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Participatory tuning agricultural sustainability assessment tools to Flemish farmer and sector needs

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1. Introduction

Sustainable development stays high on the agenda of many actors in society. Decision-making units, such as governmental organizations, firms and NGOs increasingly try to incorporate sustainability into their management strategies. Incorporation is driven by numerous motives, such as corporate social responsibility, consumer demands or policy measures. Also the agricultural sector feels the urge to move towards more sustainable farming practices (Nevens et al., 2008). To achieve sustainable development, knowledge and actions at distinct levels (firm, sectoral, regional, chain or national) are required. Many tools to analyse sustainability have already been developed and described at firm or farm level (e.g. Alaphilippe et al., 2013; Ehrmann and Kleinhanss, 2008; Gerrard et al., 2012; Grenz et al., 2011; Meul et al., 2008; Van Cauwenbergh et al., 2007; Zahm et al., 2008), chain level (e.g. FAO, 2013; Peano et al., 2015; van Asselt et al., 2014) or regional level (e.g. Van Cauwenbergh et al., 2007; Sauvenier et al., 2005), but their implementation remains challenging (Bélanger et al., 2012; Alroe and Noe, 2016).

The implementation challenge is rather diverse an consists of many forms: indicators and tools focus on only one sustainability aspect; they are not developed for specific production systems; they are rather complex; or, they do not take into account the importance of communicating results towards other stakeholders (Bélanger et al., 2012; Binder et al., 2010). More, actual use of assessment results and adoption of sustainable practices is obstructed because the sector's structure prevents individual farmers to exert power on sustainable development. Many small farms are interacting in an atomistic competition (Stiglitz, 1987), selling homogeneous products at the market, which enables customers to easily compare prices and makes farmers to be price takers. The sector's structure gives rise to many non-point-source externalities difficult to monitor and internalise (Field, 1994). Farms function in an agri-food chain with high transaction costs (Santos and Eisenhardt, 2005) and difficult communication because of chain length. Due to this atomistic and complex structure of the sector and the length of the agro-food chain, sustainability efforts at farm level are not always visible at market level and rewarded in higher prices. This means that farmers are reticent to implement sustainable practices because of unexpected costs, risk or uncertainty about price premiums (Lubell et al., 2011; Gocsik et al., 2015).

Following aspects may help to tackle the issues with implementing assessment tools and adopting sustainable practices. First, a more direct stakeholder involvement seems essential to clarify stakeholders' needs regarding sustainability assessment (Hermans et al., 2011; Neef and Neubert, 2010; Triste et al., 2014). Active stakeholder involvement during the design of a sustainability assessment tool includes different opinions and sources of knowledge and increases the support base for implementation. These factors are indispensable to raise the success of an assessment (Lang et al., 2012; van de Kerkhof, 2006; Stringer et al., 2006; Bond et al., 2012; Bernet et al., 2001; Marchand et al., 2010). However, combining different opinions is time-consuming (Hubeau et al., 2017) and transparency, trust, equity and communication become crucial (Reed, 2008). Second, linking sustainability assessment tools with strategic decision making and using them as guiding instruments for sustainability choices, may facilitate their implementation (Coteur et al., 2016). Sustainability assessment then serves to link farmer's motivation to concrete actions, which creates an extra incentive for implementation. Third, a supra-farm coordination or governance, which implies structures ran by a relatively small group of individuals representing (and in support of) a larger group of individuals, may offer support because it relies on existing values or relationships to stimulate its stakeholders in taking action. Working with a supra-farm coordination, however, faces challenges such as the heterogeneity between sub-sectors in terms of sustainability issues at stake, motivations of farmers and advisors to deal with sustainability or the innovation level of the sub-sector.

The opportunity emerged in Flanders to study the complexity of the design and implementation issue: the largest farmers' union (FU), Boerenbond, requested the researchers to develop a sector-specific and practical sustainability assessment tool (SAT). Although using the concept of tool in SAT and thus throughout this paper, we focus on the assessment method and rationale and not on for instance the software

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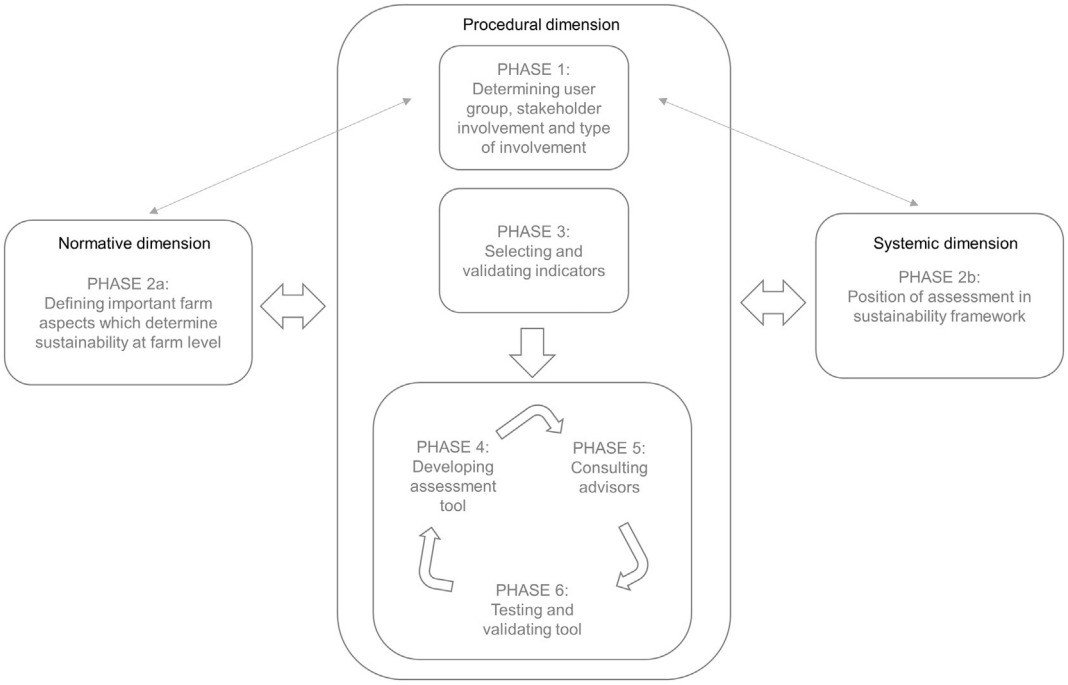

