

Institution: University of Strathclyde
Unit of Assessment:
Title of case study: Spatial research for improved community engagement and rationalisation of urban resources.
<p>1. Summary of the impact (indicative maximum 100 words)</p> <p>Research on urban planning has influenced planning decisions and assisted the Scottish Government and Local Authorities to maximise economic, physical and social factors in city visioning, planning and design. The private sector has received advisory and design training in master-planning through advanced spatial modelling principles and user engagement techniques; local authority planners have also been trained. The research has contributed to a paradigm shift in city planning towards place-making and community design, not just in Scotland but internationally. This agenda is now established as mainstream in city planning, and Scotland is regarded as a reference to best practice as witnessed by the wide adoption of planning documents such as Designing Places, Designing Streets, and in recent large scale developments such as Tornagrain (around 4,000 new homes), Knockroon (around 750 new homes) and Chapelton (around 8,000 new homes), which have used Strathclyde's master-planning techniques.</p>
<p>2. Underpinning research (indicative maximum 500 words)</p> <p>Context</p> <p>Physical, socio and economic planning for the future sustainability of our cities, requires user-engagement and complex spatial analysis/modelling of social profiles, economic activities, urban centres, urban morphology and transport strategies/resources, to make the most efficient use of increasingly limited resources. This involves combining information on urban densities, transport channels, physical form, and services to achieve location efficiency. The Urban Design Studies Unit (UDSU) within the Department of Architecture conducts research in spatial analysis and modelling, threshold values and design principles to support and optimise planning decisions. Research from 1998 – 2013 carried out by key researchers in USDU into sustainable urban planning, combines different aspects of physical, socio- and economic planning</p> <p>Key Findings</p> <p>Research on urban analysis and sustainable design, threshold values and ecological footprints of urban models (Frey, Romice and Porta) is part of the EPSRC CityForm Consortium. This work highlights the impact of movement trends, energy patterns, and suburban retrofitting, around a polycentric network of robust district cores, interlinked by main transport hubs. The research has led to a new approach to physical planning, Plot Based Urbanism [1,2], joining data on urban densities, transport, physical form, services and urban centralities monitored and optimised by identified thresholds (Porta, Romice). Research in urban morphology identified significant patterns in the evolution of small towns in Scotland, and linked these to their capacity to evolve and adapt to changes in economic and social conditions. It also showed recurrent patterns in the structural layouts of urban form at different scales and over time [3]. Research in spatial analysis and modelling (Porta, 2005-13) has demonstrated correlations between urban centralities and urban forms, commercial services and more recently, socio-/health-related factors in cities [4]. Multiple Centrality Assessment (MCA) links street centrality and the potential of urban areas to support development and maximise investment – economic, social and environmental [5]. Whilst strongly encouraged by the Government and now a compulsory feature of planning, user engagement in design is still not effectively conducted. Based on the earlier research findings detailed above USDU developed and published a practical Handbook with a multimodal approach to engage the public in decision-making in urban regeneration, with a focus on neighbourhoods and management [6].</p> <p>Key Researchers: The research was led by the following staff in the Department of Architecture, University of Strathclyde: Sergio Porta, Professor and director of The Urban Design Studies Unit (2009-2013); Ombretta Romice, Senior Lecturer (2000-2013); H. W. Frey (retired, former Senior Lecturer (1987-2006).</p>

3. References to the research (indicative maximum of six references).

1. Porta, S., Romice, O. R., Thwaites, K., & Greaves, M. (2007). *Urban sustainability through environmental design: approaches to time, people and place responsive urban spaces*. New York: Routledge. ISBN 9780415384803
Notes on quality: first formulation of the argument for Plot Based Urbanism (PBU); substantially disseminated, confirmed through royalties.
2. Mehaffy, M., Porta, S., Rofè, Y. & Salingaros, N. (2010). "Urban nuclei and the geometry of streets: the 'emergent neighborhoods' model". In: *Urban Design International*. 15, 1, p. 22-46.
Notes on quality: Key reference in planning, accepted without revisions by this prestigious International peer reviewed Journal.
3. Hart, L., Hooi, J., Romice, O., & Porta, S. (2010). *Under the microscope: 20 small towns in Scotland*. Glasgow: University of Strathclyde. Supported by Grant from Scottish Government
Notes on quality: This Scottish based study re-ignited interest in potential of local character and form for economic regeneration; is widely used as a reference in policy.
4. Porta, S., Latora, V., & Crucitti, P. (2011). The network analysis of urban streets: a primal approach. In Thrift, N., Barnes, T., Peck, J., & Batty, M. (Eds.), *Environment and planning*. (pp. 247-276). London: Sage Publications Ltd. ISBN: 9781446208083.
Notes on quality: seminal work offering the foundation of Multiple Centrality Assessment (MCA), the modelling tool that allows a practical mapping of centrality in street and networks urban spaces. The paper appeared on EPB in 2006 and was selected in the 2012 collection of best past papers.
5. Porta S., Strano E, Venerandi A, Adam R, Romice O, Pasino P, Bianchi G (2013). Multiple Centrality Assessment. In *Urban Design*, p. 12-14, ISSN: 1750-712X.
Notes on quality: Published by leading organisation of professionals in planning, it advocates the potential of MCA against other commercial planning tools i.e. Space Syntax. This platform is a key showcasing opportunity for the profession in urban design.
6. Romice, O & Frey, H (2003) *Communities in Action. The Handbook*. 2003 Scottish Arts Council, ISBN: 0-9542926.
Notes on quality: extensively used by Glasgow Housing Association (GHA) in housing projects in Glasgow.

