

Systemic Indicators for Rural Communities in Developing Economies: Bringing the Shared Vision into Being

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Abstract Community indicators have been a frequent focus of the scholarly literature. There has been little exploration, however, in relation to rural communities, especially in developing countries. This reflects the special challenges associated with the complexity of rural systems, and the difficulties involved in developing appropriate and systemic indicators for rural communities. Identifying indicators that help the community to monitor progress towards sustainable outcomes requires a framework that is both practical and holistic. This paper introduces a participatory systemic framework for identifying community indicators, which respects the principles of complexity and honours the sense of ownership present in the communities. This framework is an iterative, sharing, 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 try. Importantly, this framework enables us to rank the indicators identified by communities with reference to ‘leverage points’, the best places to intervene in the social-environmental system for transformational change. This framework provides a potential pathway for sustainable rural development and perhaps also for organisations and urban communities.

Keywords Community indicators · Complexity · Leverage points · Sustainability · Systemic indicators · Rural community development

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Introduction

Community indicators became a popular topic during the 1990s, highlighting the view that economic, social and environmental indicators in isolation cannot reflect community sustainability. This led the attention of scholars to the integration of isolated indicators to represent a more holistic picture of community wellbeing, reflecting progress towards community goals (Besleme and Mullin 1997; Cox et al. 2010; Phillips 2003). This movement also marked global encouragement of grassroots participation, through bottom-up approaches to the role of indicators and information in communities (Dluhy and Swartz 2006; Gahin and Paterson 2001).

Although the role of community indicators seems to be widely agreed upon as a tool for monitoring progress, stimulating community engagement and capacity building, and guiding decisions (eg., Gahin and Paterson 2001; Memon and Johnston 2008; Redefining Progress et al. 1997; Reed et al. 2006; Swain and Hollar 2003; Work Group for Community Health and Development 2015), there is still considerable debate about the best way to identify both the indicators and the sustainable standards they support.

The literature contains numerous studies on community indicators. The indicators linked to sustainable development have been so abundantly produced as to be referred to as an “industry” (King et al. 2000). Unfortunately, most of them focus on urban areas in developed countries (Europe, North America and Australia) (eg., Besleme and Mullin 1997; Daams and Veneri 2016; Dluhy and Swartz 2006; Innes and Booher 2000; Morton and Edwards 2013). There has been little work done on building indicators for sustainable rural community, especially in the Third World (Cobbinah et al. 2015; Phillips 2003), whose relative deprivation might lead one to expect more initiatives to develop rural communities (Chambers 1995) and where insight into sustainable development is still less than might be expected (Cobbinah et al. 2015).

The complexity of the challenges in rural areas in developing countries – reflected in multi-dimensional interrelationships and unpredictable, emergent change (Bell and Morse 2005; Nguyen and Bosch 2013; Wells and McLean 2013) – contributes to the difficulty in identifying and using community indicators, as well as achieving sustainable development (Phillips 2003; Thomas and Amadei 2010). This complex environment is characterised by isolation, vulnerability, poor basic services (housing, communication, education and health facilities), and mono-productive means (mainly farming) which lessen the opportunities for rural people to connect with the outside world (Adisa 2012). Linear and mechanistic approaches to the pursuit of sustainable outcomes in this complex, rural environment have been problematic. This environment requires a more holistic approach, considering the whole ‘living’ system in order to identify indicators that reflect wellbeing and healthy community, rather than focusing on individual, unconnected parts (Innes and Booher 2000; Morton and Edwards 2013; OECD 2011). It is still a challenge, however, for rural development scholars and practitioners who seek to apply what we understand about complexity and complex, living systems, and to find effective ways by which communities can identify indicators of progress towards sustainable outcomes.

This is a conceptual paper, which proposes a systemic framework for identifying rural community indicators, underpinned by the principles that govern the behaviour of complex, living systems. This framework seeks to build on the One Way Forward model, which explores the dynamics of transformational change in organisations (Wells and McLean 2013). It shifts the setting from industrialised organisation, to developing rural community,

and looks to gauge the power of systemic indicators by reference to their standing as “leverage points”, as described by Meadows (1999). This framework is designed to overcome the drawbacks of traditional approaches, by facilitating community engagement, a culture of ownership, a whole-of-system perspective and accountability through an iterative process of adaptive learning and sharing.

Community Indicators Movement

Indicators and information have been long used by policy and decision makers (Phillips 2003), but their use in communities only started to be of interest to scholars from 1910, when the Russell Sage Foundation took the initiative to investigate community indicators by conducting local surveys to assess social conditions through measuring factors in education, public health, recreation, crime and other social dimensions (Cobb and Rixford 1998; Phillips 2003). This initiated the movement from an economic focus to social trends and then community indicators in the late 1980’s to early 1990s, with the shift of attention to the integration of individual perspectives in order to reflect community wellbeing (Sawicki and Flynn 1996). Indicators and information in communities became valued in the efforts to achieve sustainable outcomes (Gahin and Paterson 2001; Gahin et al. 2003).

Community indicators have been universally acknowledged as a tool for defining, measuring, managing and preserving community wellbeing (Progress Redefining and Network Earth Day 2002). They can focus on all levels of interest, such as nations, regions and even small villages. Whatever the geographic location, community indicators reflect a community goal, shared vision and priorities (Cox et al. 2010) and provide information that all members of a community care about, reflecting the values of the community (Meadows 1998). Beyond the aforementioned benefits, indicators can also affect the behaviour of a system (Meadows 1998). Influential indicators can, themselves, change communities.

