Community Sustainability and Resilience: Similarities, Differences and Indicators

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Abstract

Sustainability has been a core conceptual framework for community development since the concept was popularized in 1987, although in its essence it reflects a long history of environmental conservation development, emerged more gradually out of ecological studies in the 1980s, but has only recently, since the mid-2000s, emerged as a focus of public interest as a way of responding and adapting to the planet's growing anthropogenic changes. For many, sustainability and resilience are slightly nuanced perspectives on the same phenomenon. For others, however, there are distinct differences between them, with sustainability's conservation goals being in opposition to the adaptation goals of resilience. Two major reasons for these confusions are: (1) both concepts are defined and used in many different ways to achieve a variety of political goals that may not reflect their core definitions; and (2) both concepts share similar goals and some common approaches, such as a focus on climate change and seeking a balance between humans and nature. Returning to the core definitions of conservation and adaptation helps to understand these similarities and differences, as well as to articulate indicators for understanding how each applies to community tourism development. Indicators from research in rural Taiwan tourism communities are based on responses to the questions: What does the community want to conserve and how do they want to do it (sustainability)? and What do they want to change and how do they want to do it (resilience)? Preliminary results suggest that the new ideal community is one that is both sustainable and resilient.

Keywords: Resilience, Sustainability, Community planning, Tourism planning, Resilience indicators, Sustainability indicators, Rural tourism, Taiwan

社区可持续性与恢复力：相似性、差异性与指标

摘要：可持续性概念自从 1987 年流行以来一直是社区发展的核心概念框架，尽管它实质上反映了长期以来环境保护对工业化的回应。然而，恢复力作为一个理解和研究社区发展的研究框架，在八十年代逐渐从生态研究中脱胎而出，但是直到最近，也就是 2000 年代中期（2005 年左右），开始作为一种响应与适应这个地球日益加剧的人类活动变化的方法，而成为公众利益的焦点。对很多人来说，可持续性和恢复力只是对同一现象有细微差别的研究视角；但是，对另一些人来说，它们之间又存在明显的不同，可持续性的目标是保护，而恢复力的目标是适应。这些混淆之所以存在的两个主要原因是：（1）这两个概念都以很多不同的方式界定与使用，以达到形式各样的政治目标，但是这些政治目标可能并未反映它们的核心定义；（2）这两个概念有共同的类似目标和一些共同的研究方法，比如关注气候变化和寻求人与自然的平衡。回归这两个概念保护与适应的核心内涵有助于理解它们的相似与差异之处，同时也有助于阐明它们各自适用于社区旅游发展的指标。台湾乡村旅游社区发展的指标是基于对以下问题的回应：社区想保护什么（可持

续性）和社区想改变什么（恢复力）。初步的结果表明，新的理想社区是那种既可持续又具恢复力的社区。

Sustainable development has been a popular conceptual framework since the World Commission on Environment and Development (WCED) issued its report, *Our Common Future* to the United Nations in 1987 (Brundtland, 1987; Hardy, et al. 2002). Also known as the *Brundtland Report*, its goal was to define a global agenda to address the deterioration of natural and social environments that has been accelerating since the industrial revolution (Butler, 1998; Hall & Lew 2009; Hall, et al. 2015). Although never mentioned in the 1987 report, tourism interests were quick to adopt the idea of sustainable tourism as the application of sustainable development to tourism activities.

Sustainable development, or sustainability, continues to maintain a dominant role as the preferred development paradigm for most policy and program actions taken by governments, communities and businesses today (Anderies, et al., 2013). This has come, at least in part, from the idealistic nature of the goals for sustainability in creating a better world than what we have now. However, with the growing threats of anthropogenic changes (Walker & Salt, 2006; Steffen, et al. 2007; Zalasiewicz, et al. 2010), especially those that are weather and climate related, there are some doubts that sustainability alone is an effective response (Fiksel, 2006; Allison, et al. 2009; Leichenko, et al. 2010). No matter how sustainable an individual person, community, or a single country is, global greenhouse gases continue to increase at an unabated rate, the world's flora and fauna biodiversity continues to decrease, and human population growth and migration will be a continuing challenge for decades to come, accompanied by income and social inequities (WEF 2015; Davidson 2010). Despite achieving the greatest advances in technology and science that humankind has known, global governance under the sustainability paradigm does not appear to be capable of fully addressing these issues, which are only likely to intensify with major climate shifts and increasing globalization on the horizon.

With these concerns in mind, interest in social and community resilience as an alternative development model has grown rapidly since the mid-2000s. In general, resilience thinking emphasizes adaptation to change instead of sustainability's emphasis of conservation and mitigation. The relationship between sustainability and resilience approaches, however, has been a confusing one that has not been made clearer with the recent proliferation of papers on resilience topics (Meetow & Newell 2015). This research commentary presents a framework for clarifying the similarities and differences between sustainability and resilience by focusing on their core differences of conservation and adaptation. Based on these definitions, indicators of each at the community development scale are presented, derived from research into tourism-oriented communities in rural Taiwan.

