Systemic Practice and Action Research (2021) 34:203–226
https://doi.org/10.1007/s11213-020-09528-7

ORIGINAL PAPER

Systemic Indicators for Rural Communities in Developing Countries: Empirical Evidence from Vietnam

Phuong T. Nguyen [1,2] · Sam Wells [1] · Nam Nguyen [1,3]

Published online: 25 May 2020

Abstract
Characterised by interconnectedness and interdependence amongst its parts, a community is complex and functions in a way that cannot be predicted with confidence. Community indicators therefore require a holistic and integrated approach if they are to reflect a community's wellbeing and help it move towards sustainability. This paper presents empirical evidence gathered from two cases in Vietnam as a part of our complexity-based action research, aiming to developing a systems-based framework for identifying indicators of progress for rural communities in developing countries. The framework is an iterative cycle of adaptive learning and engagement, underpinned by complexity principles and systems based 'sustainability'. The cycle builds on the *One Way Forward* model and the hierarchy of system *leverage points* in order to identify influential indicators. The framework achieved good traction in the two fieldwork locations with some valuable lessons in regard to the language used to explain systems and complexity concepts to the communities, and the effective methods to work with the communities. Results of the study and the lessons learnt are the focuses of this paper.

Keywords Community indicators · Community development · Complexity · Leverage points · Shared vision · Sustainable rural development

✉ Phuong T. Nguyen
nguyenkhanhphuong.vn@gmail.com

Sam Wells
sam.wells@adelaide.edu.au

Nam Nguyen
nam.nguyen@mzsg.com

Extended author information available on the last page of the article

Introduction

The interdependence amongst constituent elements of our society (community) and the interconnectedness of its socio - economic and ecological processes are generating complexity, and the level of complexity is increasing as the world changes in unpredictable ways. This complexity undermines the ability of individual perspectives-based indicators to reflect the values of the whole community and progress towards a common good. The field of 'community indicators' has developed to address this issue. Following the Russell Sage Foundation initiative of assessing local social conditions, community indicators appeared in the late 1980's/ early 1990s as the best means by which to reflect community wellbeing through the integration of otherwise isolated perspectives (Phillips 2003; Sawicki and Flynn 1996). The movement promotes community-based indicators and information to underpin the pursuit of sustainable development outcomes (Gahin et al. 2003).

The literature reflects fairly broad consensus on the functions of community indicators as a tool for defining, measuring, monitoring and managing the progress of community wellbeing (Progress Redefining and Network Earth Day 2002; Wells and McLean 2013). Notably, apart from prompting actions, well-chosen indicators can, themselves, influence communities towards transformational change without further intervention (Meadows 1998; Wells and McLean 2013). Furthermore, civic engagement, community planning and community based-policy making are acknowledged as important outcomes emanating from community indicators projects (Cox et al. 2010; Gahin and Paterson 2001; Redefining Progress et al. 1997; Work Group for Community Health and Development 2015). "There is, however, still considerable debate about the best way to identify both the indicators and the sustainable standards they support" (Nguyen and Wells 2018, p. 160).

There has been a range of studies in this field of community development acknowledging the importance of community indicators, linking them to sustainable development, quality of life and wellbeing of communities, but most of them have been conducted in urban areas in developed countries (Europe, North American and Australia) (e.g. Besleme and Mullin 1997; Daams and Veneri 2016; Dluhy and Swartz 2006; Morton and Edwards 2013). There has been only a small amount of work undertaken on building sustainable community indicators in rural areas, especially in developing nations (Cobbinah et al. 2015; Phillips 2003), although rural areas where agriculture is prominent, clearly have a crucial role to play in the world's development.

Rural communities, in which family farms operated by household labour "produce more than 80% of the worlds' food" (FAO et al. 2015, p. 31), are still living in hardship, poverty and low levels of well-being. There is a range of people with incomes below $1.25 to $2.00 per day residing in Sub-Saharan Africa and South Asia (Sumner 2012). It is also estimated that approximately 795 million people (about one ninth of the world's population), of which almost all of them (780 million) live in the developing regions, are suffering from malnutrition (World Hunger Education Service 2015). Rural areas where 78% of the poor people of the world reside are still struggling to improve their situation (FAO et al. 2015; International Labour Organization (ILO) 2012; World Bank 2014). Furthermore, rural and agricultural areas are also strongly influenced by climate change and much dependent on natural resources (OECD 2012; Slow Food 2016). That is why Food and Agriculture Organization of the United Nations (FAO), on World Food Day, emphasized the importance of supporting rural communities towards sustainability and resilience (FAO 2016).

The availability, and security of food and nutrition rely mainly on the sustainability of agriculture as well as rural community development. Sustainability (defined in this context as

the ability to maintain healthy communities or community wellbeing that are created by the integration of social interaction, environmental quality and economic health), however, has experienced some difficulty due to the complexity and variation of challenges in rural areas (FAO et al. 2015). The traditional approaches underpinned by reductionism and linear thinking and top-down decision-making have been claimed as ineffective and inefficient ways to deal with these complex challenges, by many scholars (e.g. Bosch et al. 2014; Reed et al. 2006; van Kerkhoff 2014). The reason for that is that the traditional approaches separate constituent elements of community systems to study and tend to focus on what is 'wrong', so could not gain a whole picture of a community. The monitoring and evaluation of efforts based excessively on numeric indicators is also considered as a reason for less fruitful outcomes in reflecting sustainability and wellbeing of communities (e.g. Bagheri and Hjorth 2007; OECD 2015). Numeric indicators may not able to reflect many intangible subjective elements of sustainability and wellbeing such as satisfaction, freedom, happiness, power and self-respect (OECD 2011). The lack of a holistic approach to deal with rural complexity and less attention by scholars to rural community indicators is likely to be a cause of the unsustainability of rural development in developing countries. In the light of sustainability and complexity principles, and based in part on the *One Way Forward* model (Wells and McLean 2013) and Meadow's discussion of *leverage points* (Meadows 1999), our participatory systems-based framework for identifying indicators of progress for rural communities was conceptually introduced (See Nguyen and Wells (2018)). The One Way Forward model is one of the dynamic frameworks that pursues sustainability in organisations. And Leverage Points is the best places to intervene in systems for transformational change. The proposed framework for identifying systemic community indicators is an iterative sharing and co-learning engagement process that extends from creating a shared vision and extracting its core messages, to identifying indicators of progress and determining what actions to experiment with. Importantly, this framework enables us to rank the indicators identified by communities by reference to 'leverage points'- the right places to intervene in the social-environmental system for transformational change. Sense of ownership and accountability by all members of a community was encouraged and strengthened through facilitation in the whole process, which aims to nourish their self-development and sense of agency.

An empirical study – a practical part of our qualitative action research, has been conducted to test the application of the proposed systems-based model to identifying community indicators in two communes (Vang Quoi Dong and Tam Hiep) in Binh Dai District, Ben Tre Province, Vietnam. This paper presents a detailed account of five phases in a cycle of inquiry and reflection. This process enables participants to articulate a shared vision and its core values, identify systemic indicators of progress and decide on actions that will help to bring the vision into being. The processes and experiences on the ground - what has actually been done and what has emerged, and lessons learnt - are fully described and discussed.

Community Indicators and Past Experiences

Community indicators have become widespread in recent decades, although indicators and information have been long used by policy and decision makers (Phillips 2003). This interest in community indicators reflects the scholarly attention to an increasing involvement of local communities in decisions that directly affect them (Coulton and Fischer 2010). This approach stimulates the sense of community responsibility for and ownership of sustainable development efforts in rural communities, particularly in developing countries.

Community indicators can help communities to track progress of their development by answering questions about whether a community is functioning in a way that moves it in the desired direction. In this sense, they tend to be more 'lead' indicators than 'lag' indicators – they focus on what is unfolding. They are "bits of information", but when combined they can generate a dynamic picture of a whole community system (Norris 2006; Phillips 2003). And if true integration of individual perspectives drives the design and implementation of community indicator projects, indicators can reflect community wellbeing (Besleme et al. 1999; Work Group for Community Health and Development 2015).

