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In defence of a qualitative research approach – by taking a quantitative approach as point of departure

Reflections on the sustainable development research field

An immense amount of data tells us that the development of the modern world is on an unsustainable pathway. The Living Planet index measuring an aggregate of total biodiversity loss, and used by the global World Wide fund for nature (WWF), has diminished by 30% in the past 35 years (WWF 2008: 2). Direct threats such as over hunting is one of the causes but more important is the pressure from human expansion into ecosystems and destruction of habitats for purposes such as agriculture, forestry, infrastructure, and settlements. The ongoing climate change and other types of stress on the ecosystems also make many species vulnerable. Actually, human activities have today set in action a process of extinction comparable only to the historical eras of mass extinction from huge natural catastrophes millions of years ago. Our big mammal fellows are one of the most endangered groups; the living planet index for this group has decreased by about 20 per cent over just the last decade (WWF 2008:12). Another index used in the Living Planet Report 2008 is the global Ecological Footprint, which tries to grasp the total human demand on bio-productive space. That is, how big is the physical area that our lifestyle and consumption patterns demand? The ecological footprint is aggregating land and water areas that are needed for producing the resource demand from the human economy, as well as for absorbing the waste it generates. The Ecological Footprint then summarises these demands into one figure of appropriated global hectares from a given individual, population, or activity. Today the human economy on a global scale exceeds the planet's regenerative capacity by about 30 per cent (WWF 2008: 2). This global overshoot has not been halting or diminishing in the latest years but instead continues to grow. The effects are right in front of our eyes: continuously degraded ecosystems at a global level with accelerating resource depletion, accumulating pollutants and waste in many areas, deforestation, water shortages, declining biodiversity, and climate change.

During the same time as this socio-ecological depreciation has been accelerating, the modern society has engaged in a hectic business of problem identification and solution management. In my own life span I have not only witnessed a historic tide of ecological destruction, but also the business of combating it. In 1972 we saw the first international environmental UN conference held in Stockholm, followed by the huge Rio conference on sustainable development in 1992, and then another Earth Summit in Johannesburg in 2002. Running metres of scientific publications have been published on environmental threats. An impressive range of reports aimed at mastering the sustainability problem have been presented by state agencies, regional and local authorities, and NGO:s. Knowledge appears not to be the missing part. Taking a step back: what is needed? What kind of knowledge is in deficit when it comes to the complex issue of global sustainable development?

Getting involved

Getting involved in the research field of sustainable development opens up new questions to yourself as a researcher and as a human being. The amount of data pointing at the worrying situation is overwhelming. Of course, there are still data missing, and when it comes to the breaking down of different problems into its components or the narrowing down into specific geographical areas, additional quantitative studies are often needed. When I for example recently visited a workshop on a soft ware tool called Resource and Energy Analysis Programme (REAP), and its possible implementation in Swedish municipalities, the necessity of good access to quantitative data became clear (REAP 2008). But at the same time, as the REAP developer himself underlined: ‘we can play around with figures’, but moving on from this brings us to the question of policy: of how to ‘institutionalise change’. The model can give us a quantitative basis for our reasoning, even if there of course are all kinds of warnings when it comes to the accuracy of the data input and the interpretation of the model output. But it can not say anything about policy. It is quiet when it comes to make a change. Here we confront the social dimension and the need for a qualitative research approach.

And that is where I want to start. In my research project on Malmö and urban sustainable development, the adoption of a qualitative approach which is participatory and action oriented in its aspirations, seems highly relevant.¹ As other parts of my thesis will show, there is already a bulk of data available pointing at the ecological status of the region and its interconnectedness to the rest of the world system. Of course there are still gaps. No one, and definitely not myself, would oppose the need for the continued improvement of environmental assessment, modelling, and data input. Further quantitative studies are needed, especially for depicting the indirect and consumption based environmental impact that the Malmö citizens have on other parts of the world system through their consumption patterns and life styles. But in a nutshell, I argue, the actors concerned with Malmö sustainable development already have the possibility to get a general overview of the socio-ecological situation. What is then missing is not more data input, but the ability to understand a complex social process of urban development in a way that is comprehensive yet sensitive: the ability to sum up diverse discourses in a way that they become understandable to each other; the understanding of learning and social change; the inspiration to take part in a process with high stakes and no easy truths; and the guts to be honest about the possible severity of the whole thing.

