



A framework for guiding sustainability assessment and on-farm strategic decision making



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ABSTRACT

Responding to future challenges and societal needs, various actions are taken in agriculture to evolve towards more sustainable farming practices. These actions imply strategic choices and suppose adequate sustainability assessments to identify, measure, evaluate and communicate sustainable development. However, literature is scarce on the link between strategic decision making and sustainability assessment. As questions emerge on how, what and when to measure, the objective of this paper is to construct a framework for guiding sustainability assessment and on-farm strategic decision making. Qualitative research on own experiences from the past and a recent project revealed four categories of actual needs farmers, advisors and experts have regarding sustainability assessment: context, flexibility, focus on farm and farmer and communication. These stakeholders' needs are then incorporated into a two-dimensional framework that marries the intrinsic complexity of sustainability assessment tools and the time frame of strategic decision making. The framework allows a farm-specific and flexible approach leading to harmonized actions towards sustainable farming. As this framework is mainly a procedural instrument to guide the use of sustainability assessment tools within strategic decision making, it fits to incorporate, even guide, future research on sustainability assessment tools themselves and on their adoption on farms.

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1. Introduction

Agriculture is increasingly facing extreme challenges such as climate change, scarcity of natural resources and societal demands. In highly urbanized regions, such as Flanders, stakeholders are confronted with specific challenges such as land availability ensuing specialization and intensification in function of higher yields for global markets (Hubeau et al., 2015; Platteau et al., 2014). To tackle these challenges, farmers and stakeholders at sector level strongly feel the urge to evolve towards more sustainable farming practices (Neuens et al., 2008). Although some farmers already anticipate to future challenges and societal needs in their strategic decision making, Neuens et al. (2008) point out that moving towards new or adapted farming systems is often difficult to put in practice. Last decades, many initiatives already popped up to support strategic and sustainable decision making in farming systems and efforts are made to develop, identify, measure, evaluate and communicate sustainable development. Literature on sustainability assessment and sustainability assessment tools to support decision making is rapidly growing (Binder et al., 2010; Bockstaller and Guichard, 2009; Bond et al., 2012; Carof et al., 2013; Gasparatos and Scolobig,

2012; Marchand et al., 2014; Ness et al., 2007). Sustainability assessment has found its way both at policy and corporate level (Gibson, 2006; Hugé and Waas, 2011; Pope, 2006; Pope et al., 2004) and many definitions of sustainability assessment exist.

Despite a growing interest in sustainability assessments and the existence of numerous assessment tools, barriers to adoption in practice remain. Especially, the complexity of the sustainability concept and assessment methods and the uncertainties about both future challenges and strategic choices play a dominant role. Sustainability assessment can be seen as “a range of processes that all have the broad aim to integrate sustainability concepts into decision making” (Pope, 2006) or as “a process by which the implications of an initiative on sustainability are evaluated” (Pope et al., 2004). Such an initiative can range from an existing policy, to a plan, program, project, a current practice or activity (Pope et al., 2004). Furthermore, Hugé et al. (2013) describe sustainability assessment as a process that aims at operationalising sustainable development as a guide for decision making by identifying the future consequences of current and planned actions. Tools are developed to assess sustainability and facilitate sustainability assessments (Gasparatos and Scolobig, 2012; Ness et al., 2007). However, there is a lack of insights regarding tool choice and effective use of tools and methodologies in sustainability assessment literature (De Ridder et al., 2007). Furthermore, while aiming to make the sustainability concept operational, they raise

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questions about the definition or interpretational limits. Sustainability and sustainable development are contested concepts and opinions differ on how to define them (Bond et al., 2013; Hopwood et al., 2005; Pope et al., 2004; Waas et al., 2011). This is also why different stakeholders can accept or condemn the outcomes of an assessment and why it is important to clearly define sustainability within an assessment (Bond et al., 2013).

Moving to an actual on-farm adoption of sustainability assessment and the link with strategic decision making will thus need more than process insights, a definition's agreement or the ultimate assessment tool. Essential to adoption of sustainability assessment and its link with strategic choices is communication about the progress towards sustainability, both for the different agricultural sub-sectors (benchmarking) and society (stakeholder involvement). As opinions still differ on how to define, plan and measure the progress towards sustainable development (Bond et al., 2012; Gasparatos and Scolobig, 2012), the need emerges to install a procedure that allows both the farmers and the societal stakeholders to follow-up and improve sustainable development. In fact, there is a need for more guidance and harmonization of strategic decision making and the choice of currently available tools as actions to measure and assess progress are often uncoordinated (Russillo and Pintér, 2009).

