Surveying technical

Property valuation and spatial data tools to assist in land restitution

by Jaco de Kock, GISCOE

Land and tenure reform in the South African government context are “beyond talk” and have received much attention until the passing of the Land Reform Act in 1996. The overall goal of the South African land reform programme is to redistribute land, rights to land and economic benefits of land, to disadvantaged sections of society.

The programme is implemented under three components: restitution, redistribution and tenure reform as illustrated in Fig. 1.

- Redistribution: aims to provide the disadvantaged and the poor with access to land for residential and productive purposes. Its scope includes the urban and rural poor, labour tenants, farm workers as well as new entrants to agriculture (87:13% is the White:Black land ownership ratio debate).

- Land restitution: covers cases of forced removals, which took place after 1913. They are being dealt with by a Land Claims Court and Commission, established under the Restitution of Land Rights Act, 22 of 1994.

- Land tenure reform: is being addressed through a review of present land policy, administration and legislation to improve the tenure security of all South Africans and to accommodate diverse forms of land tenure, including types of communal tenure (ownership). (Land restitution in South Africa, Our Achievements and Challenges, May 2003)

Within the past ten years it is estimated that a total of about 80000 claims have been lodged with the Commission on Restitution of Land Rights (CRLR). Out of the 80000 odd claims, more than 59000 claims have been settled, mostly in cities (The Economist, 2005). Rural claims, however, are proving much harder and taking much longer. The Land Restitution Commission’s (LRC) deadline is to finalise all claims by the end of December 2005. At the moment this programme is regarded by President Thabo Mbeki as one of the highest priorities within the country with its mission to redistribute 30% of white-owned commercial farmland (22-million hectares) to the black disadvantaged communities who have been dispossessed during the apartheid era.

Media and critics are accusing the LRC that the restitution is going too slow. Chief Land Claims Commissioner Tozi Gwanya reported that it takes around two years to finalise a typical rural claim. Most of the land in SA’s former “homeland” areas is unregistered and unsurveyed, which makes deeds and archival research difficult. Therefore, some claims need extensive mapping and a lengthy verification of claimants.

Valuation of land claims

Within the restitution process the valuation of claimed property is also regarded a sensitive matter but crucial link in the restitution process and requires optimised procedures to determine acceptable property/land values, monitor and manage the process, in order to report on the progress.

To value the lodged claims, the LRC follows certain procedures and guidelines Fig. 2 illustrates how the valuation of property forms part of the current phases of the process.

During the process the LRC and private service providers have experienced various discrepancies in the verification, valuation and settlement of these claims due to a lack in sufficient and...
correct up to date data. Through the execution of valuations for the LRC, the following knowledge was gained by the REAVA Group, a company that specialises in real estate and asset valuations:

- The LRC project managers experience difficulty in interpreting the results of valuations.
- The available time frame is often problematic and places unnecessary pressure on the professional valuer. The ability to be able to make a decision in the shortest possible time frame will be of great benefit to LRC in gaining credibility as well as easing emotions.
- The utilization of GIS and GPS technology proved that the existing extent of farms differs vastly from the true facts, influencing the real values drastically.

The verification process of claims tend to be challengeable in the sense that during the process the exact extent of land claimed, and determination of registered title deeds involved in a claim has not been verified.

The restitution programme creates the opportunity to apply geographic information systems (GIS) and technology to assist in the challenging process. Although the restitution process is has been running for more than four years, one must continuously revise the strategy to optimise procedures.

GIS together with web based technology can assist in various components of this programme by offering spatial data and property valuation management tools during the:

- verification of claims
- actual valuation of land or property, and
- monitoring and evaluation of the process.

**The property valuation management system**

GISCOE, a specialist in spatial information solutions together with the REAVA Group, have recently developed a property valuation management system. This system not only assists valuers during the valuation of property but it is also a monitoring system introduced to the LRC. They envisage the optimisation of the restitution process through the expansion of functionalities to spatially enable land claims and monitor the progress and performance of the programme.

The spatial enabling of all claims will provide a bird’s eye view of all claims not only on a provincial but also on a national level. Spatial enabling means to georeference and locate the physical position of a claim. Spatial enabling of land claims will assist the LRC during the verification of the actual boundaries as well as the actual extent of the land/property. This is important for example to know the exact amount of title deeds included in a claim.

GIS, global positioning systems (GPS), mobile and web technology, and property valuation methodology were combined to deliver a property valuation management system as illustrated in Fig. 3. The GIS forms the platform for any land parcel information together with the valuation of each property, whereby valuers can extract and utilise regional and spatial information. This spatially integrated and web-based property valuation management system assists valuers during the preparation of the valuation, the valuation inspection and compilation and delivery of the high-quality valuation reports. A system that centralises and integrates various datasets into a web-based platform,
accessible to property valuers and government departments, who will be able to verify the location of claims, monitor the execution of tasks and track the progress.

The property valuation web services offer a more efficient and effective way to integrate data and functions into a spatially integrated information management system.

Utilising property valuation tools to assist in the valuation of land claims.

The acquisition of data sets is not always the big dilemma but rather the maintenance of these data sets. As illustrated in Fig. 4 the goal is to seamlessly integrate data with that of other important role-players in the Government, such as Statistics SA, Surveys and Mapping, Registrar of Deeds as well as external role-players such as the Department of Minerals & Energy and Department of Water Affairs & Forestry through a spatially-enabled property management system.

