Comprehensiveness or implementation: Challenges in translating farm-level sustainability assessments into action for sustainable development

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1. Introduction

To address current concerns regarding the environmental, economic and social impact of agricultural production, development towards more sustainable food production is needed. The sustainability of food production has not only become the focus of many research projects, it has also gained a prominent position in the production and marketing of food products. In response to both external and internal pressures to enhance agricultural sustainability, a large number of sustainability assessment tools, and certification schemes have been developed (Schader et al., 2014; Whitehead, 2016). These post sustainability assessment tools evaluate the current impact of farm practices on sustainability issues (e.g. animal welfare, biodiversity, public health) using a list of indicators. They may be used in two different ways when it comes to sustainability assessments at farm level: 1) to inform agricultural stakeholders in their decision making, and 2) to provide standardised sets of data to certification and assurance programs. The first ambition relates to the production whereas the second one relates more to the marketing of food products. In both cases, the outcomes of the assessments can be used by farmers and other stakeholders to identify changes necessary to improve the sustainability performance of the farm (FAO, 2013; Hāni et al., 2003). In this perspective, sustainability assessment tools are believed to "provide decision-makers with an evaluation of global to local integrated nature-society systems in short and long term perspectives in order to assist them to determine which actions should or should not be taken in an attempt to make society sustainable" (Ness et al., 2007). This expectation has made indicator-based sustainability assessment tools increasingly popular to measure sustainability. The actual implementation of farm-level assessment tools in practice, and contribution of assessments to change, however, is being questioned. In fact, the movement towards 'better' sustainability assessment tools is being caught between two conflicting trends: the continual proliferation of sustainability assessment tools and the streamlining of market assurance programmes that give the impression of certainty in assessing sustainability. In this viewpoint article, we identify current limitations of sustainability assessments to catalyse change and formulate recommendations to the developers and users of such tools. We argue that challenges of implementation are, in part, related to the ambition of the assessment and their associated level of comprehensiveness. As a sustainability assessment becomes more comprehensive, and covers a wider range of issues or practices, the difficulty of implementing the sustainability assessment increases. We also highlight that the implementation challenge can be connected to the credibility, salience and legitimacy of knowledge produced by sustainability assessments. We conclude that increasing the transparency, harmonization, participation and sensitivity to farmer motivation in sustainability assessments is urgently needed to better link sustainability knowledge to action and overcome the current lock-in.
normalization methods (De Olde et al., 2016a; Moraine et al., 2017; Niemeijer and De Groot, 2008; Pollesch and Dale, 2015; Pollesch and Dale, 2016; Whitehead, 2016). Most of the literature aims at homogenising indicator selection to increase the robustness of sustainability assessments, while a smaller but increasing number of studies focuses on a selection that could foster users learning (e.g. Triste et al. (2014)).

The outcomes of farm-level sustainability assessments can also be used to monitor and measure farm management practices in response to not only consumer expectations, but also changing regulatory and certification requirements in local and global markets (KPMG, 2011; Peterson et al., 2017). Over 130 standards on sustainability issues have been developed for agricultural products (ITC, 2017), including certification schemes such as GLOBALG.A.P. with over 160,000 certified primary producers (GLOBALG.A.P., 2017) and the Irish sustainability programme Origin Green with over 137,000 farm assessments completed (Bord Bia, 2017). Recent papers on sustainable supply chains, however, have questioned the credibility of such methods (Boström et al., 2015; Dieterich and Auld, 2015; Egels-Zandén and Lindholm, 2015; Lockie et al., 2015; Miller and Bush, 2015) as these certification schemes “can continue operating despite little evidence of sustainability improvement and much evidence of flaws” (Boström et al., 2015).

In this viewpoint article we discuss whether current sustainability assessments, for decision making and certification, can live up to the expectation of contributing to change for sustainable development. We suggest that the movement towards ‘better’ sustainability assessment tools is being caught between two conflicting trends that limit the capacity of sustainability assessment tools to assist farmers and other agricultural stakeholders in identifying actions for improvement. The first trend is the continual proliferation of sustainability assessment tools, presenting a myriad of approaches to and perspectives on assessing sustainability (Wustenberghs et al., 2016). This diversity in sustainability assessments can lead to contradicting assessment results and conclusions on the performance of farms (De Olde et al., 2017). Research tends to focus on (improvement of) the measurement of sustainability rather than on the implementation of assessment results in practice (Bell and Morse, 2001). The second one is the gradual standardisation and streamlining of market assurance programmes which gives the impression of certainty in assessing sustainability. In both trends, concerns are raised regarding the actual contribution of sustainability assessments to sustainable development at farm level (Alroe and Noe, 2016; Boström et al., 2015). In the next section (Section 2), we argue that these trends and the challenges of implementation are related to the ambition of the assessment and their associated level of comprehensiveness. Then, in Section 3, we identify and discuss the current limits of sustainability assessments for catalysing change with regard to their credibility, salience and legitimacy; three features of decision support systems necessary to link knowledge to action according to Cash et al. (2003). Finally, we present potential solutions to improve the translation of knowledge derived from sustainability assessments into action for sustainable development (Section 4).

2. Diversity of sustainability assessments: a distribution along a comprehensiveness continuum

Sustainability assessments are diverse in their shape, objectives and practical implementation. In an effort to facilitate the choice of sustainability assessment tools by potential users, Marchand et al. (2014) have recently suggested that these tools can be positioned along a ‘full’ versus ‘rapid’ continuum. Rapid assessment methods rely on the farmers knowledge or existing data, and place the responsibility for conducting the audit with the farmer. At the other end of the continuum, full assessment methods use detailed farm data and experts to perform the assessment (Marchand et al., 2014). Sustainability assessment tools are categorized as either ‘rapid’ or ‘full’ depending on whether they present positive or negative states within the following nine procedural characteristics: data correctness, data availability, user-friendliness, compatibility, transparency, output accuracy, complexity, communication aid, and effectiveness. A full sustainability assessment is described as having characteristics such as high complexity, low transparency, low compatibility, and low user friendliness (Marchand et al., 2014).

This distinction between rapid and full sustainability assessments helps in identifying in which context and in which ways an assessment tool can be used. However, some assessments are excluded from this framework as a tool can combine characteristics of both ‘full’ and ‘rapid’ tools; e.g. the RISE tool which combines a high user-friendliness and high complexity (De Olde et al., 2016b). To overcome this limit, we propose to position sustainability assessments along a continuum from less to more comprehensive, regardless of the specific types of characteristics they embody (Fig. 1.). The level of comprehensiveness refers to the scope of the assessment, to its level of complexity and sufficiency (i.e. considering relevant relations among indicators to develop an adequate system representation) (Binder et al., 2010; Schader et al., 2014).

An assessment looking at the three pillars of sustainability will be more comprehensive than one that focus on the environmental pillar. In the same way, the level of comprehensiveness increases with the level of complexity of the tool (in relation to the methods considered for scoring, measurements, calculations, and reference values). For example, a farm which is undertaking scientifically valid carbon and water footprinting practices could increase comprehensiveness through introducing more subjective measures of sustainability such as worker wellbeing. In other words, we suggest a comprehensiveness continuum to better take into account the wide diversity combinations of procedural characteristics in sustainability assessments. In Fig. 1, we position three farm-level sustainability assessments (Origin Green, IDEA and SAFA) to illustrate the comprehensiveness continuum. We chose these three tools because they show contrasting levels of comprehensiveness and their content has been studied and documented in the literature (De
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