

KIWIGROW™ – A NEW APPROACH TO SUSTAINABLE DEVELOPMENT

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Increasingly, the public good is being phrased in terms of sustainable development. New Zealand's Local Government Act now reflects this international trend. However, despite much that has been written about sustainable development, it remains an elusive concept. When someone suggests that it can be reduced to a simple mantra of just seven words, it is likely to interest planners, who must make seemingly idealistic legislation work in practice.

Creative Decisions has developed KiwiGrow™, a new approach to sustainable development, based on one such simple model. While experience with KiwiGrow™ has been in the area of strategic assessment and sustainability reporting, Creative Decisions is encouraging wider use in public policy and planning – in addition to areas such as business and organisational management and development, and health and ecosystem management.

This article introduces KiwiGrow™. More information is available at the website www.creativedecisions.co.nz.

What is KiwiGrow™?

KiwiGrow™ centres around a new, seven-word ecosystem health model (Table 1) applicable to social, economic, environmental and cultural systems. All of these are living, evolving, adaptive systems that may, for the purpose of management, be modelled as ecosystems.

The KiwiGrow™ health model has been

promoted as a Common Sustainability Language as it has significant potential as a unifying influence, helping to align planning efforts across jurisdictions and policy areas. When applied to the "four well-beings", it leads to the 28 sector KiwiGrow™ framework for sustainable development (Table 2). Because health will always be a normative concept, this framework is used to develop more specific concepts, measures and approaches appropriate to the system that is to be managed'.

While planners are familiar with the idea of well-being, many are less so with the idea of ecosystem health. In 1999, Costanza and Mageau equated ecosystem health with sustainability: a healthy ecosystem is one that "is sustainable – that is, it has the ability to maintain its structure (organisation) and function (vigour) over time in the face of external stress (resilience)."

Therefore, as a model for total ecosystem health, KiwiGrow™ provides a generic definition of sustainable development. Simultaneously, it presents sustainable development as an aim or purpose, how to achieve that aim, and how to measure progress.

Planning using KiwiGrow™

For many planners, the conceptual framework that is used for sustainable development is the key issue – after that, it comes down to good planning practice. However KiwiGrow™ is somewhat unique in that it provides a powerful means of

leveraging the ecosystem approach to integrated management and planning (Table 3 – see page 18). In this approach, a landscape is envisaged, or modelled, as a mosaic of nested ecosystems, each of which is managed according to the same principles. These ecosystems can range from households and natural ecosystems, to cities and regions.

While the ecosystem approach in various forms has been around for many years now, it has been difficult to implement, because it is information intensive, and because no satisfactory universal ecosystem model has been developed that can be applied to entities as different as a wetland and a residential neighbourhood. KiwiGrow™ removes this constraint, and the ecosystem approach can be applied to virtually any entity in the landscape. Every step in the planning-management process of these entities can be illuminated by the KiwiGrow™ model.

To help planners apply these ideas, the ecosystem approach has been reinterpreted in light of KiwiGrow™ to provide a "starter" toolkit of concepts and processes. These are introduced on the Creative Decisions website, which may become a significant open source library of tools and resources.

An example – Waitakere's water

The first application of KiwiGrow™ centred on management of urban water. In 2004, Ecowater Solutions and Waitakere City Council wanted to raise the bar in consultation and communication

TABLE 1: The KiwiGrow™ Common Sustainability Language.

SYSTEM QUALITY	UNDERLYING THEMES
Nurturing	Regenerating, safe, caring
Supportive	Respectful of roles of components, non-inhibiting, fulfilling, maximising potential, equitable
Stable	Strong, not fragile, continuing, protective, respectful / honouring of traditions, not capricious
Contributing	Providing goods and services, not wasteful or draining, or a source of harmful constituents or activities
Responsive	Reactive and resourceful, having a strong capital base
Directed	Energetic, inspired, motivated, self-sustaining, confident, purposeful, self-organising
Adaptive	Resilient to change, accommodates change, innovative

for Long Term Council Community Plans. In particular, managers wished to take an innovative approach to preparing the City's inaugural (2005) Assessment of Water and Sanitary Services, that would shed light on how dialogue should be conducted with the community, on issues relating to water. One of the requirements was that the dialogue should be informed by a "quadruple bottom line", reflecting the thrust of the legislation. While the Council had made some progress in this style of reporting, they were still developing their ideas.

