The Mediated Modelling component of Sustainable Pathways 2

Spatial Planning as the emerging paradigm in New Zealand

The Local Government (Auckland Council) Amendment Act 2010 requires Auckland to produce a Spatial Plan with a 20-30 year timeframe. The requirement for Auckland to produce a Spatial Plan indicates a conceptual move from the effects based planning of the RMA towards an integrated form of planning that "goes beyond traditional land use planning to integrate the economic, environmental, social and cultural well-beings".[i]

Spatial Planning is used extensively in other developed countries to prepare for rapid change, population growth and urban development. The Auckland experience in developing its spatial plan may have ramifications for all local authorities in New Zealand, for many central government agencies, and for the way central and local government work together in future.

Systems Dynamics and Integrated Decision-making

The four well-beings have interrelationships that influence and impact on each other, with significant time-lags, and with feedback loops that may produce unintended or unexpected outcomes. Understanding these 'dynamics' within and among systems is an important part of making effective integrated strategic decisions.

There is a wide range of stakeholders in the public, private and NGO sectors involved in delivering the economic, social, cultural and environmental outcomes. The decision-making processes for each are shaped by legislative and regulatory frameworks, institutional settings, and even organisational cultures. This poses significant challenges for developing an integrated strategic plan that involves multiple stakeholders.

The Sustainable Pathways 2 (SP2) project

The SP2 project is a FoRST funded ($3.9m) project that focuses on developing processes and tools to support integrated, spatially explicit, strategic decision-making. It is currently listed as a key tool in the Auckland spatial planning process.ii

A key output of SP2 will be the development of Spatial Decision Support System (SDSS) for Auckland and Wellington. This is a data intensive computer simulation model, used to develop future scenarios and show the spatial impacts on land and resources. Such a model has already been developed for Environment Waikato, as part of the Creating Futures project (www.creatingfutures.org.nz) and provides visual outputs for future scenarios.

Mediated Modelling in SP2

The Mediated Modelling (MM) component of SP2 will provide a process for multiple stakeholders to combine their expertise, experience, and even intuition to inform the development of SDSS models in Auckland and Wellington.

In the MM workshops representative stakeholders are brought together for several workshops to interactively build a conceptual model for a particular topic. This is a scoping model, not spatially

explicit. Stakeholders identify and build their understanding and mutual appreciation of the key model attributes, (such as population density and land use, amongst others) and the dynamic interaction between these variables. The model with linkages and feedbacks can then be run over-time to illustrate long-term intended and unintended consequences of decisions. The participatory process, and the collaborative learning that takes place, are intended to facilitate buy-in for the development of and guide the more complex and data-intensive SDSS models.

MM is a tool that offers a consensus building process in a short timeframe with fewer resources than many participatory processes as well as a transparent way to identify strategic opportunities and constraints.[iii] The MM methodology is highlighted as an integrative tool by the European Union Water Framework Directive[iv] and by the US Environmental Protection Agency[v]. The SP2 Science Leader, Assoc Prof Marjan van den Belt, has undertaken a number of MM projects including the Vermont State energy planning project[vi] and the Upper Fox River plan in the USA.[vii]

National Advisory Group

As part of the SP2 project a national advisory group will be established to provide input and guidance for integrated models to support spatial planning in New Zealand. This group aims to achieve coordination and consistency in tools and approaches, build capability and capacity and coordinate and disseminate information about modeling tools.

The advisory group is also intended to keep the SP2 project in step with changes to resource management regulations and processes to ensure they meet future needs and enable New Zealand cities to be internationally competitive.[viii] Spatial planning holds opportunities for other cities, towns and regions in New Zealand.

Next steps Auckland

Auckland is undertaking two parallel processes, one leading to the completion of an interim Spatial Plan by June 2012 and the other developing a more comprehensive Spatial Plan over a longer timeframe. The following have been identified as areas that need to be addressed to achieve a successful Spatial Plan for Auckland, and to which the SP2 project could potentially contribute:

1. Conceptualisation and visualisation

   MM provides a way for about 20 stakeholders to get a common understanding of important facts or issues, and think about what the future could be like.

