Kaduna State government

decision making on targeting funding to those areas and distrcits most in need.

- **Education**: Mapping of all facilities and education capacity (human and technical resources) and recommendations on location of new facilities

- **Social Welfare**: In recognition of the role women play in providing stability and security within families and communities a special programme will be put forward encouraging women to apply and obtain land titles, with special rates for development levy and processing fees

- **Transport**: Mapping and grading of all roads and support for the upgrading of existing routes and the planning of new routes. Locational siting and support for the design of full service trailer parks and bus stops. Support for the planning of intercity light rail.

- **GPS Navigation:** A custom GPS Navigation System and the GPS services that will support decision making, planning and inward investment initiatives.

- **Environment and Utilities**: Mapping of urban green areas (for protection measures) and recreational facilities. Mapping of waste collection routes, waste disposal and recycling facilities

- **Business and industry**: Special programmes to encourage the development and growth of entrepreneurs and small and medium sized business (SMEs), including special rates for development levy and processing fees in target areas

- **Academia**: Partnerships with technical and scientific collages targeting survey, town planning, environment, agriculture and forestry faculties, building capacity and resources for the delivery of GIS Masters and PhD courses. This initiative will provide a medium and long term source of appropriately skilled graduates for employment in KADGIS and other MDAs

- **Employment**: KADGIS to employ 300 young graduates to be trained in processes and procedures to support land administration, town

planning, survey, finance, and the production of maps, reports and information. All employment to be coordinated with the SA Job Creation

- **New Towns**: The proposed establishment of new towns to take advantage of the proximity of Abuja and the FCT at the south of the state, and to provide a hub and centre at the north of the state for northern Nigeria will be aided by the provision of maps for the proper location of these towns, and the subsequent planning of layouts and land use

- **Street Naming and House Numbering**: For administration, business and planning, as well as security and emergency services.

2.4 INSTITUTIONAL REFORM

Government institutions linked to land administration need to be subject to root and branch restructuring, consolidating the required statutory functions for all aspects of land administration. All land administrative functions will reside within the KADGIS Service Centre. The former Ministry of Lands, Survey and Country Planning Zonal Offices and Area Offices will be closed, services rationalised and replaced by KADGIS Service Points focused on providing customer service.

KADGIS will support the state Land Use and Allocation Committee and the functioning of the LGA Land Allocation Advisory Committee in each Local Government Area, providing administrative and technical support for the processing of grants of customary rights of occupancy.

KADGIS will support KASUPDA and the proposed Kaduna Metropolitan Management Agency (KAMMA) and other agencies focused on development control with the provision of data services and links to cadastral and other information required for seamless operations.

KADGIS will establish and regulate the standards that will be applied to geospatial data, its collection and storage.

KADGIS itself will be constituted according to legislation passed by the Kaduna State Assembly, and will be governed by the regulations and policies handed down by His Excellency, the Governor of Kaduna State.

The passing of the KADGIS Law and the development and publication of KADGIS Regulations and Policy will provide a legal framework, and enable the Schedules for all Services and Products, the billing of fees, rates, rents, and penalties, the collection of revenues, and the registration of professional bodies and organisations.

The KADGIS Law will provide for an Advisory Board, and a Director General, appointed by and reporting directly to the Kaduna State Governor, underpinning the strategic nature and importance of KADGIS in the delivery of the Governors restoration agenda.

KADGIS will enter into Service Level Agreements (SLAs) with all relevant Kaduna MDAs; SLAs will define the areas of activity, services and products, and provide for financial sustainability.

2.5 AWARENESS AND MARKETING

Public outreach, including town hall meetings, focus group meetings with stakeholder groups including lawyers, bankers, farmers, small and medium sized enterprises, women, traditional leaders, etc. will provide assurance while ensuring that all concerns and issues are heard and dealt with, as well as seeking ideas and better ways to deliver services and products.

Marketing campaigns will be undertaken to ensure visibility and will include TV, radio, internet, print media, and direct marketing tools such as billboards and handbills.

Awareness: Awareness building will commence immediately by means of sensitisation meetings with officials in the state government, Local Government Authorities (LGAs) and Traditional Councils, as well as professional associations, stakeholder organisations. Town hall meetings will be held to reach out to the general public.

