

Collective Awareness Platforms for Sustainable Agricultural Production

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Abstract. Altering humans behavior regarding agricultural production and leading them towards sustainability, is a vital part in the improvement of the quality of their life. To achieve the involvement of humans in such a procedure however, is the first step towards a general societal change. So far it has been proved that the existing production/consumption model, is not capable to offer such a boost to society. Therefore, we have to identify the incentives that humans and specifically farmers, must acquire in order to sensitize them in the adoption of practices and behaviors that coordinate with the main disciplines of sustainable agriculture. For this purpose, we must move beyond purely technologically oriented solutions and activate new organizational and societal models. These must face the current social challenges and achieve sustainability and well-being. The current financial and social crisis demands on one hand innovative solutions and on the other hand to move beyond the closed Research and Development models to open and collaborative models, such as Collective Awareness Platforms that can unleash the power of collective intelligence, so generating social awareness. This paper deals with an initial introduction to the Collective Awareness Platforms for Sustainable Agricultural Production.

Keywords: sustainability, collective awareness platforms, collaboration, social networking, collective knowledge.

1 Introduction

It is truth in our days, there is more and more evidence of crisis in our world, in some areas like finance, environment and society (Sestini, 2012). The causes of this crisis are related to the lack of sustainability of the current research and development model that is being used in the developed and developing societies. In other words, the natural resources of our planet are being reduced day by day, in a worried level. Infinite and unsustainable growth, in economy as well as in society, which often has been used to boost the power and the near-term prosperity of nations, is now at the root of the multi-dimension crisis of our “society of knowledge”. So the question is, if there is a way to turn this weakness back into an opportunity?

In the agricultural area, which is being related to the environment, the environmental crisis comes from the handling of the environment with an

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unsustainable way, the huge natural resources and energy consumption, with the ideal of the low cost mass production, to satisfy our consumptive habits. The existing production and consumption model produces lower quality products and leads to serious problems related to environment (environmental pollution, change of climate, shrinking biodiversity etc.) which disrupt the ecological balance and puts in danger the ecosystems survival and as a result the survival of the human itself (Katz and Zachariou, 2013). At the same time, the environmental crisis is linked with social and economic issues, such as poverty, economic and environmental migrants etc. The reaction to all these issues requires a viable and permanent solution. The Sustainable Development is the kind of development that tries to restore the balance between the three pillars Environment – Economy – Society (Azapagic, Emsley and Hamerton, 2003), by taking them into consideration and seeking to maintain or even improve a long term quality of humans life.

However, the accomplishment of sustainable development, requires a global revolution in the way people think and act, the demolition of the clichés of personal development and profit, and moreover a turn into more collective and cooperative models of action. In addition, it requires the enforcement of respect, of critical thinking, of participation and interest, as well as of the inculcation of moral values in every level of their everyday life. Cooperation and concerted action at international, national and local level, involving both citizens and the state, is therefore needed (Mitoula, Astara and Kaldis, 2008). In the search of the solution, the role of society and collectivity lies at the heart of research. In other words, the power of the mass and the ability of the citizens - farmers to act and lead to a sustainable production, by actively and responsibly participating in solving these issues, are crucial.

In this paper we focus on the role of Collective Awareness Platforms (CAPs) and their importance for the Sustainable Agricultural Production. It is an initial introduction for the use of CAPs as tools for enabling farmers in adopting good practices for sustainable agricultural production.

2 Collective Awareness Platforms foster sustainable agriculture

Sustainable agriculture, to be achieved, requires an intensive interaction between scientific knowledge and the knowledge produced by the farmers themselves. The shift towards sustainable agriculture requires the participation and cooperation of farmers, the communication between them, exchange of views, positive examples and practices, in order to finally achieve a massive change of attitude and the adoption of sustainable cultivation. This therefore, entails much more than simple change in cultivation techniques and requires an additional change in attitudes and knowledge that may have been adopted for years. Collective Awareness Platforms (CAPS) are a modern technological means ideal to achieve this goal, that is, this interaction.

The Collective Awareness Platforms - CAPS (Digital Single Market, 2017) are all those applications based on network or mobile communications and which use social networking to create communities, offer new services, create innovative knowledge, and harness and promote collective intelligence (Malone and Bernstein, 2012). In

essence, they are applications that release the enormous potential that stems from the collaboration, interaction, and high connectivity of users belonging to a networking community and exchanging knowledge (Bagnoli et al., 2014).