Besides providing a major compilation of information that underpinned the local strategy for managing stormwater, water supply, wastewater, and solid waste, this Assessment had two significant outcomes. It showed how spatial multimedia could be used creatively to illuminate planning issues, and it provided a field test of aspects of the KiwiGrow™ approach to sustainable development.

Issue identification

The multimedia information system we prepared for Waitakere's Assessment of Water and Sanitary Services contained a large amount of the information available on the city's development, the nature and condition of the various elements of the water and sanitary services infrastructure (both natural and constructed), and the performance in terms of an array of social, economic, environmental and cultural indicators. The KiwiGrow™ model was used to integrate this information into a structured set of issues that reflected holistically how management of water was affecting the health of the city and its natural ecosystems.

First, to give a local identity to the idea of health, we produced short statements or definitions for each of the 28 KiwiGrow™ performance areas (Table 4 – see page 18). Then, using these concepts as touchstones, we reviewed the assembled information and identified issues that affected the city's ability to realise health according to each one of these performance areas. These issues were

TABLE 2: The KiwiGrow™ framework and scorecard for sustainable development.

Each cell is shaded according to the score or the associated level of risk.

	Social	Economic	Environmental	Cultural
Nurturing				
Supportive				
Stable				
Contributing				
Responsive				
Directed				
Adaptive				
Overall				

presented in the multimedia information system using direct links to the appropriate cell in the KiwiGrow™ performance matrix. Council staff also produced a short list of "major" issues.

R&K communication

The 28 sector KiwiGrow™ matrix was coloured graphically to communicate the level of risk associated with each performance area – we needed people to understand the extent that management of water and sanitary services affected, for example, the ability of the city to be "socially nurturing": Because resources for the project did not extend to developing composite

indicators and formal scoring procedures, we simply used the number of issues that were identified for each performance area as an indicator of the level of risk for that area. This number was then colour coded, so a glance at the matrix was sufficient to determine where most of the issues lay. Some adjustment was made to the risk category (i.e., the cell colour) where issues were particularly compelling. Using this approach, users could not only see where the risks lay, they could click on the cell to display the associated issue statements, in conjunction with the concept for health for that performance area.

Decision support: identifying preferred futures

As part of the process for preparing the Assessment, Council staff had constructed four scenarios for future development of the city, ranging from slowing progress towards sustainable development, to accelerated progress, with

TABLE 3: Elements of an ecosystem approach.

- Defining the boundaries of the area of concern, clarifying the agendas of the principal participants, and high level issues to be addressed
- Gathering information on the historical ecosystem and the present economic, environmental, and social conditions and trends, and building understanding
- Identifying stakeholders and associated perspectives on the situation, including their conflicting aims
- Identifying issues, assembling information on possible solutions, and creating alternative visions for the future, from the perspective of various stakeholder groups, firstly qualitatively with stakeholders, then increasingly quantitatively drawing on resources available for research and modelling, with clarity on tradeoffs
- Debating the alternative futures, and producing a common vision, and designing an implementation plan including provision for collaborative learning
- Implementing the plan, including resolving priorities and responsibilities, and establishing institutional arrangements and policies
- Monitoring and evaluating implementation and associated outcomes, including selecting indicators and resolving responsibilities for measurement, information management, interpretation and subsequent action and adaptive responses.

