



Sustainability:

A Cross-Disciplinary Concept for Social Transformations

by
Egon Becker
Thomas Jahn
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*Report on the Results of the first phase of the MOST-Project :
“Towards Sustainable Development Paradigms and Policies”*

“Sustainability as a Concept of the Social Sciences”

MOST Publications

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About the institute

An independent, non-profit research institution, the Institute for Social-Ecological Research (ISOE) was founded in 1989 at Frankfurt / Main. Natural and social scientists cooperate at the ISOE in an interdisciplinary, problem - and action-oriented, approach to environmental research, related to specific social-ecological problem areas, such as water supply, waste and water-management, consumption patterns or urban mobility. It aims at developing appropriate, regionally specific strategies of action for various actors in the public, ngo and private sector. ISOE is also concerned with conceptual and methodological issues.

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Preface

I take pleasure in introducing this conceptual study on sustainability from the point of view of the social sciences which is the outcome of a fruitful cooperation between UNESCO's MOST programme and the German Institute for Social-Ecological Research (ISOE) at Frankfurt/Main. We are very grateful to the Federal Ministry for Research and Technology of Germany (BMFT), and especially to Minister-Counsellor Dr. Hansvolker Ziegler for his never faltering support, both moral and financial, lent to this first in-depth conceptual phase of what we hope will become a broader inter-national MOST research project on "Sustainable Development Paradigms and Policies". Needless to say, the search for an integrative and scientifically sound theoretical and methodological framework for sustainability can benefit and constitute a unifying paradigm for the whole of the MOST programme.

At present, the social sciences are confronted with a wide range of novel and interdependent transformation processes. Among these, the most important ones are likely to result from economic and technological globalisation with its social, political and cultural impact, the failure of development strategies in many "Third World" countries; unemployment by "jobless growth", the transformation of post-socialist societies; and environmental change that is influenced by, and itself influences, all the other tendencies. The contributions and proposals of the social sciences for the political, social and economic management of these transformation processes fall short of the demands and expectations placed on them. One reason for this is the clearly insufficient resources allocated to the social sciences.

However, major causes of this state of affairs can be found in the theoretical and conceptual fields as well as in the organisational structures of the sciences. The relative success of the social sciences since 1945 in matters of politics, economics and society was closely linked to the predominance of one theoretical model and paradigm of social transformation for which the terms "modernisation" and "development" served as key concepts. Since the late 1960s, however, the normative foundations of a strictly western-oriented modernisation paradigm as well as its claim for universal generalization are increasingly recognized as inadequate. An even more fundamental loss of normative credibility and analytical capacity occurred in 1989, in the case of Marxist criticism of modernisation theories and related concepts and models of development which had shared, in spite of important divergences, many common beliefs with "western" development theories. In addition to this crisis of traditional development paradigms, the social sciences are

confronted with new theoretical and conceptual challenges, such as the necessity to deal with the natural environment, with gender relations and inequalities, with cultural differences, with technological risks and, more broadly, with technology in general as a "social construction".

Although, in recent years, sections of the social sciences have reacted to these changes with various attempts at re-orientation, no new conceptual approach capable of dealing with the problems has come about. A major cause of this situation can be found in the excessive disciplinary as well as paradigmatic fragmentations, both within the social sciences and between social and natural sciences.

Within this context, the Institute for Social-Ecological Research (ISOE) at Frankfurt/Main was asked by MOST, in late 1995, to start a process of discussion among social science disciplines on whether sustainability can be formulated as an operational theoretical concept for the social sciences as well as a field of empirical research and dynamic forecasting - and how this could be done. After a thorough stock-taking exercise, ISOE has contracted a number of high-level resource persons from various disciplines including economics, sociology, political sciences, geography, psychology, anthropology, and demography. These scholars (see annexed bibliography) have presented papers on the status and prospects of the debate on sustainability from the point of view of their disciplines and the different regional contexts, represented by the following countries: Argentina, Austria, Brazil, Canada, China, France, Germany, India, Japan, Netherlands, Nigeria, Russia, Spain, UK, and USA. The present publication is the synthesis drawn upon such contributions, which was prepared by ISOE and discussed during a MOST workshop organized from 20-23 November 1996, at Frankfurt/Main.