Other evidence for quality of research (grants, patents etc.).

- UDSU's approach to master-planning (Ref 1) was developed on a Leverhulme Trust grant (2008-10): "Experiential landscape: a socially responsive approach to open space analysis"
- Assessment and new conceptual work on small towns and housing values (Ref 3 and on-going work) for the Scottish Government was supported with £25,000 in the period 2008-2013
- *Communities in Action Handbook* (Ref 6) was developed on a £64,000 grant from Scottish Arts Council (2002-3).
- MCA concept and Platform (Refs 4,5) were developed from a £756,906 EPSRC Grant (GR/S20529 City Form, 2003-7; the Strathclyde portion of the work was under Frey's guidance, and then developed further through a £55,500 KTA Grant (2010-13) and a £30,000 contribution by a private practice (Adam Architecture and Urbanism, AAU).

4. Details of the impact (indicative maximum 750 words)

Process/events from research to impact.

The Department of Architecture at the University of Strathclyde has close links with Government, and with local and nationally recognised architecture firms - working relationships that have been built up over the past 10 years. Examples include the following:

- From 2008, Romice has been a member of the Glasgow Urban Design Panel, tasked by the Glasgow City Council (GCC) with making recommendations on development proposals in the city at a preliminary or planning application stage; her research directly informs the advice to the panel.
- The housing manager for the Glasgow Housing Association (GHA), the largest social

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housing provider in Scotland, is an active promoter of the use of the Communities in Action Handbook since 2003.

- Work on urban centralities is ongoing through a KTA with a private firm, Adam Architecture and Urbanism, and is used in commercial master-planning. A new modelling platform will be launched in 2013 as a joint venture between Adam Urbanism, the Architecture department and Ecole Polytechnique Federale de Lausanne.
- Romice organised the 22nd International Association People-Environment (IAPS) Conference on the relation between research, practice and policy-making in the built environment (June 2012). With over 450 delegates, the event contributed to the dissemination of Strathclyde's research and its re-alignment with practice. Over 50 staff from local authorities and professional practice attended as part of their Continued Professional Development (CPD).

Types of Impact

Impact on policy and planning: Research on spatial analysis and modelling has influenced sections of Glasgow City Council's (GCC) City Plans and housing policies (Sources A and B) between 2009-10. A strategic partnership with Glasgow City Council was established to develop strategies for key areas in Glasgow. Modelling of the centrality of public open spaces monitors and predicts public usage and behaviour in space, and was used to target investment in urban renewal. In reference to the Strathclyde research, The Head of Planning and Building Control, Glasgow City Council, has commented, "*Glasgow City Council values the opportunity of applying the latest and most valuable research in the development of its policies*". (Source C)

Scottish Government has used the research in urban morphology for sustainable development and assessment of the vitality of small Scottish towns. Glasgow City Council, Glasgow Housing Association (GHA) and private practice have used the Urban Design Studies Unit's user engagement approach to assess the potential for development of sites of strategic importance to the city and its surroundings. Recent large scale developments such as Tornagrain (around 4,000 new homes), Knockroon (around 750 new homes) and Chapelton (around 8,000 new homes) have used Strathclyde's master-planning techniques. Furthermore, the Plot-Based Urbanism approach to master-planning has been used as a development model by architectural practice and policy-makers and supported by many small consultancy commissions, for example:

- Research on street centrality along the Glasgow Riverfront, through simulation of redistribution of public infrastructure and retail was used in the *Govan Local Development Strategy* (part of City Plan 2 Source B).
- Research on the East End of Glasgow sponsored by GCC, a local developer and a local trust, disseminated through public exhibitions, public debates and local newspapers was instrumental for the *Barras and Calton Local Development Framework*, part of *City Plan 2* (Source B), which has been granted funding by GCC for the regeneration of the area and was used as guidance in the *Calton Town Centre Strategy* (2010-11).
- Research on the future of the M8 motorway in Glasgow and its impact on accessibility of surrounding areas (e.g. Sighthill), commissioned by GCC and GHA, and is now used in the *Sighthill Access Design Statement* and *Sighthill Transformation Area* (Source D).
- Research on Cumnock growth scenarios is used by East Ayrshire Council in the *Main Issues Report* and informs the forthcoming *East Ayrshire Local Plan* (2013). The Development Planning and Regeneration Manager, East Ayrshire Council *confirms that "The Planning and Economic Development service has been able to utilise the research work at Strathclyde, specifically the study of street centrality and the use of innovative approaches to master planning, in the preparation of its Main Issues Report and replacement Local Plan in relation to Cumnock"* (Source E).

Involvement of community groups and housing organisations in planning decisions: The Strathclyde research was used to develop methods of supporting community engagement and user participation in design, with the intention of removing traditional barriers in communication between lay people and 'experts'. Commissioned by the Scottish Arts Council, a step-by-step Handbook was produced to help local neighbourhood groups develop scenarios, prioritise

intervention, draft design requirements and select professionals. This Handbook has been used since 2008 by Glasgow Housing Association to generate consensus around design commissions, is available online, and was updated in early 2013 with GHA. The Development Manager, GHA has stated: The UDSU research [...] *“has provided an essential resource of emerging techniques and academic rigour in the activities of community engagement, master planning and urban analysis to both the staff of GHA operating in the regeneration directorate, and to the external consultants employed by it”* (Source F).

Development of resources to enhance professional practice: Research by the Urban Design Studies Unit on the urban form of Scottish small towns, in relation to economic and social factors, has been used to develop policies in place-making, design and place assessment guidance, and public consultation approaches. In 2010, Architecture + Design Scotland (A+DS) set up a team with UDSU to formalise Plot Based Urbanism into an adoptable planning approach for Scottish sustainable development (2012-13). Since 2009, A+DS have commissioned studies from the UDSU researchers on small Scottish towns, and recently commissioned an assessment tool for housing developments, for forthcoming housing policy: The Head of Urbanism, Architecture + Design Scotland confirms that *“The University of Strathclyde material has been invaluable in shaping a narrative to engage a series of stakeholders in making tangible a set of propositions around change. In this context, the key impacts are policy focused, which will direct investment and implementation”*. (Source G).

UDSU has developed a KTA collaborative project with one of the largest urban design and architecture practices in the UK (Adam AU), which has a large national and international portfolio of projects. AAU has been critical in developing a commercially applicable ‘Multi Centrality Assessment Platform’ for planning which simulates and compares the potential success of urban areas. This tool can influence planning and optimise investment, attracting designers (to whom it adds financial evidence to services), and clients (who reduce risk in committing resources). The Director at AAU has commented: *“Adam Urbanism has engaged with the University of Strathclyde Urban Design Unit with research projects at different levels, from assisting with thesis [projects] that are directly relevant to our work to joint working on significant research projects”*. And in reference to community consultation and MCA: *“... It is impossible to give quantitative figures ... Suffice to say that the considerable investment we have given to the project is a reflection of the values of the expansion of our knowledge base”* (Source H).

Provision of Training for Local authorities and the Scottish Government: The close partnership with Glasgow City Council has also involved training of council employees, so they can apply the research methodology in practice. The educational model is strongly related to research, and GCC staff have applied innovative approaches to space assessment, modelling and urbanism since 2008 in Nitshill, Sighthill, Calton and the Barras areas of Glasgow, the Forth and Clyde Canal, and more recently Govan, where it is being applied to argue for the strategic upgrade of Govan town-centre.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- A. <http://www.scotland.gov.uk/Resource/Doc/307126/0096540.pdf> Designing Streets policy (2010)
- B. <http://www.glasgow.gov.uk/index.aspx?articleid=2910> Glasgow City Plan 2 (2009)
- C. Statement from Head of Planning and Building Control, Glasgow City Council;
- D. <http://www.glasgow.gov.uk/index.aspx?articleid=6669> Key regeneration areas in the North of Glasgow, Sighthill and Maryhill.
- E. Statement from Development Planning and Regeneration Manager, East Ayrshire Council
- F. Statement from Development Manager, Glasgow Housing Association
- G. Statement from Head of Urbanism , Architecture + Design Scotland
- H. Statement from Director, Adam Urbanism