Community indicators are defined as “bits of information that, when combined, generate a picture of what is happening in a local system” Phillips (2003). Implicit in this definition is that the indicators could be “small”, but have to be able to “reflect the status of larger systems” (Norris 2006; Progress Redefining and Network Earth Day 2002) and to show changes and trends of systems over time (Meadows 1998; Norris 2006). The combination of individual indicators can provide insight into the whole community, rather than just reveal the status of individual elements. They are designed and developed by community members themselves, and used with their consent. That ensures the comprehensiveness of the indicators and reflects all facets of community wellbeing, or community ‘sustainability’.

Quality of life, sustainability and healthy community have been the three main concerns that drive pathways for community indicators that reflect community wellbeing (Phillips 2003; Progress Redefining and Network Earth Day 2002; Redefining Progress et al. 1997). The aim has been to develop “ideal” community indicators. The Bellagio Principles, regarded as best practice, are included in the Community Indicator Handbook, published by Redefining Progress et al. (1997) and have had wide influence on scholars to date. The United Nations Millennium Development Goals and Indicators, OECD Wellbeing indicators, European Union’s Social Indicator Framework, Canada Wellbeing Measurement Act, the UK Sustainability Indicators and the Happy Planet Index are sets of indicators at regional and national level focusing on wellbeing in an integrated framework. They operate as yardsticks for macro efforts, but may not adequately reflect the important considerations at the local community

level (Reed et al. 2006; Riley 2001). The community needs to be fully engaged in order to ensure that it “owns” its indicators.

Previous models for developing indicators have involved a multi-step process. The 10 steps process (Redefining Progress et al. 1997) summarises community indicators projects in the 1990s. Refinements followed, such as 9 steps (Redefining Progress and Earth Day Network 2002) and 12 steps (Reed et al. 2006). Although the number of steps differs, the thinking is quite similar – determining goals, developing/selecting indicators, collecting data and reporting. Interestingly, these frameworks emphasise the need to establish clear purposes for indicator processes/projects and the identification of potential indicators by a working group (including individuals and organisational representatives and experts) in the beginning. Although communities subsequently have the opportunity to generate their vision and priorities, before selecting their indicators, the pre-work by ‘experts’ may well influence the thinking of community members and even constrain their openness when sharing their thoughts and making decisions together.

Furthermore, indicator frameworks (also named indicator areas, domains or categories) have varied from project to project. Many scholars have developed indicators by exploring and attempting to integrate the “triple-bottom line” – economic, environmental and social – such as Tasmania Together and Growing Victoria Together (Adams and Wiseman 2003), and the United States (Meadows 1998). The Balaton Group built a set of indicators for sustainable development, based on the work of Herman Daly and tracking the relationship between means (the different types of capital, including natural, built, human and social) and ends, including the ‘ultimate end’ of well-being (Meadows 1998, p. 73). Recently, community indicators have focused on a sense of harmony, reflecting community wellbeing. For example, Community Indicator Victoria (Cox et al. 2010) established a set of 5 goals – Healthy, safe and inclusive communities; Dynamic, resilient economies; Sustainable built and natural environment; Culturally rich and vibrant communities; and Democratic and engaged communities. The diversity in proposed indicators reflects 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.

Indicators have been widely proposed as both quantitative and qualitative (eg., Boarini 2011; Meadows 1998; Noll 2002; OECD 2015; Phillips 2003). Some see them explicitly as “quantitative information” to measure community wellbeing (Besleme et al. 1999). A broader perspective argues that numbers alone are not able to reflect the multifaceted and holistic wellbeing of community, including intangible subjective elements. In that context, indicators are not necessarily measurable. They may be based on subjective experience, but they will be observable or accessible to the senses (Progress Redefining and Network Earth Day 2002; Wells and McLean 2013), reflecting all community values.

“Participation” has become a methodological principle for community indicators, as they require multi-discipline and multi-stakeholder involvement in the whole process (Leeuwis 2000; Mathbor 2008) to mirror the perspective of all members of a community on sustainable development. Participation promotes wellbeing, as it helps to build social relationships and networks. Implicitly, community wellbeing reflects collective feelings and actions rather than an individual’s (Haworth and Hart 2007; Sirgy et al. 2013). In addition, wellbeing embraces the value of democracy, which is one of the obvious features of participation (White and Pettit 2004). Therefore, participatory efforts enhance wellbeing and this can happen if indicators are perceived, designed, developed and used within a specific community and by its members (Rapley 2003; White and Pettit 2004). However, so far projects seem to “focus on awareness instead of direct widespread participation” (Sirgy et al. 2013).

There has been increasing recognition of the applicability of complexity principles in response to the shortcomings of approaches based on reductionism and linear thinking, top-down approaches (eg., Bosch et al. 2014; Reed et al. 2006; Wells and McLean 2013), a preponderance of numerical indicators (eg., Bagheri and Hjorth 2007; OECD 2015; Wells and McLean 2013) and exclusive dependence on modelling technologies (eg., Hjorth and Madani 2014). This approach suggests a need for systems based integrative research on community indicators that can truly reflect the movement of community wellbeing towards sustainability. Van Kerkhoff (2014) argues that “we tend to retain simple, linear research processes for engaging with complex, non-linear subjects”. He argues that researchers should place themselves as a part of the system and function within it to ensure that they gain insight into the whole system and respond in a timely fashion to the emergent outcomes. This holistic approach demands a real commitment and accountability from all members of a community in the whole process of developing their indicators.