An interdisciplinary approach

In this paper I argue that research on sustainable development is well suited for a cross fertilisation of quantitative and qualitative research traditions. Some clarifications on concepts are in place. Here, I use the concepts of *quantitative* and *qualitative approaches* not in any strict sense but as general models of reasoning. By the former I refer to approaches which aim at measuring something or conducting a quantitative analysis in some aspect, often answering questions of what, where, and how much? By the latter I think of research focused on the human and social domain, often aiming at answering questions of how and why. The methods used are not those of measurement and quantification but rather builds on interpretation and in-depth understanding. To equal quantitative approaches with the natural sciences is of

¹ The application of a participatory and action oriented research approach will be discussed in more detail in the method chapter of my thesis. See also Andrén 2008.

course misleading. Anyone acquainted with for example studies in ecology knows that many issues are indeed qualitative in their nature. And the other way around: to say that humanist scholars only deal with qualitative approaches would of course become subject to refutation. But for the purpose of a general discussion, I here use the natural sciences versus the humanities as a source of comparison.

Looking at the history of science, the advocates of quantitative versus qualitative research approaches have often been distant friends. Alvesson and Sköldbberg (1994: 10 f) point at an ongoing debate on the merits and shortcomings of the two approaches. Their suggestion is that neither approach is without its limitations, and that awareness of the choice of approach and its consequences is important. According to my experience as a student in the natural sciences as well as in the humanities, fertile communication and collaboration between the two traditions often seem difficult. However, due to the interdisciplinary nature of sustainable development, where fundamentals from the natural sciences are as necessary as perspectives from the humanities and social sciences, a communicating bridge is needed. Looking at recent research efforts (see e.g. LUCID programme at Lund University)², this bridge is under construction. My ambition as a researcher is to further contribute to this bridge building. And as the title of my paper suggests I do this by defending the relevance of a qualitative research approach – with a quantitative approach as a point of departure. While not forgetting the need of improvement and reinvestigation of all quantitative research results: with some satisfying data giving us socio-ecological indications on (un)sustainable development, we must move over to the field of human life and ask: what about us? With some satisfying indicators of the socio-ecological dilemma, we are urged to take a step further and ask: what about change?

Am I not battering at an open door? To have to stress the qualitative dimension of sustainable development research may seem superfluous. Common sense says that a qualitative dimension must be relevant. All human activities, including the ones which are now causing an unsustainable socio-ecological situation, have their reflections in a world of subjects and subjectivity where issues of perception, meaning, values, motivation, driving forces and so on matter. But, looking at the public debate on science today, clearly what often dominates is the quantitative approach of the natural sciences. This is of course no surprise as natural science, and its sister modern technology, has been a prerequisite for the development of modern society itself. We are so to speak meshed up with the very results of its success – and its failures. Quantitative approaches have been highly successful through their strength at delivering applicable scientific results in the construction of the industrialised society. Questions demanding quantitative answers have dominated the agenda of modernisation which has fed into the natural sciences and the science of engineering. These approaches certainly continue to deliver fruitful (and sometimes also fearful) solutions to the prosperity of human kind. To defend a qualitative approach built on the achievements of quantitative research results, as this paper proposes, implies the acknowledgement of a natural science

² For information on the interdisciplinary research program LUCID (Lund University Centre of Excellence for Integration of Social and Natural Dimensions of Sustainability), please visit: <http://www.lucsus.lu.se/lucid/index.aspx>

based judgement of the status of the socio-ecological systems. But then I proceed into the qualitative dimension. Then my focus is not on further enhancing quantitative research results, but on bringing them with me into a social context. This step may still be uncomfortable to take, as the strong tradition of the natural sciences dominates much of the socio-ecological research domain.

A look at the history of science

It is important to consider that whatever research approaches we choose as points of departure, they do not imply any neutral starting point of a static and homogeneous science. Chalmers (1999) depicts the development of the sciences as one of combating views on how science should best be done, what counts as scientific progress, the nature of a scientific evidence, etc. Only by looking at the 20th century we get a hint of the storms riding the sea of the philosophy of science. Is science best built according to the principles of *verificationism* where knowledge is slowly accumulated based on the careful compilation and classification of empirical input to our senses?³ This is the view held in one version or the other by the classical positivists, the logical positivists, and more generally in the tradition of scientists advocating *induction* as their main research method. Or is scientific progress rather the process of discarding theories that are falsified? In the tradition of *falsificationism*, where we find Karl Popper, the principle of *deduction* is central as theories and their empirical testing is the driving force of scientific advancement. Despite their polarities, these traditions have in common their search for *one* correct scientific approach and the belief in the ability of the scientist's fulfilment of it.