The relevant literature reveals a diversity in and debate about the best way to identify community indicators. First, the number of working steps in the frameworks differs, even though they are similar in 'flow' – determining goals, developing/selecting indicators, collecting data and reporting (e.g. Progress Redefining and Network Earth Day 2002; Redefining Progress et al. 1997; Reed et al. 2006). Despite the variety, many of these frameworks have one step in common – right at the outset, the purposes of indicators, the projects, processes and the potential indicators are established by a working group. This pre-work may well influence the thinking of community members and even constrain their openness to possibility when they subsequently have an opportunity to generate their own vision and priorities, share their thoughts and make decisions (Eversole 2010).

Second, the indicator frameworks, domains or categories explored in the literature also vary. For instance, we encounter "triple-bottom line" (e.g. Adams and Wiseman 2003; Meadows 1998); Herman Daly's Triangle (Meadows 1998); and more recently, the sense of harmony that reflects community wellbeing (Cox et al. 2010). The diversity in proposed indicators and indicator types may reflect either the difference over time in the perspectives of scholars in developing the frameworks, or the concerns and priorities of communities where the frameworks are applied (Nguyen and Wells 2018).

Third, there is disagreement about whether indicators should be qualitative or quantitative. Numerous scholars believe that we should use both quantitative and qualitative indicators (e.g. Boarini 2011; Gahin and Paterson 2001; Noll 2002). Nguyen and Wells (2018) noted that "numbers alone are not able to reflect the multifaceted and holistic wellbeing, including tangible subjective elements". Some assume that "quantitative information" is able to measure the wellbeing of community, simply because it is measurable (e.g. Besleme et al. 1999). This is in line with the perspective of those who seek to identify quantifiable measures in monitoring and evaluation of interventions (e.g. Gertler et al. 2011; Muller-Praefcke et al. 2010). Quantitative indicators help to acknowledge and quantify separate parts of a system, but they may fail to grasp other, whole-of-system factors that strongly influence a community's overall quality of life, such as security, educational services, local collaboration and satisfaction (OECD 2011; OECD 2015; Wells and McLean 2013).

One principal methodology for establishing community indicators is participatory, explored here from two perspectives. Stakeholder involvement or community member engagement in the whole process of identifying indicators (Leeuwis 2000; Mathbor 2008) is the main expression of participation. True participation can promote wellbeing through enhancing social relationships, networks and democracy (Sirgy et al. 2013; White and Pettit 2004). Citizen participation is therefore seen as an important subjective indicator (Phillips 2003). Nevertheless, participation described in the literature seems to pay attention to awareness only, rather than promoting the genuine engagement of all community members (Sirgy et al. 2013).

Another facet of participation is the position of the researchers in the communities with which they are working. Chambers (1983) notes that outsiders (researchers or practitioners) cannot

capture the rural situation of a community in the typically rushed visit. Recently, this perspective has been reinforced by van Kerkhoff (2014) who argues that researchers should aim to become a part of a community system if their purpose is to understand it deeply. It is essential for researchers to understand correctly what community members are saying, and be able to share and empathize with what they value. It is also important to be aware of the voices of different groups within the community, shaped by gender, age, social position, wealth and so on, and to "recognise the challenges in achieving more shared planning and decision-making … as this involves changing the power dynamics" (McDonald et al. 2012, p.8). The One Way Forward process is designed to give each participant an equal voice and to mitigate power differences, but the facilitator must remain alert to the possibility that entrenched power dynamics may sometimes try to impose themselves on workshop interactions. The capacity of researchers to establish a legitimate and trusted place in the community, and to manage power dynamics in the facilitated process helps the community to identify effective indicators and achieve sustainable outcomes, as the community members, collaborating with researchers, can generate timely responses to any emergent phenomena that appear as feedback from the community system.

Complexity Approach to Sustainable Rural Community Development

An understanding of complexity and complex adaptive ('living') systems has increasingly informed our engagement with social and natural ecologies. Differing from the 'Newtonian' model, which gives prominence to "mechanical laws" and "linear causalities", complexity theory emphasises "emergence", "multiplicities", interconnectedness and interdependence (Styhre 2002). The world functions as a living organism that can evolve and adapt to the change of its environment (Booher 2000; Wells and McLean 2013). In other words, it is complex, adaptive and resilient, and it changes because its parts change. The parts are interactive and intrinsically interconnected and are affected by the environment. Due to this complexity, such systems are uncontrollable and future changes are unpredictable. Thus, the interventions that are developed by those employing a reductionist perspective often fail to achieve sustainable outcomes because those interventions, although directed at one part of the system, affect the system as a whole and typically produce a range of unintended, often perverse, consequences.

A community is a complex living system, which contains many facets of life that are interconnected and interdependent, and strongly influenced by the environment, economic, natural and social. Complexity brings challenges in identifying community indicators. The limitations of a reductionist approach in this context gives rise to a corresponding need for a more holistic approach to the identification of indicators. This work is more challenging for rural communities in developing countries as many difficulties (e.g. isolation, vulnerability, poor basic services and mono-productive means) act as barriers to rural people developing and using indicators for community development towards sustainability (Adisa 2012; Thomas and Amadei 2010). As a living system, community "lives" through its interconnected and interdependent elements, and separating or quarantining individual problems from the whole system, in order to 'solve' them, has proved problematic or ineffective. This suggests the need for a holistic or whole -of-system approach that can overcome the limitations of linear approaches to identifying indicators that reflect the whole community's wellbeing and vitality and facilitate the pursuit of sustainable outcomes (Morton and Edwards 2013; OECD 2011).

Sustainable rural community development seeks to improve those things that nurture the sense of well-being such as community ownership, local leadership, local cooperation,

motivation and accountability. They are "both the means and the ends of community development" (Cavaye 2001). Factors like these are less tangible, but they are powerful enablers for rural communities seeking a good quality of life. It follows that rural people must be respected and empowered if they are to describe, implement and monitor what they think is valuable, for and by themselves. But the multi-dimensional nature of, and interconnections within, 'well-being' reflect the complexity of rural systems and add to the challenge for communities trying to identify appropriate indicators and to monitor and observe their progress. Initiatives for rural areas should enable the communities fully to engage and own the collective process and its outcomes. That process helps the organisational community to become a self-reliant and adaptive system, by connecting the system to more of itself (Wheatley 2006).

The following is a brief description of the One Way Forward model (Wells and McLean 2013) and Leverage Points (Meadows 1999; Senge 2006) in the context of rural community indicators.

One Way Forward Model

The *One Way Forward* model (Wells and McLean 2013) is a mechanism that facilitates "transformational change for sustainability" in organisations. It is underpinned by the principles of complexity, honouring uncertainty and the whole system. In this sense, strategic decisions are seen as experiments which are made based on lessons learnt from trial and error. The experiments are orientated by a shared vision of "what we really want, not what we'll settle for", reinforced by the process of extracting core values and identifying indicators of progress. *One Way Forward* enables organisations to engage with complexity in order to achieve sustainable outcomes.

Rural communities have been struggling with many difficulties such as isolation, vulnerability, marginalization and poverty (Chambers 1983; Ha et al. 2016), which are likely to make rural residents less confident to express themselves. Those involved in rural development must learn how to use approaches that enable rural people to increase their self-respect and their sense of agency in developing their own communities. *One Way Forward* presents as one possible way to do that by flexibly using participatory approaches to facilitate the engagement of all members of a community. It creates a comfortable "space" in which community members can think about and share how they want to experience future community life together. This starting point is crucial if members are to feel that they truly belong to their community and have a responsibility to pursue their community goals, by identifying indicators of progress that support collective actions in a complex environment (Wells and McLean 2013).