The carefully selected group which participated in the workshop proved to be very complementary and readily assumed its work in a spirit of commitment and inspired exchange. They voiced a strong plea to set up an integrative framework for an international open-ended research network on sustainability issues. The network is to be constituted by national research teams working on comparative local scale whereas the issue-definition of the project shall remain international. A declaration adopted by the participants in the workshop is included in this publication.

I am grateful to Professor Dr. Egon Becker, Dr. Thomas Jahn and their staff at ISOE, to the experts participating in the network, as well as to my colleague Dr. Christina von Fürstenberg who is co-ordinating the project in the MOST programme, to have given such fresh momentum to the conceptual discussion on sustainability. This is a promising start and a solid foundation for an international research project dealing with the richest and most controversial concept of the decade. To cope with it, we must dare to renew our vision of our relationship with others and with nature.

Ali Kazancigil
Executive Secretary, MOST Programme
Director, Division of Social Sciences,
Research and Policy
UNESCO, Paris, June 1997

Abstract

Any attempt to explain and define the concept of sustainability scientifically, relates to three closely-linked dimensions, each defining a different context: a strategic or political dimension, a normative one and an analytical one. In view of this situation, there is a need for innovative indicators that allow an assessment of complex relationships and explore the institutional and political contexts within which sustainability measurements should take place. When introducing the issue of agency into the indicator discussion, the needs and experiences of different sets of actors in different regions of the world are to be taken into account. Redefining the links between scientists, governmental organisations, NGOs and other non-scientific actors also implies a redefinition of the social scientific community within civil society and the status of the scientific expert witness as an authoritative source. The re-orientation of the social sciences towards sustainability must provide conceptual frameworks for transdisciplinary research that, first, involves both material and symbolic dimensions and focusses on the links between them; and second, allows for a differentiated position towards the natural scientific description of environmental problems. The conceptual framework proposed in this study will thus open a wide range of criticism of scientific models (from the natural as well as the social sciences) by analysing their modes of social construction.

Sustainability:

A Cross-Disciplinary Concept for Social Transformations

Introduction

Sustainable development has recently established itself as a new key word of political discourse. The following examples highlight four issues and aspects which demonstrate why this concept should be of special interest for the social sciences.

a In contrast to the international discussion concerning the concept of “global (environmental) change”, which is primarily structured by a series of ecological crisis phenomena, like climate change, land waste, water and air pollution, and described in natural science terms, the concept of sustainable development is based on a society-oriented definition of problems. The question is: how can societies shape their development in such a way so as to preserve the preconditions of development for future generations? This way of putting the question includes not only the issue of economic efficiency, but those of social justice and political regulation as well. A more precise definition and investigation of these questions is only possible within social science discourse. Sustainable development describes a topic of research that is social at its core, while the so-called “human dimensions” of global change as a new field of social science research are added more or less belatedly to a natural scientific description of the problems.

b Sustainable development may be conceived as a conceptual counter-position to “modernisation”, a paradigm which has dominated the social sciences since the 1945 and structured the politics of development, a paradigm which has, since the 1970’s, become increasingly questionable. This is true above all with respect to three aspects: First of all, sustainable development

breaks with the equivalence between development and economic growth, until now taken for granted. Secondly, it questions the assumption of a continuous, linear and more or less harmonious development for societies along a given track. And, finally, it puts to rest the idea that there is one, and only one, way and direction for modernisation to occur, which all human societies must follow. In contrast, sustainability emphasizes the diversity of societal paths of development, depending on their particular cultural or political as well as their ecological starting points. The focus on the natural prerequisites and impacts of social processes and eco-systems makes clear that not only the “Third World” countries but also - and even more so - the highly industrialized countries of the North should be regarded as “developing” countries.

