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Housing, more than clicks and mortar?

Neil Mackinnon, GIS Co-ordinator, Scottish Homes

Abstract

As the Housing Agency for Scotland, Scottish Homes is primarily concerned with aiding the provision of good housing and contributing to the regeneration of local communities. We work in partnership with local authorities, housing associations, the voluntary sector, private developers, economic development agencies, financial institutions, other government organisations and local communities to tackle Scotland's housing problems.

Scottish Homes assess Scottish housing markets using Local Housing System Analysis (LHSA): a method for using data and information tools to inform decision-makers. Proposals under consideration by the Scottish Parliament may widen the role Scottish Homes has in the regeneration of local communities. To facilitate this process, it is recognised that accessibility to – and effective use of – local information is key. To this end Scottish Homes is developing an on-line service for the analysis of geographically referenced data.

This paper describes the central role geographically referenced information plays in informing local decision-makers. It also describes the technology that is now available to share such information and analysis tools across not only Scottish Homes but partner organisations. Utilising web-enabled GIS, Scottish Homes aims to provide data and analysis tools – using consistent analysis methods – to partner agencies.

About Scottish Homes

Established in 1989, Scottish Homes is the national housing agency for Scotland. Funded by the Government, our remit is to help provide good housing and contribute to the regeneration of local communities. As part of our wide-ranging responsibilities, the organisation must manage competing priorities of investing in both inner and outer urban areas, Social Inclusion Partnership areas¹, and rural towns and villages². Successfully managing the distribution of resources - £215 million in the 2001 / 2002 financial year – across Scotland requires an understanding of housing requirements in different geographic areas. In turn, this requires effective use of geographically referenced data and proven analysis methods.

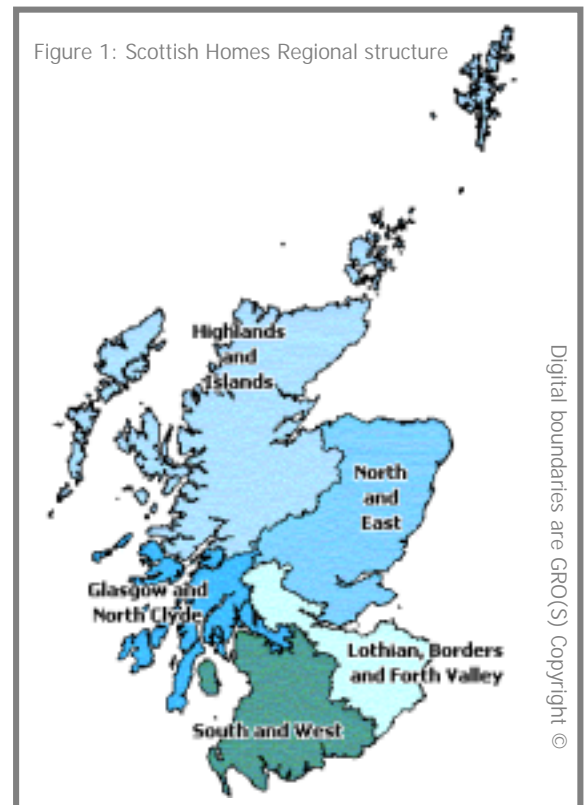
Scottish Homes uses numerous housing and socio-economic datasets as a basis for informing the decision making process across our five Regions (figure 1). As a means of ensuring consistent procedures and analysis, Scottish Homes – in conjunction with Glasgow University’s Department of Urban Studies – developed Local Housing System Analysis (LHSA). LHSA documents best practise for analysing datasets pertinent to the housing sector. As many of the datasets are collected at varying geographic levels, the use of Geographic Information Systems (GIS) is key to allowing users to compare disparate datasets whose only commonality is location. GIS is therefore an instrumental tool in allowing Scottish Homes staff to assess local housing dynamics using LHSA methods, thus supporting the decision making process more scientifically than relying purely on local knowledge or “gut instinct”.

This paper describes the central role geographically referenced information plays in Scottish Homes operations. Associated with the changing role of the organisation³ [11], new technologies enabling the sharing of information and analysis tools across the Internet with partner organisations are also explored.

Scottish Homes and Geographic Information

As the National Housing Agency for Scotland, it is logical that Scottish Homes has a nationwide remit. However, given the complexities of the housing sector and the need to make decisions pertaining to individual neighbourhoods, we also have a need for very localised data. As a result, we have built up quite a considerable library of geographic information ranging in scale from National Indicators to local data (see table 1).

