

Measuring Sustainability: Using the Capabilities Approach in Sustainable Development Assessment

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Abstract: The Capabilities Approach is a theoretical framework with two core normative claims: first, that the freedom to achieve wellbeing is of primary moral importance, and second, that the freedom to achieve wellbeing is understood in terms of people's opportunities to achieve what they have reason to value. Measuring freedoms and opportunities are difficult. Objective wellbeing is often assessed using indicators such as income, education, and lifespan, thus capturing a societal understanding of wellbeing. Individual wellbeing is more qualitative, measured by surveys, and explained through ethnographic studies. Both objective and individual wellbeing concern material conditions, the quality of life, and sustainability as addressed through the Capabilities Approach. Mixed methods ethno-economic research methodology (EERM) provides the context and content in which wellbeing can be understood both objectively (quantified) and individually (qualified). EERM gives the people studied the freedom and opportunity to define, measure, and compare their wellbeing over time. Indicators are simultaneously objective and societal while also being subjective and individual. By empowering participants to engage in and measure their development, the Capabilities Approach can be better understood, applied, and critiqued. This scientific paper shows through three case studies and five years of research and development, how EERM is a viable tool for defining and understanding wellbeing.

Keywords: Well-being, EERM, Capabilities Approach, sustainable development.

Medición de la sostenibilidad: el uso del enfoque de capacidades en la evaluación del desarrollo sostenible

Resumen: El Enfoque de Capacidades (Capabilities Approach) es un marco teórico con dos reclamos normativos centrales: primero, que la libertad para lograr el bienestar es de

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importancia moral primaria, y segundo, que la libertad para lograr el bienestar se entiende en términos de las oportunidades de las personas para lograr lo que tienen razones para valorar. Medir las libertades y las oportunidades es difícil. El bienestar se evalúa utilizando indicadores tales como ingresos, educación y esperanza de vida, capturando así una comprensión social del bienestar. El bienestar individual es más cualitativo, medido por encuestas y explicado a través de estudios etnográficos. Tanto el bienestar objetivo como el individual se refieren a las condiciones materiales, la calidad de vida y la sostenibilidad tal como se abordan a través del Enfoque de Capacidades. La metodología de investigación etno-económica de métodos mixtos (EERM) proporciona el contexto y el contenido en el que el bienestar puede entenderse tanto objetivamente (cuantificado) como individualmente (calificado). EERM brinda a las personas estudiadas la libertad y la oportunidad de definir, medir y comparar su propio bienestar a lo largo del tiempo. Los indicadores son simultáneamente objetivos y sociales, pero también subjetivos e individuales. Al empoderar a los participantes para que participen y midan su propio desarrollo, el Enfoque de Capacidades puede ser mejor entendido, aplicado y criticado. Este artículo científico muestra a través de tres estudios de caso y cinco años de investigación y desarrollo, cómo EERM es una herramienta viable para definir y comprender el bienestar.

Palabras clave: bienestar, EERM, Enfoque de Capacidades, desarrollo sostenible.

1. Introduction

This paper demonstrates and evaluates a methodology for conducting sustainable development (SD) research in place-based environments. SD is of importance in guiding approaches, policy, and outcomes where long term solutions are valued. Several SD practitioners have pioneered research using the Capabilities Approach, yet complexities over defining and evaluating SD leave room for more methods (Coyle & LeMaster, 2011; Simpson & Basta, 2018). The ethno-economic research methodology (EERM) presented here is a three-prong, mixed-methods approach based on the author's seven years of development and use. EERM includes a survey for problem identification and quantification, workshops for problem definition, and participant observation to build context, trust, and communication. It meets two objectives by providing a standardized, comparable model for presenting SD research and also a participatory, holistic approach to understanding and evaluating SD goals in a place-based environment. I demonstrate and evaluate this methodology by presenting three case studies in terms of the EERM, one that uses the full method and two that take partial approaches to show how the different parts of the EERM taken collectively better define SD approaches and goals. All methods are grounded in the principles of the Capabilities Approach.