c Development indicators have been, and remain, designed with an assumption that societal development is equivalent to economic growth. Total GNP and average per capita stand at the core of indicators which have been used to measure how “developed” a given society is. There have been efforts made over the last few decades to broaden these narrowly economic indicators. These efforts have moved in three directions: First, social indicators (as, for instance, the Human Development Index) are supposed to make possible statements and comparisons about the quality of life in individual societies. Second, environmental indicators, which have been worked out in great numbers mainly since the 1980’s, aim at describing the environment in general, or individual sectors or ecosystems. Third, an attempt has been made to correct the economic indicators themselves, so that damage to the environment would no longer appear automatically as a cause of growth in prosperity, but rather would be seen as a decrease in prosperity and the quality of life. However, if societal processes are to be evaluated in terms of their sustainability, then the different indicator systems cannot be merely reviewed, reformulated or supplemented. Instead, the question of their connection and interaction must become a central point of investigation. The question of adequate indicators is, therefore, a decisive field of debate and research concerning sustainability, for both the natural and the social sciences.

d Putting sustainability concretely into practice requires knowledge about the interactions among society, economy, politics and environment. Research on sustainability, therefore,

demands cross-disciplinary cooperation on different levels among the social science disciplines, as well as between the social and the natural sciences. As a result, the drawing of disciplinary boundaries must be reviewed and, where needed, revised. In addition, new forms, not only of policy making but of scientific consultancy as well, are required. It is becoming clear that sustainability presents many challenges, but also many opportunities for the social sciences. These range from conceptual clarifications, to the working out of new indicators and policy tools, to new forms of involvement in political decision-making and social transformations at both the global and local levels. Given this background, the goal of the project, "Sustainability as a Concept for the Social Sciences", within the MOST program is to enable the social sciences, or disciplines, to face up to these challenges and to make use of the opportunities at hand. With this in mind, the most important results of the project are presented in what follows.

1. This report summarizes the results of a joint working process of social scientists participating in the UNESCO-MOST project "Sustainability as a Concept of the Social Sciences". In the course of this project, 15 experts' reports were compiled (see list of reports). Drawing especially on the discussions of the final conference, held at Frankfurt in November 1996, this report reflects issues jointly discussed by all of the participants, rather than highlighting the contributions of individual authors. However, it should be stated that the responsibility for this report lies with the authors of this text.

1. Sustainability as a Challenge for the Social Sciences¹

1.1. Facing the Crisis of "Modernisation": Sustainable Development as a New Model of Social Transformation Policies

Since the preparation process for the Rio Conference of 1992, sustainable development has become an internationally accepted key word for a political discourse concerning quality of life issues, the conservation of natural resources and a sense of commitment to future generations. Rather than a well defined concept, sustainable development might best be characterized as a controversial discursive field which allows for the articulation of political and economic differences between North and South and offers a possibility to link debates on social equity with ecological debates.

Despite the variety of meanings attached to the term within different political, ideological and scientific discourses, a set of analytical, normative and strategical / political dimension can be identified as the core elements of a consensus. The analytical statement maintains that societal development can no longer be viewed without considering its biophysical environment and its preservation. This has two essential consequences: first one needs to question whether growth and development can actually be equated; second, the idea of there being only one developmental path, with world-wide validity, is crumbling.

At the same time, a normative call for justice is being applied beyond today's generations to future generations: societal development should on no account lead to irreversible changes which reduce the chances of future generations meeting their needs. In this respect, social justice and equity in gender relations, too, have become an ever more important dimension in the course of the debate around sustainability issues.