Theoretical Foundations

Community as a Complex System

It has become increasingly apparent that mechanistic and linear approaches to understanding and problem solving encounter severe limitations when it comes to dealing with the complexity that characterises our world. To make sense of complex systems – climates, economies, ecologies, organisations, societies, communities – it is necessary to engage with them as a whole. It means recognising that a problem does not exist in isolation, but is embedded in a complex system with all the interrelationships and interdependencies amongst multiple elements within the system, which are also affected by a range of unpredictable changes in the environment (eg., Flood 2010; Meadows 2008; Mitleton-Kelly 2003; Senge 2006). Indicators, therefore, cannot represent just one perspective, one discipline, and actions should not be made by reference to and for just one problem. They must incorporate and integrate a range of disciplines if they are to capture the whole system for sustainability with “surprises” – unexpected emergence.

Seen through the lens of complexity, a community functions as a system in itself and interacts in the same way with other related systems – the community may be our ‘system of interest’, but it is not a closed system, with impermeable boundaries (Katz and Kahn 1978). In addition, we cannot be certain what future community will emerge (Meadows 2002; Wells and McLean 2013), and therefore exactly what community indicators are the best for monitoring (and influencing) community changes. Nevertheless, insight can be gained from experimentation and feedback, by honouring the nature of complexity and the self-organisation of living systems.

Sustainable Development and Management

The notion of sustainable development was notably defined in the 1987 Brundtland Report to promote the environmental protection and sustainable use of natural resources – “*Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs*” (World Commission on Environment and Development- WCED 1987). It was a response to the global acknowledgement that the

population has been growing fast, but the planet has not been developing the means to meet the material and energy needs necessary for the sustainable functioning of the population, and has been putting at risk its ecological well-springs in its efforts to meet those needs (Bridger and Luloff 1999; Duran et al. 2015; Meadows 1998; Roseland 2000). Over three decades, this concept has now become a globally accepted principle (Drexhage and Murphy 2010; Ishwaran et al. 2008), underpinning a paradigm shift in development practices.

Sustainability-related issues and challenges are highly complex (Nguyen and Bosch 2013; Zaccai 2012). They require the integration and incorporation of disciplines (e.g., economic, ecological, social and human) and engagement of related actors (e.g., government, NGOs, local people, researchers and practitioners) (Cobbinah et al. 2015; Duran et al. 2015; van Kerkhoff 2014) to gain distributional equity of well-being across time (inter-generational), and space (e.g. rural/urban locations) (Solow 1995; UNECE 2013). In other words, the challenges we are facing cannot be completely solved in isolation, as they are interconnected and interdependent within a system (Bosch et al. 2014; Whiteman et al. 2013), and often emerge unpredictably (Meadows 2002; Meadows et al. 2004). This prompts a need for research approaches that are more cognisant of complexity and integrative, so as to honour the wholeness. We should not underestimate the challenge involved – Cobbinah et al. (2015) noted that many failures are evident in incorporating disciplines and sectors to pursue “ideal synergies” in developing nations.

Sustainability has been one of the greatest concerns in providing a framework for community wellbeing (Besleme et al. 1999) and has increasingly been the focus of scholarly discourse (e.g., Cobbinah et al. 2015; Gahin et al. 2003; Reed et al. 2006). It is the ultimate goal of communities, representing feelings and the appreciation of life satisfaction, freedom, happiness, power and self-respect (Meadows 1998) (called subjective wellbeing by several experts – e.g., Boarini 2011; Liao 2009; Terzi et al. 2015), which are built up from the harmonious combination of the ‘capital’ resources necessary for life (natural, built, human and social capitals) (Duran et al. 2015; Meadows 1998). A community can function in the sense of sustainable development if its members together can maintain its system stability by developing a balance of the various capitals and adapting to unexpected emergencies, in order to maintain their happiness and harmony with nature, promoting self-development and self-esteem. The vision of the community should therefore be articulated in ways that reflect integration and synergy (Duran et al. 2015) and community indicators of progress should be identified accordingly.

“One way Forward” Model and Sustainable Rural Community Development

Wells and McLean (2013) introduce a model, “*One Way Forward*”, as a possibility for facilitating “transformational change for sustainability” in organisations. The research that informs the present article takes as its starting point the question of whether, or to what extent, the model might be usefully applied in rural communities in a developing economy – a very different environment from the organisational settings, in an industrialised economy, in which *One Way Forward* was conceived.

One Way Forward is underpinned by the principles of complexity, including pervasive and ‘irreducible’ uncertainty (Meadows 2002). Despite the uncertainty, decisions have to be made and tried out in action, and by learning from trial and error, orientated by a shared vision of “what we really want, not what we’ll settle for”, an understanding of how to move towards sustainability can be gained. Through the lens of complexity, this framework enables

organisations to understand and influence systemic change towards sustainability, through strategic experiment. Experiments are prompted by the ‘core messages’ that can be extracted from shared vision and reflected in indicators of progress.

