



Introduction to the cluster: «Global challenges and local processes: towards strategies for sustainable development»

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In September 2017, the Unesco Chair in Sustainable Development and Territory Management hosted at *Università di Torino* organized a special session on sustainability at the annual conference of the Italian Regional Science Association (Aisre) to be held at *Università di Cagliari*. The aim was to put together and try to build a bridge among different theoretical, methodological and disciplinary scientific traditions, ranging from sociology to forestry to regional science. Each from its own perspective, these disciplines have been addressing for years the challenge of linking sustainability and economic development. The objective was to offer an opportunity of discussion about the potential empowerment of the strategies adopted to face the persisting economic crisis that may be derived from a strong focus on the social, economic and environmental impacts (i.e the sustainability) of current models of production, distribution and consumption. The attention to be paid to the sustainability of these models in fact should be considered not only as the mere result of the grown awareness about the urgent risks for the environment connected to human activity, but as a crucial issue related to the scarcity of resources with a strong economic value in terms of costs and benefits. In other words, the idea was to propose a discussion about concepts and strategies for sustainability not (only) as an issue to deal with but as an opportunity to be exploited.

The Aisre annual conference seemed a proper framework to host this discussion, on the one hand because regional sciences may play a crucial role in linking the global dimension of economic, environmental and social phenomena with the processes developed at local level and on the other because many disciplines such as public policy, agronomy, geography and geology that provide important elements for designing strategies for sustainable development have a strong place-based profile.

Given this framework, our main concern as social scientists (behind the idea of proposing this session) was about the opportunity to overcome some limits that the current approach to sustainable development as "...development that meets the needs of the present without compromising the ability of

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future generations to meet their own needs” (UN World Commission on Environment and Development, 1987) may have in dealing with the complexity of sustainability process. In particular, the underestimation of the implicit materiality (i.e. the use and consumption of technologies, material and resources) of the human and social activity and the consequent need of providing governance tool able to put as much as possible individuals and society, more that technologies, at the center of the strategies for sustainability.

In other words, the session was conceived as a first step in investigating, from a transdisciplinary and holistic perspective, strategies, concepts and tools to understand and hopefully support the trajectories toward sustainability going beyond some shortcomings of the concept of sustainability considered as a process composed of (and produced by) the interplaying among the economic, environmental and social dominions. For sure this ‘conventional’ approach is valuable for the attention payed to the multidimensional nature of sustainability and for what concerns the measurement and evaluation of the impacts of human activities in the three dominions. It may be also useful to define policy interventions in each of them. But at the same time this siloed-structure doesn’t help in clarifying the interplaying among the dimensions themselves, thus ending up in limiting the actual multidimensionality itself of the approach and the effectiveness of policy interventions as it makes difficult to deal with the potential trade-off among the dominions.

To overcome this potential shortcoming, an integration was proposed in the opening lecture of the session in order to provide a common conceptual reference to frame the discussion. Based on a ‘conceptual assemblage’ derived from the joint consideration of socio-metabolism (Fischer-Kowalski and Hüttler 1999) Theory of Practices (Bourdieu 1977, Reckwitz 2002, Schatzski 2002) and Sociology of Flows (Mol & Spargaaren 2006, Urry 2000) sustainability is considered as a complex phenomenon resulting from processes that stay at the boundary between human societies and nature and by which social systems reproduce themselves (i.e. societies as autopoietic systems). The main consequence of this approach is the need for rethinking notion and processes of sustainability within a framework defined by the recognition of the implicitly material nature of social facts. These social facts cannot be any more explained by other social facts given the fact that neither merely human societies do exist, nor merely human being but instead social-technical hybrids.