Web Portal: KADGIS will develop content for the KADGIS pages hosted on the Kaduna state website, helping to support awareness, marketing activities and customer services, including links to application forms, guidelines and the e-payment platform

Stakeholder Outreach: Stakeholder programmes including target group seminars and town hall meetings to increase awareness of KADGIS and the benefits that all stakeholders will receive. A full stakeholder outreach programme will be a component the project; focus groups and questionnaires will be used to inform management of public concerns and issues.

Publicity: A planned promotional campaign will be undertaken during implementation, including the holding of press conferences for TV, radio, print and electronic media.

Direct Marketing and Advertising: Marketing activities will include the preparation of campaigns (improved services, opening service centre, new products, etc.) and marketing materials (flyers, posters, scripts, advertisements, etc.) organization of marketing events and scheduling of advertisements. A number of direct marketing tools will be deployed to date including flyers distributed at meetings, government ministries and the KADGIS Service Centre.

2.6 ACELERATED IMPLEMENTATION

Fast Track the setup of a small task force that will prepare for management change, and the introduction of the new workflows and procedures. Fast Track will aim to produce C-of-Os by the end of the third month.

Immediate work will focus on the Kaduna Metropolitan area only and will include components from survey, land, and town planning that will be later absorbed by Core Services. The work will involve essential data capture, the implementation of new procedures and documentation and training KADGIS staff and counterpart staff.

As with all project implementation and operations the fast track will require the close cooperation of Kaduna state government, especially supporting the new institutional structures and procedures.

This will require adequate project management for a fast track project of this size and complexity including:

- Detailed analysis & specification
- Research as required
- Day to day project management
- Reporting
- Consulting on GIS use-cases and benefits
- Handover to final KADGIS units

A number of components will be required, including:

- **Institutional Framework:** Including the KADGIS Law and the formation of the Policy Unit.
- **Revision of land-fees:** All processing fees, rates, rents, penalties to be revised, special rates, discount and premium structure to be introduced.
- **Awareness and Marketing:** Alerting the general public of the commencement of new KADGIS services and the new secure products.

- **Office Infrastructure:** Adequate for the fast track back office and customer service, the office to be provided by the Kaduna state government and refurbished by the Consultant.

- **Technical Infrastructure:** Hardware and customised Land Information System and Geographic Information System.

- **Revenue Collection:** KADGIS will utilise the existing Kaduna State e-payment platform, linking this will customised financial controls and reporting.

- **Documentation:** Application forms, guidelines, etc.

- **Transportation:** For fieldwork

- **Essential Data Captur**e: including land files, maps, survey, and satellite imagery.

- **Products:** Letters, R-of-O Terms and Conditions, Title Deed Plan, Right of Occupancy Offer, Certificate of Occupancy, etc.

- **Staff & Training:** Advertise, interview and hire essential staff, select counterpart staff from lands, survey, and town planning for the Policy Unit.

- **Structures & Procedures:** KADGIS departments, reporting structures, processes and workflows (including the Policy Unit)

2.7 DIGITAL AERIAL MAPPING

The whole state has been flown during the 2015/2016 dry season, capturing aerial photographs at 10cm resolution for Kaduna metropolitan area (2,000 square kilometres), and 25cm resolution for the rest of the state.

Products delivered so far include a State-Map at 1:500,000 with transportation, hydrology, place names and land-cover, an Orthophoto map with 25cm resolution covering the whole state, an Orthophoto Map with 10 cm resolution covering Kaduna metropolitan area. A draft Kaduna Metro map has been developed, to be populated with areas of interest (gathered from existing data and continuous fieldwork) leading to a state of the art Kaduna Metro City guide.

The Orthophoto coverage comes with the Terrain Model and the Contour Lines that are essential for the 3D representation of water courses and water bodies and are required for environmental, engineering and transportation planning.

In this regard KADGIS has delivered AUTOCAD engineering maps supporting the development of state rail and Kaduna metro light rail projects as well as visibility maps for the Nigerian Meteorological Agency for the recently reopened Kaduna International Airport.