This rather idealistic and heroic view on science (and the scientist) has come under attack in the past decades. By studying the actual history and praxis of different sciences, it had to be doubted that science was really conducted with that methodological strictness, awareness and openness. Instead it seemed as if many scientific advances included a time-consuming procedure of persuasion, doubts, oppression and, moreover, considerations of social relations and prestige. Thomas Kuhn tried to grasp this dynamic of science by introducing the ideas of *paradigm*, *normal science*, and *scientific revolution* (Chalmers 1999: 107 ff). Normal science is going on within different and incommensurable paradigms, which consist not only of the content of the scientific theories and methods, etc., but also of the praxis of the research community, such as social norms, formal and informal rules. Science progresses by normal science being open and self critical enough to react upon increasing amounts of *anomalies* and eventually to be overthrown by a shift of the whole paradigm. Lakatos had a somewhat similar take, when he argued that "there is no instant rationality in science" and therefore no universal laws on how science is best done (Chalmers 1999: 130 ff, quotation on page 144). Instead scientists are found working in their different – but according to Lakatos commensurable – traditions, which he termed *research programs*, with their *inner core* of theories and central hypotheses. To handle the critics and attacks on their inner core, while at the same time being able to preserve it, a *protective belt* of extra and what could be considered as ad-hoc hypotheses are always to a higher or lesser degree existent. As Lakatos saw it, without some degree of dogmatism and protectionism – or at least hard working stubbornness – important scientific revolutions would not have been able to break through, for example in the famous transition from a geocentric to a heliocentric world view.

³ The structure of reasoning with inspiration from lecture by Lennart Karlsson 081023.

There are of course many critical voices in the debate on the approaches of modern science. One culmination of the attacks was Paul Feyerabend's "Against method: Outline of an anarchistic theory of knowledge" (Chalmers 1999: 150 ff). In his famous slogan 'anything goes', Feyerabend confronted the view on science pretending to harmlessly seeking the truth, being consistent in methods and neutral in ideologies. In as much as there is logical thinking, careful analysis and open minded reflection, there is also arbitrariness, trickery, and propaganda was Feyerabend's message. Scientific knowledge, when looking closely, is no different from other kinds of knowledge. The special status that we have given science in modern society must be seen as dangerous, because it depreciates other forms of human knowledge and experience, moreover, conceals its connections to certain ideologies and power institutions, especially the state. According to Feyerabend, science and humanity would prosper better being freed from the chains of searching for the 'correct' scientific method and the one scientific truth. As Kuhn and Lakatos, Feyerabend was making his claims by studying the actual praxis of scientists and the historical records of scientific achievements. But his provocative conclusion was that *no* scientific approach was better than the other and that, eventually, in all science (quote from Feyerabend in Chalmers 1999: 157):

... What remains are aesthetic judgments, judgments of taste, metaphysical prejudices, religious desires, in short, *what remains are our subjective wishes*: science at its most advanced and general returns to the individual a freedom he seems to lose in its more pedestrian parts.

Even if Feyerabend of course met heavy criticism for his extreme position, I would argue that a seed of his message is worth considering when it comes to sustainability research. Anyone confronting this research field will soon recognise its complex, normative and subjective dimensions. To claim that any one scientific method will cover all aspects of this field would simply be presumptuous. Instead, in order to understand the socio-ecological interconnectedness we need *many* types of knowledge: a combination of different scientific approaches, as this paper proposes, as well as, I would like to stress, *non-scientific* ways of understanding and dealing with our human affairs. Feyerabend, as did Foucault in his famous writings, also reminds us of the ever existing dimension of power in science. What counts as legitimate and trustworthy knowledge is a matter of power relations articulated through different discourses. An example in the sustainable development field is the clash between what could be called the 'eco-modernists' versus the 'activists' discourses. The former are established groups dealing with the sustainability issues in the realm of science, administration and socio-ecological engineering. The latter are more or less organized individuals struggling to be heard by crying out their frustration in action-oriented, unconventional and often provocative ways. Not listening to the activists' discourse certainly misses an important quality of the sustainability question. My suggestion is that these often young activists have a message which catches important aspects of what many feel constitutes the sustainability dilemma: *knowledge is already here – but real change is not*. Can I as a researcher contribute to making different voices heard and act as an intermediary in the struggle of the discourses? Or will I myself only be an example of the dominating discourse?