The objective of our research is to find starting points to solve the problem of non-harmonization and the lack of guidance in tool choice by identifying the needs farmers and advisors have regarding sustainability assessment. We elucidate these needs from qualitative research on own case study experiences and literature and use them to develop a framework at farm and sector level, workable for guiding strategic decision making of farmers based on their farm sustainability assessment. In this framework the farmer plays a central role and choices for different assessments, with different views on sustainability, can be made.

The paper is structured as follows. First, the methods section presents the research questions and how results were obtained. Second, the results and discussion section describes the needs stakeholders have regarding sustainable assessment and how they are integrated in a framework by discussing its use. Although results were obtained in an interactive and iterative way, the paper format forces us to describe it more linearly. Therefore, results and discussion are put together.

2. Methodology

2.1. From past experiences to research questions

As authors of current paper, we have been involved in different projects in which sustainability assessment tools were developed and implemented. Through these experiences, we noticed a gap between the needs of stakeholders and the goal of the project. This was also the case for one of our most recent projects, a participatory research project originating from a specific demand from the main farmers' union (FU), Boerenbond, in Flanders. This FU developed a road map towards a more sustainable agriculture for the region. A particular focus was the development of farm strategies towards a more sustainable farming system. To reify this, they requested scientists, the authors of this paper, to design a sustainability assessment tool for five different agricultural sectors. We used a participatory approach to develop the assessment tools, which entails the collection and analysis of information on sustainable development of farming practices, involving scientists, advisors, farmers and experts in all phases of the research. At a certain point, we noticed a gap between the needs of the advisors from the FU and the goal of the project itself. Change was needed to succeed. This critical point was the trigger for our study and led to the objective of this research, guiding sustainability assessment and on-farm strategic decision making. We distinguished the following research questions: i) What are the needs farmers, advisors and experts have regarding sustainability assessment? and ii) What kind of framework can guide them and link on-farm strategic decision making to the use of sustainability

assessment tools? The following paragraphs elaborate on the method used to answer these questions.

2.2. Identification of the farmers', advisors' and experts' needs regarding sustainability assessment

To clearly grasp the needs farmers, advisors and experts have regarding sustainability assessment and strategy design, a qualitative research was done based on data from three different sources, presented in Table 1. The first data source is the participatory research project with the FU. The project focused on the fruit production sector, the beef production sector, the greenhouse production sector, the dairy sector and the arable farming sector. Notes and reports of meetings and workshops from the tool development process were used. Both the second and third source are scientific publications from two other cases in which we were involved. We analyzed in particular the lessons learned and reflections from the development and implementation of the Monitoring Tool for Integrated Farm Sustainability (MOTIFS) and the Public Goods Tool (PGT). We coded and clustered the quotes from empirical data and literature sources in categories related to the needs of farmers, advisors and experts.

2.3. Development of the framework

The development of a framework encompassing possible trajectories for sustainability assessment was based on the determined needs. Because of the close cooperation with the FU, we were able to use their practical knowledge and comprehensive network within the agricultural sector. The framework was developed in an iterative way through discussions with researchers and by regularly consulting experts and advisors of the five sectors, guaranteeing a profound validation. Four internal meetings with the researchers took place. Furthermore, we organized validation sessions on the framework during the regular workshops and meetings, the number of meetings encompassing these discussions are highlighted between brackets in Table 1.

During both phases, data triangulation and methodological triangulation (Guion et al., 2002) were used to increase the validity of the research. Data triangulation was ensured by consulting different sources such as farmers, advisors, accountants and researchers. Methodological triangulation was applied by using different types of data sources for the analysis such as workshops, project meetings, one-on-one meetings, discussion notes, reports and scientific articles.

Table 1
Data sources.

Participatory tool development process FU	Number of workshops and meetings*
Fruit production sector	4 (1)
Arable farming sector	5 (1)
Greenhouse production sector	3
Dairy sector	1
Meat production sector	4 (1)
Project meetings	7 (3)
Literature source	
MOTIFS	De Mey et al., 2011; Marchand et al., 2010, 2014; Meul et al., 2008; Triste et al., 2014
PGT	Gerrard et al., 2011, 2012; Marchand et al., 2014

* numbers between brackets are those workshops and meetings addressing the "framework" research question.

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