As a model of political consultancy, sustainable development is closely linked to the rejection of "development" and mere economic modernisation as a model for the management of social transformation. On the one hand, "development" and "modernisation" have attracted growing criticism mainly

from "Third World" activists who see them as means of domination. On the other hand, "development" as a generalization of the historical development of Western societies has proved inappropriate to meet the most urgent needs of present global transformation processes. The triad of economic growth, technological progress and social development did not meet the specific conditions and requirements of most "Third World" countries. In addition the development policies of these countries have contributed to the spread of poverty amongst broad sections of the population, to an increase in economic and gender inequality and to degradation of the environment (see for example Guha 1996). Discussion of the "limits of growth" also has made clear that the resource-intensive path of development pursued by the Western industrial societies could neither carry on into the future at the same pace, nor could it necessarily be applied on a global scale. In addition, the fast-moving technological rationalization of production in the industrial societies has created critical, and still unsolved, problems of unemployment within the OECD world.

1.2. Mapping the Societal Implications of Sustainability

Five Years after the Rio conference the political discourse has largely changed. "Globalization" has become a new key word threatening to erode the political and normative consensus fostered by sustainable development, in favour of strategies related to competitiveness between nation states and transnational geo-political alliances. At the same time, due to uneven economic and political globalization, segmentation and fragmentation are increasing world-wide. Poverty and marginalization are threatening growing sections of the population, both in the countries of the North and the South. As a consequence, struggles against poverty and strategies towards social integration have become of utmost political importance as the Social Summit 1995 in Copenhagen has demonstrated (Sachs 1995).

However, present environmental policies and recommendations, drawing on tools such as environmental targets, are mainly formulated in non-social terms. The main focus of analysis is on monitoring the natural environment, while the complexity of intertwined social, economic and political processes and their interaction is approached only in the questionable terms of a

“human dimension” (for a critique, see Mesarovic et al. 1996). Studies of societal behaviour in interaction with the environment are either limited to environmental impacts, such as the anthropogenic greenhouse effect, or to social responses to environmental change, such as changes in agricultural productivity, rather than focusing on the interrelationships and links between social and environmental processes.

Facing up to this complex of problems requires stressing the need to enhance and deepen the understanding of the social implications of a political orientation to sustainability. Special emphasis has to be given to issues of intragenerational social justice, while, at the same time, the debate on sustainability has to be expanded from a mere concern with resource management and the preservation of the natural environment to consider social justice and “quality of life” as social and political goals. Sustainability therefore encompasses both the links by which the relation of society to nature is shaped, maintained and open to transformation, and how the constraints imposed on human activity by the physical environment are linked to the social, political and normative aspects which are inherent to human societies, such as social justice, gender equality and political participation.

Consequently, a shift of perspective is required from an “absolute limits” view which is concerned exclusively with critical loads on the natural environment to a “social trajectories” view which

- focuses on the variety of social, economic and political processes and their interaction, as well as their temporal, spatial and territorial aspects, which together contribute to non-sustainability. Here, the interrelations of processes on different levels - local, regional, nation state, global - are of crucial importance. Major issues here are how sustainability on a global level is related to sustainabilities on a local level, and how sustainability at one place is maintained at the expense of sustainability at another place by exporting of non-sustainability (Martinez Alier 1996). In addition, different conflicting time scales of processes have to be addressed, e.g. market / short term; society / several generations; environment / long term.

- analyses how different types of institutional arrangements, modes of production and consumption, life-styles etc. are related to the (non-)sustainability of human-environment

Major challenges for a comprehensive understanding of sustainability

- Clarifying the societal implications of sustainability,
- investigating the links between societal processes and environmental change on global, regional and local levels,
- exploring how normative claims for social justice embedded in the discourse on sustainability and sustainable development might be translated into viable strategies for social-ecological transformation involving close cooperation between scientific and non-scientific actors.

interactions. Special attention has to be paid here to the culturally shaped and symbolic meanings associated with nature and environment in different cultures which affect environmentally related behaviour in terms of “social time” or “social appropriation of space” (Acsehrad 1996);

- aims at developing appropriate strategies for (more) sustainable social-ecological transformation processes which - contrary to conventional modernisation or development policies - allow for a variety of transformation paths, and which also take into consideration the fragmentations caused by present global development processes, which has produce new or reinforced existing domination along axes such as gender, race, class (Braidotti 1996).