2.8 OFFICE INFRASTRUCTURE

The KADGIS Service Centre building and premises were provided by Kaduna state, the site of the former Ministry of Lands, Survey and Country Planning. and upgraded by the consultant to allow a professional implementation and operations of KADGIS.

The KADGIS Service Centre comprises the main premises, buildings, infrastructures, technologies, services, utilities and procedures required for a professional and efficient service delivery.

The KADGIS Service Centre hosts the "Core Services" and the "Kaduna Customer Service" with dedicated help desks, waiting area, application submission, and conveyance counters, production offices, back-office, technical support, training, management and office support areas.

Although the consultants required a small project management office on the commencement of the project the decision was made to open a secondary facility, the 'KADGIS Annex', and undertake a 'quick and dirty' renovation of another former government facility in order that activities could commence as soon as possible.

The KADGIS Annex now hosts the consolidated archive, mass data capture, cartography and all field services.

2.9 CORE SERVICES

KADGIS Core Services provides a common platform with central ICT, GIS and mapping services for all Kaduna State government MDAs, professionals and citizens.

- Common spatial platform for all mapping, analysis and visualization tasks

- Administration, Planning, Cadastral, Transportation, Environment, Health, Education, Sociology, Security, Tourism, Agriculture, Forestry, Hydrography, Minerals, Industries, NGOs, Business, Marketing, and many others

- The only official source for geospatial data on Kaduna State

- Foundation for Transparency & strong contribution to e-Government

- Empowering the Government with actionable data

Ultimately the KADGIS Services will cover all areas and all technical, natural and socio-economic aspects of Kaduna state.

2.10   TECHNICAL INFRASTRUCTURE

Obviously the "Technical Infrastructure" is one of pillars of computerisation project and comprises information and communication technologies and other components required for a professional, efficient and secure implementation and operation of the services that will ultimately be used produce the benefits of KADGIS.

All components are standardised for easy configuration and operation.

Established "Open Source" software is utilised for a better cost/benefits ratio wherever professionally advisable, including the database (name), generic GIS (QGIS - Quantum), and generic office software (name).

The Land Administration System (Merlin) is a proprietary GIS/T system, and includes Electronic Document Management System (EDMS), File Tracking Management System (FTMS), linked to the Cadastral Administration System (CAS). All this proprietary software is licensed in perpetuity to the state government, with reasonably priced upgrades to ensure compatibility with

hardware and operating system upgrades. This is very important for project sustainability.

Workflow management, fleet management, and other software's are deployed as necessary.

A modern "converged infrastructure" will be installed grouping multiple information technology (IT) components into a single, optimized computing package, including virtualized servers and data storage devices, networking equipment and software for IT management.

The two Kaduna metro sites (the Service Centre and Annex) server rooms are linked by (type) radio, details on internet links and also the state BATS system.

2.11 CUSTOMER SERVICE

Improved service delivery will require realignment toward the development of professional customer services that will include specialised customer service staff operating the KADGIS Service Points, help desks and telephone lines. Customer service staff will seek to accelerate those procedures that rely on customer interaction – any required inspections, survey data and the payment of bills.

Simple, easy to understand processes for the delivery of services and products will include clear application forms and guidelines (available at Service Points and as internet downloads), advice on how to complete applications, and what supporting documentation is required – in fact anything that can help make the customers interaction with KADGIS quick, painless, and fruitful.

Comprehensive service will include assistance in filling application forms, Point of Sale (POS) for instant payments, and a conveyance desk for the collection of documents (acknowledgement letter/notification letter; R-of-O Offers; and C-of-O).

Call Centre: Dedicated staff focus on ensuring proper follow up on the payment of bills, appointments, and the collection of documents, moving applications forward to completion, using communication tools including man

phones Using telephone, SMS and e-mail (allowing the attachment of bills and documents), the call centre follows up

2.12 CONSOLIDATED ARCHIVE

Lands related records (including the Registry, land files, administration files), Town Planning Files (TPO and administration files), Survey files, Valuation files, lists, registers, index cards, documents, and maps, town planning layouts, survey layouts, Title Deed Plans (TDPs), surveys records, etc. from all former government institutions have been gathered, and are being cleaned, sorted, collated, indexed and stored in a central archive situated in the KADGIS Annex.