2. State of Art

EERM is a mixed-methods approach conducted over time through observation, interviews, and participation. Mixed-methods strategies can reduce errors and build a more holistic understanding of the how and why of sustainable development by augmenting traditional methods for assessing and monitoring through combined quantitative methods such as surveys with qualitative ones such as focus groups and participatory research (Driscoll et al. 2007). In EERM, events and details representing webs of meaning generate cultural understandings from an insider's point of view. Surveys are developed and issued via local stakeholders. Workshops open up space for more personalized language and meanings to arise. Researchers live with the people studied, shadowing them through their day, helping with tasks, and witnessing family life to create context. In the emic style, categories and meanings emerge from this multi-dimensional encounter (Hoey, 2011).

EERM includes 1) participant observation, which builds context, trust, and communication, 2) focus groups for problem definitions which are then quantified, and 3) a survey for problem identification and quantification (Stenn, 2019). EERM meets the dual objectives of providing: 1) a standardized, comparable model for presenting sustainable development research and 2) a participatory, holistic approach to understanding and evaluating sustainable development goals (Fig. 1).

EERM Method	EERM Rationale
Participant Observation	Builds context, trust and communication though the presence of the researcher during day-to-day activities.
Focus Groups	Defines problems and terms in a local context using qualitative and quantitative methods.
Survey	Identifies and quantifies a problem comparably, both demographically and over time.

Figure 1. *EERM methods and rationale* (Stenn, 2019).

Mixed methods, ethno-economic research methodology (EERM) is a basis of data development and measurement over time. EERM research deeply examines a particular social group within a specific place and time. By carefully understanding these smaller social groups, a broader understanding of development emerges. EERM meets the dual objectives of providing: 1) a standardized, comparable model for presenting sustainable development

research and 2) a participatory, holistic approach to understanding and evaluating sustainable development goals. EERM is a mixed-methods approach, which means that several different research methods are used concurrently—conducting EERM research over time captures how and where change happens, generating a deeper understanding of social, economic, and environmental impacts on wellbeing.

Three distinct styles of ethnographic research are used within the EERM model of this study: 1) Participatory Rural Appraisal (PRA) as developed by Robert Chambers; 2) Participant Observation, a popular tool used in anthropological and sociological studies and fieldwork, and 3) Ethnographic Study using Geertz's method of thick description (Jorgensen, 2020; Chambers, 2007; Geertz, 1973). Used together, these methodologies of observation, participation, and description create the redundancies and checks and balances indicative of EERM. The result is a more authentic voice of the people developed in their language. It also identifies the context of the study with the experiences of those being studied. Lastly, it establishes a sense of time and place (Fig. 2).

Research Application	Circles Survey	Talking Stick	Participant Observation
Guide policy development	X	X	
Create a common language	X	X	
Benchmarking	X	X	
Needs assessment	X	X	
Empirical investigation	X	X	
Build open, inclusive, equitable relationships	X	X	X
Connecting across conventional academic/practice/social activist demarcations	X	X	X
Create common goals	X	X	X
Holistic mapping: environment, culture, economics, policy	X	X	X

Figure 2. How EERM serves in meeting different research applications.

When developing this model, I lived in Bolivia as a US Peace Corps volunteer, business developer and rural journalist from 1996 to 1999. In 1999, I moved to the US to pursue a Masters's degree in Sustainable Development. Still, I maintained connections in Bolivia through a Fair Trade clothing company I founded with Bolivian producers from 1999 until 2018. Starting in 2010, I began academic research in Bolivia, traveling there from the US six times between 2010 and 2018 for a total of 50 weeks. During this time, I was a doctoral student, a post-doc professor, and finally, a US Fulbright scholar. Each research study involved a rigorous IRB review, research plan, methodology, and published results. I worked in manufacturing and handicraft industries, in agriculture, and with quinoa and coffee. Here I developed the EERM method, shadowing producers through their days, helping to cook, clean, and care for children; attending markets, schools, family events, and community festivals; visiting factories and working in the fields. I participated in meetings and listened to family discussions. In the emic style described by ethnographer Brian Hoey, categories and meanings emerged from this ethnographic encounter rather than being imposed on it from existing models (2011).

Although I was not an indigenous Bolivian woman, through this research, I experienced what it was like to be a traditional Bolivian family member, entrepreneur, and mother. I learned to understand the Bolivian ways, build trust amongst the people studied, establish rapport, share cultural meanings, interpret data, and craft stories. The result was a much deeper understanding of sustainable development, spirituality, and how it was understood and experienced by Andean people.