1.3. Confronting Sustainability: The Need of Social Scientific Re-orientations

This shift calls for major contributions from the social sciences. New kinds of problems raised by sustainability and sustainable development confront the social sciences with theoretical and conceptual challenges, such as dealing with the natural environment, with gender relations and inequalities, with cultural diversity and multiculturalism, or with technological risks. These have been conceptualized in isolation to each other and are not related to a common goal such as sustainability. Consequently, the contributions of the social sciences for an

understanding and analysis of current transformation processes, and their proposals for political, economic and social management are falling well short of the demands and expectations placed on them.

A major cause of these shortcomings is the conceptualisation of the relationship between nature and society. At the epistemological level, social sciences are based on the assumption that society is separate from nature. Sociology, for example, is confronted with its “Durkheim-Weber heritage”, whereby social facts could and, indeed, should be explained entirely by social factors. This assumption follows the Western epistemological tradition which opposes the human being to nature, and which is tied to a Western androcentric attitude of dominating women and non-Europeans; an approach criticised by feminist and post-colonial scholars (Braidotti 1996).

This fragmentation of knowledge is reinforced by disciplinary divisions, both within the social sciences (for instance between economics and sociology) and the epistemological rupture between social and natural sciences. In the face of the challenge of sustainability, the issue of cooperation and interrelation between social and natural sciences, and between the different approaches within them, has acquired new status as a focus for scientific endeavours and scientific policy-making, thereby stressing the need for innovative forms of cross-disciplinary cooperation.

Another cause of dissatisfaction results from the critique of modernisation theories, which requires serious conceptual and methodological reorientations, as well as new organizational structures for the social sciences (Wallerstein et al. 1996). The relative success of the social sciences since 1945 as a source of advice for policy-making and the political management of economic and social transformation processes, particularly in “Third World” countries, was linked to “modernisation” and “development” as the pre-dominant paradigm of social transformation. This model was closely wedded to the assumed continuity of social development, thus enabling the social sciences to make projections for long-term trends as well as empirical statements based on economic and social indicators. In this context, the gross national product, the average per capita income and the economic growth rates were regarded as decisive indicators of development or modernisation.

2. Defining Sustainability: Outline of a conceptual framework

2.1. Shifts towards Sustainability: Emerging Approaches in the Social Sciences

Most influential contributions to the conceptualization and the operationalization of sustainability on the part of the social sciences have been made in the field of resource and environmental economics where the interrelations and interactions between economy and environment emerged as a field of research as well as of policy recommendation.

Based on a neo-classical framework, environmental economics attempts to assess the contributions of the natural world to economic production in terms of "natural capital". Different management rules are proposed according to a distinction between "weak" and "strong" sustainability. Weak sustainability assumes that the total capital stock of manufactured and natural capital should be non-decreasing and savings should be more or equal to the combined depreciation of the two kinds of capital, while the basic rule of strong sustainability is that the resource stock should be kept constant over time (Pearce and Turner 1990). For renewable resources like forests or water, quality rates of harvest should be kept below the natural rate of regeneration and waste flows from the economy should be kept below the assimilative capacity of the environment. With respect to non-renewable resources such as specific minerals and fossil fuels, strong sustainability implies that the rate of use of these resources should be less than, or equal to, the rate of technological progress in developing substitutes or the rate of saving through conservation efforts.

In contrast to neo-classical environmental economics, Ecological Economics, "the science and management of sustainability" (Costanza 1991), sets out to integrate a physical perspective into economic considerations in order to overcome the conceptual limitations of the neo-classical approach. Drawing on a framework which conceptualizes the society/nature - relationship in terms of the embeddedness of the economy in the bio-physical world, Ecological Economics focus on the interactions of the economy and the environment, and on the bio-physical limitations

of economic activities using thermodynamic considerations, especially the concept of entropy. As a consequence, Ecological Economics stresses the need for cross-disciplinary cooperation with the natural sciences in order to take the underlying bio-physical processes of economic activities into account more appropriately.

