Mind the Gap! Frameworks for urban sustainability

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Background

- Thinkpiece
- Parliamentary Commissioner for the Environment
- Background paper on environmental sustainability in New Zealand

- http://www.pce.govt.nz/projects/COF2background_papers.shtml

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Urban sustainability involves creating better places to live, work and play, while solving problems caused in and by our settlements (MFE 2003).

New Zealand's urban areas have not received the attention they need to promote sustainable urban environments and infrastructures (PCE 2002).

Urbanisation

- > 85% of New Zealanders live in urban areas
- Nearly 72% live in the 16 largest urban environments (Statistics NZ 2006)
- > one million people (>30% of New Zealand's population) living in Auckland (< 2% of New Zealand's land area).
- Housing, commercial and roading intensification within towns and cities.
- Growing demand for lifestyle living in areas surrounding urban centres (i.e., peri-urban development).
- Increasing pressure on the existing, and often already limited or highly-modified natural resources.
- While at the same time demanding increasing service from these ecosystems (i.e., for stormwater runoff or wastewater disposal).

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Driving Forces

In urban areas, community well-being is at the heart of sustainability initiatives.

Examples:

- The overarching principle of the Greater Christchurch Urban Development Strategy is **sustainable prosperity.**
- The Auckland Regional Growth Strategy aims (amongst four key goals) to sustain **strong and supportive communities.**

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Urban sustainability

Generic issues identified for sustainable urban living

(adapted from Greater Christchurch Urban Development Strategy and Auckland Regional Growth Strategy)

- Drawing a defined boundary between urban and rural areas.
- **Maintaining** the character of communities.
- **Preserving**, creating and linking urban and rural open space including parks and recreational areas.
- Protecting outstanding landscapes.
- **Protecting** the quality and quantity of groundwater and surface water resources.
- **Protecting** and **enhancing** ecological systems.
- Reducing and preventing air, land and water pollution.
- Maintaining a secure and productive resource base, including minimizing the loss of productive land.
- **Provision** of more transport options, including walking, cycling and public transport.
- Moving goods and people efficiently, making effective use of transportation and service corridors.
- **Ensuring** good stewardship of land, sites and structures with cultural heritage value.
- Ensuring adequate, affordable and appropriate housing.

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Resilience

- The concept of resilience is widely used in ecology - the characteristic of ecosystems to maintain themselves in the face of disturbance

- Adger (2000) suggests that resilience in natural systems provides capacity to cope with surprises and large-scale changes, allowing innovation, coping with change and social learning in social institutions.

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Resilience

- Rarely applied to sustainable social and economic concepts.

- What is not clear is whether resilient ecosystems enable resilient communities or economies.

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Socio-economic-environmental frameworks

Benefits:

1. There is an explicit link to the goal of pursuing human and ecosystem well-being together.

2. It recognises that people are part of the environment/ecosystem although for the purposes of analysis they are held separately.

3. It stresses that what has to be managed is human activity/behaviour.

4. Portray and assess benefits achieved by what people do to the ecosystem, and what the ecosystem provides to human/societal well-being.

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Resilience

- Few frameworks for urban sustainability consider resilience except as ‘maintenance of communities’ type of approach.

- Paradoxically, management that uses rigid control mechanisms (e.g., rules and protocols) to maintain the condition of social-ecological systems can erode resilience and promote collapse (Folke et al. 2002).

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ARC Long-Term Sustainability Programme

The vision of a sustainable Auckland region is underpinned by four goals. Achieving these goals will contribute to a sustainable Auckland.

- Liveability: making sure that the Auckland region into the future is a place where people find it easy and enjoyable to live.
- Resilience: building systems to support our day-to-day living which can deal with uncertainty and cope with the shifts and shocks that we will face in the future.
- Prosperity: being rich in the things we need to be happy and content.
- Ecology / Living with nature: taking more care of the living systems which support us, and passing them on to future generations in better shape.

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PSR framework

Pressure-State-Response Framework

- Based on the concept that human activities exert **pressures** on the environment, **changing the quality and quantity of natural resources**
- These changes **alter the state of the environment**
- The human **responses** to these changes include organised behavior, which aims to reduce, prevent or mitigate effects on the environment
- OECD Model

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PSR and Management

- A means of quantifying pressures on the environment, thereby providing a way of measuring change, and the impact of policies and programmes.
- Means of quantifying and measuring change in state
- Means of determining whether pressures and state are related, and whether management intervention has been worthwhile.
- Where to focus intervention.
- State of the environment reporting.

- *Is it a cause-effect relationship?*
- *Establishing cause-effect may be impossible in complex multi-component ecosystems.*
- *Can we separate pressure, condition and response indicators?*

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Disadvantages of PSR

- Static framework.
- Minimises significance of natural pressures.
- Ignores societal perceptions and desires.
- Assumes cause-effect?
- Rarely a single unifying indicator or response.

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Policy

Three general policy recommendations that can be used as a framework for sustainable social-ecosystem planning:

- policy that strengthens the perception of humanity and nature as inter-dependent and enhances resilience in social-ecological systems,
- policy frameworks for building adaptive capacity and social-ecological sustainability,
- policy to encourage monitoring of key ecosystem attributes.

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Goal-setting

- Urban sustainability frameworks that recognise human-economic and environment relationships must be practical and have realistic goals and objectives.

- For example, managers of urban waterways are presented with a near-impossible task of raising environmental conditions to some high or better condition, with the threshold criteria too extreme to meet and existing ecosystem management frameworks unsuitable for urban environments.

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Gaps

PSR

Relying on trends among biophysical indicators alone for assessing environments (e.g., using PSR) may be problematic and that people's perceptions of the state of the environment are also important.

Existing uses of PSR models are unlikely to lead to the degree of response and change anticipated, especially to improve sustainability (e.g., reduce habitat and biodiversity loss) in these environments

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Gaps

- Gap is between quality of life as a socio-economic driver/measure (by way it is measured) and the life-supporting capacity of the urban environment.
- None of the frameworks/policies support sustainability by ensuring ongoing resilience of the life supporting capacity of urban ecosystems
- Needs to be better reflected in the interconnection between how healthy our common property resources are (e.g., air, water) and our ability to maintain a quality of life as currently only viewed as a socio-economic phenomenon.
- In Time socio and economic measure will start to measure the ‘cost’ of the use of our ecosystems (water treatment, air pollutants, food transport costs)

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Future

Questions still remain over how urban sustainability can be achieved:

- how to achieve continual growth and yet remain sustainable?
- How to integrate technology and stakeholders to develop an approach that is appropriate to New Zealand's needs?

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Future

As sustainable development initiatives shift focus from the responsive and corrective approach to a more causal approach, there is likely to be more integration of resources and planning for sustainable development.

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Conclusion slide

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