Over 130,000 files together with registers, documents, maps and plans are being processed in a mass data capture exercise, resulting in the digitisation of all information and data.

2.13   SERVICE POINTS

All Customer Services for lands, survey and town planning are rendered at the Service Points to provide fast and efficient services to the citizens of Kaduna state and consist of the same ICT, GIS, LIS and other specific modules and services that are developed and implemented under "Land Services". Service Points are "On Stop Shops" for all land matters from applications for the Grant of Statutory Right of Occupancy to the registration of deeds and transactions. Permanent Service Points will be established in Kaduna, Zaria and Kafanchan.

KADGIS Lands Services
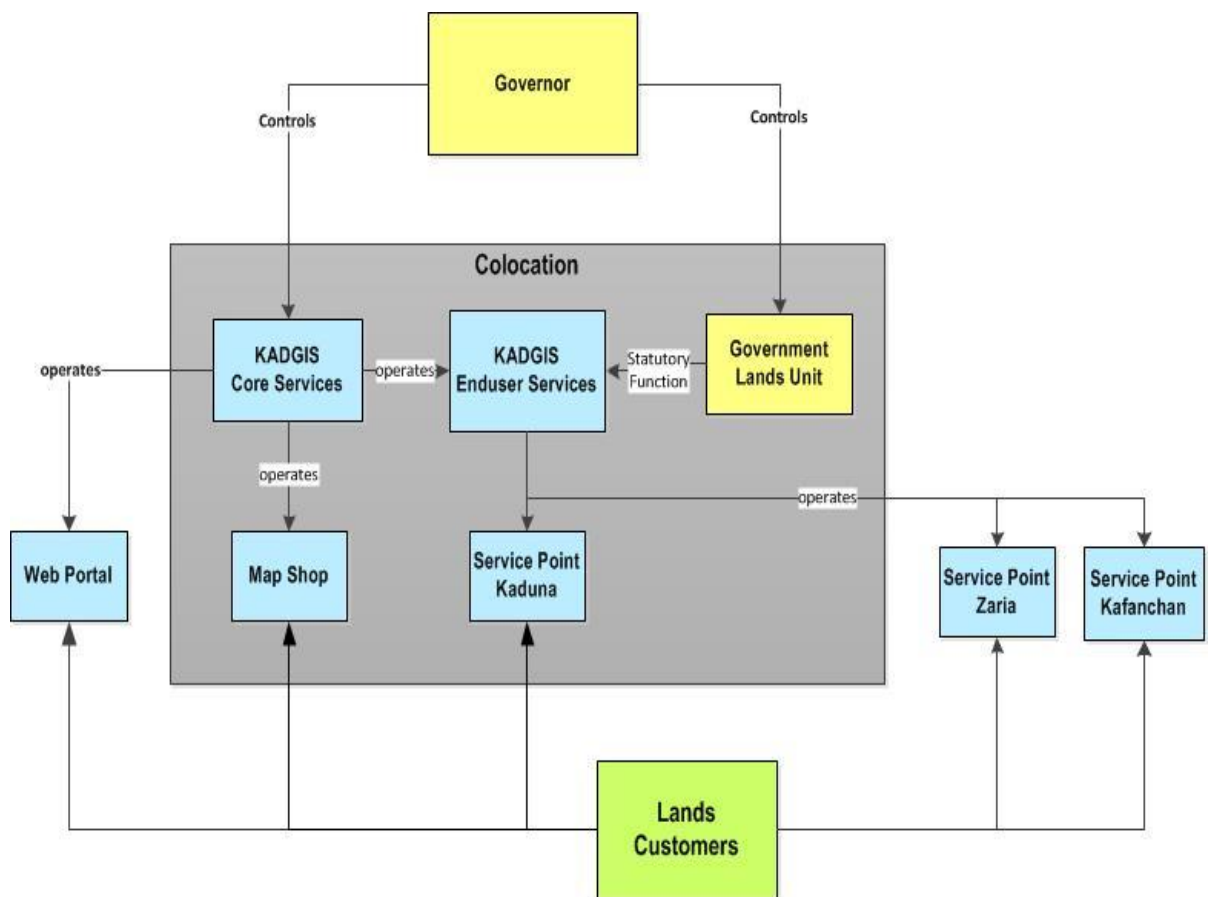
2.14 KADGIS POLICY UNIT

