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Current Sustainability: Are we Just Trying to be Less Bad?

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Abstract: All of the current ways to measure the state of the world, and its underlying capacity to provide ecosystem services, show that humanities impact is increasing. Yet we have been making an effort to be more 'sustainable' for the last 40 or so years. A critique of the efficiency based approach to sustainability is presented, specifically showing that one key reason for this failure is its origins in the mechanistic worldview. This worldview served humanity well during the industrial revolution but does not provide the underpinning models to challenge the current 'unsustainable' way of doing things.

The ecological worldview is presented as an alternate model that allows thinking to be more holistic and based in the complex and interrelated socio-ecological systems that make up how humans affect the world. The arguments underpinning this need for a new worldview are made based on interviews with over 40 international thinkers and practitioners developing projects that restore and regenerate degraded ecological and social environments.

In this critique of the current approach to sustainability is a challenge to not only restore the planet's capacity to provide ecosystem services (to be more sustainable) but to develop the potential for ecosystems and social systems to evolve, adapt and increase resilience.

Keywords: Contributive practice, restorative sustainability, resilience, regeneration.

1. Introduction

'The world as we know it is coming to an end.' Some would say this is not necessarily a bad thing. As the world hurtles headlong towards what Paul Gilding (2011), calls the Great Disruption, a growing movement is intent on not wasting a good crisis and the opportunities for renewal it brings. The movement comprises, among others, thinkers and designers who believe that current approaches to sustainable building are merely rearranging the deckchairs on the Titanic. They believe that in order to create a future in which humans will thrive, rather than merely survive the calamities we have created, a different approach will be necessary. Whether you call it regenerative design, positive development or biophilic design, it is based on a common idea—that is to create a transformed built environment which contributes to the well-being, nourishment and regeneration of the world and all its communities. This paper outlines why we are only being less bad in our sustainability agenda

and provides an alternative approach which could lead to a greater chance for a thriving future.

2. Method

The content of this paper is firstly based on a review of the literature together with interviews of those critical of the current sustainability movement to build the case of our (un)sustainability. Secondly the paper briefly presents some of the outcomes from interviews and site visits done over the last two years in Europe, the United States of America and Africa. The intention was to see how practitioners in the built environment, mainly architects and planners, were achieving outcomes from projects that aimed at leaving a positive legacy. These projects were geared toward improving social and ecological outcomes and providing a solid foundation for ongoing growth and development.

3. Discussion

3.1 Our (un)sustainability

By now we are well aware that the tenancy of humans on Planet Earth is rapidly pushing the planet past certain operating limits (Rockström *et al*. 2009). In 2005 the United Nations Environment Programme referenced some key research into our management of the world's ecosystems. It stated that unless we address the existing problems, the long-term benefits we obtain from ecosystems will be substantially diminished in the following three major ways:

> 'Firstly, approximately 60 per cent (15 out of 24) of the ecosystem services examined during the Millennium Ecosystem Assessment are being degraded or used unsustainably, including fresh water, capture fisheries, air and water purification, and the regulation of regional and local climate, natural hazards, and pests …'
>
> 'Second, there is established but incomplete evidence that changes being made in ecosystems are increasing the likelihood of nonlinear changes in ecosystems (including accelerating, abrupt, and potentially irreversible changes) that have important consequences for human well-being …'
>
> 'Third, the harmful effects of the degradation of ecosystem services (the persistent decrease in the capacity of an ecosystem to deliver services) are being borne disproportionately by the poor, are contributing to growing inequities and disparities across groups of people, and are sometimes the principal factor causing poverty and social conflict' (Millennium Ecosystem Assessment 2005, p. 1).

A 2009 study (Rockström *et al*.) identified nine planetary system boundaries that should not be crossed if the planet is to continue providing a safe operating space for humans. Three of these boundaries—biodiversity, the nitrogen cycle and climate regulation—have been crossed already, despite many early warnings issued by scientists.

As early as 1896, Svante Arrhenius warned that the Industrial Revolution's Carbon Dioxide

(CO_2) emissions could eventually result in global warming and climate change. Over time, after four IPCC Assessment Reports and 17 Convention of Parties meetings, this warning has moved from the realm of the possible, through the realm of the probable and finally to the realm of certainty. As the planet is already experiencing the effects of global warming, scientists are pushing for lower 'safe limits' of emissions and atmospheric greenhouse gas concentrations, while governments, intent on rescuing a flailing world economy, argue for increasing these limits to politically acceptable levels. Thus we see that despite the many well-published warnings of scientists and professional risk analysts about the probable risks of overshooting these planetary boundaries, together with the dire social and economic consequences of such overshoot, the majority of humans are still trapped in denial, and in the case of the developing countries, anger.