To further focus and quantify experiences in Bolivia, in the EERM style, I created a workshop using the talking stick method. From 2010 to 2018, a total of 14 workshops were conducted with a total of 196 entrepreneur participants, including 98 Fair Trade and organic quinoa farmers, 70 Fair Trade alpaca clothing knitters, and 28 Fair Trade and organic coffee farmers. The Talking Stick, a Native American method of group discussion, entails participants taking turns speaking freely about a topic while other participants listen (First Peoples, 2011). The Talking Stick workshop used in these multiple research studies focused on Andean women with the discussion question: "What does sustainable development mean to you?"

Spirituality was an essential part of sustainable development in the Andean region. The talking stick workshop monologues were recorded and later analyzed through the Text Analysis Markup System (TAMS) to quantify trends and dialects (Weinstein, 2006). Additional discussions about challenges and benefits helped to clarify themes brought up in the monologues.

A final part of the development of EERM was the Circles of Sustainability survey tool.

This survey was used from 2015 to 2018 to quantify further the experiences of 450 quinoa farmers from 20 different communities. The Circles of Sustainability model uses the Social Life Questionnaire, first developed in Australia in 2006 and subsequently used by several diverse communities worldwide, including those in southeast Asia, the mid-east, India, Israel, Africa, Latin America, the UK and the US (James, 2015; Stenn, 2015-2018). This survey explores the dynamics of sustainability, which is about balancing long term social, economic, and environmental objectives, which often seem to conflict with each other in the short term. In the Bolivia study, I had 33 core survey questions followed by a Lichert scale response ranging from a low rating of "1: very bad" to the highest score of, "5: excellent." The questions matched those used by Circles tool in different places worldwide and were developed to determine how individuals ranked their wellbeing on their terms, not those determined by external socioeconomic indicators such as income, education, and health. The survey's Lichert scale approach quantified qualitative data making it comparable across places and over time. Having quantified data, enabled shifts and changes in peoples' perceptions and ways of being to be more accurately captured. Question 29 most closely captured the aspect of spirituality in a religious sense. "How is your participation in the cultural aspects of religion." I also added a question 33 with an emphasis on indigenous spirituality, "What are the original customs that you practice when producing and consuming quinoa?"

3. Theoretical perspective

Three distinct styles of ethnographic research were used in this study. 1) Participatory Rural Appraisal (PRA) as developed by Robert Chambers; 2) Participant Observation, a popular tool used in anthropological and sociological studies and fieldwork, and 3) Ethnographic Study using Geertz's method of thick description (Jorgensen, 2020; Chambers, 2007; Geertz, 1973). Used together, these methodologies of observation, participation, and description developed the voice of the people and created a language, context, and feeling for the place of study.

Surveys are frequently used in social and psychological research; however, placing them at the center of research into sustainable development, creates new areas where collaboration can be formed and needs better understood (Ponto, 2015). The surveying aspect of the EERM is based on The Circles of Sustainability model. This model was created through global collaborations, taskforces, and teams from 2007 until 2014, used in development settings, and presented at the Rio+20 Summit (James, 2015). Circles are an effective tool for assessing place-based sustainability, creating a common language, and including environmental, social, cultural, and economic realms in understating wellbeing (Ibid). EERM requires local stakeholders to develop survey content and administer the survey, building trust,

understanding, inclusion, and collaboration (Stenn, 2015-2018). The Circles method includes a visual representation of survey findings, which is useful in spurring on future conversations, mapping needs, and creating a visual comparative.

The Circles of Sustainability model used the Social Life Questionnaire, first developed in Australia in 2006 with results presented in a four-quadrant circle (James, 2015). This survey explored the dynamics of sustainability, balancing long term social, economic, and environmental objectives with short term needs. Besides ten demographic data questions, the survey had 33 questions with seven Likert scale responses in each of the four categories. In the Bolivia quinoa study, the "economic" category had additional questions added to more accurately capture the quinoa experience. The four quadrants were as follows:

- Social – including governance, law, security and ethics.
- Environmental – including the built and natural environment, materials and energy.
- Economic – including production, consumption, labor and wealth distribution.
- Cultural – including identity, beliefs, gender and health.