Data sources that are utilised during property valuations include but are not limited to:

- Satellite imagery
- Cadastral data
- Deeds data
- Water and mineral rights
- Servitudes
- Vegetation index
- Land use
- Geology
- Rainfall

Spatial data is stored in a geodatabase. The geodatabase is designed to store the cadastre, valuation data (attribute data) as well as digital imagery. Through the relationships and rules defined in the geodatabase it was possible to build and develop property valuation application tools. The individual property valuation tools together with the spatial data that are used to assist in the valuation of land claims are subsequently discussed.

**Satellite imagery for verification of the property/land claim**

The property valuation management system has incorporated Landsat and Quickbird satellite imagery (Fig. 5), developed by DigitalGlobe and offers highly accurate, commercial high-resolution imagery. GISC0E is the sole supplier for Quickbird satellite imagery in Africa and Southern Africa. Quickbird offers a 0,6 m resolution and the imagery is georeferenced according to the specifications and if need be reprojected.

Satellite imagery was identified as a value-adding source during the valuation of property and specifically land claims. The available imagery allows the valuer to identify property boundaries, crop and grazing fields, fixed improvements and other natural features (rivers and dams) in order to compare the registered information with the actual detail on the ground.

**Cadastral and deeds data integration**

The availability of digital land
parcel boundaries and other related information forms the cadastre, a basis for departure of the valuation of property. The national cadastre that is currently available and supplied by the Surveyor General is utilised by valuers to identify the location and boundaries of the subject property (Fig. 6). However, the cadastre is inefficient when proper procedures for updating spatial information are not semi-automated or automated. Subdivisions and consolidations are registered constantly; the competitive advantage therefore lies within the currency of the data that feeds the property valuation management system. Part of the system is to capture and build a coordinate accurate cadastre since the Surveyor General’s office is not responsible for updating cadastral boundaries.

Together with the identification of the actual property the valuers require a way to obtain the title deed information from the Registrar of Deeds in order to verify the registered owner, extent, purchase price and possible servitudes related to the property or land claim. Since the Chief Surveyor General and Registrar of Deeds function as two entities, another functionality and utility that becomes useful is the retrieval of deed information linked to the spatially enabled claim (Fig. 6). The deed information is linked via the Surveyor General’s 21 digit code and an online link to the Deeds office allows for various search options to retrieve property registration information.

A property valuation mobile application tool for field inspections

The utilisation of mobile technology, GPS data capturing combined with a property valuation mobile application running on ArcPAD (ESRI mobile GIS software), is an advanced tool for field inspections. Valuers are equipped with mobile GPS-integrated devices that will allow the input of valuation information and capturing of spatial data. The ultimate aim is to do away with paper forms and to capture all the valuation and spatial data directly into the geo-database format from the start. This ensures a greater accuracy of data capturing and allows for data verification based on the inherent geo-database rules. This tool is also ideal for valuers to link digital photos as references to fixed improvements (Fig. 7).

Providing realistic spatially enabled property market data

The quality of a valuation lies within the property market data and guideline values that were utilised to determine the market value of the subject property. During the valuation of land claims it is crucial to determine the valued based on accurate, realistic and factual market data. The property valuation management system provides spatially enabled property market data as illustrated in Fig. 8. Homogeneous regions form the basis for the market data. The market data is compiled through strategic partnerships with some of the leading financial institutions, governmental departments and property market.

Conclusion

The above explained tools and spatial data are applied to the valuation process, more specifically to optimise the process of verification, valuation and monitoring of land claims, and it offers great advantages to the Land Restitution Commission.

Verification

Having a visual representation of land claims in a province (Fig. 9), the provincial offices are able to plan projects more efficiently by grouping claims that are close to one another and distribute these groupings to the selected valuation service providers.

Valuation of land claims

Once the claims are verified and valuers have accurate information to determine the market value of the land and improvements. The valuers utilise the property valuation web map service together with a property valuation mobile application to capture spatial information and valuation information during the inspection. The mobile application optimises the time spent on valuations by digitalising the valuation input forms. To determine a realistic market value of the land and its improvements, the valuer utilises market data guideline values.
Monitoring and evaluation

The Department of Land Affairs, Directorate Monitoring and Evaluation specifically has embarked on an exercise to address their current need for monitoring and evaluation of the land and tenure reform programme for producing qualitative and quantitative valuation reports that assess the performance of the above-mentioned programme.

The property valuation management system does not only offer tools to assist during the valuation of land claims but it also offer a tool to monitor and evaluate the process. This tool will enable the Commission to track the progress of the claim by interpreting the status of the claim. Claims can be rendered and represented in different colours as illustrated in Fig. 9. Furthermore, reports can be compiled to inform decision makers on the performance of the program. Monitoring will highlight critical areas to revise and reappraise.

To achieve objectives of effective valuation of land claims and delivering the appropriate land value information in a quality report to the LRC at the required time, the land restitution process continues to drive valuers and suppliers of technology to optimise the process by implementing tools, spatial data and solutions. The utilisation of property valuation tools together with spatial data allow for the spatial enabling, verification, valuation and monitoring of all land claims. Utilising standardized and realistic property market data reduces the risk for fraudulent transactions and guarantees accuracy through the use of GPS technology, ensuring a higher quality valuation.

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References

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