The humanities as research inspiration

I now turn to some reflections on the qualitative research approach by looking at the humanities and how its facets may help a sustainable development researcher. Following Nordin (2008: 23 ff) the humanities are valuable for, among many things, its efforts to understand human nature, human development and cultivation. These roots of the humanities stretch back to the Ancient Greek philosophies of for example Plato.⁴ To learn about the world and to cultivate yourself as a human being was then not only about the studies of texts, but of the appraisal in a broader sense, incorporating philosophy as well as music and sports. In the 19th century the humanities in for example Germany took up this holistic view again, applied in the concept of 'Bildung' (in English perhaps 'culture' or 'liberal education'). The classical texts were important but not a rigid blue print for life in the modern world. In addition, the ability of *insight*, *empathy* and *contextualisation* in historical studies was stressed. Like the Greek and the Renaissance humanistic ideal there was also the idea of a widened scholarship, not only covering the classics but also other areas of knowledge such as the natural sciences. This makes me reflect on today's sustainable development research and the need to master a true interdisciplinary quality, and also, as I see it, *other* qualities than the academic ones: the recognition of and participating in communication processes with many actors of society; the ability to accept and constructively use the fact that you as a researcher inevitably become a part of the very research problem; the willingness to indulge in complex issues where your scientific motives may become challenged when compared to for example the need for political action and social change, and more.

Turning to views on human nature, another relevant issue in sustainable development research, we can become inspired by for example the Renaissance humanism which revitalised the old discussion held by the antique philosophers. One of the early voices pointing towards a modern humanistic standpoint was the 14th century Italian renaissance man Giovanni Pico della Mirandola, who in his *Oration on the Dignity of Man* claimed that man of all creatures had no archetype, but was free to shape himself on a level with the angels – or the demons (Nordin 2008: 28). These thoughts being extremely provocative in the Catholic Europe of that time, still are highly relevant in opening up for discussion on man's possibility and responsibility for creating his own fate. What view on human nature do I myself imply when putting up my research questions? For example, a Foucaultian view on man as a potential agent of change is radically different from the one held by Sartre's existentialism.⁵

Another insight from the humanities is the awareness of language, as its main tool and way of reaching out. Cicero, a Roman philosopher and one of the pioneers of rhetoric, stressed that no philosophical truth however grand would be listened to without the ability to express it (Nordin 2008: 25). I find this awareness of the rhetoric side of our academic activities valuable as the ability of communication that reaches out, not only within the researcher's community but also to a broader public, is crucial. A new condition influencing on our ability of communication is the structural changes of the scientific publishing sector including the effects of the information technology revolution. Thompson (2005) gives a rich

⁴ Surely these philosophical issues stretch even further back, but our way of writing history narrows our mind by its tendency to search for reference points and categories of periods.

⁵ This example with inspiration from a lecture by Eva Österberg 081027.

in detail picture on how the academic publishing is undergoing profound changes. The importance of the traditional scholarly monograph written in the mother language seems threatened. It is now a globalized and English speaking scientific community you must enter. Thompson (2005: 8 ff) points at some fundamental driving forces that are changing the traditional way of academic publication and scientific communication: the growing concentrations of power and resources among fewer and larger publishers, determining who and what will get published; the changing structure of the book selling market, such as the growing on-line market which increases competition but also opens up possibilities for smaller segments; the globalisation of the market implying that you must now place yourself as a researcher in an international circulation of ideas, authors, and content; and finally, the impact of new technologies. What this technological revolution will mean for future academia we can yet not know. But clearly, anyone who wants to make her voice heard must be open to revise her way of thinking of how to communicate and disseminate research results. Openness to new technologies and forms of communicating research will probably be rewarding. This being said, my own reflection on the rapidly changing technologies is that the most dangerous thing we could do is to forget about the content for the sake of the forms. That is, how well – how poor – we may come to master modern IT based communication, no real progress will be made unless we work on the content of our message. Well, perhaps I am just getting old.