Both approaches are providing important insights into the societal implications of sustainability. This is especially true with respect to the conceptualization of the society/nature relationship as it has been worked out within Ecological Economics. However, the limitations of both approaches are obvious as they take social activities and processes into account only as far as they are part of the economy.

A remarkable attempt to move beyond economic concerns by introducing issues of social justice and political participation in the debate on sustainability has been formulated by Ignacy Sachs (Sachs 1996). Drawing on a "whole sustainability" approach, Sachs distinguishes between environmental and social sustainability in terms of "outer" and "inner" limits of society. While environmental sustainability is concerned with the bio-physical limits of social activities, social sustainability is related to the internal organization of individual societies as well as of the world community as a whole. Key elements of a weak definition of social sustainability are the absence of war, of major violence and of social anomy as well as the existence of a non-totalitarian political regime. Strong social sustainability rests on the basic values of equity and democracy, and includes the effective appropriation of all the political, civil, economic, social and cultural human rights by all the people. With respect to social sustainability, however, a lot of confusion has to be acknowledged. Taking the Istanbul conference as an example, Sachs quotes livelihood, development projects, policies, institutions, business, the city, culture or economic growth as possible choices for sustaining activities. Rephrased in more analytical terms, the crucial issue at stake is whether social sustainability is related to the need to sustain existing social structures and customs or to the social preconditions of a sustainable development, where it is clear that the first perspective will lead to a more static view of sustainability.

2.2. Key Elements of a Working Definition of Sustainability

Considering the changing environmental conditions as well as the dynamic process of rapid transformation which societies are undergoing in the present situation, sustainability stresses the need to focus on the dynamic character of the process of societal change in which the natural environment is involved as a central dimension. Hence, sustainability should not refer to the conservation of specific structures or to static qualities of societies or the natural environment, but, rather, should refer to stabilized and preserved patterns within social-ecological transformations.

Taking the range of social implications into account which are discussed above, claims on sustainability address the dynamic process by which societies manage the material conditions of their reproduction, including the social, economic, political and cultural principles that guide the distribution of environmental resources. Sustainability, hence, should be understood as a valued quality of processes, structures and systems. Therefore, it must be defined in relationship to strategies and goals which refer to the interactions between societies and their natural environment, including the mutual interference of different societal processes among themselves and with ecological processes.

Basic societal processes related to sustainability

- economic processes, referring to levels and modes of production, consumption and distribution of goods,
- social processes, referring to social sustaining processes, including issues of procreation, but also implying social factors such as life-styles, gender division of labour, social hierarchies, value systems etc.; within this dimension equity concerns are of crucial importance;
- governance and political participation, related to issues like participation in, and the responsiveness of, decision making processes, but also to the capability of institutions to accommodate to changing conditions.

Distinguishing between different sustainability related processes, however, does not imply that different types of sustainability can be assessed separately. Sustainability, in other words, cannot be approached by simply adding the requirements and imperatives of different types of processes together, but is closely linked to, and emerges out of, the interrelations and interactions between them.

Another feature of sustainability as a social science concept should be emphasized here because of its strong relevance for further discussion. After all, each attempt to scientifically explain and define the concept automatically relates to three dimensions which, through sustainability, are closely if not inseparably linked to one another: a strategic or political, a normative and an analytical dimension, each defining a different context.

Contrary to the assumption of conventional modernisation and development theory, the present situation is characterized by the agreement that there is no single or universal path of sustainable development nor a single model of a sustainable societal structure. Hence, sustainability requires a framework which has to provide some key elements and criteria allowing for an assessment of the sustainability of transformations strategies, in order to avoid relativism and non-committment. According to the different dimensions of the consensus on sustainable development as outlined above, the following framework intends to provide key elements of a working definition of sustainability which include claims at an analytical, a normative and a strategical level.