Why do people find it so difficult to accept the scientific facts and change their behaviour and aspirations to avoid the catastrophe we seem to be courting? The answer is two-fold. The first is the enormous systemic inertia in changing what has become a global system of interdependent economies and increasingly shared consumerist value systems driven as much by philanthropy as by the media. The second is the perception that there is no clear vision of what a viable alternative may look like. However, this is a misconception. Many thinkers and practitioners are re-inventing the way economies can work, rethinking agricultural and industrial practices, and redesigning the way we live. The people whose work we discuss in this paper provide examples of alternative visions for our human habitats.

It is common knowledge that the built environment has a large and increasing impact on the environment as urban populations grow (UNFPA 2007). Cities place enormous demands on resources such as energy, water and materials, and their waste products pollute the air, water and soil. Cities also turn bio-diverse and productive land into relatively bio-absent systems of hard surfaces that retain heat, divert water and add pollution to the ecosystem. Their waste products, and those of the industries necessary to support them, contribute to acid rain, smog, build-up of toxins, infertility, increases in respiratory disease, and other impacts on the health of humans and other species.

In response to these factors significant efforts are being made to ensure the built environment is as efficient and low consuming as possible with a general uptake of eco-efficiency approaches, prompted by a proliferation of rating tools. Leading edge eco-efficient or 'green' developments are increasing in number and efficiency (Ahn and Pearce 2007, Fuerst 2009, Kontokosta 2011). They provide an important first step towards developing a base of understanding and a language around what sustainability means in the built environment. Unfortunately, as mentioned above, we are still rapidly degrading the environment, and existing green approaches still have several major drawbacks.

Firstly, 'green' developments are still net consumers of the earth's carrying capacity. While a target of 70 per cent efficiency is excellent, increased rural-to-urban migration leading to more new urban areas means that the magnitude of the impact of cities continues to increase. Secondly, there is an unfortunate disconnect between the design and the performance of these buildings. Possessing the potential for efficiency does not mean buildings will be used as designed. This is due to a mismatch between user behaviour and the way the building or development was designed. Thirdly, efficient buildings are often designed to be optimal within themselves and do not consider the broader environmental or social context within which they sit. As a result you may get an efficient air-conditioning system in a building with windows that cannot be opened in an environment where 80 per cent of the time the outside

conditions are within comfort parameters.

Being isolated from a system can also mean that economies of scale, opportunities and synergies are missed. For example, water treatment or tri-generation systems are often integrated into a building to achieve better performance and a higher building rating. However, these systems are frequently installed with no knowledge of, or possible linkage to, similar systems in neighbouring buildings. The consequence is a district of individual treatment and energy production units where a great deal of synergy and efficiency could have been achieved through a combined system. Even more worryingly, this disconnect with the larger picture means that individual developments ignore social and environmental opportunities for creating a thriving urban system.

The built environment also has a large social impact. Just as it is short sighted to look at a building without its environmental context, it is equally so to look only at ecological sustainability without looking at the social aspects. The built environment is for people, thus an ecologically responsible building should still function for its users and contribute to the social amenity of the city. The negative effect of dysfunctional urban environments on people's physiological wellbeing has been well documented—with depression, anxiety, isolation, aggression, and inability to concentrate and participate being common (Kellert 2005, Kellert *et al*. 2008, Louv 2005, Sternberg 2009).

3.2 Exploring the concept of sustainability and its limitations

Central to this paper, it is important to reflect why current approaches to sustainable development are not reducing, but rather, increasing their impact on the environment. Firstly, we need to understand what is currently meant by the term 'sustainable development'. Sustainability, depending on who you speak to, is about sustaining. Most approach this with a view to keeping things as they are—or not letting them get worse. The problem, and the cause of its contestability, lies in what people are trying to sustain—economic growth, production potential, historic significance, an ecological system and so forth. This approach to sustainability sees it as an end point, something that can be reached. That is, sustainability envisioned as a change from a current 'unsustainable' state, to a future 'sustainable' state, can be achieved by following certain recipes and rules. Once achieved, it is a matter of focusing on maintaining this imagined optimal state. However, as is pointed out by a number of critics (Bossel 1998, Gallopin *et al*. 2001, Moffat and Kohler 2008, Yorque *et al*. 2002), such an optimal state cannot be seen as a steady state that allows no further change. However, the world is not in a steady state—for example climate, population, ecosystem, resource levels, economics, political whim—are all in constant flux. Our cities are designed in a dynamic and ever-changing world which our approaches to sustainability are failing to acknowledge.

