
Introduction

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Transition studies is an emerging field within the paradigm of sustainable development linking issues of scientific explanation, empirical assessment, participation and political planning. The main objective is to understand how a transition towards a sustainable mode of production and related consumption patterns might be achieved. Such an effort asks for political solutions that are economically viable, socially accepted and ecologically sound at the same time. To achieve this, new patterns of cooperation between science, policy and civil society have to be found. For a scientist, such an effort requires that he should tailor his research agenda to the needs of political processes and public interest. At the same time, the scientist has to keep his position in the division of labour between science and policy, whereby the scientists provides information while policy makes the decisions. However, the quality of the decision making process and the informational background of decisions can profit greatly from scientific support.

A social transition towards sustainability is not easy to achieve. Social change is a permanent feature of social systems. Usually, change happens on the system level and the individual's intentional intervention is a mere factor among many others. How can one intervene in such self organised processes which are deeply rooted in social structures? The hope, in transition studies, is that, by a better understanding of the structures and dynamics of a social system (a community or a national economy), interventions for the realisation of sustainable scenarios might be more effective and useful. Such interventions could aim at raising the ability of a social system to respond (resonate) to certain information provided by its environments.

While in the industrial countries the issue at stake is a possible transition into a more sustainable economic path, the developing world is undergoing a more fundamental process of change. On the one hand, developing economies, to a varying extent, are based on a huge agrarian sector (both in terms of labour force and contribution to income). Parts of the agrarian population have not entered the market, and produces and consumes in mere subsistence. Industrialisation of the agrarian sector has taken hold only selectively (a process which was initiated in e.g., Europe in the 1950s). Surplus in this sector is not able to subsidise the other economic sectors. This diagnosis is especially true for Southeast Asia, which has been undergoing a fundamental transformation of the agrarian sector and its populations for the last four decades.

On the other hand, socio-economic change depends not only on decisions taken in developing economies (or communities) but is strongly interlinked to what happens on a regional (sometimes global) level where the future options of developing countries are shaped by the powerful industrialised countries. In other words, many institutional arrangements constrain political decisions in developing countries.

As can be clearly seen today, the future of the developing economies in terms of socio-economic and environmental performance is vital for global environmental change. Since per capita consumption is rather low compared to industrial standards, the potential for future growth is immense. Secondly, it might be that developing countries can omit experiences that today's industrialised countries had when they transcended from an agrarian to an industrial pattern.

A recent research project, namely 'Southeast Asia in transition' – under the leadership of Marina Fischer-Kowalski – funded by the European Commission's INCO-DEV Programme contributed to understanding socio-economic change in relation to environmental impacts such as resource management or waste and emission prevention. In short, 'Southeast Asia in transition' had the objective of providing a comprehensive set of sustainability indicators for four selected countries in the region. The indicators served as policy instruments that allowed monitoring of environmentally sound social and economic development. The approach of the research included a non-traditional view of economic processes, by making visible the biophysical dimensions of production and consumption processes. Furthermore, the set of indicators measured societal impact on natural processes and the social organisation of production modes. In an integrated framework, the analysis of these sustainability indicators allowed the determination of trends and developments of the current socio-economic structure in Southeast Asia.

Studies were carried out in Thailand, Laos, Vietnam, and the Philippines. Research in each country included a calculation of indicators on the level of the national economy, including informal and subsistence-sector production, which is prevalent in large parts of these economies. In addition, each country included research on a specific case study, which represented a particular sustainability problem of the country concerned. Community-level data generated was able to support the national-level analysis with information on agricultural production and the subsistence sector. The case studies proved to be of interest in their own right, since data were acquired in the fields, and detailed analyses of local resource use systems largely unconnected to large markets were possible.

Furthermore, the project took a regional view based on the compiled data. Along with major methodological developments that were achieved by the intense interaction of European and Southeast Asian experts, a regional assessment of major sustainability issues in the region emerged that was integrated into the national assessments of the respective focus countries.

In addition to the construction of a pioneering information system on sustainability indicators in the region, major achievements of South East Asia in Transition included the extension of knowledge into the fields of policy development and education. The research teams designed ways for dissemination and outreach of information as was most adequate for the respective social environments. While concrete effects on policy-making are difficult to discern, many of the results achieved and methods applied were incorporated in other research activities of the partner institutions as well as being incorporated into the curricula of academic courses in resource economics and sustainability sciences.

One outcome of the research effort in Southeast Asia is this special issue which deals with two aspects of transition studies. Firstly, it aims at providing a conceptual framework for analysing transitions in an agrarian context at different levels of scale. In part I of the special issue, Mario Giampietro and Jesus Ramos Martin introduce the methodology of multi-scale integrated analysis of sustainability. This approach, although not applied strictly to all cases, can be taken as a guideline for the following empirical examples (see Part II) on how transition studies research can produce interesting and useful empirical results.

Part II includes three case study applications, beginning with Clemens M. Grünbühel and Heinz Schandl discussing the use of the main productive resources, land and time, in a least developed economy, (Lao PDR) in relation to policies aimed at reducing poverty. The contribution builds on a policy analysis and includes empirical results for the local and the national level. It shows how far certain economic and biophysical framing conditions enable or constrain objectives of policy makers and of rural households (small-scale producers) in Laos.

Corazon Rapera in her contribution for the Philippines has focussed on the national economy and tries to exploit information from material flow accounting for an understanding of the future potentials of reducing poverty in the Philippines.

Marieke Hobbes tailors the material flow accounting methods for application to the local, rural communities in the Philippines, Vietnam and Laos. In doing so, she questions whether indicators derived from studies for national economies are suitable in the local context and discusses a set of new indicators that are able to capture the characteristics of local resource use systems.

Part III presents a contribution by Jesus Ramos Martin and Mario Giampietro discussing the difference between growth and development in social systems and their environmental relations. They show the contrasting cases of Spain and Ecuador which are different, insofar as the Spanish economy underwent qualitative change in the period from 1976 to 1996, while the socio-economy of Ecuador solely experienced growth in scale variables during the same period. Secondly, they question whether multi-scale integrated assessment allows for building robust scenarios, applying the methodology to Vietnam. Thereby, they are able to show how, by using the advantage of parallel representation, missing information can be substituted to gain a full picture.

The special issue concludes with an annex focussing on technical aspects and visualisation tools for the integrated assessment approach given by Tiziano Gomiero and Mario Giampietro.

Through our work, presented in this special issue, we hope to provide for the reader an interesting mixture of content, theoretical approach and methodology as well as empirical results for the region of Southeast Asia.

The editors appreciate the support of the European Commission's INCO-DEV programme, on which the research leading to the results presented in this special issue has been based.