It should be emphasized that any discussion of sustainability as a scientific concept has to be aware of the close and complex links between the above-mentioned dimensions. At the same time it also has to make clear distinctions between them. The above matrix provides a map for further exploration of sustainability and might serve as a tool for identifying gaps for further investigation. It also helps to avoid analytical shortcomings with respect to normative commitments. However, the social scientific discussion cannot hope to arrive at a definitive agreement on the analytical, normative and political status and meaning of sustainability. The debate within the social sciences, therefore, is bound to further a commonly shared understanding of basic elements and features of the concept

without neglecting, or even levelling out, the differences and disagreements in the analytical, normative or political field.

Analytical, normative and strategical dimensions of sustainability

a Analytical Dimension

Analytically, the sustainability and non-sustainability conditions for a combined system of nature and society in time and space have to be identified. Sustainability / non-sustainability is a qualification of states and processes within a continuum of possible states and processes.

The term sustainability therefore should be used first with a negative sign in order to identify states and processes that are unsustainable. Defining non-sustainable states opens a "corridor" for different paths to (more) sustainable states, limited by "crash-barriers".

This view enforces the importance of working with process categories: Focusing on the issue "what is prolongable and for how long?" outlines a limited sustainability corridor and conditions for social transformations. A conceptual shift from categories of remaining and preservation to categories of change and transformation becomes possible.

The variety of conditions and social trajectories, and also the need not to discard possible alternatives, lends support to avoiding a positive definition of sustainability as a general norm. Clearly, such a definition would tend to suggest the existence of one single optimal path, and hence contains the danger of a possible hierarchy of "sustainable nations", dominated by countries of the North - e.g. "Sustainable Germany"- a model which could then be exported to the unsustainable world.

b Normative Dimension

With respect to the normative dimension, sustainability implies the acknowledgement of a hierarchy in dependence of economy, society and environment: market economy depends on society and environment. While societies are possible without a market economy, neither can exist without a natural environment. Thus, economic processes are subordinated to social and ecological constraints. In this context, sustainability refers to claims and commitments to

- compatibility between social, economic and environmental goals at all levels,
- social equity and social justice as an overriding goal,
- recognition of cultural diversity and multiculturalism
- and support for the maintenance of biodiversity.

c Strategical Dimension

Strategically, sustainability implies a system of governance at all levels - local to global - that appropriately implements policies that move towards sustainability, especially with respect to social equity and social justice, the compatibility between social, economic and environmental goals, and the participation of local actors.

Sustainability requires the identification of different goals and the ways and means of their implementation, the critical reevaluation and assessment of institutions and institutional arrangements, as well as the identification of possible actors and conflicts among them.

The main target of strategies towards sustainability should be the identification and transformation of existing mechanisms of non-sustainability.

3. Measuring Sustainability: A Framework for Multi-Criteria Evaluation

3.1. How to Account for Sustainability? The Need for Conceptual and Methodological Considerations

Measuring sustainability is a major issue as well as a driving force of the discussion on sustainable development, both in the political and in the scientific contexts. Developing tools that reliably measure sustainability is a prerequisite for identifying non-sustainable processes, informing decision-makers and monitoring the impact of relevant policies. The multiplicity of indicators and measurement tools being developed in this fast growing field show the importance of conceptual and methodological work. The development and selection of indicators require parameters related to the reliability, appropriateness, practicability and limitations of measurements. They also call for an exploration of the institutional and political contexts within which these measurements are taking place.

In order to cope with the complexity of sustainability related issues, existing indicators should be re-evaluated and innovative indicators and indicator systems have to be developed. Existing environmental policies draw mainly on environmental targets related to the state of the natural environment and are, therefore, formulated in non-social terms. Consequently, there is a fairly wide range of environmental indicators available which measure, for instance, water quality or loss of biodiversity. At present a lack of appropriate, sustainability related indicators for economic and social processes has to be acknowledged.

In view of this situation, there is a need for innovative indicators, or indicator sets, related to the interactions of social and environmental processes that allow an assessment of more complex relationships, such as the environmental impacts of economic activities in their relation to social welfare. Here, the establishment of an appropriate conceptual framework for the development of measurements that focus on the links and interrelations between the economic, the social, the political and

the environmental spheres provides a major challenge, calling for special endeavour on the part of the social sciences, as well as for the enhancement of cross-disciplinary cooperation between social and natural sciences.