Within Scottish Homes GIS is primarily used to support our Regional planning processes, and LHSA in particular. However, the use of geographic information is becoming increasingly important outwith the planning sections of Scottish Homes. The Housing Bill in Scotland will have a significant impact on the role geographic information plays within the Housing sector. For these reasons, the tools currently available to planning staff within Scottish Homes are being extended to Internet technologies. This means that access to geographic information within Scottish Homes can be extended using our Intranet, while Extranet access will provide our partner agencies – Local Authorities for example – with access to guidance, information and analysis tools.



¹ As part of the Social Justice programme in Scotland, specific geographic areas have been identified for resource investment. These areas are termed Social Inclusion Partnership Areas (SIPs).

² For more information on Scottish Homes, and our work see www.scot-homes.gov.uk

³ The Housing Bill currently under consideration by the Scottish Parliament will change the role and responsibilities of Scottish Homes. For more information see <http://www.scotland.gov.uk/consultations/housing/bhsc-01.asp>

Boundary Data	Administrative	Census
	91 Council Wards 96 Council Wards 1997 Parliamentary Constituencies 2001 Parliamentary Constituencies Civil Parishes District Councils Health Boards LEC Boundaries Regional Councils Scottish Parliament Constituencies Scottish Parliament Regions Structure Plan Areas Unitary Authorities	1981 Enumeration Districts 1991 Census Output Areas 1991 Travel to Work 1991 Localities
	Economic Boundaries	Partnership Working
	Regional Selective Assistance Areas	On the Edge Initiatives Social Inclusion Partnership Areas
	Rural Definitions	Scottish Homes
	Scottish Executive Randall	Housing Market Areas Scottish Homes Regions
Statistical Data	Housing	Geodemographic
	Sasine Resource GRORE SCORE SHORE Scottish House Condition Survey	CACI Acorn CACI Jicpops CACI PayCheck CACI Streetvalue 1991 Census Variables 1981 Census Variables GRO Population data Voluntary Population Surveys
	DSS	Other
	Attendance Allowance Disability Living Allowance Job Seekers Income Support Severe Disability Allowance	NOMIS Educational Statistics by school Yellow Pages data for service centres
Postcode Data	Boundary Data	Point Data
	Unit Postcodes Postcode Areas Postcode Districts Postcode Sectors	1996 Unit Postcodes 1997 Unit Postcodes 1998 Unit Postcodes 1999 Unit Postcodes 2000 Unit Postcodes 2001 Unit Postcodes
Background mapping	Ordnance Survey Data	Other Map data
	1:10,000 1:50,000 1:250,000 Contours Meridian Miniscale Strategi StreetMaps	Bartholomew 1:200,000 Aerial Photography

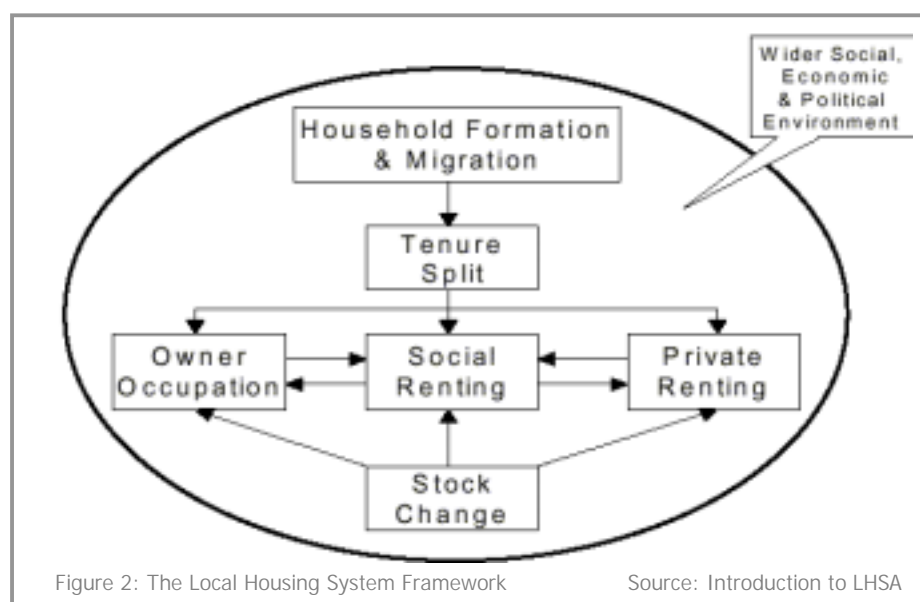
Table 1: Scottish Homes Geographic Information library⁴

⁴ Meta data is also available through <http://www.sgic.org.uk>

Local Housing System Analysis

LHSA is a methodological framework (see figure 2) for understanding how housing systems operate⁵. Using such methods should increase the effectiveness of the enabling role provided by both Scottish Homes and Local Authorities within the Scottish housing sector. Essentially LHSA concerns:

- identifying trends in the housing market;
- assessing the social composition of an area; and
- planning housing developments that meet local needs.