Leverage Points

It is time for rural development initiatives to move profoundly towards change in behaviour rather than just awareness. In other words, the behaviour of the people, as a central element in the community system, should clearly be highlighted as a target of rural development endeavours in order to facilitate a change in the system behaviour. Sirgy et al. (2013) argues that projects still "focus on awareness" when noting the importance of extending direct

participation. Khavul and Bruton (2013) also recommend that researchers focus on behaviour in order to deal with sustainability and poverty in developing countries. In order to obtain enduring behavioural change, we can look to the use of influential leverage points.

Leverage points are the interest of scholars who believe in "points of power" within a system. They are "right places in a system where small, well-focussed actions can sometimes produce significant, enduring improvement" (Senge 2006). The author of a list of 12 'places to intervene' in a system, Meadows (1999) argues that intervening at these points may be an effective way to catalyse change in the behaviour of the whole system. She also argues that "Indicators are leverage points" (Meadows 1998), along with their role of monitoring progress. The 'right' indicators can influence change in the system towards the desired outcomes. Nevertheless, the most influential leverage points are the least concrete and the hardest to activate.

Establishment of a Participatory Systems – Based Framework for Identifying Indicators of Progress for Rural Communities in Developing Countries

The framework for community indicators in developing economies (Nguyen and Wells 2018) (Fig. 1) is inspired by "the principles that emerge from our understanding of complexity and complex systems and sustainable development". It seeks to build on the *One Way Forward* model (Wells and McLean 2013) with the addition of reference to leverage points (Meadows 1999). An important factor is that this process enables the communities to identify influential indicators that could "prompt highly leveraged actions and speed up progress towards reaching the community's goals" (Nguyen and Wells 2018).

This model consists of five steps, starting with co-creating a shared vision or story – the fullest goal of a community for their development (step 1), then extracting the core messages from the vision – the key values of the community that characterise its health, vitality and wellbeing (step 2) in order to identify indicators of progress based on the values (step 3). Before agreeing on what actions to experiment with as the means to

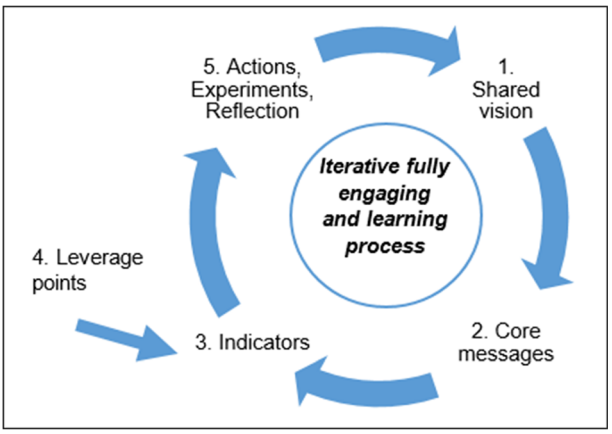

Fig. 1 Participatory systems-based framework for community indicators (Source: Nguyen and Wells 2018)

bring the vision into being (step 5), the most influential community indicators, based on the core values, are identified by reference to their standing as leverage points (step 4), with a view to recognising the most powerful places for intervention. Both influential indicators and the agreed actions which, are treated as experiments –the community will learn lessons from the systems feedback (the observed consequences of implementing its decisions) when the community's resources are applied to the agreed actions (step 5). Reflection (step 5) is an opportunity for the community to develop an insight into their experiments and the community's capacity and capability, and how the community can act more tellingly in the next cycle of community development, through the participatory systemic process of refining indicators and actions.

This process is an iterative cycle, reflecting the way a complex adaptive system functions emergently. Learning, reflecting, refining and experimenting never cease in response to the emergent shape of communities. Decisions (indicators and actions) made today may not be effective in the future (Farley and Costanza 2002), hence this framework provides a mechanism of capacity building for the communities, who listen to their systems' feedback in order to adapt to design changes (Meadows 2002).

By honouring the values of community self-respect and self-development in the course of rural community development, the process enables and facilitates the uniting of all community members. Not only leaders and 'outsiders' (as researchers or facilitators) engage in the process – the more members involved, the greater the opportunity for the community to craft a sense of wellbeing. It should be noted, however, that even if there is a relatively large number of participants, it does not follow that they are all equally engaged in the whole process, as their voices influence the community's decisions and activities at different levels (Brethaut et al. 2019) and the power dynamics among community members might still be able to trigger conflicts between them (United Nations 2014). A participatory mechanism that involves, and equally empowers, both those who have more power in rural communities (such as leaders, patriarchs and men) and those who have less power (such as the poor, marginalized and women) is a prerequisite for ensuring that all community members are able to play a part in collective decision making and action. A participatory systems-based practice is enacted to create opportunities for all stakeholders to share their perspectives, listen to and learn from each other, and then exercise cooperative power (Brethaut et al. 2019; Voinov et al. 2016).

Although it avoids linear processes for engaging with complexity, the proposed framework is simple and concrete enough to be easily accessible and applicable. The limited education and theoretical knowledge of rural people, especially those in developing countries (a product of isolation, poor infrastructure and low income) underpins the necessity for a framework of this style. Nevertheless, rural people possess accumulated experience and practical knowledge, which they, and only they, can bring to new approaches, generating fruitful outcomes if those approaches are communicated and facilitated well. Graphic representation is central. The use of arrows to indicate the phases and a circle to represent the cyclical/iterative nature of the process assist rural participants to follow the flow of this process more easily. The arrows and circle differentiate this process from conventional "closed" and "linear" thinking, and unambiguously show an alternative pathway. As genuine participation and commitment from all community members is at the heart of a systems approach (FASiD 2010; van Kerkhoff 2014), it is critical that we learn how to make it easy and comfortable for rural communities to engage with the process.

Site Pilot Background

As mentioned above, this research was undertaken in two rural communities (Tam Hiep and Vang Quoi Dong communes) in Binh Dai district, Ben Tre Province, Vietnam. Binh Dai is one of the three coastal districts of Ben Tre province which is located in the downstream area of the Mekong delta and bordering the East Sea. Tam Hiep commune is an islet where approximately half of the area is used for agriculture with the main crops being longans and other tree crops (lemon, pomelo and almond) (Community Board 2015), while Vang Quoi Dong is on the mainland and grows rice and coconut, with the trend being a slow decrease in rice and an increase in coconut. Longan is the main source of income for Tam Hiep and coconut for Vang Quoi Dong is. Socio-economic characteristics (e.g. rate of poor and near-poor households, illiterate and income) of Vang Quoi Dong and Tam Hiep are similar (Ho Chi Minh City Institute for Development Studies 2011).

As with other communes in Vietnam, the two communes, although complete administrative units in themselves, have, in practice, been influenced by higher governmental levels, especially through annual/periodic development plans. These higher levels of government often provide guidance, and financial and technical support, as well as monitoring the implementation of the plans. However, it is worth mentioning that community members have not, historically, come together proactively to make decisions, by themselves and for themselves, that reflect the whole community's needs, values and priorities. As a result, there has been little to stimulate the unity, accountability, self-respect and self-development.

Process Steps, Results and Discussion

Co-creating a shared vision, teasing out core messages/values, identifying indicators and ranking influential ones, and determining compelling actions/experiments were conducted on our first field trip. The outputs generated (with appropriate facilitation), indicators and strategic actions which the community members decided to try, were due to be implemented after the researchers had departed. We will return about 12 months after these first workshops, to facilitate a process of community reflection on its experience and its progress. A forthcoming paper will discuss the results unfolding from the first workshops, the communities' reflections on those results, proposed improvements to our framework and a set of principles for undertaking this process in rural settings in developing economies. The full description of what occurred and was achieved during the first workshops is presented below.