"virtual regional integration": To help users choose between these futures, we provided tools to allow them to pick a social, economic, environmental, or cultural issue from the list that had been generated using the KiwiGrow™ framework, and then explore, in a single panel, contrasting short narratives for the future, "looking back" from the year 2050. These pairs of paragraphs told how the issues were, or were not, resolved, over the 50 year period under traditional and progressive management approaches. They also highlighted some of the associated outcomes.

Within the multimedia information system, we also provided graphical tools that could be used to establish overall scores for social, economic, environmental and cultural performance, based on user-supplied priorities for the component performance areas. However, using the KiwiGrow™ model, each high level performance area represents a critical element of a "risk portfolio" and such totalising approaches should be used with caution.

Sustainable development reporting

The above results showed how cities such as Waitakere could use the KiwiGrow™ model to report on progress towards sustainable development. Building on the spatial ecosystem framework used for the Assessment, they could establish an internet-based reporting system, in which clicking on parts of a map leads to display of the associated KiwiGrow™ graphical performance scorecard, with each coloured cell linked to the underpinning information.

Other applications and benefits

This first test of KiwiGrow™, which nevertheless fell short of a full planning process using the ecosystem approach, quickly revealed to us its potential for general use in planning and management. The potential seems especially significant when it is considered that the seven word Common Sustainability Language can become a "mantra" within the community. This can increase preparedness of groups to engage

in consultation, and reduce planning costs. Not only will groups be more prepared, but they may embark on their own planning processes, consistent with the wider KiwiGrow™ values and principles. So KiwiGrow™ provides a basis for devolving power and responsibility, and providing collaborative, communicative, and more decentralised planning.

The Waitakere application showed how KiwiGrow™ provides a framework for initial assessment and enquiry, for identifying issues and risks, and for deconstructing issues. Using KiwiGrow™, planners can work with communities to develop concepts or definitions of healthy behaviour for each of the 28 performance areas, and start to develop visions and goals. KiwiGrow™ also provides a universal interface for reporting results of monitoring and other investigations.

The structure of KiwiGrow™ clearly lends itself to decision support systems of various kinds, whether for project evaluation, assessing impacts of major events or trends, such as climate change, or for evaluating development options or entire futures.

For New Zealand, KiwiGrow™ may also help to integrate Maori values and iwi planning, with public planning. Maori may even wish to consider using KiwiGrow™ as a framework for their own iwi management planning, since KiwiGrow™ provides scope for recognising and nurturing the spiritual elements of healthy communities that have received little acknowledgement in planning efforts based on western values.

KiwiGrow™ is effectively a super management system. It can be used to integrate policy contributions from different agencies, or parts of an organisation. It also provides a means for placing sustainable development and the public interest at the heart of business, as well as providing a reporting framework that businesses can share with the communities they operate within. A community's KiwiGrow™ scorecard, and the associated supporting information, can be viewed as a business opportunity profile that can help to guide developing relationships with business.

Finally, KiwiGrow™ helps simply as a thinking

TABLE 4.: Expansion of concepts for the 28 performance areas, for Waitakere City's 2005 Assessment of Water and Sanitary Services.