Secondly, the common understanding of 'sustainability' is based on the current approaches to sustainable development that are found in the models proposed by authorities such as the World Commission on Environment and Development (WCED), the United Nations Development Programme (UNDP) and the United Nations Environmental Programme (UNEP), all of which were founded within the mechanistic worldview. These models see sustainable development as an ultimate goal to be achieved through solving a series of separate problems in a reactive manner, often by means of technology. They continue to advocate a development model based on economic growth through resource consumption, perhaps more efficiently, using frameworks such as cleaner production.

3.3 The worldview driving our approach to (un)sustainability

It is worth thinking about the mechanistic worldview that underpins the above models. It is based on the 'scientific method' that grew out of the doctrines of Rationalism and Empiricism. That is, it sees the world as a machine, the behaviour of which can be analyzed and understood in terms of the properties of individual parts. These parts interact in a linear fashion creating simplified ideas of cause and effect. It is the narrowness of this view that causes its limitation. Unfortunately well-meaning initiatives often worsen the problem—one example being the introduction of a species to eradicate another with the new species itself becoming a pest. This view explains the end point thinking of sustainability discussed above, it is a part of mechanistic thinking that is based on the idea that 'we will fix it'.

In ecological terms the mechanistic worldview sees the human race as separate from and above nature, with the right to rule nature, changing its processes to provide maximum benefit to the human species. Often societies following the mechanistic worldview are centred on the individual good with the survival of the fittest. Social status is determined by individual material success measured quantitatively in terms of possessions and ownership. These measures of success are one of the reasons why our society finds it so difficult to move to a more sustainable way of living.

Earlier we asked why green or sustainable buildings and developments are not reducing our impact on the environment. The mechanistic, reductionist and dualistic approach to sustainability means that green buildings are rated as being 'sustainable' if they are more efficient. However, this efficiency is meaningless in the overall picture as populations increase and cities spread. In summary this is a mechanistic eco-efficiency approach that is treating the symptoms and not looking at the causes. As Albert Einstein said '*We are trying to solve problems from within the same mind-set that created them*'.

In recent times an alternative to the mechanic worldview has gained support. This worldview rejects the dualism discussed above and sees humans as partners with nature. It brings together a meta-synthesis of ideas on a whole/living systems worldview, spanning the fields of quantum physics, ecology, transpersonal psychology, indigenous knowledge and philosophy. It does not reject the scientific/mechanistic-based approaches of the past but incorporates them into a more complex view of the world. *Table 1* shows a summary of the difference between the sustainability model we are critiquing in this paper and the whole systems sustainability model approach based on the ecological worlds view.

Table 1: Summary of the current (old worldview) and whole systems (ecological worldview) approaches to sustainability adapted from du Plessis (2009 and 2011)

Current sustainability model	**Whole systems sustainability (EWV)**
Goals	
Socially negotiated goals across the triple bottom line	Maintain resilience and integrity of local and global ecosystems
Strategies	
Command, control, measure, manage, fix/static	Cooperate, participate, adapt, learn, understand, flexible, dynamic
Measure	
Progress towards/achievement of goals	Distance from threshold, monitor change in critical variables
Approach to problem solving	
Reductionist: solve individual, tightly scoped problems and add solutions to solve large problems.	Holistic: understand the system to solve the problems of relationships and emergence

The ecological worldview describes a world that is an interconnected and interdependent set of ever-changing processes and relationships in nested systems of increasing complexity. In this world humans and nature do not co-exist as separate systems. Instead they form one integrated global social-ecological system that spans across matter, life and human, social and cultural endeavours. It sees a system where we co-evolve with other entities; it is not about an end point but a journey. From this viewpoint, humans are an integral part of nature; they are participating in and co-evolving through its processes and therefore subject to its laws. Effective action learns from and follows the laws of nature, and participates in its processes so that the outcomes of actions contribute to the well-being, nourishment and regeneration of the world to the benefit of all.

4. Conclusion: What does this mean for the city?

So, what does a city look like under this ecological worldview? It is identified as a complex adaptive social-ecological system (SES): a system that includes biophysical aspects (eg. environment, climate, materials, power, water) and mental activities (eg. thinking, planning, meeting, deciding, hoping, dreaming, etc.), across many scales (eg. a brick to a complete city) and how they all occur in nested phenomena (eg. household, neighbourhood, and city). This view of the city changes the perception of it as an artefact to that of the city as an ever changing, self-organization and adapting 'living' entity.

The outcomes from the interviews of leading practitioners working in the built environment and trying to work in a more holistic and ecological fashion resulted in a shift in the understanding of what it means to be a practitioner in the built environment. No longer is the 'job' to design a building or an object; no longer is the solution of a problem a thing. Though

a building may be part of the answer, the main design is a process of engagement and relationship building. This is a relationship that is not just with the client and their site, but also the client and site; its context, its past and its future potential.