Five half-day workshops were organised in the meeting hall of the People's Committee in each commune. Although we intended to encourage and invite all of the local people, the limited resources (research budget and hall capacity) and the "shyness" of many commune members constrained participation. If the workshops had been conducted by the communes themselves, it is possible that these issues may not have occurred. Approximately 25 participants joined in (a similar number in both communes), including a vice-head of commune, communal extension staff, some representatives of community organisations, heads of villages, and representatives of poorer, middle and wealthier households. An extension staff member of Binh Dai Agricultural and Aquatic Department participated in the workshops as a co-facilitator and recorder. The diversity of participants produces a more holistic picture of the community, but power differentials are also present, with the accompanying power imbalances (Martin-Rodriguez et al. 2005; McDonald et al. 2012). The entire envisioning framework,

beginning with the sharing of individual stories or visions, militates against the idea of one person's story being inherently 'better' than another's, by virtue of the relative powerfulness of the author. Along with the application of the participatory techniques and 'rules' described below in each step of the envisioning process, the power relations change as the opportunities are created for all participants to share their stories and perspectives without fear, encouraging real collaboration (Brethaut et al. 2019).

Following an introductory session, the five steps of the iterative cycle were introduced through five questions, corresponding with the objective of each component of the process. This is a dynamic and evolving process – working adaptively to context, emergences, and outcomes of actions and reflection in every step and cycle, hence these questions are raised accordingly to effectively respond to that kind of systems' feedback.

Introductory Session

Establishing an open, positive and comfortable atmosphere, the participants' understanding of objectives, process steps and content, and a willingness to engage fully in the whole process are the main focuses of this session.

As the framework for systemic indicators identification is underpinned by the principles of complexity and sustainable development, the facilitators (researchers) began by explaining that concept. The terms 'complexity' and 'thinking in systems' were very strange and abstract for the participants. They had never heard of systems or related terms before. It took time for the facilitator to find the right language. The words "uncertain" and "unpredictable" (used to talk about the nature of complexity and our world's future) challenged the participants. Using contextualized examples and avoiding jargon in the conceptual language were helpful for the participants when talking about systems, while also creating a healthy discipline for the facilitator. Avoiding words which carried negative connotations, we used words like "connectedness" and "interrelationship" to explain their community functioning as a system; using "emergent outcomes" to allude to the messiness and unpredictability of complexity; mentioning "multidimensional cause – effect relationship" to refer to decisions that are made and tried today and the uncertain future outcomes. There is no correct "formula" for all circumstances or all communities, hence gaining a clear understanding of the community context, enabling the choice of an accessible and appropriate language, is vital if we are to achieve enduing outcomes.

The participants are familiar with training conducted by experts and practitioners. In such training (both in a hall and on a farm), they often listen to the trainers and simply do what trainers advise. They have very few chances to think, speak and discuss as they were able to in these workshops. That is why they called the facilitator "teacher" in the beginning of the opening session and during the workshops sometimes, even though it was explained that *they* are the centre of the process and what they do in the workshops belongs to them, and the facilitator will learn from that.

> Step 1: Creating a shared vision - How do we really want to experience life and living together in our community?

This envisioning process aims to achieve a four-fold benefit for rural communities by: (1) Articulating a shared vision that is not a one- line statement), but values-rich story that encompasses the individual stories or visions of all participants about their aspiration for their

community (Nguyen and Wells 2018). The agreed vision seeks to capture the ideal, reflecting all community members' concerns and action settings (Ziegler 1991). It must also be set within boundaries by respecting such factors as community context and history (van der Helm 2009), and what we know about how the world works – that ensures that the vision is appropriate and "responsible" (Meadows 2014). (2) Providing a sense of "common ground" for the participants (Wells and McLean 2016), regardless of position or level of wealth in the community, supporting an equal "voice" for everyone in the shared vision, agreed indicators and joint actions. (3) Building trust in each other, trust of the people for the leaders and outsiders and vice-versa (Wells and McLean 2016). (4) Stimulating community members' confidence, self-respect and co-learning in pursuit of sustainable development outcomes. This aims to foster the commitment and capacity to work together to bring their shared vision into being.

In Tam Hiep commune, some poorer people and a few women seemed to lack confidence to actively participate in the workshops. In the beginning, they refused to speak, giving only a smile or saying "I am illiterate" (actually they are not, even though they did not go to school) or "I do not have anything to say". They were, however more confident when being made aware that there were no wrong ideas and that all opinions are equally respected regardless of who gives them. Respecting participants and building their trust is crucial if facilitators are to engender a fruitful discussion.

In Vang Quoi Dong commune, the envisioning process was more joyful and relatively straight forward. There was a better representation of community leaders in the workshop, as the researchers had more time before the workshop to explain the importance of their participation. That local leadership resulted in more confidence and active participation by almost all the workshop participants. This more engaged and confident dynamic may have been enhanced by the lessons the facilitator learnt in the Tam Hiep workshops, in terms of using more appropriate and local language.

By dividing them into small groups before gathering as a whole, all members had the chance to tell their own stories about how they really want to experience life together in their commune. Without this activity, the low "voice" members may not have chosen to talk or been able to claim the "right" to talk in the beginning when their confidence and sense of trust were fragile. Sharing individual stories and co-creating each small groups' shared vision, before shaping the commune's shared vision, enabled envisioning to be a relaxed and joyful process. Although the participants were a little tense in the beginning, as they had never experienced a similar process, they became more and more natural when encouraged to surrender to the process. They sometimes even articulated visions beyond the capacity of their current reality to deliver, saying "oh, we are wishing, we wish that …", and even though they moved to qualify those visions, responsibly, in the light of the 'realities' of their community, the willingness to explore possibilities so far outside their current experience was a reflection of their engagement. All participants were able to identify their own visions in the shared vision, and their responses, spoken and unspoken, confirmed that this was a source of great satisfaction.

Visual aids played an important role in the envisioning process. The participants were so excited to select from an array of pictures (photos of every facets of life and life experience) as "props" to help them to express their aspiration. These photos, and their diversity, encouraged the participants to think more widely and to speak from the heart – that is, not to over-intellectualise. Using big sheets of paper to capture all the p key words from their stories helped to neutralise the differences of power, position and wealth in the communes. That also made sure that no individual felt "left behind" when individual stories were gathered up into a group vision, and that those who had "weak" voices were not drowned out by those with

dominant voices, when they moved on to create the shared vision of the whole commune. Both communes articulated organically their responsible visions as all participants had a chance to share their stories (Meadows 2014; Wells and McLean 2013) (See Appendix 1 for the visions).

The task of envisioning was relaxing and engaging and it seemed to flow naturally – the vision is already present and just needs to be recognized and expressed (Wells and McLean 2013). Participants developed "common ground" (Weisbord et al. 2000), and a "shared platform" (van der Helm 2009) to connect the communities and "uplift" their aspirations (Senge 2006). Trust, confidence, and self-respect were built as active participation in and commitment to the process *gradually increased.*

> Step 2: Extracting core values (messages) from the shared vison - What are the core messages in our story?

This work was the easiest and most relaxed when the participants thought hard about their priorities, concerns and the values of their community reflected in the shared vision. At this time, they had the opportunity to brain storm ideas and then to work collaboratively when grouping and categorising their core messages. Again, visual aids (colour cards) stimulated their willingness to join in.

Interestingly, people with lower levels of literacy, rather than refusing to participate, actively created the chance to be involved by asking others to help them write their ideas on the cards. That alone was an important indication of the trust and self-respect built through the envisioning process. They were determined not to be left behind, and to see their contributions included in the collective outcomes and their peers supported that desire. The non-intellectual, non-analytical nature of the envisioning process, with its emphasis on how we really want to experience or feel, might also have encouraged them.

> Step 3: Identifying indicators based on the core messages - What are the best indicators of progress towards bringing our shared vision into being?

Identifying indicators was a challenging task. Although the word "indicators" was not completely new to participants (they had already heard about the 19 indicators issued for the National Target of Building New Rural Areas Program), they had never participated in a process of identifying indicators. They may well have known and informally made use of some signs to predict events happening in their daily life, but they found it difficult to think about and identify "more meaningful" indicators that could both assess and assist the bringing of their shared vision into being.