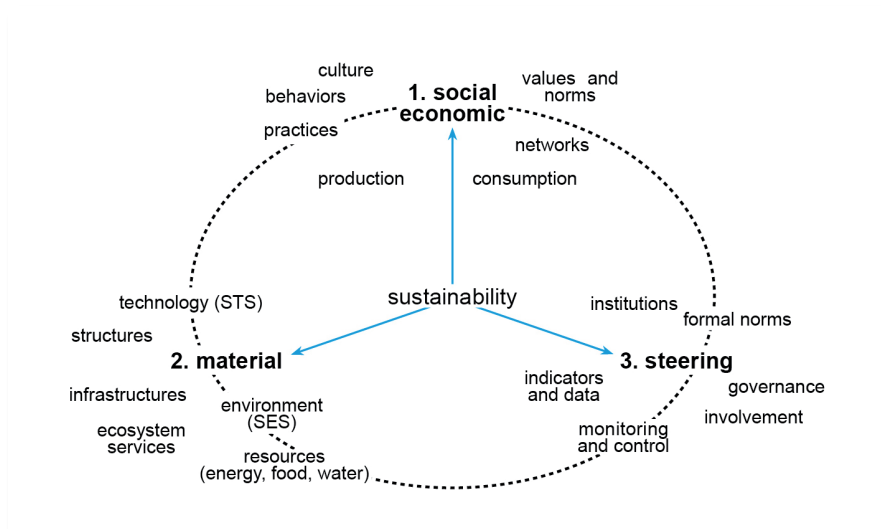
In order to understanding and steering strategies for sustainable development is important to consider that, within this framework, social life results from a series of recursive practices reproduced by hybrids upon sets of rules and resources. Both the latter may be influenced by proper governance systems built on the persuasion that it is impossible to establish a dichotomy between social and material as well as between social and economic domains.

A practice-nuanced approach to the governance of processes for sustainability calls for a careful consideration of the interplaying of the diverse

mechanisms of regulation that jointly result in a socio-technical regime : institutions, norms, networks, collective identities and visions, rules, conventions, procedures. This regime should leave room for forms of coordination other than the anarchy of market or hierarchical control but resulting from the self-organization of social actors. This bottom-up component will result crucial in developing a steering function able to deal with the uncertainty and the wide participation of people to the processes for a sustainable development.

To summarize, our proposal is to consider, fig.1, beside and beyond the economic, environmental and social component, 3 ‘new’ dimensions of sustainability that jointly determine what happen (processes and impacts) in the economic, social and environmental field.

Figure 1 – Rethinking sustainability on the basis of a socio-materialistic framework



These three axes allow locating in a conceptual space the contributions presented in this section on the basis of their main contents and results².

The first contribution, by Bruno and Ferlaino, is strongly connected with the steering dimension, as the authors developed an in-depth analysis with the declared aim of providing to decision makers the needed knowledge about the sustainable performance of local socio-economic systems. They operationalized the concept of Green Economy, intended as one of the main

² There is not perfect correspondence between the list of interventions at the conference in September 2017 and the contributions included in this special issue. Some of the contributions have not been included mainly due to publication strategies of the authors. Some others have been included even if not presented at Aisre conference on the basis of their coherence with the topics under discussion. Finally, some have been revised and integrated with respect to the draft presented at the conference.

leading factors for the economic and social growth of territories, by providing a set of indicators obtained through the adoption of a methodology developed by the members of CGSDI (Consultative Group on Sustainable Development Indicators). The set is composed of six Green Economy dimensions that jointly considered offer an interesting multi-perspective description: policies, infrastructures, green production, green business, personal behaviours and quality of the environment. The results of this analysis show a heterogeneous landscape of the portrait of the green performance of Italian regions that represent a useful knowledge base to support the definition of territorial policies and to shift awareness of decision makers in order to make them able to effectively define and address the challenge connected to sustainable development.