Working in the ecological worldview seems to be about uncovering and nurturing the systems that will allow it to thrive and self-evolve. Examples of these in practice are the post disaster work of BNIM in among others; New Orleans, Greensburg and Springfield; the development of community and ecological resilience through schools such as the Willow school in New Jersey, and community cooperatives in Brattleboro by the Regenesis group. Creating ecological healing through developments in the Gulf of Mexico (Regenesis); Sri Lanka (Bawa) and Africa (Tlholego), or the many guerrilla activities that are occurring all aimed at contributing back to community and nature.

The key take home message from these interviews and site visits has been that to work in the ecological worldview towards a truly sustainable future requires every project to design for contribution to nature. Nature becomes the main client of every project as people (the paying client in the old worldview) are apart of nature.

References

Ahn, Y. H. and Pearce A. R. (2007), 'Green Construction: Contractor Experiences, Expectations and Perceptions', *Journal of Green Building*, vol. 2, no. 3, pp. 106–22.

Arrhenius, S. (1896), 'On the Influence of Carbonic Acid in the Air upon the Temperature of the Ground', *Philosophical Magazine*, vol. 41, no. 5, pp. 237–76.

Bossel, H. (1998), Earth at a Crossroads, Cambridge University Press, Cambridge (UK).

du Plessis, C. (2009), '*An Approach to Studying Urban Sustainability from Within an Ecological Worldview*', PhD thesis, University of Salford, Greater Manchester.

du Plessis, C. (2011), 'Shifting Paradigms to Study Urban Sustainability', in *Proceedings of the SB11 World Sustainable Building Conference*, Helsinki.

Fuerst, F. (2009), 'Building Momentum: An Analysis of Investment Trends in LEED and Energy Start-Certified properties', *Journal of Retail and Leisure Property*, vol. 8, no. 4, pp. 285–97.

Gallopin, G. C., Funtowitcz, S., O'Connor, M. and Ravetz, J. (2001), 'Science for the Twenty-First Century: From Social Contract to the Scientific Core', *International Journal of Social Science*, vol. 53, no. 168, pp. 219–29.

Gilding, P. (2001), *The Great Disruption*, Bloomsburry Press, London.

Kellert, S. (2005), *Building For Life: Designing and Understanding the Human-Nature Connection*, Island Press, Washington.

Kellert, S., Heerwagen, J. and Mador, M. (2008), *Biophilic Design: The Theory, Science, and Practice of Bringing Buildings to Life*, Wiley, New Jersey.

Kontokosta, C. (2011), 'Cities as Market-Makers: Policy and Financing Strategies for Sustainable Real Estate Markets', in *Proceedings of the SB11 World Sustainable Building Conference*, Helsinki.

Millennium Ecosystem Assessment, (2005), *Ecosystems and Human Well-being: Synthesis*, Island Press, Washington, [online], <http://www.millenniumassessment.org/documents/document.356.aspx.pdf>.

Moffat, S. and Kohler, N. (2008), 'Conceptualizing the Built Environment as a Social-Ecological System', *Building Research & Information*, vol. 36, no. 3, pp. 248–68.

Rockström, J., Steffen, W., Noone, K., Persson, Å., Chapin, III, F. S., Lambin, E., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., Nykvist, B., de Wit, C. A., Hughes, T., van der Leeuw, S., Rodhe, H., Sörlin, S., Snyder, P. K., Costanza, R., Svedin, U., Falkenmark, M., Karlberg, L., Corell, R. W., Fabry, V. J., Hansen, J., Walker, B., Liverman, D., Richardson, K., Crutzen, P. and Foley, J. (2009), 'Planetary Boundaries: Exploring the Safe Operating Space for Humanity', *Ecology and Society*, vol. 14, no. 2, [online], <http://www.ecologyandsociety.org/vol14/iss2/art32/>.

Sternberg, E. (2009), Healing Spaces: The Science of Place and Well-Being, Harvard University Press, Cambridge (USA).

United Nations Population Fund (UNFPA) (2007), *State of the World Population 2007: Unleashing the Potential of Urban Growth*, [online], <http://www.unfpa.org/webdav/site/global/shared/documents/publications/2007/695_filename_sowp2007_eng.pdf>.

Yorque, R., Walker, B., Holling, C. S., Gunderson, L. H., Folke, C., Carpenter, S. R. and Brock, W. A. (2002), 'Toward an Integrative Synthesis' in L. H. Gunderson and C. S. Holling, *Panarchy: Understanding Transformations in Human and Natural Systems*, Island Press, Washington, pp. 419–38.