Practical guidance is given to collecting, collating and analysing data from a number of disparate sources to:

- examine the impacts that events and trends in the wider environment have on the operation of the local housing system;
- examine the changing behaviour of households and suppliers in the local housing system; and
- identify the imbalances and mismatches (i.e. where housing requirements are not being met by the housing system).

Through the examination of data, LHSA encourages the identification of those parts of the housing system either working effectively, or operating inefficiently causing unnecessary hardship to those seeking decent, appropriate and affordable housing. By gaining a better understanding of how the housing system is performing, and setting it in an economic, demographic and geographic context, professional judgements can be used to address any imbalances identified [5].

Having developed methods for analysing housing information in an explicitly geographic way, it has been relatively straightforward to introduce desktop GIS as a central software tool within Scottish Homes planning teams. Using the available datasets within GIS allows analysis which would otherwise be too time consuming and complex to complete. One such example is the analysis of Sasine data. A public register, Sasine records property transactions, including information pertaining to the address of a property sale, price paid, and the names of those buying and selling the property⁶.

⁵ Copies of LHSA are available from Scottish Homes Business Intelligence Unit (<http://www.scot-homes.gov.uk>)

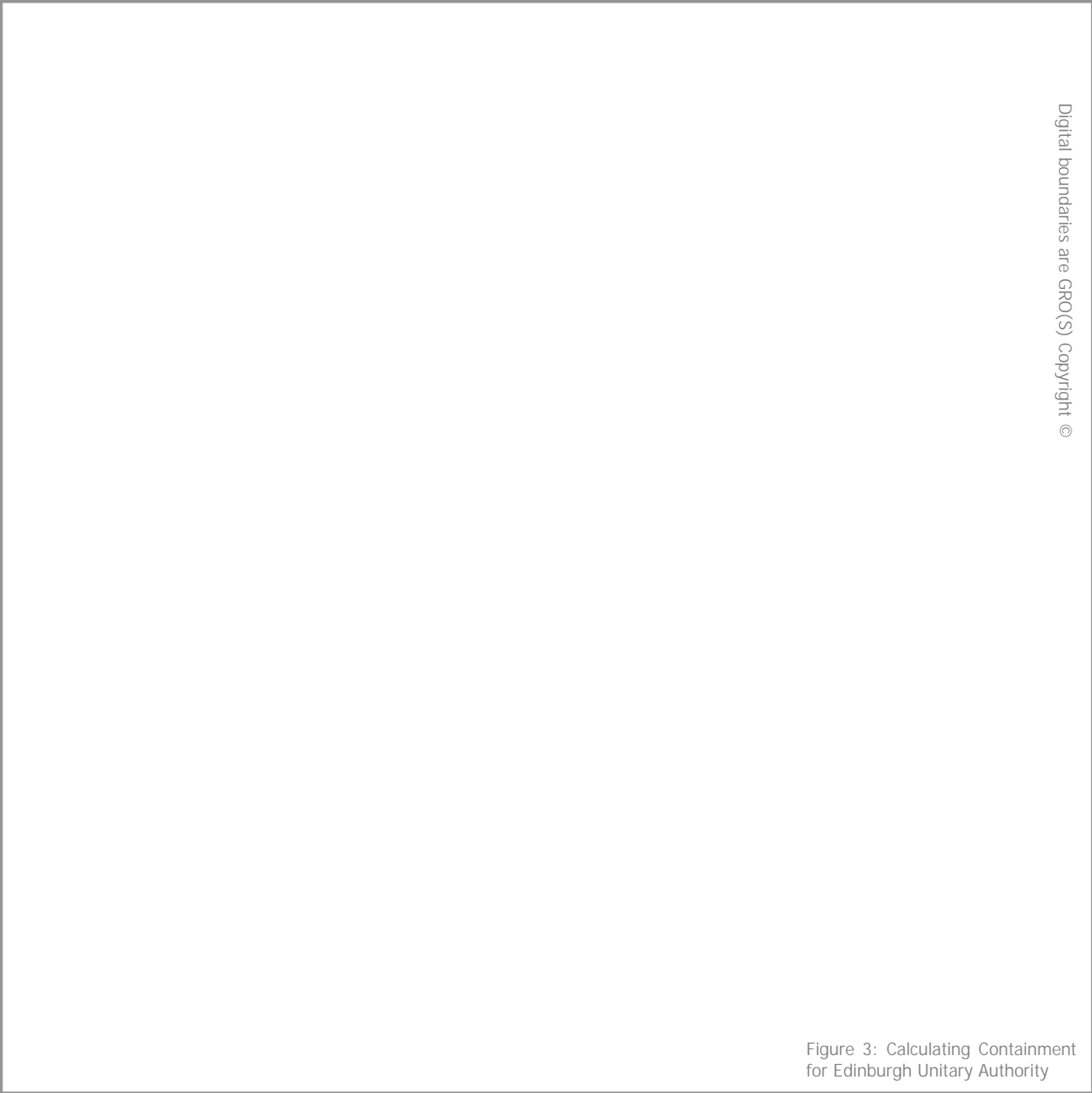
⁶ For more information see <http://www.ros.gov.uk>