Rural communities often witness the poverty, vulnerability, isolation and powerlessness that prevent rural people from reaching a state of well-being (Chambers 1983; Chambers 2012; Ha et al. 2014; Ha et al. 2016). Those experiences probably make rural people less confident in thinking about and sharing what they truly want, personally and for their families in community, or how they want to *experience* future community life (as opposed to what it might look like). *One Way Forward* enables the flexible use of participatory approaches in the process of caring broadly for a whole organisation, rather than for isolated individuals, in order to articulate a shared vision and collective indicators, as a framework within which joint decisions can be made and actions taken. It facilitates organisational members coming together to share what they think and feel about their desired collective future and to articulate organically a co-created shared vision that can inform the decisions they make (Wells and McLean 2013).

Leverage Points and Systemic Community Indicators

Those involved with systems thinking believe that, amongst a system’s many constituent elements, it is possible to identify the most powerful places to intervene, in order to change the whole system towards the desired outcomes. These places are called ‘leverage points’, which Senge (2006) describes as the “right places in a system where small, well-focused actions can sometimes produce significant, enduring improvements”. Meadows (1999) describes leverage points as the “places in the systems where a small change could lead to a large shift in behaviour”, and as “points of power”.

Indicators are not only tools for monitoring progress, but they can and often do, change the behaviour of a system. In fact, Meadows goes further - “indicators are leverage points” (Meadows 1998). Meadows argues that the presence and use of the right indicators can significantly improve the operation of a system. (Conversely, she cautions against selecting indicators without due thought – poorly conceived indicators can lead to unintended and perverse outcomes.). She also suggests that leverage points can be the most effective shortcuts to improving a system (Meadows 1998).

Leverage points exist in every system (eg., the living body, the economy, the ecosystem, an organisation and a community). A bank’s interest rate is an typical example that is often mentioned by the system’s community as an influential leverage point in an economic system (Meadow 2008; Nguyen and Bosch 2013) and can produce “large effects on the whole socio-economic system” (Nguyen and Bosch 2013, p. 110). The change to make electric meters easily visible in Dutch houses is another striking example of this point.

When new Dutch houses were built with the electricity meter in the front hall where it is easily visible instead of out of sight in the cellar, electricity use in those houses went down by one-third though there was no change in the price of electricity”. (Meadows, 1998, p.5)

The action of delivering the information about electricity usage to the users in an easily accessed way become an indicator that significantly changed behaviour in relation to saving energy.

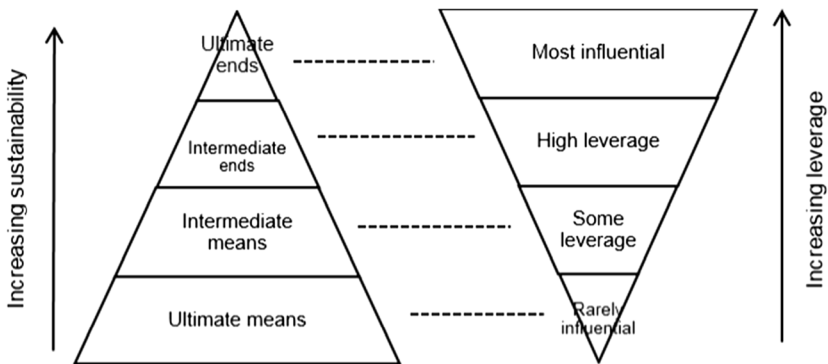
The goal of a community change would be a strong leverage point as it influences all the sub-systems within the community system. For example, a community may want to convert its

conventional farming to organic agriculture. That will probably bring to bear a range of impacts on the community affecting the area of land for traditional crops, information (training) on how to cultivate crops (and which crops) organically, and rules for using chemicals and so on. Or strictly protecting the community forest affects the habit of using fuel wood for heating and cooking.

Meadows (1999) proposes a list of 12 ‘places to intervene in a system’ ordered by increasing degree of influence or leverage – she notes, importantly, that the most influential are the hardest to utilise. In Fig. 1, they are categorised into four groups: rarely influential, some leverage, high leverage and most influential. It could be argued that these four groups of leverage points echo the four levels of the Daly Triangle of means and ends endorsed by Meadows (1998), also represented in Fig. 1. The more powerful the indicators are, the greater the leverage that can move a community towards sustainability.

Physical and tangible elements (numbers, buffers, structure and delay), reflected in quantitative indicators, are sometimes important, but interventions here are rarely powerful enough to make the whole system change. They correspond to Daly’s “ultimate means” that are the natural capital needed to support community life and its activities, and are converted to intermediate means (Daly 1973). Intervening at this level carries the lowest possibility of changing behaviour towards community wellbeing.

There are some leverage points (including the use of positive and negative feedback loops) that reflect “intermediate means”, encompassing built capital and human capital. They are invented by humans and reflect the productive capacity of humans, hence they are necessary, but are simply inputs and not adequate to fulfil the ultimate goal of the community. For example, revegetating an area of land subject to soil erosion, may counter the reinforcing feedback loop that flows from soil erosion, to the increasing difficulty for natural revegetation,



Notes:

Ultimate means: Natural capital (eg., solar energy, land, biodiversity and water);

Intermediate means: Built capital and Human capital (eg., labour, tools, processes, materials, transport, communication means and workshops);

Intermediate ends: Human capital and Social capital (eg., health, wealth, knowledge, leisure and communication); and

Ultimate ends: Wellbeing (eg., happiness, identity, harmony, self-respect and self-organization)

Rarely influential: Numbers, Buffers, Structures and Delays;

Some leverage: Strength of Balancing and Reinforcing feedback loops;

High leverage: Information flows, Rules, and Self-organisation; and

Most influential: Goals, Paradigm and Transcending Paradigm



Fig. 1 Sustainable development and leverage points (adapted from Meadows (1998) and Meadows (1999))

to increased soil erosion and so on. Dampening the feedback loop is acting at a leverage point, but the revegetation is not an end in itself – it is an “intermediate means” by which the ultimate end of community wellbeing is facilitated.