Another important contribution from the humanities to feed into sustainability research, I argue, is the tradition of scholars who have defended a critical stance to contemporary society. Of course the very scientific attitude should be one of critical openness, but what I here think of is the coherent schools of thought that have dared to challenge dominant views on history, society and development. The Frankfurt school and the historical materialism, the post-structuralists' writings of for example Michel Foucault and Jacques Derrida; the ecological economists' challenge of neo classical economics,⁶ and the human ecology approach on man-nature interactions, are just a few examples. I think there are insights to gain from these approaches that are important in the sustainable development research field: a reminder of the need to always challenge 'truths' that are taken for granted, the courage to explicit a position and a choice of theoretical perspective, even if it is uncomfortable, and, finally, the courageous and creative spirit in general. As history has shown us, to be open-minded and to dare to be critical is not always easy, it can be dangerous, and it certainly makes you a target for criticism as well as celebrations. In the case of sustainability research there are many 'hot potatoes' you will have to confront: the paradigm of economic growth, the ideological tension between market solutions versus public control, the hegemony of individual freedom in for example consumption preferences and life style choices, etc.

Perhaps the most important thing that I am taking with me from the humanities into the research field of sustainable development is the vital discussion on the qualitative research approach as such. This brings me to the very centre of my paper. In defending the qualitative research, I find the recognition of the impossibility of one true body of knowledge, while at the same time to keep working with proper criteria to give as good picture as possible, very inspiring. Alvesson and Sköldböck call this research approach "a provisional rational project",

⁶ The ecological economy approach has originated not so much from humanities scholars as from social scientists and natural scientists trying to understand each other. It is anyway relevant as a recent and critical approach in the sustainable development field. More info: <http://www.ecoeco.org/>

where the rationality is more about reflection than procedure; “Good qualitative research is no technical project, but an intellectual one” (1994: 369 f, my translation). They argue that it is not the perfect mastering of methodological technicalities that determines the qualitative researcher, but the awareness and ability of reflection in the entire research process: in relation to your research questions, in the contact with the empirical material, as an interpretative awareness, as self-reflection, as a reflection on political-ideological contexts, and so on (ibid.: 313).

Finally, some comments on the outcome of qualitative research and on relativism.⁷ In the *hermeneutic tradition*, to which many humanities' scholars dedicate themselves in one or another sense, the aspirations are typically of a qualitative character: to understand, interpret, to gain insight, to find meanings. The research objects, or one would rather say *subjects*, are never fully determinable, as they constitute human beings in a variety of conditions and social contexts. The purpose is less to make generalisations than to make *contextualisations*. The knowledge thus gained can never be ‘pure’ in the sense free from any colours of a subject; it is always to some degree incomplete and indirect as the outcome of processes of interpretation. This inevitably means that some kind of *relativism* is always present. Having been acquainted with the world of environmental policy making, I know that nothing can be as frustrating as something that is ‘relative’. So then it is simply nothing you can rely on! Surely, the qualitative research approach brings in a necessary dimension of caution in the interpretation, generalisation, and application of research results. On the other hand, some kind of relativism is *always* hidden in the act of researching, so this carefulness rather counts for the translation of science in general. Instead of pretending any research approach to unveil a universal truth, probably the best way to go about is to be transparent with what you are doing, and to scrutinise yourself in an open minded and self critical way.

To admit some degree of relativism in qualitative research is not the same thing as saying that it is totally arbitrary. In contrast to writing a novel you are producing a research publication. Working as a researcher implies carefully and systematically adopting clear and transparent criteria. These criteria include methodological as well as broader ethical considerations, such as your arguments being coherent and logically consistent; all your data and sources correct; your way of placing yourself in the world of academic texts and references to colleagues fair and comprehensive; your position concerning important ethical, epistemological and perhaps ontological standpoints explicitly or implicitly clear (lecture Österberg 081027). In sustainable development research I think this last criterion is especially important, as these basic points of departure inevitably colour your choices of research questions, methods and material. And, by this said, I hope I have by this paper done some of the positioning part concerning my own research approach. Being committed to the search for new interdisciplinary and transdisciplinary approaches,⁸ and tired as I was by the burden of the whole complexity, I eventually found myself relieved by the message from a lecture discussion: You don’t have to be dead certain. It is OK to be in search. You don’t have to apply one orthodox approach. It is OK to mix!

⁷ These comments with inspiration from a lecture by Eva Österberg 081027.

⁸ See also Andrén 2008 on interdisciplinarity in the sustainable development research field.

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