

# Sustainable Agriculture as a Multidimensional Concept and how the EU Make Use of the Concept

## 1. Introduction

A Greek proverb goes: “A society grows great when old men plant trees who shade they know they shall never sit in”. It captures the thought of equity in sustainability. The term Sustainability was popularized by the report from the World Commission on Environment and Development (1987), commonly known as the Brundtland report. It offered the definition of sustainable development as; “Development which meets the needs of the present without compromising the ability of future generations to meet their own needs.” (p. 43).

Sustainability has been discussed in relation to almost every sector of the economy e.g. architecture, growth, food, supply chains, tourism, city building, etc. Despite the immense interest in the concept, a universal definition has been difficult to obtain. The word itself is derived from the Latin word *sustinere* (tenere, ‘to hold’; sub, ‘up’). However, to get a specific definition of sustainability that can be used in practice, scholars have seen the need to define sustainability in relation to different sectors. One of these is agriculture.

Agriculture produces one of the most basic products for human survival: Food. It is therefore essential that the sector is sustainable in the words’ most basic sense; able to continue. The way in which agriculture has hitherto been practiced has resulted in soil erosion, groundwater pollution, river eutrophication and the development of weeds and diseases resistant to chemical control (Lichtfouse, 2009, p. 4). Undesirable economic and social impacts of conventional farming can be added to the list (Schaller, 1993, p. 3). Therefore it has been widely recognized that a shift towards Sustainable Agriculture is needed. What it entails remains unclear.

The first part of this literature review will explore the different dimensions and perspectives on the debate over Agricultural Sustainability in the literature. It shows that even within this sector a clearly defined concept has been hard to define. These difficulties arise because the concept

demands attention from many different scientific traditions (Parthasarathy, 2012, p. 293-294; Lichtfouse, 2009, p. 1), that there are many dimensions to sustainability and no agreement on which should have more emphasis (Agroecology program, 1990, p. 1; Schaller, 1993, p. 91), because it is a dynamic concept that changes over time (Vos, 2007, p. 335; Zhen & Routray, 2003, p. 44) and because it is deeply embedded in its geographical and social settings (Zhen & Routray, 2003, p. 44; von Wirén-Lehr, 2001; Lopez-Ridaura, 2005). We discuss the dimensions of the concept highlighted in the literature, and the different assessment systems proposed.

The second part examines briefly the EU's relationship to the concept in relation to primarily the CAP, but also external sustainability measures. The argument made is that although there is little agreement in the literature on how sustainable agriculture can be defined, nor assessed, the EU claims the concept and its different institutions shape it without clarifying what is meant by it.

## 2. Dimensions and Perspectives on Sustainable Agriculture

There are two major 'traditions' within the literature about sustainable agriculture. The one is a conceptual debate, discussing what elements the concept should entail and how the definition can have an impact on how we perceive and implement sustainability. The other part of the literature have accepted that there cannot be a universal definition of sustainable agriculture, and therefore try to assess the sustainability of certain agricultural system as to determine how measures of sustainability have worked, and how they can further be improved.

### The Conceptual Debate

A very fundamental debate in relation to the conceptual definition of sustainable agriculture is whether the concept should be system describing or goal prescribing. Hansen (1996) describes the difference: The ones who used sustainability as a goal prescribing concept or; 'an approach to agriculture' are united by their critique of conventional agriculture (Hansen, 1996, p. 120). Different alternatives were suggested, e.g. organic farming, low input farming, alternative agriculture etc. (ibid). Allen and Sachs (1991) similarly writes: "How we conceptualize sustainability today will determine the extent to which sustainable agriculture will differ from conventional agriculture in the future" (p. 1) thus also advocating a goal prescribing concept.

