

## **Sustainability, Climate Change, and Resiliency: A New Approach**

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A change in government at the federal level, and the identification of climate change in its renamed environment portfolio matching that of the Ontario government, has put climate change related policies and programs back on a front burner.

The general scientific consensus of a correlation between rising carbon levels in the atmosphere and average annual temperature increases is reflected in more severe climate variations (particularly in the Polar regions), rising sea levels, increasingly uninhabitable places, water shortages and unpredictable weather patterns. Thomas Friedman calls it global weirding.

The breadth of these changes brought on by increased carbon emissions in the car dependent and industrially expansive era we live in has been a significant factor in the success of the human race. More people are moving out of poverty, while urbanization is increasing to an extent never before witnessed. On the downside however too many people are living in dangerous places (afflicted by regular forest fires or hurricane incidents) or in places unable to support so many of them (California and Arizona are the affluent poster children for such a water-deprived world while those like Yemen and Bangladesh are its less economically and environmentally sustainable examples).

On the positive side stories have recently appeared extolling a more promising future from Maybe the Planet Isn't Doomed After All in the 7-20 September 2015 New York magazine, to the November 2015 issue of the National Geographic, alongside ministrations of a new entity calling themselves eco-modernists. On the other hand naysayers ranging from Naomi Klein's screed on the carbon based evil of capitalism to Barack Obama's easy banning of the Keystone XL pipeline suggest that we are a long way from unanimity on who to blame, the nature of our long range prospects and appropriate actions.

On closer examination of even the positive developments however, they focus inordinately on a gradual shift to at least a greater use of solar and wind power in China, the United States and Germany. In other words the breadth of environmental maladies and leanings as described in the nine planetary boundaries formulation of the Stockholm Resilience Centre suggest these moves might have more of a boutique quality than be part of a major quantitative shift. Ocean acidification, stored carbon in the atmosphere (prevailing through the century even if all carbon emissions were to stop immediately), fresh water availability, and biodiversity loss are just some of these areas of long term concern.

World population is likely to grow from its current, just over seven billion total, to ten billion by the second half of the 21st century. Alongside this an increasing urbanization reflects the triumph of urban lifestyle values, interests and products (even organic food and electric cars are consumption choices with environmental impact) regardless of where people live. It should be said that some impacts are urban locale specific so that an individual footprint may have the mitigating factor of one's mobility dependence (walking/cycling versus private auto). Urbanization's hard surface covering however threatens watershed natural coverage, while energy is required to treat sewer and sanitary waste. More positively urbanization eventually lowers population growth as residents opt to have fewer children.

Sustainability as a response to these dilemmas however has many problematic features including:

- Efficiency measures lower costs but increase absolute resource use in items ranging from air conditioning and refrigeration to larger houses and cars along with associated features of each,
- Carbon emissions linked to this improved efficiency cumulatively exceed the less efficient emitted total. CO<sub>2</sub> increase = the cumulative “efficient per operation resource reduction”,
- Unintended consequences of measures in one situation exacerbate problems in others such as support for apparently benign farming tolerating more pesticide use and loss of woodlots,
- Sustainability metrics too often align well with poverty (less consumption), war (fishing trawlers stayed off the Atlantic during its U-boat infested WW2 years) and environmental disaster (the BP Oil spill, and the Chernobyl nuclear disaster both contributed to a rise in local biodiversity).

Climate change strategies are conflicted choices between long term health and short term reductions in potential prosperity. But even their gradual implementation as part of an organization's best practice responses to reducing waste (such as CO<sub>2</sub> emissions) or forced application through taxes or trading regimes, only slows the ongoing release of CO<sub>2</sub> emissions. The production requirements, often requiring specialized and toxic inputs, for even positive initiatives (solar, wind etc.) for instance, as well as their installation, maintenance and eventual disposal will have environmental and carbon release impacts.

So, while policies encouraging organizations to take advantage of incentives or manage the negative consequences of taxes and legislation are likely, these will only modestly slow looming disaster by simply delaying carbon impact. Is there a better solution?

Firstly, organizations have to get out of a defensive posture as recipients of policies, programs and negative feedback. They need to become positive and imaginative role models reducing waste in their operations, while supporting and practicing new ideas and approaches.

Climate change will continue regardless of what we do, and sustainability is a poorly defined and inconsistently practiced strategy for dealing with it. Absolute population will increase with consequent consumption. Urbanization is expanding and some successful places, like Toronto, are extending 100 kilometres or more from once traditional 19th century downtowns. They have been dubbed planetary cities for the way they create and drive economic and cultural growth for an entire region or even country irrespective of the fate of the hinterland beyond their geographic and psychological reach. At the same time countryside locations will likely continue to decline in numbers and economic prospects.