Kaduna state will implement a core Policy Unit, reporting to the Director General that unites all statutory functions required for land related matters within five (5) technical groups:

- Land

- Survey

- Town Planning

- Valuation

- Finance

- State Land Use and Allocation Committee (LUAC)

- LGA Land Allocation Advisory Committees (LAAC)

The Policy Unit is staffed with those responsible for statutory functions (Director Lands, Surveyor General, Director Town Planning, Director Valuation)..

KADGIS will support the development control functions undertaken by KASUPDA officers and will shorty provide a liaison office.

The Policy Unit will carry out the statutory signing and registration of documents, with these functions embedded in the KADGIS workflows, and will resolve disputes and difficult cases.

KADGIS will train the officers, building technical skills and capacity that will enable them to undertake their roles in a structured and systematic fashion.

The Policy Unit is located in the KADGIS Service Centre, together with KADGIS Core Services & Kaduna Customer Service. KADGIS will monitor the performance of the Policy Unit and provide regular reports to the Director General.

KADGIS will:

- Host the Policy Unit

- Provide all Land Services

- Provide computerisation services for the Policy Unit

- Monitor the Policy Unit's performance

It is important to develop support mechanisms (technical, training, works flows, database) with KASUPDA.   Separate section

2.15   CAPACITY BUILDING

The sustainability of KADGIS requires skilled manpower that can operate the multi-disciplinary facets of KADGIS. To this end a comprehensive capacity building programme, including a continuous on the job training programme is being implemented, addressing identified gaps in the technical and management requirements of KADGIS, and ensuring that the agency will sustain the services and the flow of products after handover without the continuous intervention of external consultants.

Capacity building will include the transfer of knowledge and practical exercises in a number of relevant subjects including data models, tools, products, procedures and workflows, delivered in formal training courses, on the job training, and controlled self-studies, with continuous supervision and support.

Key staff pass on knowledge in a cascading system to their colleagues and co-workers, and act as super-users and first level support.

The training plan will follow the RICS (Royal Institution of Chartered Surveyors) guidelines for CPD (Continued Professional Development). KADGIS CPD already supports xx surveyors and xx town planners and xx cartographers in attaining university degrees.

Capacity building is rounded up by active (with presentation) and passive participation in national and international seminars, workshops and conferences.

Training

Staff are trained on all relevant data models, tools, products, procedures and workflows in this work package. In-house training facilities (three training rooms at the KADGIS Annex) enable formal training sessions to be conducted as and when required.

Training packages are designed to build understanding and skills in all relevant topics, including:

All Staff: ICT basic training as required for operation of system; Generic GIS; Proprietary LAS

Lands: Proprietary LAS; etc.

Survey and Town Planning (Mapping & Cartography): Generic scanning & geo referencing; Generic Map design; Layouts; Charting

ICT: ICT Administration; Web Publishing.

Customer Service: LIS; teaching employees the knowledge, skills, and competencies required to increase customer satisfaction.

Supervision and Support: The consultants and experts will work to continuously improve staff capacity and the ability to deliver, providing day to day support and on the job training.

Professional Bodies: For all staff that falls under professional bodies and certification councils KADGIS will require the registration with those bodies and support the examinations.

2.16   REVENUE GENERATION

Increasing Internally Generated Revenue (IGR) is a primary priority for the KADGIS project, and is arguably the most import component in providing stability as project implementation moves forward, as well securing long term sustainability. Importantly Revenue Collection is featured as a separate component.

The bulk of revenues will emanate from land and planning related transactions. A comprehensive review will be undertaken of all products and services, including all fees, rates, rents and penalties, leading to the introduction of new services, and easily understandable fee structures.

Special rates and discounts will be used to support marketing campaigns in specific market sectors or geographic areas. Premium charges will be applied for 'Fast Track' applications and approvals.