The framework builds on the notion that sustainability and resilience are distinct conceptual paradigms (Tobin, 1999; Jeuch & Michelson, 2011; Prasad et al., 2009; McLellan, et al. 2012; Anderies, et al. 2013). Derissen, et al. (2011) define this difference as one where sustainability mitigates change by maintaining resources above normative safe levels, whereas a resilience approach adapts to change by building capacities to return to a desired state following a disruption. However, even within resilience theory, we hold that evolutionary resilience (the idea that change is a constant and stability is an illusion) provides the most compelling ontological model of the role of change in community and global contexts (Simmie & Martin 2010; Davoudi 2012). Evidence from the literature, however, indicates that many researchers do not agree that sustainability and resilience are two different perspectives. Instead, it is common to hold that resilience and sustainability are essentially the same (Adger, 2003; Farrell & Twining-Ward, 2005; Edwards, 2009), or that resilience is a key indicator of sustainability (Walker & Salt, 2006; Schianetz & Kavanagh, 2008; Magis, 2013), or that sustainability is the broad social goal and resilience is how it can be implemented (Fiksel, 2006; Anderies, et al. 2013).

Confusing Sustainability and Resilience

The confusion between sustainability and resilience has two basic sources. The first is the weak, and sometimes even sloppy, conceptualizations and definitions that researchers often use for the two terms. Sustainability is sometimes used in only the narrowest dictionary definition of the word "sustain", meaning to maintain a status quo and to not disappear (Sayer & Campbell, 2004: 38-40). This definition tends to be more common among popular business interests (not scholars) who seek to maintain a healthy economy, and for whom the environmental origins of sustainable development are secondary, at best (Carroll, 2011; Wilson, 2012).

At the opposite extreme is the tendency to define sustainability as including every possible "good" condition available to human societies and their preferred natural environments. This definition emerges from the *Brundtland Report*'s widely quoted definition of sustainable development as development that ensures the well-being of people both today and in future generations (chapter 2, section 1). Well-being is a very broad concept and one person's well-being can be very different from another's. The approach is more common among environmental, social and political interest groups, and may include reducing carbon use, conserving cultural heritage, ensuring gender equity, creating livable wage jobs, ensuring an open government, evidence of religious freedom, support for performing arts, poverty alleviation programs, and much more. Such an all-encompassing approach to sustainability is similar to the comprehensive urban planning model, which became popular in the early 1900s with Daniel Burnham's plan for Chicago (Smith, 2006). That approach, however, has been criticized by planners for being based on the unrealistic assumptions of synoptic (all seeing) and perfect knowledge, resulting in flawed and unrealizable policies and plans (Friedmann, 1971).

Proponents of resilience sometimes define sustainability within the framework of resilience. Redman (2014), for example, equates sustainability with adaptation and the qualities of incremental change, responding to shock and maintaining previous order. Resilience, on the other hand, is equated to transformation and the qualities of major change, anticipatory pre-action and creating a new and open ended order. These definitions are more closely aligned with resilience responses to slow change variables and fast change variables, and reflects a common approach of making slow change synonymous with sustainability (Walker, et al., 2012).

Sustainable tourism is the application of sustainability principles to tourism development (Hall & Lew 1998). An example of an all-encompassing approach to sustainable tourism is the Global Sustainable Tourism Council's criteria for sustainable tourism destination development (GSTC, 2013). This is typical of many UN documents that need to address the special interests of the widest possible global constituencies, and in the process can become too general for practical implementation. While this approach to sustainability might be good comprehensive planning and might even result in good community development, it does not reflect the original environmentalist values of sustainable development that was at the core of *Our Common Future* in 1987.

The primary goal of *Our Common Future* was to reinforce a clear environmental ethic and a strong conservation approach that was meant to both protect existing resources, as well restore selected past resources and ecological systems. This is sometimes referred to as environmental sustainability. What made this commission different from past conservation movements was the recognition that protecting the environment could not be successful without a strong human development component. The commission, therefore, sought to integrate the goals of development activists (mostly from the global south) with those of environmental activists (mostly from the global north).

By deconstructing the origins of sustainable development, we suggest that the concept is best defined in terms of its core goals of protecting and maintaining natural and cultural resources for the future and mitigating change. This is a much more narrow definition of sustainable development than the comprehensive planning approach, but it is widely recognized through sustainability efforts to reduce the consumption of carbon and other natural resource, increase biodiversity, protect tangible heritage artifacts, and revitalize intangible cultural traditions. A good example of sustainable tourism that is defined

in terms that are more true to the original core definition of sustainable development is the European Commission's (2013) *European Tourism Indicators System for Sustainable Destination Management*.