Community wellbeing may be differently perceived in different places and times, as different people have different perspectives that are influenced by culture, environment and economy, and the special interests and values of each community. Urban communities – containing business people and well-informed residents (Booher 2000)– may place a high value on such things as the respect of privacy. Not surprisingly, rural communities value good neighbourhood relationships, as such communities are places that witness a range of activities that require collective responsibility and have simply developed a culture of connection and collaboration. The differences in what is valued most leads to differences in goals. Community indicators should reflect the different communities' interests, goals and contexts. It appears that although the indicators identified in the two communes have some similarity as the communes have homologous rural characteristics, they still contained the distinctions that reflect the

different identifiers and the specifics of natural environment crops, strengths and weaknesses, leading to different concerns and priorities (Nguyen and Wells 2018).

Rural community indicators reflect the more experiential (indigenous) knowledge of farmers, as most of the community members work on farms and in other related activities. The indicators, for example, reflect a community's interests in sustainable agricultural production (organic farming) that can contribute to resilient community thriving. In this context, indicators are more likely to be quantitative. Intangible facets of community, such as close-knit relationships in families and neighbourhoods, happiness, leisure and respect more likely appear in qualitative and subjective indicators – they require communities to feel and observe.

> Step 4: Ranking the indicators, based on core messages, by reference to leverage points - Which indicators are leverage points that can powerfully influence positive transformational change?

Identifying indicators based on core messages was easier than recognising leverage points. The concept of leverage points is not difficult to grasp, but it is not easy to differentiate the levels of leverage points, and categorise indicators based on them. Therefore, the questions asked needed to be framed in ways that were easily accessible to workshop participants: *Which are important indicators that can influence our community to achieve positive transformational changes? Which are important indicators that can be used to observe (and measure) unfolding changes in our community? Why are they important? When we think about making progress towards bringing our shared vision into being, what are the little things that tell us a lot about that progress?* The answers they provided were matched with the descriptions of different levels of leverage points (See Meadows (1999)) by the facilitators and then placed in a matrix table (See Appendix 2 "Matrix of systemic community indicators" for details). As anticipated, not all the levels of leverage points were explored, but several indicators were identified as highly influential.

The development of community indicators takes time (Progress Redefining and Network Earth Day 2002), especially identifying the most influential community indicators – the more powerful they are, the more difficult they are to identify (Meadows 1999; Summers et al. 2015). Wells and McLean (2016) conducted an indicator identification in Adelaide with Natural Resource Management stakeholders from Federal, State and local government, NRM board members, scientists etc. and found that indicator identification was more laboured, intense and messy than the more 'natural' process of envisioning. For rural communities in developing countries which are isolated and vulnerable (Chambers 2012) and where people have limited education and even less opportunity to become well acquainted with systems concepts (Nguyen and Wells 2018), the challenge seems to be even greater.

In the event, many of the workshop participants in the two communities were, at some level, able to meet the challenge and to gain a better understanding of how complexity and systems concepts related to their community's lives. This was, perhaps, a reflection of that innate "systems intelligence" that would enable them to sense, learn and adapt to complex environments (Hamalainen and Saarinen 2008; Saarinen and Hämäläinen 2007; Wells and McLean 2013).

Indicators have often been described as a tool for measuring and are therefore often required to be measurable (e.g. Besleme et al. 1999; Muller-Praefcke et al. 2010). Nevertheless, the shared visions were largely a reflection of community members' feelings, and the indicators identified in the two communes were often qualitative and subjective. They may not have been

measurable, but they were observable or accessible, tracking what is unfolding in the less tangible landscape. This is consistent with what Work Group for Community Health and Development (2015) says about "leading indicators" – telling what is coming or trending, rather what has happened (Wells and McLean 2016).

After completing this final phase of the workshop process, both facilitators and participants were exhausted, (but our eyes still sparkled – Meadows (1998) identified shining eyes in children as a powerful systemic indicator of wellbeing, a little thing that tells us a lot about the whole system). The development of indicators, especially recognising powerful indicators, is taxing and time-consuming – 'adaptive work' (Heifetz and Laurie 1997). That is certainly no less the case for rural communities, but processes that enable genuine engagement, along with support from experienced, capable and committed facilitators, can bring their collective efforts to a useful and satisfying outcome.

> Step 5: How will we keep our shared vision present and lively as we make decisions about our shared future?

Being owners of the process, community members understand how indicators reflect their interests, concerns and priorities, and so, as leverage points, it may be easy, in theory, to "move indicators into action". Nevertheless, that movement into action is unlikely to happen in the short time encompassed by the workshops described here. The duration of the workshops was insufficient for the participants to absorb deeply and entirely what they had encountered, and no specific strategic 'experiments' emerged. We did not rush the participants to decide on actions as we always kept in mind that the process and its products belong to the community. The communities may use the indicators, and the core messages or values that underpin them, to inform actions that they will experiment with after the researcher leaves. The outcomes will be apparent when we return to the communities to reflect with them on their experience.

Beyond the important role of monitoring community actions, the identified indicators themselves may prompt action directly (Meadows 1998). "If we want to observe more of this [indicator], perhaps we should do more of that". Nevertheless, no one indicator is likely to encompass the entire system – they will be systemic in their awareness of connectedness and complexity, but also partial to some extent. As such, there may be some risk in allowing a particular indicator to shape actions directly – such actions may, unintentionally, undermine the very holism that systemic indicators are looking to promote. It may be preferable simply for indicators to retain their central role, *collectively* monitoring the trends that emerge from community actions, made by reference to the shared vision and its core messages, and so informing subsequent decisions. This is the role favoured for indicators by many scholars, in theory and practice (e.g. Besleme et al. (1999) and Progress Redefining and Network Earth Day (2002)). The community data gathered, as required by the indicators, monitors progress towards the shared vision and underpins the community's next decisions.

Lessons Learnt

(1) Where outside facilitators are required to support rural communities, it is important that they are flexible and adaptive. They must have a deep understanding of a community, in relation to its culture, languages, and specialization or education level, so that they can find a way to conduct workshops that suits the particular characteristics of *that*

community and, importantly, supports the ability of the envisioning process to mitigate power differentials. Particular attention needs to be given to the following:

Language As mentioned above, systems and complexity terminology that is strange and abstract for rural people should be avoided as it can cause misunderstanding and may be counterproductive. The more 'local' language used, the more easily the people can understand, and the better the chance of a productive outcome.

Working period The process may not work effectively if rushed, or if undertaken without the community's willingness and readiness. No rigid timeframes should be fixed in place, rather the process should be allowed to unfold, in keeping with the evolving understanding and engagement of participants.

Steps sequence It is not always necessary to follow a strict sequence of steps. Communities may choose to progress to the next step or go back to the previous one, to add, to modify or delete, if necessary, in order to make sure the results satisfy and do justice to all participants.

