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Book Review: Planning for rural resilience: Coping with climate change and energy futures

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Book Review

Planning for Rural Resilience: Coping with Climate Change and Energy Futures

Wayne. J. Caldwell (Ed.)

2015

Winnipeg, Canada: University of Manitoba Press

165 pages

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With the recent conclusion of the United Nations conference on climate change in Paris, attended by delegates from more than 195 nation states, and the growing empirical evidence of the grimness of the issue, this edited creation of Wayne Caldwell cannot have come at a better time for an in-depth review. The book is a collection of ten chapters besides the introductory chapter, driven by the concern for preparing rural communities for the impending effects of both climate change and peak oil. It showcases innovative endeavors to prepare communities to delay and/or avert the possible consequences of these threats. The context of the book is set in Ontario, Canada, and its rural landscape with several of the book's contributors associated with the School of Environmental Design and Rural Development, University of Guelph, Ontario. The editor himself is the Director of the school and a professor in rural planning.

The well-laid out introductory chapter justifies the title, *Setting the Stage*, with a clear review of the concepts of climate change, peak oil, and their potential consequences. The literature identifies potential impacts on weather, ecosystems, water resources, coastal systems, food, health, employment, energy production, transport, tourism, and human settlements. The close association between climate change and peak oil is acknowledged and a need expressed to view these as twin issues due to the significant contribution of oil use to greenhouse gases. These grim realities are, however, given an optimistic outlook by introducing the idea of creating resilient communities aimed at reducing these potential impacts. The concept of resilience is addressed at length from different perspectives besides the original ecological, with preliminary glimpses of the gamut of proactive actions in building and sustaining community resilience that may be possible. The overriding message is proactive adaptation to change in the form of eco-efficient approaches, growing adaptive capacities (economic, social, leadership, and communication networks), and reducing vulnerabilities, besides the well-known one of disaster-preparedness. The challenges that rural communities face in the form of resource limitations and the use of fuel to drive farm production are the running threads in this broad but in-depth analysis.

The first chapter by Reid, a county level planner with experience working on community resilience, is a heart-felt illustration of the fall and rise of a rural town devastated by the Goderich tornado. The author combines the extant panarchy model that recognizes hierarchical and multiple systems operating in communities and the anti-fragility concept that challenges can make entities stronger. This framework may guide transformation of communities in the resilience-building process, in this case addressing transportation, food production and water protection.

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The focus of the subsequent two chapters written by Kraehling and Caldwell is resilience-building through nature conservation. They present the framework of Green Infrastructure (GI) wherein “all forms of valuable green space should be acknowledged and used in a central design construct for communities” (p. 47). With backgrounds in land planning they extol community assets like the landscape, soil and waterbodies, housing, and the like (the GI) that need to be nurtured and invested in for community protection to mitigate the threats posed by climate change. They offer a range of policy resources across countries that would assist communities with land-use planning. They support their GI framework with case studies developed by their graduate students of asset-building efforts in rural communities in Ontario. These efforts include capacity building, developing and offering stewardship guides to farmers and non-farmers toward environment-friendly farm plans, tree-planting success stories (enlisting school children and school boards) and promoting incentive based alternative land use service (ALSU) programs for farmers.

Transportation is an obvious but often evaded issue when it comes to fuel use efficiency. Marr, in the fourth chapter, which may be an offshoot of his graduate thesis work, supports the creation of public transport systems in rural areas as the most feasible alternative in terms of investment returns and reducing emissions. He does propose alternative fuel and energy efficient automobiles which may be long term goals with public transport a viable interim goal. Duly acknowledging the indispensable use of personal transport in rural areas due to distances, his citation of rural-urban differences in energy use and carbon emissions is a revelation. The reference he makes is to per capita carbon emissions in rural areas, which is considerably higher than in urban areas.

The fifth chapter showcases empirical findings from a village community, Eden Mills Going Carbon Neutral, with a population of about 350. The journey to becoming the first carbon-neutral (carbon emissions are canceled out by absorptions) village in North America was inspired by a visit by residents to a similar village in England, and became a reality by an evolving process of collective vision, capital building (natural, cultural, social, human, political, and financial), and collective action at multiple levels in the community. The authors use the community resilience framework developed by Magis (p. 87) to conceptualize and interpret the dynamics of the resilience journey in Eden Mills. The inclusion of Magis’ lucid definition of community resilience and the concepts building the framework provide additional clarity in appreciating the processes enabling the remarkable transformation of the community. Some noteworthy elements evident in the case study are the extraordinary social and human capital building and the biennial household surveys to measure the carbon footprint of the village.