Sustainability that adheres to *Our Common Future*'s definition of conservation values is less confusing than vague dictionary definitions and idealistic all-encompassing definitions. Both of these latter definitions frequently include elements of resilience thinking and, therefore, lead to vague understandings of both sustainability and resilience.

Resilience has its conceptual origins in physics, ecology and disaster management (Davidson, 2010). It is about adaptation, including building human resource capacities to change in efficient ways, creating learning institutions that can address changing circumstances while maintaining core values, understanding feedback loops in dynamic social and environmental systems, and generally encouraging flexibility, creativity and innovation in the culture of a community. Like sustainability, understandings of resilience can sometimes be confused by the use of simplified dictionary definitions of resilience. And as with sustainability, this is most often found among business interests, although 'business resilience' is a distinct subfield of resilience research that has its own evolving conceptual basis (Goble, et al., 2002). Social ecologists, on the other hand, approach resilience from a dynamic adaptive systems perspective, applying quantitative models that attempt to mimic real world feedback loops to monitor change in key system variables (Fiksel, 2006; Schianetz & Kavanaugh, 2008; Strickland-Munro, et al., 2010; Jeuch & Michelson, 2011; Anderies, et al., 2013). While dynamic and adaptive systems models offer considerable understanding of the complexity of the modern world, they are difficult to translate into practical and accessible policy and actions by local stakeholders.

In addition to definitional issues, the second reason for the confusion between sustainability and resilience among researchers is that the two approaches share some important assumptions, methods and goals (Table 1). Possibly the most important of these are (1) the goal of system survivability and (2) the assumption that there exists a state of harmony between how human societies function within the larger context of our natural world. For both sustainability and resilience, these two assertions give rise to research questions about how to best ensure the survival of the system and how to achieve its state of harmony. In addition, they both tend to focus their research on the topics of natural ecosystems, the development of human communities, and climate change. These common goals and research topics make it seem like sustainability and resilience are the same thing. However, the way they frame, study and resolve their research questions are very different from one another.

Table 1. Similarities between Sustainability and resilience

Assumptions	Harmony between Human Society and the Natural Environment is Possible
Research Focus	Social & Ecological Systems; Climate Change Impacts; Globalization; Community Development
Methods	Climate Change Policies & Actions, especially Governance; Education and Learning as an Implementation Tools
Goals	System Survivability, Security & Well-being (Social & Biodiversity); Sense of Place & Belonging (Heritage)

Source: authors

Using this same framework for defining sustainability and resilience helps to articulate the many deeply fundamental differences between the two paradigms (Table 2). The most significant difference is in their basic ontological assumptions about the nature of the world: whether it is normal to be in a state of stability and balance, or in a state of change and even chaos. To be sustainable requires that some sense of stability is possible, and that it is important to understand and manage impacts that disturb that

stability. However, human experience seems to be telling us that we live in a chaotic world that requires an understanding of how our environments and societies operate as complex adaptive systems (Farrell & Twining-Ward, 2005; Schianetz & Kavanagh, 2008; Calgaro, et al. 2014). Evolutionary resilience, in particular, suggests that all systems are in a constant state of adaptation within an ever flowing field of change (Simmie & Martin 2010; Davoudi, 2012). These difference assumptions lead to different research goals, different ways of defining research problems, and different sets of solutions to contemporary challenges.

Table 2. Differences between Sustainability & Resilience

	Sustainability	Resilience
Assumptions	Stability & Balance are the Norm (or are at least possible)	Nonlinear & Unpredictable Change & Chaos are the Norm
Goals	Normative Ideals (Culture, Environment & Economic Conservation; Intergenerational Equity; Fairness)	Strategic, Dynamic and Self-organizing Systems; Learning Institutions & Innovative Cultures
Research Focus	Environmental & Social Impacts of Economic Development; Over use of Resources; Carbon Footprints	Natural & Human Disaster Management; Climate Change Impacts; Social Capital & Networks
Methods	"Wise Use" Resource Management; Mitigating or Preservation Against Change; Recycling & "Greening"; Education for Behavior Change	Reducing Vulnerability & Increasing Physical & Social Capacity for Change (flexibility, redundancy); System Feedback & Performance; Education for Innovation
Criticism	Poorly Defined & Highly Politicized	Does Not Address the Causes of Social & Environmental Change

Source: authors

Conflicts may even arise between sustainability and resilience approaches in terms of how a cultural or natural resources should be managed. Politically, sustainability initiatives have become highly polarizing, due largely to their normative idealism. This has limited some of their potential impacts, and its supporters have tended to be associated with liberal political orientations. Due to its still relatively new status, resilience has experienced less of this, with proponents often claiming it is non-normative (Anderies, et al., 2013). However, it has also been increasingly criticized as supporting a conservative neoliberal agenda that, by focusing on adaptation, avoids the root causes of environmental and social changes and may give license to development and resource exploitation (MacKinnon & Derickson, 2012; Evans & Reid, 2015).