(2) It may be tempting to compare shared vision with the ultimate 'goals', and core messages with the 'objectives' of the whole system. But the vision and core messages are much broader and deeper in compass, and reflect the feelings and aspirations of communities, rather than the tangible and self-limiting descriptions that commonly characterise goals and objectives.
(3) Core messages/values could be the drivers for that high quality of community life that rural development seeks. Thus, they may themselves play the role as good indicators and represent the most fruitful basis for identifying experimental actions, designed to pursue the shared vision.
(4) It appears that the values, concerns and priorities of communities surface naturally throughout this process of identifying community indicators, without being led or constrained by facilitators. We planned to check the presence of agriculture in the co-created visions, but it was regularly mentioned by the participants during envisioning and the other steps. Farming and related issues in rural community systems form a contextual boundary – a core systems concept (van Kerkhoff 2014; Williams 2010) – and were referred to as the most important source of their livelihood, as well as central to their culture, providing not only income and sustenance, but also joy.
(5) The concept of systemic community indicators was new to the communities with whom this research was conducted, so it was not to be expected that they would move all the way through the learning cycle to the point where they were confidently deciding on experiments – things to try – against the backdrop of their shared vision. Their principal focus was on engaging, for the first time, with the idea of indicators, and the way to identify and use them. Nevertheless, these communities did start to identify their own systemic indicators and, through their engagement with the process, to gain a sense of what the cycle of envisioning and experimentation could offer. Shifts in community awareness and, reflecting that, in behaviour were already apparent.
(6) Separating the participants into small groups before gathering as a whole, as we did when envisioning, could be usefully applied to the step of identifying indicators based on core

messages, rather than attempting that as a whole-of-workshop group. It may better elicit the contribution of every member and a richer range of possible indicators. As a result of time pressures and of some dominant participants, the quieter or less confident participants may not share their ideas, however well-formed they may be in their heads. Groups of six to eight members might well prompt a broader contribution than can be drawn from a plenary session of about 25, when developing a list of possible indicators.

(7) The quality of community indicators should be evaluated on the basis of whether they can reflect the values, concerns and priorities of communities. It seems that no one can assess the indicators as well as the communities do themselves, because outsiders (experts and others living outside of the communities) cannot operate from the same level of feeling and experience – the rushed nature of their visits limits their insight into the communities (Chambers 1983).

(8) Implicit in each indicator, especially subjective ones, there often exists a "story". Such stories capture the reasons why the communities chose those indicators. They clarify what the communities would really like to monitor and measure. For example, "be confident to give ideas" in community meetings. Historically, many villagers would not want (or dare) to raise their hands to speak in front of a crowd, and perhaps did not actually think they needed to talk, when they were not encouraged by other dominant stakeholders, often the community leaders, or outsiders. Engaging with the process of identifying community indicators, they started to think that all community members should be responsible for contributing to their collective activity, and they came to the view that not hesitating to speak and share their ideas would be a good indicator of growing self-respect and wellbeing, in pursuit of their shared vision.

Conclusion

The application of a participatory systems-based framework for identifying indicators of progress for rural communities located in developing countries has produced valuable lessons for facilitators and provided community members with valuable experience in the continuous process of co-learning, sharing and redefining. The framework provides an effective pathway for a community to unite for the heathy and vitality of the whole community, not just individuals, through the stages of envisioning a shared vision, teasing out core messages, identifying indicators, ranking influential indicators and prompting strategic actions. The communities use indicators to monitor their actions, so as to keep the shared vision lively in the life of the community, reflecting and refining in an iterative cycle of improvement that honours the complex way our world functions. It is an on-going process of evolution, as the decisions made today may not meet future needs, in the face of unplanned, unpredictable emergence (Bosch et al. 2013; Farley and Costanza 2002).

The products of the process (indicators and actions) are important, but the process itself is just as valuable, perhaps more so, as Senge (2006) suggests in quoting Robert Fritz "It's not what the vision is, it's what the vision does.". The inclusive, participatory process enables community members to come together to build a sense of ownership, trust and confidence–drivers of sustainable community development – while enhancing the community's ability to respond to complex issues in order to adapt to challenges and changes in ways that reflect what is most important to them.

In this sense, the systemic process of identifying community indicators stimulates a community to become an adaptive learning system (Booher 2000). The process itself is also

an adaptive cycle, as new activities are decided on and enacted based on the feedback generated by earlier decisions and outcomes. A forthcoming paper will explore the community experience of working with the systemic framework in the months following their initial workshops.

It is not easy to identify and utilise drivers of sustainable rural development in a short time, as the outcomes of a community indicators initiative may take years to appear, and "realising the vision may take a generation" (Progress Redefining and Network Earth Day 2002). Yet, communities should make a start in the "right" way – that is, consistent with the way the world functions – and use their chosen indicators to monitor their efforts to bring a shared vison into being. "*Indicators don't guarantee results. But results are impossible without proper indicators*" (Meadows 1998). Without systemic indicators of progress, rural communities lack as the systems feedback that can support them as they make decisions about managing their communities for the collective future that they desire.

In this context, the 'sustainability' that sits at the heart of the shared vision, and which is monitored by the systemic indicators, is not a "product" that we can produce and hold (Hjorth and Madani 2014). It could be said to be, rather, a *process* resulting from adaptive efforts that have to be owned and carried out by rural communities themselves, with support from committed facilitators. Or it can be understood as a way of *being* – the process helps to nurture a greater wholeness, individually and collectively, in a community's rich interactions with itself and with the complex world in which it is embedded.

Appendix 1: Shared Visions

Shared vision of Tam Hiep commune

We want to experience a healthy, wealthy and happy life; Together building and protecting the environment; Individuals behave unselfishly; neighbours care and help each other; children respect parents and grandparents; live in a fair society. Everyone (especially children) has equal chances to be trained and develop their talent and personality. Everyone respects and preserves the national character. We want to have more chances to meet and exchange and learn from other communities. Everyone is in harmony with neighbourhood and natural environment, voluntary working for a better community.

Shared vision of Vang Quoi Dong commune

We want to experience a happy life without deprivation. Children are well cared for and trained. Health of everyone is well cared for. Children are respectful to parents and grandparents, and the elders are conscientiously respected and cared for. People have enough leisure time for entertainment and sporting in beautiful public places. We are more active to "own" our lives. We want to have enough jobs in the commune, and do not want to go out of the commune as hired labour. Everyone has equal chance to use resources. Neighbourhood sentiment is preserved and united. Everyone has attitude and behaviour towards the environment of protection and preservation of national character. Members and authority are united and members' contributions are truly respected and considered in community's decisions. Cooperation among farmers, the authority and traders is established and the community economy is sustainably grown.

Appendix 2: Matrix of Systemic Community Indicators

Table 1 Systemic Community Indicators of Tam Hiep Commune

Levels of influential indicators Core messages	Number/parameters	Rules of the system	Structure of information flows	Power (self-organising)	Paradigm
(1) Social equality			•Visibility of public information (transparency)		•Participation and contribution on decisions made in families and communities •Confidence to give ideas •Self-nominate to be leaders of organisations or volunteer to be in charge of community work
(2) Community healthcare	•Incidence of patient consultation •Incidence of infant and children mortality •Incidence of malnutrition in children	•Use of chemicals in food processing and production		•Areas for clean (and organic) agriculture production (longan and other crops)/ total	•Regular health check •Satisfaction with community healthcare staff and facilities
(3) Cooperation	•Number of production contracts			•Number of cooperative groups/interested groups in community	•Satisfaction with the levels of cooperation
(4) Community security and safety	•Number and seriousness of social problems (stealing, robbing, family violence, fighting, gambling…) •Number and seriousness of traffic accidents				
(5) Cultural life	•Rate of poor households •Number and seriousness of social problems •Number of young people finishing secondary education	•Clean houses and community (no waste on roads) •Trees (environment) protection		•Solidarity in community (have constructive contributions to develop commune) •Sharing and caring about the neighbourhood	•Respect each other both in families and community (respect for the older and tolerance for the younger) •Love of trees (environment)

Table 1 (continued)

Levels of influential indicators Core messages	Number/parameters	Rules of the system	Structure of information flows	Power (self-organising)	Paradigm
(6) Education	•Incidence and seriousness of school violence (teachers hit pupils, pupils fight each other) •Number of students who win awards for excellent study or for examinations at different levels •Incidence of unemployment among those with formal education	•Study promotion activities •Formal cooperation between families and schools in education	•Visibility of curriculum •Parents are aware of their children's study progress and results, and attitude and behaviour in schools	•Informal cooperation between families and schools in education	•Parents' satisfaction with meetings between teacher and parents •Parents' satisfaction with schooling •Children are happy to attend school
(7) Environment	•Proportion of area for clean and organic agriculture •Number and seriousness of illegal sand exploitation cases •Area of protected forests and trees in public places •Area of land lost because of sea encroachment (this commune is an island with the bank of 24 km. The area of this commune is declining due to the encroachment of the sea. The people wish to have a concrete dyke/jetty of 24 km) •Occurrence of wild animals (degree of diversity)	•Use of electric impulse tools for fishing •Rubbish left in the wrong places	•Formal complaints from neighbours (about bad smell of pesticides, manure…)		•Feeling of "green" •Feeling of "clean" •Electricity saving in public areas •Time hearing birds' singing