Respondents reported their degree of satisfaction with statements such as, "The natural environment is..." (from the Environmental section) with choices ranging from very bad (1) to excellent (5). The survey was conducted by people from within the communities being studied to ensure greater participation, trust, and accuracy in responses.

Focus groups are useful for needs assessment, organizational development, and evaluating outcomes (Leung, 2009). In EERN, a workshop focus group using the Talking Stick methodology ensures full participation, builds polyvocality, and shares people's experiences with sustainability. The Talking Stick, a Native American method of group discussion, entails participants taking turns to speak freely about a topic while other participants listen (First Peoples, 2011). Polyvocality is the use of multiple voices as a narrative enabling a group to "speak in their own voice" (Emerson et al. 1995, p. 13). Presenting participants' stories, known as textualization, enables others to draw their conclusions, thus removing the researcher, and any associated bias, from the interpretation (Emerson et al. 1995). Talking Stick workshops can focus on an under-represented group such as women, to gain a better understanding of sustainability from their perspective. Talking Stick stories are recorded and later analyzed through the Text Analysis Markup System (TAMS) to quantify trends and terms (Weinstein, 2006). The results are then compared to the survey findings to help build a better understanding of sustainable development.

Ethnographic research, the third prong of EERM, takes place in the form of Participatory Rural Appraisal (PRA) as developed by Robert Chambers and ethnographic study using Geertz's method of thick description (Chambers, 2007; Geertz, 1973). Both create the voice of the people and create a language, context, and feeling for the place of study.

Sometimes what emerges is not what the researcher anticipated. That is the richness of this method. Populations engaged in PRA develop a greater sense of leadership and control as they direct their discovery and create their vocabulary and definitions to describe their realities (Chambers, 1997).

4. Method

Ethno-Economic Research is a model I developed to create a context in which economic data can be gathered and understood. Based on Sen's Capabilities Approach, it enables participants to define their wellbeing and determine what advances or impedes justice for them (2009). I use computer coding to create measurements around participants' responses. This method combines fieldwork with an ethnographic study using a long-term emic perspective, auto-ethnography, and polyvocality to create textualization. There are two primary aims of Ethno-Economic Research: (1) To gain a deeper understanding of the impact of a project or change; (2) To give a voice to an underrepresented population to better understand how they define and experience justice for themselves.

Circles of Sustainability is a survey-based model that emphasizes the interconnectivity of economic, ecological, political (social), and cultural dimensions and creates a visual story of how people perceive their wellbeing in a particular moment (James, 2015). Circles of Sustainability is a four-domain participatory assessment model that emphasizes the interconnectivity of economic, ecological, political, and cultural dimensions and looks at critical issues, indicators, and their relationships. It is useful for problem identification and quantification. The model is administered via a survey and assessed by an interdisciplinary team. Though often referred to as an urban assessment, it is well suited for in-depth studies of rural communities as well. The benefit of using the Circles of Sustainability assessment in this study is that the Bolivian data becomes part of a larger global conversation on communities, sustainability, and corporate responsibility.

Sustainability is about balancing long term social, economic, and environmental objectives, which often seem to conflict with each other in the short term. This survey explores these dynamics. Participants provided demographic information such as age, education, family size, use of loans, property ownership, and political participation. Then they responded to 33 opinion questions in the Circles' four study areas: culture, social, economic, environment on a scale of one to five with one being very bad and five being excellent. The Bolivian survey was similar to those used in urban Circles studies worldwide but modified to reflect the realities of rural Bolivia best. For example, since the use of surveys was unfamiliar to participants, the seven-point range of opinions was shortened to five to avoid confusion. In the visual presentation of the Circles, the range was extended to seven for comparison purposes.

The Circles surveys were assessed using the Wilcoxon ran-sum test, a nonparametric alternative to the two-sample t-method, and the Krushal-Wallis test, a nonparametric alternative to the one-way analysis of variance F-test (Bhattacharyya and Johnson, 1977). Statistically, there was no significant difference in the circles' responses in the areas of gender, age, and education. However, there were statistically significant differences between the survey locations.