The interventions with more powerful leverage reflect the “intermediate ends” that are human and social capital. They are goals of communities, but also represent the tangible instruments and capacity to achieve the intangible and most profound goals, which are related to satisfaction, feeling and appreciation – the “ultimate ends” of communities. At this level, community indicators tend to be more qualitative and reflect the transformational shift of communities.

The most influential community indicators, whilst they are powerful, are very challenging to identify (Meadows 1999; Summers et al. 2015), especially in the isolated rural regions of developing countries, where people have limited education and even less opportunity to become well acquainted with systems concepts. Nevertheless, humans appear to possess an inherent “intelligence” that enables them to sense, and adapt to complex environments (Hamalainen and Saarinen 2008; Saarinen and Hämäläinen 2007; Wells and McLean 2013). Hence, at some level, they have the capacity to function in a complex systemic environment, and community processes should be able to draw on that capacity.

In addition, it might assist these communities if they could benefit from the understanding of ‘outsiders’ in relation to leverage points and the identification of the most influential of the community’s indicators of progress towards transformational change and sustainability. In this sense, rural development and systemic experts and practitioners have a valuable role to play in building the capacity of communities to undertake strategic experiments and to refine indicators in support of bringing the shared vision of community into being.

Process of Identifying Systemic Indicators of Progress towards Bringing the Shared Vision of Rural Communities into Being

The framework proposed in this paper is inspired by the principles that emerge from our understanding of complexity and complex systems and sustainable development. It is informed, in part, by *One Way Forward*, but does not stop at a list of indicators of progress based on core messages, supporting strategic experiments. Beyond that, the process formulated here identifies the most influential indicators by reference to our understanding of leverage points. Identifying influential and powerful indicators may prompt highly leveraged actions and speed up progress towards reaching the community’s goals. In addition, this work flags the need to go beyond the conceptual foundation, and to develop a framework that honours the practical experience of rural communities. That experience confirms the critical need for greater awareness, passion, humility and enthusiasm from both community members and outside practitioners who want to assist members to shape their community in ways that deliver the collective experience that is their heart-felt desire.

The proposed process is an iterative cycle of vision, action and reflection amongst community members. The process should be ongoing to reflect the way the world functions, as it is continuously evolving and the decisions made today may not be appropriate in the future (Farley and Costanza 2002). Moreover, we cannot predict exactly what shape the future community will take, and therefore exactly what community indicators will be appropriate. The iterative process enhances the community’s ability to adapt to challenges and changes, as community members listen to and learn from the system feedback (the consequence of

decisions made and experiments chosen)– “dancing with the system” (Meadows 2002) – and refine or replace indicators and decisions. In this way, the community becomes an adaptive learning system (Innes and Booher 2000).

Consistent with the principles of complexity – systems are united entities, in which the health of the parts and of the whole are interdependent (Meadows 2002; Wells and McLean 2013; Senge 2006) – this process considers the whole system, rather than just focusing on a particular problem the community may be facing, as conventional approaches tend to do (eg., Guijt and Woodhill (2002)). Rather than setting a goal for an isolated part or intervening to solve a particular problem or improve a situation, this process starts by co-envisioning and articulating the fullest goal of the whole community.

In addition, the goal of a community is not set up by its leaders only, without the awareness and agreement of the community members. The iterative cycle encourages interaction and cooperation amongst the people, 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. Full participation of all the members allows for greater mutual understanding, transparency and accountability (Maani 2002; Maani 2013) as well as nurturing motivation and a sense of ownership for the process and its products (Ha et al. 2014; Stain and Imel 2002), commitment to actions (Nguyen and Bosch 2013; Wells and McLean 2013); and knowledge development (Barton et al. 2004; Ha 2016). This helps to ensure their continued involvement and responsibility for emergent outcomes in the whole development process, leading to sustainability.

The proposed framework respects the values uniting all community members. Open and respectful discussions are vital to involvement. The more stakeholders engage in the process the more capable the people become and the greater the sense of community wellbeing. Even where participant numbers require more than one workshop, the co-creation process will benefit from the greatest practicable number of participants. Both community leaders and “outsider” facilitators are responsible for inviting and encouraging local people to participate in the process. The low levels of self-reliance and self-development may lead to the process in rural communities taking more time than in urban communities, hence it will be necessary for facilitators to be committed and patient. If the people enjoy participating in the whole process, they will own their “real” vision and then they will have genuine commitment to indicators and actions for change (Ziegler 1991).

This process emphasises sustainable community development through active learning and experimenting with community indicators. Thus, it does not rush to produce a list of indicators, but values the community. It is especially important for rural communities where people may not be fully aware of the importance of building their own indicators or not be familiar with the use of indicators (even indicators for conventional interventions that are largely decided and shaped by outsiders). The process is a means of assisting community members to engage with and explore new perspectives and possibilities, so that, naturally, they can develop, own and use their indicators as a “window” onto complexity (Norris 2006), fostering self-reliance and self-development.