Scholars of this view attempt to define a 'goal' or a concept that can capture their idea of an agricultural practice that was sustainable. Meanwhile, others argue e.g. Kidd (1992, from Farmer, 1996) that it is not helpful to use sustainability as a loose goal oriented word encompassing all of the aspects of agricultural sustainability that the authors find desirable. They believe that the dynamic and temporal nature of the concept hinders definition (Hansen, 1996, p. 128) and that characterization based on predescribed goals will always be biased (ibid). They believe that sustainability must be system specific and not try to encompass a global perspective (Hansen, 1996, p. 134). This part of the conceptual debate is inherently linked to the question of whether we should in fact strive to define agricultural sustainability or not. Since Hansen wrote his work, most of the literature concerning agricultural sustainability has been devoted to assessment systems.

Roughly every work on agricultural sustainability refers to the three dimensions of sustainability: Economic, environmental and social (Hansen, 1996; Allen & Melcarec, 2013; Agroecology program, 1990; Lichtfouse, 2009; Allen & Sachs, 1991; Allen et al., 1991; Yunlong & Smit, 1994; Schaller, 1993; Vos, 2007; von Wirén-Lehr, 2001; Zhen & Routray, 2003; Lopez-Ridaura, 2005; Van Cauwenberg et al, 2007; Bell & Morse, 2008; Pham & Smith, 2014). This trichotomy was developed by John Elkington (1994) who, in relation to bottom lines of companies, coined the term 'the Triple Bottom Line' (TBL). The first is the "bottom line" the measure of a company's profit. The second is the "people account" referring to the social responsibility of a company. The third in the "planet account" – a company's environmental responsibility (Elkington, 1994, p. 69-96). It is furthermore generally agreed upon that these three dimensions should weigh equally for an agricultural system to be considered sustainable: "The interconnections are usually described as a 'triangle', a 'three-legged stool', or overlapping circles in a Venn diagram" (Vos, 2007, p. 335). However, certain scholars have a more pragmatic opinion when it comes to the importance of e.g. environmental aspects. Zhen and Routray (2003) write: "For short-term development, indicator selection at national, regional, and local levels in developing countries should first take into consideration economic and social aspects, and then the ecological aspect, since the main purpose of production is to maintain livelihoods in a short term" (p. 44), here emphasizing the space- and time-specificness of the concept. Zhen and Routray's work is however only space-specific in a regional sense; it distinguishes only between developed and developing countries. Others emphasize the lacking

ability of politicians and practitioners to adequately address all dimensions equally. In a series of journals stretching from 1990 to 2013 Patricia Allen and other interchangeable scholars write about the missing attention paid to social issues of agriculture. In the 1990s Allen et. al. believe that challenging the structures and assumptions that have led to sustainability problems needs to be challenged if we do not want to risk reproducing these problems (p. 6). However, in 2013 they recognize hunger as the only structural flaw of agricultural systems.

Discussions also exist over the geographical extent of agricultural sustainability: Sustainability is obviously very dependent on the geographical (soil, weather etc.) and social setting (Lopez-Ridaura, 2005; Van Cauwenberg, 2007). Many scholars do not believe that a global definition of sustainability can be of any practical use, and therefore develop frameworks that focus on local (e.g. Lopez-Ridaura, 2005) or regional (e.g. Zhen and Routray, 2003) sustainability. The national level is rarely taken into consideration unless scholars talk about how to politically implement sustainability measures (Pretty, 2007, p. 459). Here the nation state becomes important. For factors such as soil and weather it is necessary to be 'site-specific' (Lopez-Ridaura, 2005, p. 51) while to solve social issues of e.g. hunger and inequality Allen and Sachs (1991) argue: "only a global unit of analysis can offer the beginning of a framework for explanation and solution" (p. 6).

Furthermore there exists a debate over the topic of how to best solve the problems of unsustainability. Dominant paradigms tend to see technology as the ultimate solution to the sustainability problem (Vos, 2007, p. 337). Meanwhile, others are rather skeptical towards technology as they have been the cause of unsustainability previously e.g. in relation to groundwater depletion, pest resistance to pesticides, and farm ownership concentration (Agroecology program, 1990, p. 5). According to this more critical view it is important to consider the overall ability to solve agricultural problems (ibid). Common arguments in this debate is highlighted by Schaller (1993): Arguments that see technology as a solution to sustainability problems usually highlight the economic benefits and says that conventional agriculture just needs 'fine-tuning'. Furthermore they believe that technology will correct potential problems caused by conventional farming practices (p. 92). Meanwhile the other side argue that "resource conservation, environmental protection, health and safety are just as important as profitable production" (p. 93), that we need to stop using 'band aids' on agricultural

problems and that the concept of sustainable agriculture should also encompass the rest of the food and fiber system (ibid). This debate is very much exemplified today by the debate over GMO products.