2. Integration

   - *Local Boards:* Local plans need to be completed by local boards to provide local perspectives on citywide issues by 31 October 2011. Board representatives coming together to agree on what the key citywide issues are will ensure that local aspirations feed into the first version of the Spatial Plan.

   - *Council-controlled organisations(CCOs):* Legislation requires a detailed consideration of how planning will work in relation to the roles of the CCOs as well as CCO input into the

development of the Spatial Plan. MM can provide a forum for key CCO personnel to build a model to reflect how the CCO functions integrate into the Spatial Plan.

- *Other key stakeholders:* The Auckland Council must involve central government, infrastructure providers (including network utility operators), the communities of Auckland, the private sector, the rural sector, and other parties (as appropriate) throughout the preparation and development of the Spatial Plan.[ix] MM provides a mechanism for bringing together divergent interests. This procedure is consistent with international best practice which emphasises the importance of participation and consensus building as a factor in successful spatial planning.

3. Issue identification and scoping

- *Infrastructure planning:* According to Clark (2009), Spatial Plans that seek to impose growth quota or density targets on places without design and implementation plans are likely to fail. "Promoting closer proximity between houses and jobs as a means of managing demand for land at the city margins".[x] A system dynamics model could be built to identify infrastructure needs and ways revitalizing areas that are economically, socially or environmentally degraded.

- *Intensification:* Communities that achieve high densities can be very successful if they are well designed. A MM session could be used to consider design and implementation issues.

- *Social Issues:* The Auckland Spatial Plan is required by law to address social issues. MM can provide a forum to bring social (and cultural) disciplines and thinking into the preparation of a comprehensive regional spatial framework for the first time in Auckland.

- *Coastal and Maritime Planning:* It is proposed the geographic coverage of the Spatial Plan should include the region's maritime areas, which represent approximately two thirds of the region's total area. Inclusion of the maritime area is an opportunity for Auckland to achieve and lead best practice in terms of land-sea integration and planning for near-urban marine environments. MM could assist with the process by identifying:
  (i) areas of conflict and potential synergy for further investigation
  (ii) future options through scenarios
  (iii) key strategic decisions and preferred futures.

- *Flow-on effects:* Many of the environmental, social and economic issues facing Auckland are common to, or have solutions in, the 'top of the north'. This part of New Zealand contains approximately 60% (2.4 million) of New Zealand's population and is expected to receive 75% of future population growth. There is potential for a scoping planning project involving central government and the regions in the top of the North Island to identify what a Spatial Plan for this area should cover.

Notes:

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[i] Part 6 in www.legislation.govt.nz/act/public/2010/0036/latest/DLM3016073.html
[ii] Clelland, D (2009) Auckland Transition Authority. New Planning Framework Project. Defining the preferred approach to spatial planning for Auckland. p.8, and pp 30-32.
[iii] van den Belt (2004) Mediated Modeling. Island Press, Washington DC.
[iv] http://ec.europa.eu/environment/water/water-framework/index_en.html

[v] http://www.epa.gov
[vi] http://www.publicservice.vt.gov/planning/mediatedmodeling.html
[vii] van den Belt (2004) Mediated Modeling. Island Press, Washington DC.
[viii] Ministry for the Environment (2010) Building competitive cities. Reform of the urban and infrastructure planning system. http://www.mfe.govt.nz/rma/central/amendments/background-info-phase-ii-reforms/index.html.
[viii] Part 6 in www.legislation.govt.nz/act/public/2010/0036/latest/DLM3016073.html
[ix] ibid p.43
[x] Clark G, 2009, Regional Spatial and Infrastructure Planning – Observations from recent International Experiences, Auckland Regional Council.