Ironically we need to recognize that while Canada's contribution to carbon emissions increase has been a factor in our success and historic growth, elsewhere its impact has made many places increasingly uninhabitable for the numbers living there now. As reported by climate change skeptic Peter Foster in the National Post (13 November 2015), "According to a voluminous report this week from the Montreal Economic Institute (MEI), Canada is responsible for 1.59 per cent of made-made greenhouse gas emissions," and thus ..."nothing Canada can do - up to and including closing down the entire economy - would have any impact." However our impact, even measured at the above 1.59%, in a world of seven billion people could be pro-rated to at least 111,300,000 of us and in a future world of ten billion would be 159,000,000.

At minimum therefore Canada should grow its current population of  $\frac{1}{2}$  of one per cent of world population (35 plus million in a world of seven plus billion), to one per cent of world population by the end of the century (100,000,000 in a world of ten billion), as a morally arguable environmental ethic.

We can acknowledge as well the necessity of moving beyond the salvation features of carbon reduction and the ill-defined parameters of sustainability to a world attending to designing for built and natural resilience to cope with weather related and environmental challenges future generations will face.

In recognizing Canada's current biocapacity to eco-carbon footprint ratio as just under 2:1, we should raise it to a solid 2:1 as part of a national commitment to growing the country to 100,000,000 citizens. What does this ratio mean? In brief, for every unit we calculate of Canada's ecological (use of resources, tampering with water supply and quality, nuclear waste etc.) footprint combined with its carbon (waste CO<sub>2</sub> emissions emitted into the atmosphere), we currently have nearly two units of biocapacity including all those positive items from carbon-sequestering forest cover and pollinating insects, to fertile soils and clean potable water etc. Only Brazil and Russia have similar ratios. The United States, Germany, Japan and other industrially advanced countries have negative ratios. Why are we so good? We're in a big country (almost (10 million square kilometers) with so few people.

# RESILIENCE 2:1

How would we manage and achieve a performance heuristic of 2:1? For one thing it recognizes we will continue to grow our ecological/carbon footprint but can do so by leveraging this against an expanding biocapacity, the latter improving by a factor of two through measures as diverse as green infrastructure, reforestation, net positive urban green development, and reducing carbon emissions. Some of these measures are theoretical but most are available though inconsistently implemented.

Our role is to be an advocate for this position. Some steps forward include:

- Building Canada to 100,000,000 as a climate change ethical obligation but also as an opportunity to use the best knowledge, ingenuity and resources of our many more creators ,
- Committing to the permanent urbanization (not fly-in temporary workforce) of existing communities in the mid-Canada (Boreal) Corridor consistent with the 1967 proposals of Richard Rohmer and more recent ideas of John van Nostrand,
- Partnering in the process with First Nations who have proclaimed their desire to be reintegrated into the country's economic mainstream (a position it can be argued they have not had since the fur trade), while benefitting from their cultural bias towards biocapacity measures in support of historic lifestyle preferences,
- Creating living places respecting Jane Jacobs prescription of combining old and new buildings wherever possible (old being necessary for economic startups); small blocks for ease of walking and servicing; appropriate graduated densities permitting effective public transit; and land-use diversity supporting multiple economic opportunities while maintaining eyes on urban streets, or the mid-Canada (Boreal) Corridor forest. Eyes on places support both public safety and healthy environments (permanent residents are the best advocates for the resiliency of places),
- Committing to a performance heuristic of a robust 2:1 biocapacity as against eco/carbon footprint for the utmost resiliency in new and repurposed built and natural environments by supporting research, application and the ingenuity of students, builders, and policy makers.

The critics of the above might actually be many in the environmental movement. Too often their perspective has become ideological, self-interest driven, the victim of a rear view mirror perspective, politically motivated and unable to pragmatically consider best solutions. Public policy makers as well might be taken off guard.

As for ideologues on the right we need go no farther than the same Foster article referenced above in which he descends into the hyperbole of “Big Money Environmentalism” (if only its proponents might say!) along with catastrophic man-made climate change being a ..... “a tale told by post-modern scientists [huh?], posturing politicians and self-serving bureaucrats [okay there are some of the latter two!].” But this needs to become a long game of an opportunity for meaningful change by exploring the intellectual and practical tools for a buoyant, on land and water, Canadian future.

# RESILIENCE 2:1

Artist's interpretation (Seneca College)  
of the Stockholm Resilience Centre's Planetary Boundaries Formulation