Scholars have not since the Brundtland report been able to come closer to a definition of sustainability, than “development that meets the needs of the present without comprising the ability of future generations to meet their own needs” which is still cited in almost every work on agricultural sustainability (Lopez-Ridaura, 2005; Van Cauwenberg et al, 2007; Bell & Morse, 2014; Lichtfouse, 2009; Fuller, 2010; Vos, 2007; Yunlong & Smit, 1993). It has, as mentioned, been extraordinary hard to define the term, and scholars have argued that due to the ‘fussiness’ of the word it has become a useless buzzword with no practical relevance that only implies that something ought to be better (Fuller, 2010, p. 7-8; Lopez-Ridaura, 2005, p. 52). In this section we have attempted to highlight the main dimensions of the concept and the key arguments within each dimension. This representation of the conceptual debate obviously only reflects only a small part of the actual debate.

### **Sustainability Assessment of Agricultural Systems**

The scholars who accept the premise that sustainable agriculture is a time- and space specific concept and cannot therefore be defined from a global point of view, nor be a ‘goal-prescribing’ concept, have committed themselves to developing comprehensive frameworks for sustainability assessment. The debate on the geographical extent of frameworks and how indicators should be developed and selected or if identifying drivers of agricultural sustainability is a more appropriate way to contribute to furthering of the sustainability of agriculture, is summarized and discussed in the following section.

Bell and Morse (2008) “(assessment red.) is about the ‘doing’ of sustainable development” (p. 5).

Assessment of sustainability is a process of defining a goal, indicator selection and evaluation (von Wirén-Lehr, 2001, p. 117). This method is called goal-oriented because it starts by defining a goal that is specific for one specific agricultural system, and thus it is the method that is most adaptable compared to e.g. a means-oriented approach (von Wirén-Lehr, 2001, p. 117-118).

Assessment is a process of evaluating progress towards sustainability, and it require monitoring of some sets of indicators (CTFCSA, 2009). And to make a holistic assessment they combine

indicators into an index (ibid). Around how these indicators should be developed, chosen among and their geographical scale of application, there exist disagreement. Zhen and Routray (2003) and Van Cauwenberg et al (2007) e.g. emphasize that indicators should be developed from the three dimensions of sustainability; economic, environmental and social. However, Zhen and Routray's work focus on the indicators appropriate for developing countries, and here they allow for interpretation on the environmental aspect. Their defined goal for developing countries is; maintaining food production while preserving the underlying resource base (p. 35). Van Cauwenberg et al (2007) believe that a global framework can be useful, as long as a consistent and objective approach for indicator selection is proposed. In contrast Lopez-Ridaura (2005) focus on peasant agriculture. Lopez-Ridaura and Van Cauwenberg both focus on scientific selection of indicators, while others highlight that the selection depends on the parties involved and is highly political (CTFCSA, 2009; Zhen & Routray, 2003). One of the newest contributions come from Pham and Smith (2014) who argue that focus should not be so much on indicators, but drivers of agricultural sustainability, as these address the underlying causes of indicator trends (p. 231-235). Examples could be; investment, governance, poverty, technology, farm size, global warming etc. (Ibid).

There have overtime been developed a number of assessment frameworks. They have different geographical timeframes and they emphasize different aspects when developing and selecting indicators, but as all frameworks start by goal definition, they cannot be said to contradict each other, not that one is better than the other, but assessment through indicators do necessarily have limitations (Bell & Morse, 2008).

### 3. The EU and Sustainable Agriculture

In this part we examine how the EU conceptualizes sustainable agriculture and their work towards it. The literature can shed light on how sustainable agriculture can be accomplished through the process of European integration.