To focus PRA around economic themes for Ethno-Economic Research, I use the Talking Stick, a Native American method of group discussion for problem definition, including challenges and successes. In this workshop, participants pass a stick, taking turns to freely speak about a topic while other participants listen without asking questions or making comments. Using the Talking Stick ensures that everyone participates and shares their point of view. It also builds vocabulary and context, which is explored through guided group discussion (First Peoples, 2011).

Ethnographic study includes participant focused field research designed to create a space for women to define their wellbeing in quantifiable terms (Stenn, 2013). The benefit of ethnography is that more authentic and diverse experiences are captured. Including ethnographic study with the workshops and surveys enables the researcher to go deeper into economic, ecological, political, and cultural dimensions to identify new ways in which participants defined and viewed them. Part of the ethnographic study included groups of 12 to 16 participants attending a two-hour workshop designed to facilitate the sharing of experiences and the identification of challenges and successes in their economic production and wellbeing. These workshops helped to measure participants' attitudes and beliefs regarding their roles and responsibilities as producers and homemakers. They created a space for participants to define their own wellbeing in quantifiable terms, the workshops were used successfully in 2010 and 2012 studies uncovering previously unexamined aspects of Fair Trade such as empowerment challenges faced by women in coffee production that women in handicraft production did not face.

Sometimes Ethno-Economic Research can be multi-lingual. Language not only voices ideas but shapes them (Sapir, 2004). While many participants are bi-lingual in their national language, some also speak local languages or dialects which the researcher may not be fluent in. Inviting research participants to translate for each other enables participants to express the meanings behind the words by a known and trusted speaker. Paying attention to language, grammar, and emotion creates a deeper understanding of individual experience and expression.

Additional tools used in Ethno-Economic Research include disposable cameras for participants to take photos with, a high-density camera to take film photos for use in

publications, a video camera to capture footage, with permission, of participants' homes and communities for future presentations, an MP3 recorder for the Talking Stick exercises and longer interviews, and flip chart paper with markers for recording PRA discussions.

Qualitative data collected through Ethno-Economic Research is translated, transposed, and coded using the Text Analysis Mark-up System (TAMS) analyzer. TAMS enables qualitative data to be sorted and examined in different ways as themes emerge across sectors and "helps researchers identify and keep focused on what a given data set signifies" (Weinstein, 2006, p. 75). In Ethno-Economic Research, data is coded and analyzed in accordance to Sen's ideas of justice, quality-of-life (QoL) economic indicators such as health, education, personal activities, political choice and governance, social connections and relationships, environmental conditions and personal and economic security, and themes participants develop themselves.

Participant observation is used to build context, trust and communication. It is comprised of Participatory Rural Appraisal (PRA), as developed by Robert Chambers and Ethnographic Study, using Clifford Geertz's thick description. It is recommended to use both methods because while PRA develops the local voice and creates a language for participants, the Ethnographic Study establishes a context and feeling for the place of study. Using the participants' vocabulary, definitions, and interpretation, one can present an authentic experience. Participants' stories can then be analyzed with the economic theories of justice and the Capabilities Approach, as developed by Economist, Amartya Sen.

Another part of ethnographic study includes unstructured observation protocols such as Geertz's thick description to aid in field note collection and home-stays (Geertz, 1973). Home-stays, where the researcher lives with those being studied, takes place over several weeks and includes participation in daily living.

Ethno-Economic Research is done over time through observation, interviews, and participation. Events and details representing webs of meaning generate cultural understandings from an insider's point of view. As a researcher, one lives with members of the study group and shadows them through their day, helping to cook, clean, care for others and attend to work and events. One attends meetings and listens in on family discussions. In the emic style, categories and meanings emerge from the ethnographic encounter rather than being imposed on it from existing models (Hoey, 2011). Auto-ethnography draws on the researcher's own experience to understand a phenomenon. Auto-ethnographers often start, "with a story about themselves, explaining their personal connection to the project" (Ellis and Bochner, 2000, p. 741). Though I am not member of the group being studied, I am also a member of groups. Together we have a shared human collective with similar ways of being.

Through this mindset, one builds trust amongst the people studied to establish rapport, share cultural meanings, interpret data and craft the story.

Polyvocality is the use of multiple voices as a narrative, enables a group to "speak in their own voice" (Emerson et al. 1995, p. 13). Enabling participants to speak without the guidance of a survey or interview questions reduces personal bias and preserves authenticity. Presenting the participants' narrative, known as textualization, without elaborate analysis, enables others to draw their conclusions, thus removing the researcher, and any associated bias, from the interpretation.