Their benefits are many. Their use is easy, straightforward, available online, are not subject to spatial/temporal constraints to communicate with community members, and the subsequent processing and analysis of data collected during their operation can be done easily and quickly with automated way (CORDIS, 2016). Teamwork through community-based platforms of collective consciousness can motivate individual and collective criticism of new practices and methods, as well as experiments on new cultivation processes. In addition, it can lead to the acceptance of new rules of conduct and new values in the behavior of farmers in agriculture, society and the environment.

Generally in CAPS, providing information is not enough to trigger social innovation. An effective change happens when new ways of perceiving the world and acting are shared and established into a social group. Beyond changing their own behavior, users must influence others, and social media boosts this process.

The first step before the peer community interaction, however, through Collective Awareness Platforms, is to explore their existing attitude towards sustainable agriculture and to identify the incentives they have to acquire in order to be sensitized and encouraged to adopt practices and behaviors that are in line with the basic principles of sustainable agriculture. Against this background, the cultivation and environmental policies used by farmers, should initially be cost-benefit analyzed and then according to the results that will come, we must step forward to suggest specific practices, attitudes and behaviors that will both strengthen the environmental consciousness of farmers and on the other hand will lead to increasing and sustainable levels of prosperity.

3 Examples of CAPS enhancing Sustainability

The literature review shows that there are many Collective Awareness Platforms developed for different areas. For example, there are CAPS for Sustainability and Social Innovation, for energy efficient smart buildings (Chatzigiannakis, Amaxilatis and Livathinos, 2015), for financial and environmental awareness (Satsiou et al., 2016). On the other hand there are only few researches and CAPS developed for sustainability in agriculture. The CAPSELLA (Collective Awareness PlatformS for Environmentally-sound Land management based on data technoLogies and Agrobiodiversity) project is a great example of CAPs implementation in the general field of agriculture. Among its goals are to raise awareness about existing ICT solutions and the benefits of their adoption, the understanding and collections of farmers and networks needs and requirements in order to develop and deliver tailored made ICT novel solutions, foster understanding and, hopefully, sharing of open data among farmers, which shall lead to build a sustainable technical prototyping platform, a meeting environment for innovation that democratizes access to big data, cloud computing, open data, open software and pilots. (Lazzaro et al., 2016)

Another good practice of CAPs is SavingFood. SavingFood offers a novel approach to tackle food waste, by turning this environmental issue into an innovative solution to fight hunger through the redistribution of surplus food to welfare organizations that support people in need. Moving forward from existing food redistribution channels SavingFood seeks to create a social movement for reducing food waste, by engaging all actors of the food waste cycle to become part of the solution (Saving Food Project, 2016). The project brings together the food waste community and the technical and scientific community in a mutually beneficial context to provide a complete, sustainable and flexible platform where all participants – food donors, beneficiaries, policy-makers and society at large – can engage, discuss and deliver within a pro-social environment in which everyone's needs are met, information is shared and food is effectively distributed.

In a similar way, our research aims at the creation of a Collective Awareness Platform tailored at a first level to the profile and needs of certain Greek farmer's communities. Through this platform, these networking communities will be able to exchange their practical knowledge on various cultivation issues, communicate and interact with each other. This productive interaction will raise their awareness on many agricultural topics such as sustainable agricultural production, environmentally acceptable cultivation techniques and practices and will lead to the suggestion of innovative solutions. The open data and shared knowledge that will be created, will be open to everyone interested in the domain. In other words, the project will be based and also facilitate a strong community of active farmers by providing them with effective tools supporting coordination of efforts, communication and dissemination, knowledge transfer, collaborative learning, best practices identification and promotion of outcomes for broad impact in society.

4 Conclusion

Research around CAPS is internationally at an early stage and is an open field for further study. There are already some remarkable studies in the international literature that attempt to present the structure and characteristics of CAPS, categorize them, explore their capabilities and limitations. Efforts have also been made to compare several CAPS together to draw conclusions about the incentives of users involved in them, as well as the benefits of using them. Their future is open and their scope is not limited to specific areas. Instead, their use can be applied to almost any scientific subject. So, in the field of Sustainable Agriculture, the scientific study on how it could be used and the analysis of the expected results is an open challenge. This research will be an important tool in the hands of the farmers involved, giving them the knowledge and the ability to learn through themselves, new ways of agricultural production always on the basis of sustainability.

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