## How does the EU see sustainable agriculture

The European Union also has its own definition and point of view on what sustainable agriculture is, what the aims of sustainable agriculture are, and how it should be achieved. We looked at “Sustainable Agriculture for the future we want”, a paper published by the European Commission in 2012. It is to be said that the EU Commission is an agenda-setter and has no executive power, although it monitors the implementation within EU member states (Cini & Pérez, 2013, pp. 130-131). The EU emphasizes the need of sustainable agriculture in order to accomplish food security, both internally and in developing countries (EC, 2012; EC, 2010). Internally, the new CAP is aimed to work in that direction (EC, 2012). In developing countries, the 2010 EC sets out the first steps towards sustainable agriculture. As a contrast to the literature we have read so far, in both documents, they blame climate change as a cause for land and water depletion, rather than the pressure of the economic dimension on the environmental one.

The Common Agricultural Policy (CAP) is one of the first European policies and has evolved since the 1960 (Cini & Pérez, 2013, p. 309). Three general principles are founded with the policy, which are market unity, Community preference and financial solidarity (Ibid: 310). Further research could be done on how CAP has assessed sustainability in agriculture taking into account the different dimensions of the concept. One feature of the CAP is the “decoupled” support for farmers and not products. It consists that farmers do not have any incentive in overproduce and their decisions are made based on market factors (Ibid: 313). According to the EC it is also based that farmers handle the land in sustainable ways which entail to protect the soil, keeping the land in proper agricultural and environmental condition (EC, 2012). Cini & Pérez (2013) point out that this has not been fully developed and the CAP has mainly focused on market orientation. This is due to the expense of funds directed largely to interventions in agricultural markets and direct aids rather than rural development (Ibid: 320). However, organic farming has won more attention at a national, EU and international levels (Cini & Pérez, 2013, p. 320). Still, at the EU level, organic farming is mainly taken into account in regulatory terms, such as the harmonization of production norms and certification rules (Gibbon 2008; in Cini & Pérez, 2013).

It is argued in many cases that the CAP is the most Europeanized policy (Ibid: 321) and considered as a success of European integration. In effect, it is seen as an illustration of the

multiple links between national, European and international political arenas (Ibid: 323). As Cini & Pérez point out, the only way to deconstruct this complexity is by considering the actors involved in the policy process. This opens a whole theoretical debate on who are the main actors of European integration. For going into depth on theoretical approaches and discussion between them, Saurugger (2014) offers the arguments, strengths and weaknesses of these different theoretical approaches. Cini & Pérez (2013), as a contrast, summarize these different theoretical approaches and in addition, actors in European integration and their impact are also discussed, such as “interest groups”. These are textbooks that offer an account of different theoretical approaches to European integration and the different actors involved, which is key when discussing the implementation of sustainable agriculture through the CAP. In addition to this, articles that go into depth on how these actors behave, would shed light on how sustainable agriculture can be best implemented through CAP. Börzel (2002) for example, examines member states behavior using environmental issues as an examples of how these behave.

## 4. Conclusions

Agricultural sustainability have been thoroughly discussed in the literature as a multidimensional concept, of which the most important are; system describing or goal prescribing, the three dimensions of sustainability, the geographical extent of sustainability and the role of technology, and as a system approach to sustainability assessment. Several frameworks have been developed, each with a specified geographical extent and timeframe that makes assessment possible. Some scholars have begun to argue that, due to the terms’ ambiguity, it has become a cliché (e.g. Fuller, 2010, p. 8). However, despite its vagueness, the term is comprehensively used by institutions, such as the EU. This raises important questions to be answered:

Since the EU does not offer a specific definition of the term, what parts of the conceptual debate does the EU cover when it uses the term Agricultural Sustainability?

Are the EU’s internal (CAP) and external sustainability goals consistent with each other?

Does the EU have a global vision of agricultural sustainability, or merely a regional one?

These questions and many more about the EU’s relationship to sustainability deserves answers.



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