Table 2 Systemic Community Indicators of Vang Quoi Dong Commune

Levels of influential indicators Core messages	Number/ parameters	Rules of the system	Power (self-organising system structure)	Goals of the system	Paradigm
(1) Sustainable wealth	•Sufficient Infrastructure (quantity and quality) (electricity, road, school, medical aid station, media, clean water supply) •Rate of homeownership and land for cultivation •Cases of social problems •Stable incomes •Rate of people going out of the commune seeking jobs •Rate of people having income in the commune (from handicraft, farm, fishing)			•Sustainably escape from poverty	•Feeling "enough" •Nutrition in daily meals •Time for leisure and spiritual activities
(2) Confidence and active access			•Self-develop plans •Actively contact relevant people or organisations for needed technical, market information. •Self-motivated in seeking efficient production models •Creativeness in farming		
(3) Education	•Number of children stop studying at primary and secondary levels •Teachers training level •Proper level of teaching methods •Teaching and learning facilities •Number of students achieve high results, win awards from examinations and enter universities			High quality educational standards and facilities	•Satisfaction of parents and pupils with teaching staff •Children enjoy schooling •Care from teachers and parents for children
(4) Environment protection	•Area for organic (clean) agriculture •Number of trees (for shade, landscape and protecting environment) planted every year	•Treatment of sewage •Use of organic fertilisers •Illegally leave rubbish, especially throwing dead animals down channels			

Table 2 (continued)

Levels of influential indicators Core messages	Number/ parameters	Rules of the system	Power (self-organising system structure)	Goals of the system	Paradigm
		•Illegally cut down trees/forest •Smoke from charcoal burners (coconut shells)			
(5) Community healthcare	•Number of people taking regular health check	•Patients are examined and cared for		•High quality health care	•People taking regular health check •Satisfaction of patients with quality of healthcare staff and facilities
(6) Cultural/ spiritual life	•Number and seriousness of social problems (stealing, fighting, gambling, land disputation…)	•Public order •(queue in line, argument, fighting) •Family violence	•Transparency in chances to access job and resource use, and contribution to community •Exchange of cultural and sport activities		•Self-respect and respect each other •"no need to lock our door when going out" •Willing to attend and display products in Coconut Festival (annually organised on provincial level) •Social equality •Family and community caring (gifts, sharing, celebration, activities for special days) •Time for entertainment and clubs
(7) Cooperation	•Number of contracts with enterprises to sell coconut and products made from coconut	•Formal agreements between farmers and local authority	•Agreements between farmers and local authority •Number of cooperative/ interest groups •Number of households joining in the cooperative groups	•Agreement between farmers and local authority •Creation of cooperative interest groups	•Sharing among neighbourhood •Enjoy neighbourhood •Satisfaction for the cooperation •Continuity of the cooperation

References

Adams D, Wiseman J (2003) Navigating the future: a case study of growing Victoria together. Aust J Public Adm 62:11–23

Adisa RS (2012) Rural development in the twenty-first century as a global necessity. In: Adisa RS (ed) Rural development- contemporary issues and practices. InTech, Rijeka, pp 3–13

Bagheri A, Hjorth P (2007) Planning for sustainable development: a paradigm shift towards a process-based approach. Sustain Dev 15:83–96

Besleme K, Mullin M (1997) Community indicators and healthy communities. Natl Civ Rev 86:43–52

Besleme K, Maser E, Silverstein J (1999) A community indicators case study: addressing the quality of life in two communities. Redefining Progress, San Francisco

Boarini R (2011) Measuring well-being and Progress - the OECD better life initiative. Stat Newsl-OECD 52:3–4

Bosch O, Nguyen NC, Maeno T, Yasui T (2013) Managing complex issues through evolutionary learning laboratories. Syst Res Behav Sci 30:116–135

Bosch O, Nguyen NC, Ha TM, Banson KE (2014) Using a systemic approach to improve the quality of life for women in small-scale agriculture: Empirical evidence from Southeast Asia and Sub-Saharan Africa. In: Dominici G (ed) Advances in Business Management. Towards Systemic Approach. 3rd Business systems Laboratory International Symposium, Italy. B.S.LAB, pp 273–278

Brethaut C, Gallagher L, Dalton J, Allouche J (2019) Power dynamics and integration in the water-energy-food nexus: Learning lessons for transdisciplinary research in Cambodia. Environ Sci Pol 94:153–162

Cavaye J (2001) Rural community development: new challenges and enduring dilemmas. J Reg Anal Policy 31: 109–124

Chambers R (1983) Rural development: putting the last first, vol 82. Longman, London

Chambers R (2012) Poverty and livelihoods: whose reality counts? In: Jolly R (ed) milestones and turning points in development thinking. Springer, pp 101-117

Cobbinah PB, Erdiaw-Kwasie MO, Amoateng P (2015) Rethinking sustainable development within the framework of poverty and urbanisation in developing countries. Environ Dev 13:18–32

Community Board (2015) Report on cultural communes with the criteria of new rural construction in 2015 and orientations for 2016. Tam Hiep People Committee, Tam Hiep

Coulton CJ, Fischer RL (2010) Using early ChildhoodWellbeing indicators to influence local policy and services. In: Kamerman SB, Phipps S, Ben-Arieh A (eds) From child welfare to child well-being: an international perspective on knowledge in the Service of Policy Making, vol 1. Springer, New York

Cox D, Frere M, West S, Wiseman J (2010) Developing and using local community wellbeing indicators: learning from the experience of community indicators Victoria. Aust J Soc Issues 45:71

Daams MN, Veneri P (2016) Living near to attractive nature? A well-being Indicator for ranking Dutch, Danish, and German functional urban areas. Soc Indic Res. https://doi.org/10.1007/s11205-016-1375-5

Dluhy M, Swartz N (2006) Connecting knowledge and policy: the promise of community indicators in the United States. Soc Indic Res 79:1–23

Eversole R (2010) Remaking participation: challenges for community development practice. Community Dev 47:29–41. https://doi.org/10.1093/cdj/bsq033

FAO (2016) The state of food and agreculture: Climate change, agriculture and food security. Food and Agriculture Organization of the United Nations (FAO), Rome

FAO, IFAD, WFP (2015) The State of Food Insecurity in the World 2015. Meeting the 2015 international hunger targets: taking stock of uneven progress. FAO, Rome

Farley J, Costanza R (2002) Envisioning shared goals for humanity: a detailed, shared vision of a sustainable and desirable USA in 2100. Ecol Econ 43:245–259

FASiD (2010) Using systems concepts in evaluation – a dialogue with Patricia Rogers and bob Williams. In: Fujita N (ed) Boyond Logframe-using systems concepts in evaluation. FASiD, Tokyo, pp 55–74

Gahin R, Paterson C (2001) Community indicators: past, present, and future. Natl Civ Rev 90:347–361

Gahin R, Veleva V, Hart M (2003) Do indicators help create sustainable communities? Local Environ 8:661–666

Gertler PJ, Martinez S, Premand P, Rawlings LB, Vermeersch CM (2011) Impact evaluation in practice. World Bank Publications, Washington DC

Ha TM, Bosch OJ, Nguyen NC (2016) Establishing an evolutionary learning Laboratory for Improving the quality of life of Vietnamese women in small-scale agriculture: part II–systemic interventions. Syst Res Behav Sci 33:341–359. https://doi.org/10.1002/sres.2349