The sixth chapter includes a second case study, Transition Guelph (TG), in which community resilience is reflected in transforming communities through promoting green initiatives and enhancing self-sufficiency. This model uses the principles of permaculture to develop sustainable human living environments. Guelph is a larger city in southwest Ontario that transitioned primarily through engaging volunteers, facilitating meetings, and organizing community festivals to sustain the resilience-building spirit and provide a forum to validate and support the community amidst negative messaging. This approach appears to be a preparatory and consolidating phase in supporting communities as they invest in green initiatives. Both these chapters conclude with a SWOT (strengths, weaknesses, opportunities, limitations) analysis.

The next three chapters take on the agricultural sector's response to climate change and peak oil. Ferguson, in chapter seven, presents two case studies wherein farmers are recognizing the future potential of crop failure not only due to threats to intergenerational farming and/or continued farming, but also environmental threats due to farming methods. The narratives demonstrate innovative successes in educating youth and school children, holding summer camps and workshops, promoting organic farming, internship programs, and offering support to aspiring and new farmers towards sustainable food production and resilience. The next chapter is farmer Tony McQuail's insights gained through his lived experience of growing food with "minimum energy inputs and maximum ecological design" (p. 128). His critical analysis of how industrial agriculture has contributed to increasing the carbon footprint and his own adoption of an organic, community-focused approach are enlightening. He shares the research evidence on EROEI (energy return on energy invested); when pre-industrially, energy invested was manual labor, animals, and tools, while now it is conversion of 'petroleum to food' with more energy investment for return. His forays into use of wind and horse power, as well as organic farm practices, demonstrate the positive ripple effects in convincing the larger community to adopt it. In line with the previous author, Graves, Deen, Fraser, and Martin in Chapter 9 examine current agricultural practices and their impact on water systems, soil, and biodiversity that could lead to diminished food productivity. By demonstrating usable indices to monitor better approaches, they provide a range of solutions toward improving agro-ecosystem health to meet the demands of future populations.

In the concluding chapter on rural sustainability, Christopher Bryant, an academic, addresses sustainability in the rural context. He reviews the dimensions of sustainability including environmental, social, economic, and the increasingly vital one of governance wherein community buy-in and participation are pivotal. Reiterating what other contributors have identified in the book, he examines the many forces beyond climate change and peak oil that could test the adaptive capacity of rural communities. He also cautions communities against acting only when encountered with crises but beginning to act in anticipation of crises. On a closing note, he underscores the need for inclusiveness in building community resilience and strengthening community ties in addition to being sensitive to the uniqueness of each community and freedom to carve its own future.

Succinct recaps of the origins of climate-change conversations inform us that it is more than two centuries old (Black, 2013; Frank, 2014). Although it caught the attention of policy makers only in the twentieth century, the research, conforming evidence of human causation, and efforts to take action have gained pace over the years in multiple spheres (National Climate Assessment, 2014; United States EPA, 2014). This book is another key reflection of the efforts of an expert group of individuals to seek solutions, but in a more unique way, namely building community resilience. The concept of community resilience as presented here is fairly novel (Berkes & Ross, 2013) and is validated by the community experiences shared throughout the book. Almost every chapter supports its narrative with illustrations, tables, and photographs which accentuates the understanding and reality of the experience. The authors have also offered a range of resources both within the chapters as well as the reference list following each chapter. A word index at the end of the book would be helpful. Although a list of contributors with their background information is provided at the end of the book, some authors have not been included. The passionate work of the authors is an inspiration for community leaders, planners and any group committed to betterment of a community. The university-community partnerships and the knowledge and skill transfer evident through the case illustrations are great examples to follow.

For social workers, this is indeed a valuable lesson in macro practice and one worth implementing in communities. Although, attention has been directed to this urgent field of practice for social workers towards sustainability and social justice in people's habitats, not only by professional bodies but also by scholars in the United States (Clark, 2013; Dewane, 2011; Kemp, 2011) other countries seem to have made more progress.

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