Agricultural production characterizes rural settings. Farming is not only the major livelihood for rural people, but also the foundation of their culture. Shared vision, core values, indicators and actions, resulting from the process described here, should express the community’s aspirations to establish sustainable agriculture as one of the most important features. Therefore, we might expect to find agriculture present, either directly or indirectly, in the vision. This does not refer to a bias or frame in thinking, but reflects systemic and

contextual boundaries, as ‘boundary’ is a core systems concept (van Kerkhoff 2014; Williams 2010).

The process described here of identifying rural community indicators works through five questions, corresponding with components in an iterative cycle (Fig. 2): How do we really want to experience life and living together in our community? What are the core messages in our shared vision? What are the indicators of progress towards bringing our shared vision into being? Which indicators are powerful leverage points that can influence our community to achieve positive transformational change? How will we keep our shared vision present and lively as we make decisions about our shared future? This is a dynamic and evolving process, hence these questions are raised and answered based on feedback (outcomes of actions and reflection) in every cycle.

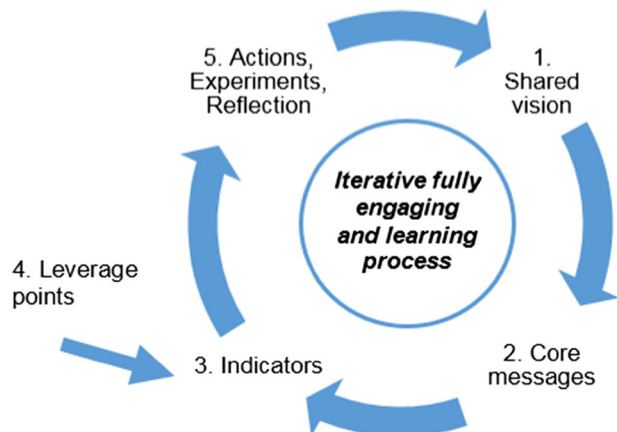
The following is a high-level description of the five stages in the iterative cycle. A full account of the whole process in action, based on fieldwork designed to test the conceptual framework and to explore its practical application in two rural Vietnamese communities, will be presented in a forthcoming paper.

Step 1: Creating a shared vision

Visions express what are expected in the future. They are “often seen in the light of the ideal” (van der Helm 2009) and formed from “concerns... with the desirable, the imagined, the intended, the compelling, indeed, the mythic” (Ziegler 1991). The agreed vision, which is co-created in a truly participative envisioning process, contains collective expression of each community member’s story about the community they aspire to. Rather than operating at the level of ‘cerebral’ analysis only, this envisioning process tends to reflect what Ziegler (1991) describes as being “embedded more deeply within psyche, spirit and mental culture”, so that the envisioners articulate a “values-rich story” of the community future (Senge 2006; Wells and McLean 2013). This should help to foster a feeling of equal worth amongst the community members, leading to an increase in self-respect and in the confidence required to think about and pursue a better future – arguably two drivers for sustainable rural community development.

In addition, because a shared vision of this kind emerges from the level of basic values or deeply held desires, we find that what participants really want unites them far more than it

Fig. 2 A possibility for systemic community indicators for rural communities (Adapted from Wells and McLean (2013))



divides them. Differences in perspective, philosophy, political orientation or personality do not easily intrude on this process. Of course, this does not mean that there will be no future disagreements as decisions and choices are made about shaping the community's future, but those disagreements will take place against a backdrop of shared vision at a deeply personal level. Such disagreement is more likely to be productive than disruptive or destructive.

Visual aids such as pictures of every facet of life (sports, religions, schools, nature, urban and rural landscapes, children and family activities, etc.) support the process of envisioning. They help envisioners to connect their hearts and minds, and act as 'props' to help tell the stories of how they really want to experience the future together. These individual stories, shared in small groups initially, are gradually conflated and gathered up in shared visions, first in the small groups and, eventually, as one story for the whole workshop. The shared vision, reflecting human needs, should be mainly shaped by heart, rather than by eyes – facilitators focus attention on ensuring that the vision expresses desired *experience*, rather than what the community should look like. Qualities such as joy, understanding, harmony with nature, creativity and beauty may have an important part to play (Farley and Costanza 2002; Max-Neef 1992). It is crucial for community members to be aware that the shared vision belongs to them and that all the members are responsible for bringing their vision into being.

Step 2: Extracting core values (core messages) embedded in shared vision

As noted above, a shared vision is likely to be a “values-rich story”, containing values that readily emerge when analysed by the community. The question is: ‘*What are the core messages/main points/values in our shared vision?*’. Community members can write their answers on small cards and then stick them on a wall of the hall (or speak them out while the facilitators write them on big sheets of paper, visible to all participants). Individual cards are grouped around common themes – ‘core messages’ – and named by the participants. Community members co-create the vision, so they are well placed to tease from it the material that will help to develop indicators. Core messages sit at the heart of the shared vision, and of the experience of living and working together to which the community aspires.

Step 3: Identifying indicators based on the core messages

Community indicators are identified, used and refined by the community and for the community. The indicators can be identified based on both agreed core messages and by reference to what facilitators and community members understand as “leverage points” (Meadows 1999).

Identifying community indicators starts with questions: ‘*What are the indicators that we are making progress towards bringing our shared vision into being?*’, ‘*What will we observe?*’ ‘*What are the little things that mean a lot?*’. The nature of indicators, should be carefully explained again, with examples of indicators that people may be familiar with and have used, but may not recognise or describe them as indicators. Discussions are facilitated to identify possible indicators, based on each core messages in turn.