Sustainability and resilience indicators

While they share some common views, sustainability and resilience, as defined in this review, mostly offer distinct perspectives on the contemporary challenges of human society. From a policy perspective, neither of these is inherently better than the other – they just offer communities different choices. Thus, faced with the modern challenges of climate change and natural disasters, economic and cultural globalization, and numerous other predictable and unpredictable changes, communities need to continually ask themselves two questions:

(1) *What do we want to protect and conserve, and to keep from changing?* (sustainability)

and

(2) *What do we want to adapt and change into something new, and maybe better?* (resilience)

Based on the goals of a community, sustainability may be a preferred approach for some resources and challenges, while resilience may be preferred for others. Determining the answers is not easy, as they reflect the values of a community and may be highly contested among community interests. Changes in these values are often reflected in political outcomes, and sustainability and resilience approaches are the basis of many political debates, although the terms are seldom used directly in this way.

The conceptual framework outlined here has been used to evaluate the relationship between sustainability and resilience in an ongoing research project assessing the development of rural tourism communities in Taiwan. Field work was conducted in eight communities across four geographic contexts: coastal wetlands, high mountains, agricultural lands, and island. In qualitative interviews with community leaders, we used the two questions posted above to define indicators of sustainability and resilience (Table 3).

Table 3. Sample Tourism Indicators of Community Sustainability and resilience

Category	Sustainability Indicators	Resilience Indicators
Local Government Budgeting	Conserving Community Resources **-** *Effective environmental conservation, protection & restoration* *- Programs for conserving & teaching cultural traditions*	Building Community Capacity for Change **-** *Level of infrastructure construction for education/interpretation & resource access* *- Programs for innovative tourism developments & marketing*
Environmental Knowledge	Maintaining Traditional Resource Uses *- Level of local's traditional environmental knowledge* *- Level of traditional practices & uses of resources by locals*	Creating New Environmental Knowledge *- Participation of locals & tourists in environmental education programs* *- Innovative uses of traditional knowledge by locals*
Community Well Being	Preserving Cultural & Traditions **-** *Strength of traditional livelihoods, especially natural resource based*	Improving Living Conditions & Employment **-** *Rate of unemployment & youth outmigration* *- Rate of employment in tourism*
Social Support Systems	Providing Social Welfare & Equity *- Support for elderly & underprivileged populations*	Supporting Social Collaboration *- Rates of participation in religious & other local organizations*

Source: Authors

Interviews with community leaders were structured through four categories that respondents would be familiar with and which are often associated with sustainability and resilience. For each of these four categories we unpack the interviews to identify indicators that reflects sustainability (conservation, restoration and change avoidance) and resilience (adaptation and innovation). In the category of environmental knowledge, for example, high rates of participation in environmental education programs was considered an indicator of resilience because it increased the potential of community members to utilize local resources in times of unexpected need. On the other hand, high levels of traditional resource

use was considered sustainability because it conserved a traditional cultural system. (While traditional resource uses could also contribute to resilience in some cases, they could just as easily engender path dependent barriers to innovation.)

These categories and indicators appear to be effective for understanding sustainability and resilience in tourism communities in Taiwan. Modifications might be needed for other contexts. Some preliminary results from the Taiwan research are available online at CSTRC (2015).

In general, the better a community is able to conserve (or sometimes recover) that which they cherish, the more successful they are at sustainability. Similarly, the better a community is able to adapt and change in areas that they want to see development, the better they are at resilience. On the other hand, the inability to protect a community's resources against change, or being forced by external forces to change something in directions deemed undesirable by a community, reflects disempowered states of sustainability and of resilience, respectively.

Due to the fundamental role of these two concepts in contemporary community development, a new goal should be to create sustainable and resilient communities – communities that demonstrates strength and vision in both sustainability and resilience (Tobin, 1999). Our preliminary findings in Taiwan indicate that rural tourism communities that have strength in both sustainability and resilience may be more dynamic and forward looking than those that mostly emphasize sustainability or resilience (CSTRC 2015). Further, in some instances, successful sustainability initiatives might even hinder resilience, because such communities have fewer incentives to adopt resilience policies. Sustainability and resilience independently are insufficient in today's world. However, to create resilient and sustainable communities first requires a clear understanding of what sustainability is and what resilience is, upon which more effective planning and development models can then be built. All systems have some degree of sustainability and some degree of resilience. The issue is how to best manage and strengthen these to create dynamic and successful communities.

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