New application forms, detailed guidelines and itemised billing for all services and products will be developed and implemented, and will include the following revenue heads:

- **Recertification of Certificates of Occupancy:** The automated Land Information System (LIS) will require the recertification of all land titles, with the owners receiving a new C-of-O, secured and backed by the robust electronic database. A suitable charge will be applied to all C-of-O recertification.

- **Statutory Right of Occupancy:** All new applications for the Grant of Statutory Right of Occupancy (R-of-O) will be processed and billed by KADGIS systems, including the issuance of C-of-Os, with bills to include *Application and Processing, Development Fee and Ground Rent, R-of-O Fees, GIS Charting and C-of-O Premium*.

- **Ground Rent:** Digitising all the existing land files and identifying and billing of outstanding G*round Rent*. The systematic annual billing of Ground Rent.

- **Land Transactions:** All land transactions including the *Registration of Deeds and Assignments, Legal Searches*, and other specialised services such as *Site and Services* will be automated and bills produced.

- **Development Control** (remote support for KAMMA): The linked GIS and LIS systems will enable the easy identification and billing of *Development Contraventions*.

- **Compulsory Acquisition and Compensation:** The establishment of the "Kaduna New City" and the two "New Towns" (north and south) and other government layouts will require land acquisition and compensation.

- **Sale of Government Land (Plots):** Fast processing of applications for government land.

- **Maps and data products:** The primary clients for these products are Kaduna State MDAs, professionals and citizens.

- **Environment and Utilities:** One of the first MDAs that could benefit from KADGIS Services is environmental services. Contraventions including the discharge of sewerage and effluent into water bodies, the dumping of waste, and air and noise pollution will be identified and billed. Utility services such as street cleaning and waste collections can be routed and scheduled.

- **Natural Resources:** Solid minerals…

Other KADGIS Revenue Streams

The design of new districts for housing, business and industry can be undertaken in a strategic manner. Utilising the geospatial information and data, town planners will be able to develop new sustainable housing and business districts, addressing housing and socio-economic needs, and providing the facilities and services required by modern business.

2.17   REVENUE COLLECTION

There are a number of issues that contribute to poor revenue collection:

- Failure to complete site inspection
(no site inspection = no processing of application = no bill)

- Full Surveys not submitted
(no full survey = no processing of application = no bill)

- Failure to get the bill into the hand of the customer
(no bill = no payment)

- Cumbersome payment procedures: payment into collecting bank only, no online payment, no point of sale (POS) machines at service points.

e-Payment and e-Collection Platform: The Kaduna state NIBSS platform will be connected to the Land Information System and will enable (a) for current accounts the viewing of all outstanding invoices at the point of payment, and (b) for new applications the generation of a new file number at the point of payment, and the pushing of the new customer Bank Verification Number details directly into the LIS.

Point of Sale (POS) Units: POS units will be installed at all Service Points, enabling instant payments to be undertaken by the customer.

Receipts: Receipts will be automatically generated by the LIS on payment via the NIBSS platform.

Discounting: For payments received with an agreed period of time (5 days/10 days) a discount will be applied to encourage early and prompt payments

Enforcement: Will remain the responsibility of the Kaduna State government.

Customer Service: Customer Service will prioritise reminding customers of their obligation to pay bills.

Awareness and Marketing: Continuous messaging on the obligation of the customer to pay fees and rents when due.

3 PROJECT FRAMEWORK

The Project Framework gives information on the conditions and circumstances that contribute to the successful implementation

3.1 PROJECT AREA

KADGIS will operate throughout the entire state, with a Service Centre and Annex in the administrative and political capital city of Kaduna, with Service Points planned for Zaria and Kafanchan.

The project Accelerated Implementation activities will first focus on Kaduna Metropolitan Area, expanding activities and impact as scheduled.

Phase 1: Kaduna	2,000 sq.km
Phase 2: Zaria	1,000 sq.km
Phase 3: Kafanchan	1,000 sq.km
Phase 4: Kaduna State (outside metro areas)	42,000 sq.km

3.2 PARTICIPANT MDA

KADGIS will provide strategic support to all Kaduna state MDAs, Federal government MDAs, professionals and the general public. The operational model of KADGIS is that of a "*Service Agency*" providing core and

operational support services in respect of the delivery of services and products to relevant MDAs of the Kaduna state government.