Community indicators are not able to tell the community how to work or to make right decisions, but they can provide timely and accurate information that helps to capture a system's dynamic behaviour (Meadows 1998; Innes and Booher 2000; Phillips 2003) and to “secure its health and vitality” (Progress Redefining and Network Earth Day 2002). Rural community indicators provide a community with such information in terms of their farming, livelihoods,

neighbourhood relationships, feelings and happiness, and whether or not these things are moving in the direction of bringing their shared vision into being.

Both qualitative and quantitative indicators may be necessary for communities to monitor their progress. Wells and McLean (2013) argue that because of the assumptions entrenched in slogans like “you cannot manage what you cannot measure”, players (often outsiders or leaders of communities) use measures to indicate what has been done in communities, after the event. In other words, “measure lags outcomes” because only what has already happened – tangible outcomes – can be captured by measures. Such measures tend, also, to capture the behaviour of parts of a system, separate from the whole. In contrast, systemic indicators “monitor what is unfolding – they lead outcomes”, and can provide information about “how much progress we are making – whether we are on track” (Wells and McLean, 2013, p.77). They try to capture the behaviour of the whole system, without being the whole system – often they are ‘small things that mean a lot’.

The players aspire to understand the unfolding changes in communities and how successfully they are bringing their vision into being. But indicators are not separate from the community system they are monitoring – they are connected and can influence the behaviour of the system, often in unintended ways (Meadows, 1998). It is therefore important that community members choose wisely the indicators used to monitor progress in bringing their co-created vision into being.

Core messages extracted from the shared vision are described as a “springboard” (Wells and McLean 2013), and are the principle source for identifying a community’s indicators of progress. This ensures that communities will develop a set of indicators that reflect what they care most about. One core message can be the foundation for several indicators and these indicators can be seen as sub-messages reflecting the core messages. Indicators can reflect more than one core message. Some core messages may themselves be good indicators.

Step 4: Categorising indicators by levels of leverage

Beyond monitoring the progress that follows actions, powerful indicators themselves can influence a system and catalyse changes (Phillips 2003; Progress Redefining and Network Earth Day 2002; Reed et al. 2006). This means that the ‘right’ community indicator can have a direct impact on the awareness of community members, enhance their aspirations, and finally prompt change in their habits and behaviours. Meadows (1998) points out that “indicators are leverage points” as “they can change the behaviour of systems for better or worse”.

As reference to leverage points requires conceptual understanding of dynamic systems, it is challenging for rural communities to identify indicators based on their standing as leverage points. After the community has established a set of indicators based on core messages, they will require support from ‘outsiders’ – typically those who facilitate the envisioning process – in assessing which indicators exert the most leverage on the community system. That assessment will need to be explained very carefully and patiently so as to ensure that the community understands and embraces the outcomes. That is crucial, as the community indicators (at all levels of influence) are owned and used by the community. It is important that the “experts” participate in the whole process (ideally as facilitators) to grasp the context, how the process unfolds and the community aspirations.

The matrix below (Table 1) draws on the work of Meadows (1999), who ranked the power of leverage points by reference to their place in the structure of a system. It uses Meadows’ leverage ranking to express how to use leverage capacity to categorise rural community

indicators. In the context of rural community, it would be ambitious to apply all twelve places to intervene in a system identified by Meadows (1999), given their conceptual demands, so the matrix uses those that are likely to be most conceptually accessible to community members, who may have only a basic knowledge of systems concepts.

The levers, core messages and indicators presented in Table 1 are just examples and they are given based on the context of developing countries. They may all be different in different communities. Indicators for each core message may be reflected in only one or two of the categories of levers.

Rural community indicators may reflect the more experiential (indigenous) knowledge of farmers, as most of the community members work on farms and in other related activities. The indicators may, for example, reflect a community's interests in sustainable agricultural production that can contribute to long term community thriving. In this context, indicators may be more quantitative. Other intangible facets of community, such as close knit relationships in families and neighbourhood, happiness, leisure and respect will more likely appear in qualitative and subjective indicators.

Step 5: Taking action to keep the vision lively in community life

The process of identifying community indicators and the identified indicators themselves can be seen as indirect 'actions' that may influence changes in a community's awareness and behaviour. Nevertheless, they should not be confused with the actions that flow from community decision making processes. "Indicators are not substitutes for action" (Progress Redefining and Network Earth Day 2002), but they may be a "prompt to action" (Wells and McLean 2013), keeping the shared vision, core messages and indicators lively in the community, and preventing them from becoming empty artefacts.

Systemic actions are best seen as experiments in a cycle of action learning. Viewed through the lens of complexity, it is not possible for communities to guarantee or dictate that the desired outcomes will follow chosen actions (Senge 2006; Wells and McLean 2013). Indicators monitor whether or not the chosen actions – the experiments – are taking the community in the right direction. This process is itself an experiment and every indicator as well as every action is experimental. Yet, the experiments are not random. They are underpinned by the principles that govern the behaviour of complex living systems and chosen on the basis of shared vision, core messages and indicators that are informed by the community's "humanity,

Table 1 Matrix of community indicators

Levers	Numbers	Information flows	Rules	Goals	Paradigm
Core messages (examples)					
Cooperation	Number of groups pursuing organic methods	Transparency of performance information flowing between groups	Collaboration between groups in following the procedure and process of organic production	Commune certified organic by a reputable body	Principles underpinning organic method applied in the way group members interact.
Respect					
...					

rationality, ability, intuition, compassion and morality” – the qualities required if we are to ‘dance with systems’ (Meadows 2002). Experimenting involves action and learning, and lessons learnt from error in each experiment (or cycle) will be valuable inputs for the next one (Senge 2006; Wells and McLean 2013) through reflection - a key part of learning (Houston 2008; Massingham 2014). Through the process of learning and responding to feedback, the community vision can be “brought lovingly into being” (Meadows 2002).