	SOCIAL	ECONOMIC	ENVIRONMENTAL	CULTURAL
Nurturing	Communities are safe, and have caring attitudes towards people and especially children. Communities provide essential needs for families.	The economic environment supports new business establishment and relocation through availability of workforce, land, financial and other resources and support services.	The environment provides for natural regeneration, and spawning and other breeding grounds are protected or being restored. Exotic predators are controlled.	The community supports cultural regeneration and rejuvenation.
Supportive	Communities are respectful of rights of citizens, including minorities. They provide equal opportunities for advancement and individual fulfillment and value fairness.	Businesses are supported through appropriate networks and services, possibly via "ecosystems" of businesses related via inputs and outputs. Tax and rating environment is favourable.	The environment is biologically diverse, and the number of threatened species is minimised. A wide variety of habitats supports diversity at the micro and macro levels. Pests and weeds are minimised.	The community respects and supports cultural diversity. Individuals are able to live fulfilling lives without abandoning cultural heritage.
Stable	The community is strong, has a sense of its own past, and respects traditions. Leaders ensure it is not vulnerable to rapid change to its disadvantage.	The local economy is strong and not vulnerable to major cyclicity. Many businesses are well established and provide community economic leadership.	Ecosystems and populations are stable, and not being irreversibly degraded. The abiotic environment is maintained within healthy limits.	Cultures are strong and not dying out. People maintain and respect their traditions and heritage.
Contributing	People within the community are contributing positively to society through paid and unpaid activities. Unemployment and waste of human resources is low. Negative contributions including crime are minimised.	Businesses contribute positively to the economy and community welfare in the broadest sense. Businesses are resource efficient, and produce minimal pollution and waste that is not recycled.	The environment provides a variety of "ecosystem services" such as clean water, water storage, and amenity, which benefit communities directly or indirectly. Emissions of pollution and harmful biological materials such as weeds and pests are minimised.	Cultural groups respond to challenges and opportunities and have key skills and other human capital that enable them to flourish.
Responsive	The community and individuals within it respond to challenges such as crises, and areas of need. The skill base is high and people have the tools and technologies to be effective.	Businesses have resources to respond to increases in demand, or to downturns.	The environment responds positively to demands placed on it. Ecosystems are inhospitable to exotic biosecurity threats. Systems recover diversity after disturbances such as floods or erosion.	Cultural groups have a sense of vision and purpose. Leaders are strong and visionary.
Directed	The community has a sense of its own future, and major projects are well coordinated to achieve shared goals. Leaders have vision.	The economy is sustainable, and not founded on a resource base or market that is shortlived. Businesses and leaders have a sense of direction and progress.	Biological systems are generally self sustaining and require minimal inputs from outside the community. Human inputs are local.	Cultures adapt to or accommodate social, economic and environmental change. All cultures have access to research and learning systems.
Adaptive	The community acknowledges need for change, learns from experience, and has robust learning institutions that serve its needs.	The economy responds to change in economic fortune without major layoffs. Entrepreneurs maximise benefit from new opportunities. The economy responds to change in economic fortune without major layoffs. Entrepreneurs maximise benefit from new opportunities.	Biological systems reach new stable equilibria following change in environmental circumstances, while maintaining nutrient and other cyclic processes.	

aid. It can be applied qualitatively, rapidly, and habitually. Managers may see it as "28 ways to improve your organisation, business or community". This easy application may be useful in contexts such as design-led planning workshops, where participants need to test, rapidly and collectively, alternatives they have generated.

Beyond the ease with which it can be applied, KiwiGrow™ may also lead to new insights. Managers will likely discover new angles on ecosystem health, community health, and public and private sector accountability – which may in turn lead to creative new solutions or at least to identification of significant knowledge gaps. By providing a potentially enduring framework for investigation, KiwiGrow™ also provides a basis for new areas of scientific enquiry. We have only to think how the Periodic Table provided the basis for the science of chemistry.

With a few modifications, KiwiGrow™ also provides a holistic development model for human health and well-being, integrating physical, emotional, intellectual and spiritual dimensions. This is "Personal" KiwiGrow™. The resulting "top to bottom" applicability of the KiwiGrow™ model suggests it has potential to provide the basis for deeply rooted, lasting changes in society.

Future development

As a universal model, KiwiGrow™ lends itself to global collaboration. This can lead to rapid development and testing of tools and other resources, and more rapid progress towards sustainable development. The vision at Creative Decisions is for it to develop through an international "KiwiGrow™ Network", taking an open source approach, and subject to procedures needed to maintain the integrity of the KiwiGrow™ brand. In this way, KiwiGrow™ planners in New Zealand could be at the forefront of an international movement to make a world of difference.

Footnote

1 Examples for a range of ecosystems are at <http://www.creativedecisions.co.nz/kiwigrow>