Using a customised application, Scottish Homes desktop GIS users can use Sasine to determine:

- levels of containment
- house price trends, and
- estimate migration patterns.

Containment

Containment refers to those house purchasers who buy and sell within the same geographic area. The tools available through GIS allow users to utilise either existing geographic boundaries, or generate new ones “on the fly” to calculate containment (figure 3). In conjunction with other data, containment information is a key requirement in generating Housing Market Areas (HMAs). HMA boundaries then form the basis for assessing local housing and population characteristics.



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Figure 3: Calculating Containment for Edinburgh Unitary Authority

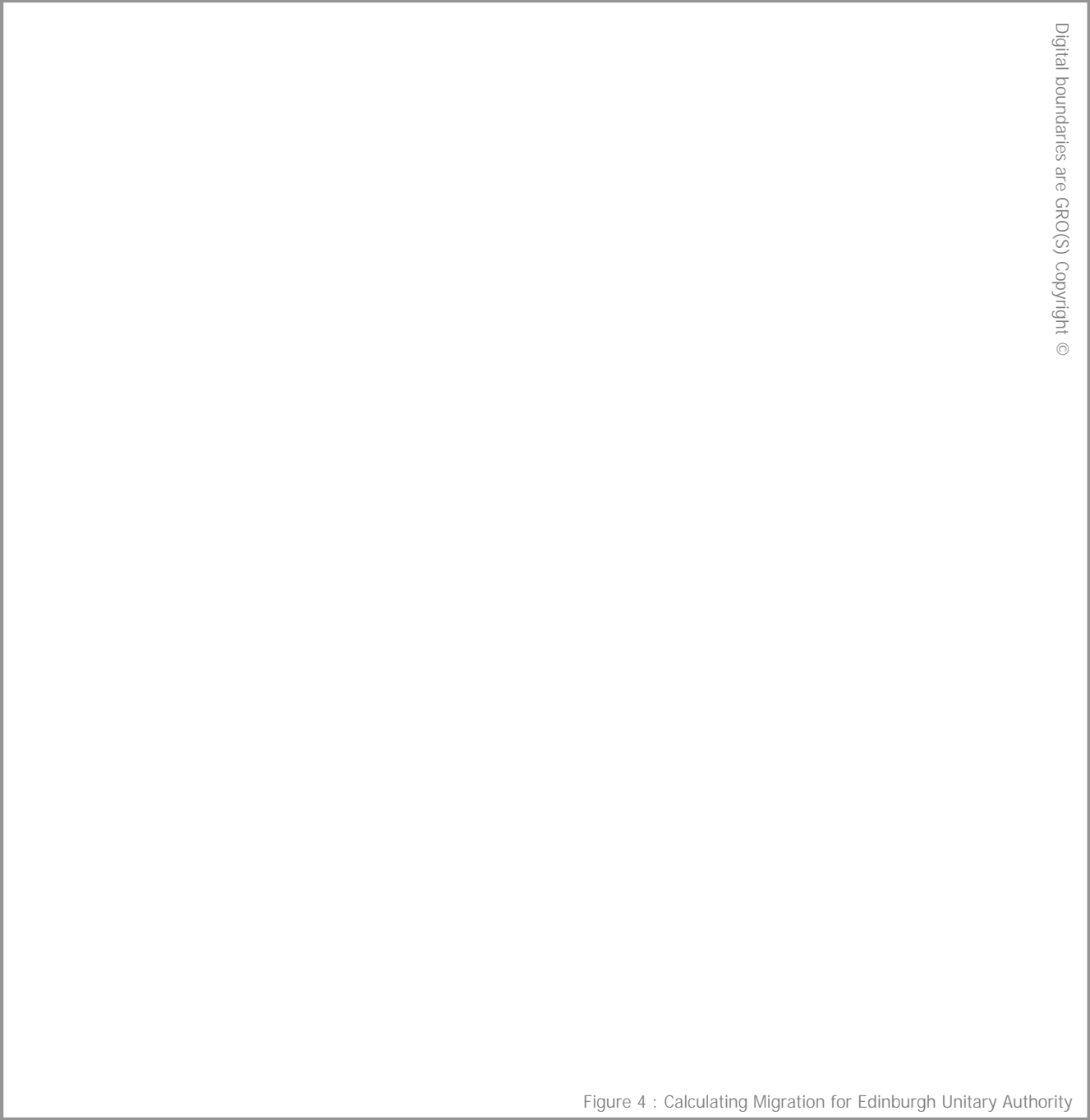
While calculating containment levels is one step in the creation of functional housing market area boundaries, Sasine data can also provide an indication of forces acting upon housing supply within HMAs. House price information can contribute to assessing:

- affordability (when compared against other data such as income DSS data etc), and
- the “health” of the owner occupied market (upward or downward trends in average price).

Furthermore, Sasine data can be used to calculate migration patterns within the owner occupied market (figure 4).

Migration

Migration patterns have huge impacts on housing systems. For example, a buoyant economy can lead to net in-migration to an area. This places pressure on parts of the local housing system from households seeking to relocate. In such instances house prices and rents in the private sector may rise (at least in the short term) as housing supply lags behind increased demand. On the other hand, areas with sustained high unemployment are typically characterised by net out-migration as people seek employment elsewhere. Out-migration tends to be of the better educated younger population (under 35 years of age) who have not yet settled in the housing system [5].



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Figure 4 : Calculating Migration for Edinburgh Unitary Authority

Increasing access to Geographic Information

The primary users of GIS within Scottish Homes are planning staff. With responsibility for developing LHSA for areas within their particular Region, these staff have access to desktop GIS and a suite of data products and analytical tools developed by the Business Intelligence Unit, located centrally at head office. However, as has been intimated, the use of geographic information is inherent to almost all of Scottish Homes' activities. Thus, Scottish Homes GIS strategy has sought to increase access to software tools across the organisation.

As early as 1997, Scottish Homes has been involved in the development of Internet based GIS, having participated in the Webmapping project co-ordinated by Landmark Information Group. These tools have been developed for the Intranet with the objective of increasing access to geographically referenced information outwith the Scottish Homes planning teams. Alongside the development of other IT systems, such as our primary database for logging development activities – Resource – the Intranet is increasing access to corporate geographic information.

The Modernising Government [1] and Digital Scotland [7] initiatives aim to ensure government agencies make efficient and effective use of information technologies. Thus the software tools being developed to maximise the sharing of knowledge and information internally within Scottish Homes are equally relevant when applied to sharing information with other public sector bodies.

This has led to increased impetus to Scottish Homes GIS strategy of implementing Internet GIS tools to compliment more desktop tools. Following a presentation to Jackie Baillie, the then Deputy Minister for Communities, Scottish Homes was asked to co-ordinate a pilot project to assess the extent to which Internet GIS could meet the real business needs of local and central government by increasing the flow of statistical and demographic information amongst public sector bodies in Scotland involved in the Scottish Social Justice agenda [2, 8].

Webmapping pilot

Due to report in early 2002, the Webmapping Taskforce has co-ordinated the development of an on-line GIS application (<http://www.web-mapping.scot-homes.gov.uk>) as well as investigating the Data Protection Act's implications for sharing geographic information, and the options for financing such a public website over the long term.

The project has brought together agencies from local and central government in Scotland [2] and has already raised awareness of the issues involved in operating Internet based geographic information services. As such, the pilot has been useful in identifying those steps necessary if organisations are implementing Internet based applications as part of the Modernising Government, or other, agendas. In the case of Scottish Homes, lessons learned from the Webmapping Pilot will be applied to our On-line Statistics application.