The process of identifying systemic rural community indicators is an ongoing cycle, underpinned by the learning and engagement of all members of communities. Community members can learn from each other and from both their successes and failures - systems feedback. The continuity of this process fosters community resilience and self-organisation – action promoting adaptation. Rural communities can “feel” and have “fun” with this process, but may need a little encouragement from outside.

Who should be Involved in the Process of Identifying Systemic Indicators for Rural Communities?

Identification of systemic indicators for rural communities should involve as many community members as possible, as all outcomes of the process (shared vision, core messages, indicators and actions) belong to all of them. Moreover, identifying community indicators is a capacity building and cooperative process, which not only produces what can be recorded and written down, but also what is intangible and very important for community development, such as awareness, knowledge, strong relationships, trust, confidence and self-esteem. These qualities can help a community to learn effectively from feedback on outcomes of community decisions and action, so that they can respond in a way that moves them progressively towards what the community is seeking.

This process for rural communities should also involve rural developers, as rural communities will probably need facilitation (especially during the first cycle). Rural communities are often subject to development interventions that aim to improve agriculture and rural lives. The closest ‘outsiders’ are in agro-forestry extension stations and agricultural and forestry departments – these people may well be comfortable as facilitators. In addition, the iterative action learning process may provide the chance to improve cooperative relationships between the community and outsiders, and enhance the capacity to reduce the community’s isolation from the outside world.

While Innes and Booher (2000) argue that indicators need to be agreed by both experts and insiders as “without experts, the indicators are not credible and not used” (p. 178), it should be noted that community members have their own experiential knowledge, and in regard to feeling and aspirations, they are well placed to decide what is consistent with their interests, nature and culture – in this sense, they are ‘experts’ in what should work and be best for them. They will use whatever they believe in. Community indicators are used by communities, so they should be produced by the users. What the communities need from external experts is their advice and support, not to dictate action, but to strengthen the process that underpins community decision making and action. Shared vision creates the context for the application of expert assistance. Outsiders can also act as a bridge to transmit the community’s concerns to rural policy makers. A community as a system can, over time, come to function at its best, if it is connected to more of itself (Wheatley 2006) and if responsibility is located in the system (Meadows 2008).

Conclusion

Rural community indicators play an important role for sustainability and rural development. They are “small things”, but “mean a lot”, as they are an instrument for suggesting strategic development experiments, monitoring the progress of those experimental actions, and influencing the orientation of community players towards transformational change. Community indicators are vital, but the *process* of identifying them may be of even greater significance for rural community development.

This paper has explored an elaboration of the One Way Forward model to create one possibility for systemic indicator identification that encourages all members of a rural community to engage in an iterative learning and sharing process in order to improve the crucial factors for sustainable community development. By collaborating closely, all members of a community can improve their awareness, knowledge, relationships, trust and self-esteem, while articulating shared vision and agreed core messages, identifying compelling indicators and making sound experimental decisions. Without sharing of experiential knowledge and co-learning in response to feedback, the opportunities for developing ownership, self-development, local leadership, local cooperation, motivation and continued involvement will be limited, and communities may remain passive recipients (not true beneficiaries), increasing the likelihood of failed initiatives and unsustainability.

A community functions as a system that encompasses many elements interacting in complex interdependent relationships. We can identify particularly powerful places in which to intervene in that system for effective outcomes. The framework described in this paper therefore emphasises the possibility of enabling communities to identify influential indicators by reference to those leverage points. This would help to prioritise the decisions and actions that best support progress towards sustainable community development. As indicators can influence transformational systemic change, the more powerful the indicators identified, the more far-reaching and sustainable the community development may be.

It is acknowledged that achieving genuine engagement by all members of a rural community in the whole process of identifying indicators of progress is likely to be challenging. It is critical that we create a respectful atmosphere and a joyful envisioning at the beginning. That should build the confidence of all members of a community, and their willingness to engage actively and push the boundaries of their experience. Confidence and engagement in the present moment foster the trust that *we belong to one community and we can together make our life better, reflecting what we really want, not what we'll settle for*, creating a sense of accountability for the identification of their community indicators, supported by facilitators.

We cannot identify and implement the drivers for sustainable rural community development overnight. It is challenging to identify effective indicators as leverage points and it is not possible to dictate outcomes without surprises. Nevertheless, if active engagement and effective learning processes are promoted, communities can claim genuine ownership and, in the process, actually find that co-creating, feedback and co-learning are “fun” – energising and enjoyable (Bosch and Nguyen 2013, Establishing Evolutionary learning laboratories for enhancing feedback and accountability Systems for Agricultural Development, The University of Adelaide, Phase I Grand Challenges Explorations submission (Unpublished work); Wells and McLean 2013). Communities can adapt to the emergent ‘surprises’ and, supported by their own systemic indicators, experiment their way to bringing shared visions into being.

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