Controversies in Environmental and Post-Growth Discourses:
Mapping positions to investigate their consequences for the development of indicators for a socio-ecological transformation

Summary:
The debate on the environment and the negative effects of economic growth has been shaped by controversies revolving around issues such as the substitutability of natural resources or the role of technology and work in a "green" economy. Depending on their respective points of view, the disputants reach very different conclusions on possible pathways towards a socially and ecologically sustainable society, translating into differences on instruments deemed appropriate. Indicators and accounting systems belong to those contested instruments. To tackle the issue of information systems in a systematic way, this paper proposes to start with the controversies among different approaches advocating a socio-ecological transformation. The resulting map of typical positions in longstanding controversies in the field of environmental and post-growth debates prepares the ground for the development of a typology of current "transformation discourses". The purpose is to draw conclusions on the specific requirements for measurement systems flowing from different types of transformation discourses.

Long Abstract:
Since its early days in the 1970s, the debate on the environment and the negative effects of economic growth has been shaped by controversies revolving around issues such as the substitutability of natural resources, the role of technology and work in a "green" economy or the principal agents of change. Depending on their respective points of view, the disputants reach very different conclusions on possible pathways towards a socially and ecologically sustainable society, translating into differences on instruments that may be appropriate to bring about the necessary transformation.

Indicators and accounting systems belong to those contested instruments. As Donella Meadows (1998:2) put it: "Indicators can be tools of change, learning and propaganda. Their presence, absence, and prominence affect behavior." She added: "Indicators arise from values (we measure what we care about), and they create values (we care about what we measure)." While I do not retain Meadows' notion of 'value' in the following, I think that her remark points out a central difficulty of indicator development in a very expressive way: What and how should be measured is not only a question of methodology, but on the one hand an issue deeply rooted in the concepts that underlie a measurement system. On the other hand, the choice of indicators may again influence those concepts. It is thus not surprising that disputes arise about a multitude of questions: Is it, for example, necessary to monetarise natural capital wherever possible to amend market failure or should, quite in the contrary, the main emphasis be placed on physical quantities to measure the gap between the status quo and a state where the limits of biophysical carrying capacities can be kept? Which indicators are suited to account for

human well-being? And where are the limits of statistical information systems in general?

To tackle the issue of appropriate information systems for a socio-ecological transformation in a systematic way, this paper proposes to start with the controversies among different approaches advocating important changes in the economic and/or social patterns of industrial societies in response to the environmental crisis.[1] Based on a survey of the literature that itself analyses environmental discourses of the last 40 years (Adler/Schachtschneider 2010, Dobson 2007, Dryzek 2005, O'Riordan 1981 and others), major disputes will be identified. These include

1. The controversy about weak versus strong sustainability, that is, the question to what extent natural capital can be replaced by produced capital.
2. The (im)possibility of continuous economic growth.
3. The significance of social equity issues for a socio-ecological transformation, a particularly multifaceted question relating to inter- and intragenerational justice on a global as well as inner societal level.
4. The role technological innovation has to play, pertaining to the importance of technical solutions to environmental problems in comparison to broader political, economic and cultural changes as well as to the question of adequate technology for a sustainable society.
5. The role of work, for ex. whether emphasis is placed on paid or other types of work or whether it is perceived as a means of self-fulfilment.
6. Political institutions conducive to ecological sustainability, in particular appropriate forms of democracy and participation and levels of decision-making (for ex. local vs. global).
7. Principal agents of change who set in motion and implement the transformation.
8. The question whether the current system (i.e. in most cases identified with capitalism, but also industrialism, patriarchy or dominance in general) should be adapted, reformed or overcome altogether.

The resulting map of typical positions in longstanding controversies in the field of environmentally sustainable development and post-growth debates prepares the ground for the development of a typology of *current* "transformation discourses".[2] Combining different answers to those controversies into more or less stable argumentation systems, those discourses on the one hand draw heavily on prior discussions. One example is the "Green Growth" discourse that can be largely identified with the older "Ecological Mod-

[1] Albeit they remain geared towards growth, this is assumed to include ecological modernization and most green economy approaches. This rather broad conception of a socio-ecological transformation certainly is debatable. However, the analysis deliberately excludes only concepts that assume very weak sustainability (perfect substitutability) or do not consider environmental issues as a major economic and political question.

[2] A discourse or argumentation system is basically to be understood as a combination of a specific understanding of the issue at hand, underlying principles, the goals and strategies envisioned as well as the instruments judged adequate to come to a solution (see Jacob et al. 2012).

ernization" discourse. On the other hand, there may well be new combinations, advancements and new elements that can be distinguished more easily against the background of long-lasting discussions. Besides "Green Growth", a typology of transformation discourses will include a variety of post-growth approaches. While united on the impossibility or at least improbability of continuous growth, differences remain on many of the issues mentioned above. However, identifying dominant clusters of positions will narrow the number of types down.[3]

In the context of the present work, the purpose of such a typology is to draw conclusions on the specific requirements for measurement systems flowing from different transformation discourses. This approach will be tested in a first attempt for the "Green Growth" discourse. After a description of its main traits and positions, the consequences of those positions for the development of indicators will be investigated from a twofold perspective: Firstly, a search for measurement systems able to support the envisioned transformation, secondly, the question of which measures could confirm or disconfirm empirically the claims made by the discourse *in its own logic*. The questions to be addressed in particular can be preliminarily described as follows: Does the discourse prescribe domains or issues that have to be covered by information systems (while neglecting others)? Are there preferred methods of data collection? Which calculation methods are compatible with or particularly appropriate to it? What should be the main criteria of indicator selection from the perspective of this specific discourse? Following the analysis of the "Green Growth" discourse, some theses on post-growth transformation discourses such as degrowth and their requirements for measurement systems will be devised as a preparation for further research.[4]

The author is looking forward to discuss the approach with the session participants, as the deduction of measurement requirements shall lead to an assessment of existing measurement systems with view to their compatibility with different discourses in future works. One goal is to identify areas of convergence where post-growth/degrowth approaches may profit from recent indicator development with focus on a "Green Economy", but also to point out the need for different measurement systems and the problems that may arise from the use of inappropriate indicators.[5]

[3] The development of similar typologies has already been conducted by others (for ex. Schmelzer/Passadakis 2011, Ott 2011), yet not with a view to indicator development.

[4] That step can of course build on various works on sustainability indicator, but also on first publications on degrowth accounts such as O'Neill (2012).

[5] For recent research focusing on the necessity of indicators consistent with the underlying ideas of an approach see for ex. Thiry (2012).

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