Hamalainen RP, Saarinen E (2008) Systems intelligence-the way forward? A note on Ackoff's' why few organizations adopt systems thinking. Syst Res Behav Sci 25:821

Heifetz RA, Laurie DL (1997) The work of leadership. Harv Bus Rev 75:124–134

Hjorth P, Madani K (2014) Sustainability monitoring and assessment: new challenges require new thinking. J Water Resour Plan Manag 140:133–135

Ho Chi Minh City Institute for Development Studies (2011) Report on Overal planning of socio-economic development in Binh Dai District. Binh Dai People Committee, Bind Dai
Innes JE, Booher DE (2000) Indicators for sustainable communities: a strategy building on complexity theory and distributed intelligence. Plan Theory Pract 1:173–186
International Labour Organization (ILO) (2012) Global employment trends 2012. Preventing a deeper job crisis. Geneva, Switzerland
Khavul S, Bruton GD (2013) Harnessing innovation for change: sustainability and poverty in developing countries. J Manag Stud 50:285–306
Leeuwis C (2000) Reconceptualizing participation for sustainable rural development: towards a negotiation approach. Dev Chang 31:931–959
Martin-Rodriguez LS, Beaulieu M-D, D'Amour D (2005) The determinants of successful collaboration: A review of theoretical and empirical studies. J Interprof Care 19:132–147
Mathbor GM (2008) Understanding community participation. In: Effective community participation in coastal development. Lyceum Books Inc., Chicago, pp 7–24
McDonald J, Jayasuriya R, Harris MF (2012) The influence of power dynamics and trust on multidisciplinary collaboration: a qualitative case study of type 2 diabetes mellitus. BMC Health Serv Res 12
Meadows D (1998) Indicators and information systems for sustainable development: a report to the Ballaton group. The Sustainability Institute, Hartland Four Corners
Meadows D (1999) Leverage points- places to intervene in a system. The Sustainability Institute, Hartland
Meadows D (2002) Dancing with systems. Syst Thinker 13:2–6
Meadows D (2014) Envisioning a sustainable world. World Scientific, Singapore
Morton A, Edwards L (2013) Community wellbeing indicators: measures for local government. Australian Centre for Excellence in local government and local government. University of Technology, Sydney
Muller-Praefcke D, Lai KC, Sorrenson W (2010) The use of monitoring and evaluation in agriculture and rural development projects. FAO Investment Centre, Rome
Nguyen PT, Wells S (2018) Systemic indicators for rural communities in developing economies: bringing the shared vision into being. Syst Pract Action Res 31:159–177
Noll H-H (2002) Towards a European system of social indicators: theoretical framework and system architecture. Soc Indic Res 58:47–87
Norris T (2006) Introduction from the community indicators handbook. http://www.tylernorris.com/pubs/indicats.html. Accessed 28 Oct 2015
OECD (2011) Compendium of OECD well-being indicators. OECD. http://www.oecd.org/std/47917288.pdf. Accessed 20 Sept 2016
OECD (2012) Green growth and developing countries: a summary for policy makers. OECD
OECD (2015) Measuring well-being and progress: well-being research. OECD. http://www.oecd.org/statistics/measuring-well-being-and-progress.htm. Accessed 5 Jan 2016
Phillips R (2003) Community indicators. American Planning Association, Chicago
Progress Redefining, Network Earth Day (2002) Sustainability starts in your community: a community indicators guide. Redefining Progress, Oakland
Redefining Progress, Tyler Norris Associates, Sustainable Seattle (1997) The community indicators handbook: measuring progress toward healthy and sustainable communities. Redefining Progress, San Francisco
Reed MS, Fraser ED, Dougill AJ (2006) An adaptive learning process for developing and applying sustainability indicators with local communities. Ecol Econ 59:406–418
Saarinen E, Hämäläinen RP (2007) Systems intelligence: connecting engineering thinking with human sensitivity. In: Hamalainen RP, Saarinen E (ed) Systems intelligence in leadership and everyday life. Systems Analysis Laboratory, Helsinki University of Technology, Finland, pp 51–78
Sawicki DS, Flynn P (1996) Neighborhood indicators: a review of the literature and an assessment of conceptual and methodological issues. J Am Plan Assoc 62:165–183
Senge PM (2006) The fifth discipline: the art and practice of the learning organization. Currency Doubleday, New York
Sirgy MJ, Phillips R, Rahtz DR (2013) Community quality-of-life indicators: best cases VI, vol 4. Springer, New York
Slow Food (2016) The slow Food view on FAO's state of Food and agriculture report 2016. Slow Food. http://www.slowfood.com/slow-food-view-faos-state-food-agriculture-report-2016/. Accessed 22 Oct 2016
Styhre A (2002) Non-linear change in organizations: organization change management informed by complexity theory. Leadersh Org Dev J 23:343–351
Summers DM et al (2015) Simple models for managing complex social–ecological systems: the landscape futures analysis tool (LFAT). Environ Model Softw 63:217–229
Sumner A (2012) Where do the World's poor live? A New Update IDS Working Papers 2012:1–27. https://doi.org/10.1111/j.2040-0209.2012.00393.x

Thomas E, Amadei B (2010) Accounting for human behavior, local conditions and organizational constraints in humanitarian development models. Environ Dev Sustain 12:313–327
United Nations (2014) From family violence to gender violence in Vietnam: the relationship between forms of violence. United Nations in Vietnam, Vietnam
van der Helm R (2009) The vision phenomenon: towards a theoretical underpinning of visions of the future and the process of envisioning. Futures 41:96–104
van Kerkhoff L (2014) Developing integrative research for sustainability science through a complexity principles-based approach. Sustain Sci 9:143–155
Voinov A et al (2016) Modelling with stakeholders – next generation. Environ Model Softw 77:192–220
Weisbord MR, Weisbord M, Janoff S (2000) Future search: an action guide to finding common ground in organizations and communities, 2nd edn. Berrett-Koehler Publishers, San Francisco
Wells S, McLean J (2013) One way forward to beat the Newtonian habit with a complexity perspective on organisational change. System 1:66–84
Wells S, McLean J (2016) Experiments in envisioning to engage community and science in decision making for complex environmental futures. The University of Adelaide, Adelaide, South Australia. (in-preparation)
Wheatley MJ (2006) Leadership and the new science: discovering order in a chaotic world. Berrett-Koehler Publisher, Inc., San Francisco
White S, Pettit J (2004) Participatory approaches and the measurement of human well-being Wellbeing in Developing Countries ESRC Research Group, UK
Williams B (2010) Systems thinking and capacity building in the international arena. In: Fujita N (ed) Beyond logframe; using systems concepts in evaluation. FASiD, Tokyo, pp 35–54
Work Group for Community Health and Development (2015) The community tool box. The University of Kansas. http://ctb.ku.edu/en/table-of-contents/evaluate/evaluate-commutanity-initiatives/examples-of-community-level-indicators/main. Accessed 13 Jan 2016
World Bank (2014) For up to 800 million rural poor, a strong World Bank commitment to agriculture. World Bank. http://www.worldbank.org/en/news/feature/2014/11/12/for-up-to-800-million-rural-poor-a-strong-world-bank-commitment-to-agriculture. Accessed 25 Jan 2015
World Hunger Education Service (2015) 2015 World Hunger and Poverty Facts and Statistics. http://www.worldhunger.org/articles/Learn/world%20hunger%20facts%202002.htm. Accessed 18 Feb 2016
Ziegler W (1991) Envisioning the future. Futures 23:516–527

Affiliations

Phuong T. Nguyen [1,2] · Sam Wells [1] · Nam Nguyen [1,3]

[1] The University of Adelaide Business School, 10 Pulteney Street, Adelaide, South Australia 5005, Australia

[2] Faculty of Silviculture, Vietnam National University of Forestry, Chuong My District, Ha Noi, Vietnam

[3] Malik Management Institute, St. Gallen, Switzerland