Fig. 1. Participatory research approach - development process of assessment tools (based on Binder et al., 2010).

or technical interface of the tool. The concrete research request from the FU allowed us to take into account the aforementioned aspects of involving stakeholders, linking the SAT with strategic-decision making and foreseeing supra-farm coordination or governance.

The objective of this research was thus to implement a participatory action-research approach to develop an on-demand SAT tuned to farmer and sector needs in support of strategic farm and sector decision making. To do so, our research built on and combined published frameworks of Binder et al. (2010) and Coteur et al. (2016), it was implemented in four sub-sectors (fruit production sector, beef production sector, greenhouse production sector and arable farming sector) and could rely on existing governance structures within these sectors. This paper aims at describing outcomes of this action research focussing on two Flemish sub-sectors that differ in context and complexity, in particular on the links of the SATs with strategic decision making and the importance of a supra-farm governance (Section 3). Furthermore, key attention points for future SAT development are addressed (Section 4).

2. Research approach

2.1. An on-demand precursor for action research

In 2012, the main farmers' union in Flanders (Belgium), Boerenbond, came up with a demand to develop a SAT. At that time, the request fitted in a road-map for concrete actions towards sustainable farming, based on an extensive envisioning process within the FU. As Boerenbond believes that sustainability at agricultural industry level starts with improving sustainability of farms, the main strategic goal was to pro-actively tackle sustainability demands with sub-sector-specific tools at farm level. A SAT must then be able to highlight weak and strong points of the farm and stimulate the farmer to take action.

To contribute to the research objective, following a participatory action-research approach, two important prior choices are made: first on the type of assessment tool and second on the framework to design the tool.

With respect to the first choice, we faced the large variety of tools to assess sustainable development. Many authors have categorized them (e.g. Binder et al., 2013; Binder et al., 2010; Bockstaller et al., 2009; De Ridder et al., 2007; Gasparatos and Scolobig, 2012; Gasparatos et al., 2008; Ness et al., 2007; Schindler et al., 2015; Singh et al., 2012). Categories vary from monetary tools, model tools, bio-physical tools, indicator tools to multi-criteria analysis tools. Given the purpose of the intended SAT, we chose to develop an integrated indicator-based assessment tool using a set of indicators: an integrated assessment because we wanted to include the multi-dimensionality of sustainability; a set of both effect- and means-based indicators because we wanted to be able to point out weak and strong points of a farm. Although both aggregated and non-aggregated indicators can be used together at different stages of an assessment, the former to compare and conclude, the latter to analyse (Bockstaller et al., 2008); we chose not to use one aggregative composite indicator, because a single index hides those weak and strong points. Furthermore, aggregating the various dimensions of sustainability is often not meaningful (Kulig et al., 2010). Gasparatos and Scolobig (2012) confirm that indicator-based tools are best suited to give a broad view on sustainability, to incorporate multiple sustainability perspectives and to include stakeholder participation during their development.

Regarding the second choice, literature describes various frameworks for constructing, conducting or evaluating sustainability assessment tools and developing or selecting indicators (e.g. Alkan Olsson et al., 2009; Bélanger et al., 2012; Binder et al., 2010; Pülzl et al., 2012; Sala et al., 2015; van Asselt et al., 2014; Van Cauwenbergh et al., 2007; Veleva and Ellenbecker, 2001; Von Wirén-Lehr, 2001; Wiek and Binder, 2005). These frameworks show many similarities, but often lack a clear section on the importance of stakeholder involvement. Sala et al. (2015) and Binder et al. (2010) both developed a framework that explicitly incorporates stakeholder involvement. After considering both frameworks, we decided to use the framework of Binder et al. (2010), because it was based on the development of an indicator-based tool and used for a review of seven indicator-based sustainability assessments tools in agriculture. This theoretical framework, visualized in Fig. 1, comprises a normative, systemic and procedural dimension, which are all interlinked (Binder et al., 2010). The main dimension is the procedural one, which describes the design of the assessment tool. The normative dimension focusses on what to assess when dealing with the sustainability of a system and the systemic dimension looks at the

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