KADGIS operations will support, not replace, the statutory functions of land-related departments and other agencies of the Kaduna State government, particularly land administration, title/deed registration, survey and mapping, urban and regional planning, etc.

Primary participating MDAs

The Primary Participating MDAs should reflect the strategic nature of KADGIS, and Departments and Units from the following MDAs should take an active part in the implementation of the KADGIS.

- Lands, Survey and Town Planning (Governor's Office)

- Investment (Governor's Office)

- Job Creation (Governor's Office)

- Publicity (Governor's Office)

- KAMMA

- Agriculture and Forestry

- Environment and Natural Resources

- Works, Housing and Transport

- Budget and Planning

- Rural and Community Development (Deputy Governor's Office)

Secondary participating MDAs

All MDAs will benefit from this project and will be integrated in follow-up projects, and will include the Ministries for:

- Health and Human Services

- Women Affairs and Social Development

- Water Resources

- Local Government and Chieftaincy Affairs

- Finance

- Education, Science and Technology

- Youth, Sport and Culture

- Commerce, Industry and Tourism

- Justice

Key external participants in KADGIS will be academia; KADGIS will support GIS programmes, building the capacity of academic trainers and lecturers and helping to develop practical GIS master degree courses.

3.3   PROJECT STRATEGY

GIS/Transport will provide a fully comprehensive *Turnkey Solution*, where the Kaduna state Government enter into a project contract based on a fixed price, with the Kaduna state government paying the private sector partner in instalments based on the implementation schedule and the completion of project component parts, including the delivery of hardware, software, furnishings and other equipment, renovations and other infrastructure, transportation, training and capacity building and all operational expenditure during the duration of the contract.

Detailed Invoices will be presented on the agreed payment schedule, with *Completion Certificates* requiring the signature of relevant government officials to confirm that the individual items and services contained in the invoice have been delivered.

The proposed structure will ensure the:

- Completion of the KADGIS project within the designated contract period

- The continued effective operation of KADGIS during the project period

- The handover of KADGIS to the Kaduna state government with a fully trained and competent government staff able to operate the systems, deliver professional and efficient customer service, generate the products, bill and collect revenues without the continuous intervention of external consultants.

3.4   IMPLEMENTATION STRATEGY

The implementation strategy is driven by a combination of professional requirements on one side and by the political and economic need for fast results and transparency on the other side and includes:

- **Turnkey Solution**   Design, Build, Operate, Transfer

- **One face to the client**   Consultant staff on site

- **Phased Implementation**   *See "Implementation Plan"*

- **Early & visible results**   Fast Track Services

    KADGIS Service Centre

    Service Point

    Computerised billing & collection

- **Staff will be**   Provided by Kaduna State Government

    Managed & trained by consultant

- **Capacity Building**   Tailored to meet requirements

- **Operation**   100% performance & availability

    Update Services, Support, Security

- **Handover**   Documentation

    Technical Components

    Data, Procedures

    Trained staff

3.5   IMPLEMENTATION PLAN

The overall implementation of KADGIS follows a phased and interleaved approach for the individual work packages, taking into account all logical and technical dependencies. Especially in the early months the implementation of a number of work packages will be operational almost immediately, while some work packages will require detailed specifications.

An important hallmark of KADGIS implementation will be the flexibility to respond to changing priorities and circumstances, and the ability to take advantage of any opportunities as they arise.

Phased Implementation

- Geographic segmentation

  Kaduna City Metropolitan Area

  Zaria Metropolitan Area & Amado Bello University

  Kafanchan Metropolitan Area

  New Towns (north and south)

  Rest of Kaduna State

- Technical segmentation

  By end-users: Survey Land, Town-Planning, etc.

  By products: C-of-O, Reports, Maps, etc.

- Use & Benefits

  Land Revenue

- Following political and economic needs

Fast track implementation

- Start with "Revenue Generation" for Kaduna Metropolitan Area

- KADGIS e-payment on the Kaduna state NIBSS platform

- First automated application processing and billing after three (3) months

- First C-of-O after three (3) months

- Commissioning after month 12

4   RESULTS SO FAR

5   CONCLUSIONS

Evidenced Based