On-line Statistics

Complimenting UK initiatives, there are several developments unique to Scotland which will reiterate the requirement for large scale geographically referenced housing data. First, the Scottish Neighbourhood Statistics project will compliment the Office for National Statistics (ONS) project in England and Wales. Second, the Housing (Scotland) Bill [11] will allow Scottish Ministers to require Local Authorities to:

- assess housing needs and provision, and related housing services for given time period; and
- prepare and submit a local housing strategy (LHS). The strategy must include both the Local Authority's functions and those of Registered Social Landlords (RSLs).

Neighbourhood Statistics

In June 2000 the Scottish Executive launched the Scottish Neighbourhood Statistics project [10]. With a budget of £7.5 million over the financial years 2001/2 to 2003/4, the project aims to transform the production, dissemination and use of data at the local level. Scottish Neighbourhood Statistics will focus

on improving data across the spectrum of policy interests from community issues through education, health, housing, population, property, social issues to unemployment. Similar to developments on a UK basis [3], data collected within Scotland will be georeferenced. In line with the Modernising Government and Digital Scotland agendas, the project aims to ensure that the data are available digitally, and, where possible, over the Internet.

The Housing (Scotland) Bill: Local Housing Strategies

The purpose of an LHS is to establish the relationship between the current operation of the housing system and how the Local Authority – with partners – wants the housing system to be operating in five or even ten years time [6].

Specifically, LHS should:

- provide a strategic framework for the future development of the local housing system, taking account wider regional trends so that needs and demands can be met more effectively with available resources;
- establish a shared understanding between partners and providers of the issues and priorities within an area.
- translate identified priorities into a local strategy highlighting issues of national and local relevance;
- provide a framework within which objectives and targets are set, options identified and appraised, progress is monitored and impact evaluated;
- provide an agreed framework within which housing providers and investors can operate, and contribute to the agreed strategy;
- include plans for alleviating fuel poverty at the local level (given the Housing Bill provisions);
- assess the need for housing provision and the provision of related services; and
- assess the need for, and availability of, housing constructed or adapted for special housing needs.

The requirements for a LHS draw heavily on the LHSA procedures, and as with LHSA, completion of LHS will require the effective analysis of geographically referenced information. The use of GIS is therefore going to be key in the completion of these plans. However, Local Authority housing departments and RSLs have not traditionally been heavy GIS users. Scottish Homes therefore have a role to play in the provision of user friendly software tools to aid the LHS process.

The role for Geographic Information

The On-line Statistics project will provide an Internet based application for Scottish Homes partner agencies to access data and analysis tools specifically pertaining to LHS. Where possible, the tools developed for Scottish Homes desktop GIS (such as the containment tool described above) will be made available through an Internet GIS application. This will mean that the challenges of increasing the amount of local level data (the aim of Neighbourhood Statistics); providing data through a user friendly medium; and ensuring consistent analysis methods are employed across the country can be met by an Internet based tool to support the decision making process.

Summary and conclusions

Within the housing arena, and certainly within Scottish Homes, it is recognised that housing planning concerns much more than physical building fabric: wider economic and environmental factors have a profound effect on housing. LHSA recognises these inter-relationships, and so the GIS tools developed by Scottish Homes have been primarily aimed at aiding planners analyse data for LHSA. However since 1997 there has been an increasing focus on the use of Internet technologies to widen access to geographic information within the organisation.

Agendas within Scotland (Digital Scotland, Scottish Neighbourhood Statistics, and the Housing (Scotland) Bill) and the UK (Modernising Government) lay the foundations for increased sharing of information

between public agencies. Implicit within the aims of each of these agendas is the reliance on geographically referenced information as a backbone. Capitalising on this, Scottish Homes is seeking to make geographic information the foundation upon which government statistics in Scotland are made available. We aim to achieve this through a combination of the Webmapping pilot, our On-line Statistics project, and participation and lobbying in groups such as the Scottish Executive's Neighbourhood Statistics Taskforce.

Given the increasing emphasis on partnership working to address not only housing issues but the whole social inclusion and regeneration agendas, Internet technologies – and particularly geographic analysis – will form a keystone in providing information for decision makers. The technology is now available to make analysis tools available online (through Internet GIS) to partner agencies. By incorporating economic and wider environmental data and using analysis methods identified through LHSA, Internet GIS should ensure that housing planners in Scottish public agencies have access to sound information that will inform the decision making process.

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Neil Mackinnon, GIS Co-ordinator
Scottish Homes
Business Intelligence Unit
Thistle House
91 Haymarket Terrace
Edinburgh EH12 5HE

Tel. 0131 479 5264
Fax. 0131 479 5355
Email: MackinnonN@scot-homes.gov.uk