

# Conceptualizing 'Mode-3 Science'

## Integral research on sustainable development and quality of life

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### **Abstract**

#### *Summary*

In this paper we argue why a new scientific approach is needed to start a real transition towards sustainable development. Our hypothesis behind is that SD as a concept has been widely used in science and media, but has not been successful, because - among others - it is a technocratic concept not touching the emotional side of humans. By linking SD to quality of life and thus to needs, well-being, capabilities, values and culture, it can be operationalised in a way that it is touching humans and making them feel and see how sustainable development and high quality of life can be linked. We call this new form of science mode-3 science and describe this science its methods and possible implementations.

Sustainable development (SD) is at the crossroads. Twenty years after the 'Brundtland Report' (UN WCED 1987) the concept of sustainability is widely discussed within politicians and tons of media discussions and lots of research focusing on SD has proven its importance. But: Real change towards SD is out of sight. One could argue 'time is not ripe yet' and we should just go on and try harder. But skepticism is growing that it might need better, further or even new methods – for implementing and investigating sustainability – to move on forward.

In this paper we will propose that sustainability science (with some rare exceptions) is working with inappropriate concepts of human being and human behavior. For example, the Brundtland definition of SD (UN WCED 1987) is build around a concept of needs, but the declaration does not clarify this term and seems to limit the concept on basic human needs (Rauschmayer et al. 2008). SD is aiming for a cultural and societal change, therefore better concepts on human behavior and how to promote change is needed. Recent efforts on bridging SD and quality of life (QoL) are starting to fill this gap – they introduce more specific models of human wellbeing into the SD discussion (Jackson 2006 & 2007, O'Neil 2006, Rauschmayer et.al. 2008). The focus shifts to needs, capabilities, values, lifestyles, and emotions.

However, if we really want to work with such concepts in research – we might re-think the methods we use. We do not only need the shift from mode-1 (academic, investigator-initiated and discipline-based knowledge production) to mode-2 science (Nowotny 2001, Gibbons et al. 1994) or post normal science (Funtowicz and Ravetz, 1991, 1993; Funtowicz et al., 1997; Luks 1996, 1999), i.e. a shift to a complex process of ongoing negotiation and communication of a network of competing and cooperating groups and individuals, set up to ‘solve’ a certain problem (Müller 2003), transdisciplinary research which is aware of uncertainty and the complexity of the problem, but we need a further shift to a mode-3-science (The term was first used by Friedrich Hinterberger in a presentation at the Lisbon Conference of ESEE, the European Society of Ecological Economics). By mode-3-science, building on mode-2-science, we understand a science able to make sense of emotions in a problem-solving process, leaving the autonomy and responsibility of interpretation and evaluation of the emotions and the underlying inner processes to each participant in the problem-solving process.

Mode-2 methods have not been developed with the idea of including emotions or happiness explicitly. They aim at opening up science to the public, providing science-policy interfaces, tackling “real” problems and looking for solutions that can be accepted by the affected ones. They aim at finding the best compromise, to take into account the complexity of systems that are relevant. However they do not – at least not explicitly – aim at increasing happiness. Of course methods usually used in mode-2 science, such as multi-criteria analysis or integrated modelling, can lead to a decision that also increases the quality of life of a group, maybe of all people involved, although it was not an explicit aim. But if we want to be sure that with our research we support the increase of quality of life, then we need new methods, then we need to expand mode-2 further, take a next step and develop a science that can also work with subjectivity and emotions.

Furthermore, the new approach should do better in linking and weighing different perspectives. Mode-2 science did a great job, as it introduced approaches that work with different perspectives. But it seems as though those perspectives are left with a quite loose interdependence. Within new approaches we would have to introduce an integral framework that allows us to locate such perspectives horizontally (different views) and vertically (different stages of consciousness/value systems/etc.). Therefore, using concepts of integral theory (e.g. Wilber 1995) seems to be very promising.

How could this new form of science (mode-3) look like? It should

- include all concepts related or defining quality of life: capabilities, social and cultural systems, values, needs and needs fulfillment, (hedonistic and eudaimonic) well-being emotions, etc.,
- support people in the research process to express their needs, emotions, etc.,
- integrate quantitative and qualitative data, and
- support societal and personal change.

Methods of mode-3-science could e.g. include

- multi-criteria analyses extended by needs and emotions (Rauschmayer 2005),
- action research (Reason & Bradburry 2001),
- transition management, e.g. Integrated Sustainability Assessment (Weaver & Rotmans, 2006)
- Organizational change management (Senge et.al. 2004)

- Communication methods as nonviolent communication (Rosenberg 2001)

By applying mode-3 science we aim to bring the concept of SD “down” from the mind to the heart. That way humans (citizens, experts, decision makers) can be touched that they understand and feel that a transition towards SD is not only necessary, but also possible – and can increase their quality of life (see the introduction paper of Rauschmayer et al. for this session).

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