Sciullo, Arrobbio, Massaglia and Peano keep the focus on the local level by providing a contribution where the local dimension is more than just a matter of distance (material) but is considered as a concept (social) that influences people's perceptions, beliefs and behaviours. The authors investigate how relevant is the role plaid by localness among the characteristics that contribute to define consumers food preferences. Even if localness deserves attention both in terms of attractiveness for consumption and in terms of sustainability of the food supply chain, a lot of confusion still exists in defining what can be considered as local production. The current definition is a mixture of distance and sustainability and the authors tried to provide some evidence about the effectiveness of this definition under the assumption that its refinement may play a crucial role in supporting the exploitation of localness' potential both from the policy and from the market sides. By means of a questionnaire typologies of consumers have been created on the basis of the coherence expressed between their knowledge about local production of fruits and vegetables and their actual motivations in purchasing local food. As consumers show an almost perfect independence between their knowledge and their actions, a claim for a more exhaustive and practical definition of local production should be made table to close the gap between the social and material reality of the concept of local production of fruit and vegetables.

An interesting insight on the socio-materialistic perspective of the contemporary strategies for sustainability is provided by Ariano that proposes a contribution focused on urban land transport system considered as Socio-Technical System (STA) and aimed to consider the role of sharing practices for renewing the urban mobility paradigm. By adopting the Multi-Level Perspective (MLP) approach, sharing practices are considered as an instance of Socio-Technical Transition for local transport to observe the reconfiguration of the urban mobility system along three levels: the niche, which investigates the impacts of sharing practices play in daily life; the regime, which refers to the reconfiguration of differnt dominions (socio-cultural, implementation of digital services and urban policies of land mobility); the landscape (macro) that takes into account the exogenous factors of the process.

Closely referred to the steering dimension from a STS perspective, with respect to the coproduction of useful integrated information, Magariello proposed a detailed description of an experiment carried out in 2015 at *Università di Torino*. Comfortsense was a project aimed at reducing energy consumption in university's buildings keeping the same comfort standard for the users, heading towards a decoupling between the two factors. At this aim, two different sources of data were used: sensors and human feedback. Sensors could measure indoor comfort and its linked consumption. Meanwhile students were asked to give their feedback about comfort using a specific smartphone app thus being a source and a target of information at the same time. By adopting a robust sociological approach that merged theory of practices applied to energy consumption and combined to Goffman's studies on role, the author carried out an in-depth investigation of the participants to the experiment to define the extent to which human actors can decide to choose and to play different or personalized roles and practices in a strict socio-technical system due to their skills, background and awareness. The main results of this research effort have been the identification of different typologies of individuals based on different combination of awareness and agency. These typologies definitely show the relevance of the interaction between individuals and the STS they're involved in and the constraints that derive from the incumbent regime that steers the system. At the same time, acclaim should be made to the institution (the university in this case) in order to provide special efforts in empowering people by putting society and individuals at the center of the debate, design and implementation of interventions aimed at dealing with energy and environmental issues.

Still on the relevance of public engagement in socio-technical transition, Sciullo and Padovan provide a contribution on the transition of the current energy system. Starting from the identification of the main shortcomings that can be detected in the most diffused approach to the social aspects of energy transition, the authors propose, on the basis of a review of the current conceptual models of STS transition, that engaging people is not just a choice aimed at dealing with social aspects and driven by ethical, cultural or political issues but is an essential strategy to support the energy transition itself. By effectively involving stakeholders and the wider public the entire energy system (i.e. its technical and non-technical components), is positively affected and the transition process is considerably strengthened due to the reinforcement of the alignment between the different (social and material) components and processes of the energy STS.

A new role for the public in designing a new energy future is also at the center of the contribution by Gilcrease. Through a comparative analysis of innovative grassroots solutions (energy communities and cooperatives) in United States and European Union the author highlights their potential for the implementation of a decentralized energy market with a crucial role assigned to a large number of 'prosumers' instead of the large utilities that were the

main actors of the traditional centralized energy market. Citizen engagement foster energy transition by allowing for more trust and stronger cooperation among communities, as well as inspire more inclusive regulatory systems. Notwithstanding this potential the development of energy grassroots initiatives is hampered by several barriers and their advancement depends on a variety of aspects, including the strengthening of links to established regime actors and a favorable regulatory framework that allow to match the material, technological and social needs and opportunities of the energy system.

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