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On the introduction of a community resilience framework to Social Life Cycle Assessment

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Introduction

Social Life Cycle Assessment (SLCA) is still a new methodology and there is need of further research for its development (Benoit et al., 2010). The methodological problems concern the identification of reliable indicators for Type I and Type 2 impact assessment, their operationalization, and the selection of the impact assessment method (Benoit et al., 2009). In SLCA, human well-being is the main endpoint indicator to which midpoint indicators refer to. However, within the methodological sheets, but also in the scientific literature of social sustainability, well-being is still not well understood, nor it is well-defined (McCrea et al. 2014). While some scholars refer to human well-being as a state and others view it as a process-related concept. Furthermore, one can adopt an individual or collective perspective on well-being. This latter distinction has been addressed in the SLCA literature by Soltanpour et al. (2019) by trying to identify the main differences between individual and societal well-being from a sociological perspective.

The current UNEP/SETAC guidelines report many indicators for Type I impact assessment, many of which are based in a Corporate Social Responsibility (CSR) framework (Baumann & Arvidsson, 2020). However, CSR aims to investigate social responsibility of firms, and not - in a strict sense - social sustainability. Also, CSR does not consider the change that a production process may generate on nature and society. These aspects represent a limit for the usefulness of SLCA. In looking for an alternative to CSR, community resilience (CR) (Magis 2010) has come to the fore as an interesting concept in relation well-being and social sustainability. The aim of this study is to investigate how introducing the CR within the SLCA may contribute to identify both Type I and Type 2 impact categories.

Methods

The research is divided in four steps. First, a literature review on the concept of well-being and CR is performed in order to identify key conceptualisations. Second, based on the knowledge from the literature review, the relation between human well-being and CR is investigated. Third, CR is explored and analysed to see how it can contribute to the operationalization of indicators and for measurement. To conclude, the strengths and weaknesses of introducing CR in both Type I and Type 2 impact assessment will be explored.

Results and discussion

In literature, well-being is a multi-dimensional and umbrella concept (Gasper, 2007) that can be investigated from multiple approaches. One of these investigates well-being by addressing a community and its context-related properties "(Wiseman & Brasher, 2008). From such perspective, community well-being is defined as "the combination of social, economic, environmental, cultural, and political conditions identified by individuals and their communities as essential for them to flourish and fulfil their potential"(Wiseman & Brasher, 2008). On the other hand, the CR concept has its roots in environmental sciences and can be intended as the capacity of a system to react to a change or to an external pressure (Berkes & Ross 2013).

McCrea et al. (2014) conceptually tested the relation between community well-being and CR showing that the former can be intended as a result of CR. Well-being reflects a specific 'status' as a given condition in time. However, it is also subjected to external pressures and it changes through time. It is therefore key to understand how communities responds to external pressures to reach desirable well-being conditions and, how CR is shaped focusing on its coupled and interdependent socio-ecological systems (Berkes & Ross 2013) .

In literature, researchers operationalize the CR looking at its several dimensions. McCrea et al. (2014) developed an explanatory model to integrate and classify features and dimensions previously identified by others. In their model, possible impacts of change create a pressure on community resources to be intended as "different types of community capitals or capacities at a point in time which underlie both community well-being and resilience". Resources belongs or better, compose the several natural, cultural, human, social, political and financial community capitals which guarantee to the community to flourish. The impact on the different capitals will determine a change in condition of CR and in its dimensions which are constituted by the strategic thinking, leading, linking, effectively using resources, commitment and perseverance and,

collective efficacy.

The contribution that this model can give to SLCA Type 1 and Type 2 impact assessments lies on the possibilities to create a connection between community resources (and capitals) to what normally defined as inputs in the life cycle methodologies. More in particular, the different community resources may be considered potential inputs for a production process. Thus, they have to be taken into account in the SLCA inventory and treated as flows to follow along the life cycle phases. The CR framework may help to understand the mechanisms that occur in the community once that capitals are affected by external disturbances. Besides, it will better identify what processes start between the several CR dimensions in order to face the change. This would contribute to develop the socio-ecological model necessary for developing impact assessment methods.

Adopting CR as a framework for developing assessment methodology may enable more dynamic investigation of human well-being sensitive of changes caused by anthropogenic pressures. In this sense, at this moment the CR framework does not assess social impacts, but it can be used for modelling the community and how it reacts to impacts. Next, this can be used to advance impact assessment methods. The value of a CR is that combine social and ecological dimensions and not on political values or convention as the CSR does.

Therefore, with the theoretic framework of SLCA on CR it may reduce the number of subcategories and indicators because a single indicator can be informative for several dimensions (e.g. natural, social, financial capitals) of CR. In addition, it would eliminate the most common division of impact categories based on a stakeholder perspective. One possible added value is the chance to model connections between the social and the ecological dimensions of impacts on communities, contributing to develop Type 2 impact category assessment methods. Therefore, more efforts should be made to understand the socio-ecological dynamics in order to design impact assessment methods that support the development of well-being.

CR is a promising approach that can be used for further developments of SLCA methodology.

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