Participatory Rural Appraisal (PRA) is a method of group discussion and observation used to define needs. Local people name, rank, and analyze problems and opportunities as they see them and work out their preferences for addressing them. Often what develops is not what the researcher anticipated. The surprise of what was said is where the richness and importance of PRA lies. Populations engaged in PRA develop a greater sense of leadership and control as they direct their discovery and create their vocabulary and definitions to describe their realities (Chambers, 1997).

5. Discussion and reflections on the results from the experiences

EERN is an interdisciplinary approach to understanding wellbeing. It takes from disciplines of sociology, anthropology, psychology, and economics to create a new holistic view of the welfare of a people and place in time. By using a multi-disciplinary approach, a more comprehensive and nuanced perspective arises. EERN is best used to understand a complicated situation, create a holistic paradigm of sustainability, build allies, and identify development needs. It can often prevent poor development decisions or unintended consequences and helps to build collaboration amongst previously unassociated groups. The benefits of EERN are the quality and complexity of the data collected and relationships and collaborations formed in its gathering. Some challenges of EERN include the complex role of the researcher and the time and coordination it takes to identify and organize stakeholders and complete the study.

This paper introduces EERN, giving examples of its development and use. It presents, demonstrates, and evaluates a methodology for conducting sustainable development (SD) research in place-based environments. SD is of importance in guiding approaches, policy and outcomes where long term solutions are valued. Several SD practitioners have pioneered research using the Capabilities Approach, yet complexities over defining and evaluating SD leave room for more methods (Coyle & LeMaster, 2011; Simpson, 2018). The lack of a methodology to serve as a commonly accepted framework for SD research and of a format

for its presentation may have contributed to limitations in the realization of Sustainable Development Goals (Fehling, Nelson & Venkatapuram, 2013).

The ethno-economic research methodology (EERM) presented here incorporates principles, practices, and procedures required to carry out SD research which meets two objectives: it provides a standardized, comparable model for presenting SD research and it provides a participatory, holistic approach to understanding and evaluating SD goals in a place-based environment. The EERM is a three-prong, mixed-methods approach, which includes: a survey for problem identification and quantification, workshops for problem definition including challenges and successes, and participant observation to build context, trust, and communication. I demonstrate and evaluate this methodology by presenting three case studies in terms of the EERM, one that uses the full method and two that take partial approaches. The designed methodology effectively satisfies its two objectives and has the potential to help better define SD approaches and goals.

The benefits of EERM is that it collectively develops a way to measure and compare data gathered in the theoretical framework of the Capabilities Approach. It also empowers those who are studied and gives a voice to those not always heard. EERM creates cultural appropriateness, stakeholder buy in, transparency, and enables representation from all types or participants.

Challenges posed by EERM includes the role of the researcher as a participant-observer. Often this role necessitates outside training and personal awareness and restraint, so the researcher does not overstep their role. It can also lead to the discovery of "more than you want to know," opening other areas for examination or making studies more complicated than initially thought. EERM methods also include expectations from those researched, more personal involvement, the need to keep one's role as a researcher very clear with set boundaries. There is also the importance of keeping the data clean, pure, and uncontaminated with one's own bias, projects, and solutions. EERM research is not fast. It takes time, often months or years.

6. Conclusions

Mixed methods ethno-economic research methodology (EERM) provides the context and content in which wellbeing can be understood both objectively (quantified) and individually (qualified). EERM gives the people studied the freedom and opportunity to define, measure, and compare their wellbeing over time. Indicators are simultaneously objective and societal while also being subjective and individual. By empowering participants to engage in and measure their development, the Capabilities Approach can be better understood, applied, and critiqued. EERM combines empirical research with qualitative data and contextual

observation. It creates a place for participants to define their wellbeing while enabling the researcher to experience it, building reciprocity, enabling both parties to share information and experiences. As a result, trust is made, a more in-depth understanding takes place, and new opportunities are discovered. Further research using mixed methods is recommended, including more studies engaging EERM methods to clarify its stages better, and perhaps simplify the rather long, involved process of collecting data in multiple ways.

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