Special emphasis should be given to the dynamic character of society/nature interactions, which means identifying social causes leading to environmental deterioration, as well as conceiving appropriate responses. Here, the OECD "key indicators system" can be considered an important proposal. By linking environmental and social indicators, this indicator system is building up "core" indicators related to "pressures placed on the environment", "current condition of the environment" and "responses of the society to these problems". In a similar way the UN Commission on Sustainable Development proposes to classify and link indicators in terms of "driving force", "state" and "response indicators" (UN Commission on Sustainable Development 1996). Both approaches provide a stimulating framework linking environmental and social indicators. However, further conceptual and methodological work is needed, especially with respect to the selection of appropriate indicators that take into account the basic societal processes and their interaction.

Another, slightly different, social scientific approach for measuring the (non-)sustainability of societal processes will be discussed in greater detail in the following section. The underlying idea of this approach is to address the environmental impacts of social processes directly by integrating an environmental dimension into measurements of social activities rather than linking existing social and environmental indicators. Examining the issues: "what should be measured?" "what types of indicators should be employed?" and "how can measurements related to different dimensions be linked?" this section suggests elements of a conceptual framework from which the assessment of existing indicators as well as the development of innovative indicator sets might begin.

Societal processes to which sustainability indicators should apply, are economic prosperity, society's metabolism, quality of life and governance/political participation. They can be distinguished as basic dimensions of societal processes. Special emphasis should be given to the links between these processes. Another set of questions is emerging in relation to the broader

political context of the debate on indicators and environmental targets. Crucial issues in this context are how measurements of sustainability relate to political strategies, and how the behavior of various groups of actors is affected by different indicator systems.

3.2. Basic Dimensions of Societal Processes

a Economic prosperity

With regard to the measurement of long-term economic prosperity, the shortcomings and inadequacy of conventional development indicators, such as GNP or GDP per capita are obvious. Environmental degradation, and the depletion of natural resources, are not being measured at all, while the costs of environmental restoration are added to GNP in positive terms. In order to take environmental degradation, or the drawing down of natural stocks, more appropriately into account, a "green correction" of these indicators has been proposed. Drawing on the concept of "natural capital", Herman Daly and John Cobb have suggested to adjust GNP by accounting for depletions of natural capital and pollution effects in terms of (the loss of) natural capital (Daly and Cobb 1989). Including also income distribution effects, the performance of the Daly/Cobb "index of sustainable welfare" (ISEW) differs considerably from that of "uncorrected" GNP. While the economic prosperity of the US has grown since 1970 if measured in GNP, there has been no increase in terms of ISEW.

In the ongoing debate within ecological economics, the valuation of environmental degradation in monetary terms is highly controversial. Both in the context of weak and of strong sustainability, technical as well as conceptual difficulties are tied to the concept of "natural capital". Technical problems arise with respect to issues such as the measurement of saving rates, and the measurement and appropriate valuation of attributes and functions of the biophysical world. Conceptual problems emerge with respect to the implicit assumptions of universal substitutability of man-made and natural capital, and of strong comparability of values belonging to different, e.g. ecological, economic or aesthetic scales. These conceptual shortcomings are due to a general "econocentric" bias (Gowdy 1996) of approaches of monetary evaluation. Focusing only on the valuation of the material inputs into the economic system, these

approaches fail to address the underlying ecological processes which are sustaining these inputs.

As a result, green corrections of economic accounting systems, such as the Daly/Cobb ISEW, turn out to be instrumental in overcoming some of the most obvious shortcomings of existing practices of economic valuation. However, they do not provide an appropriate basis for a comprehensive evaluation of sustainability.

b Society's metabolism²

2. Following a suggestion made by Marina Fischer Kowalski, the concept "society's metabolism with nature", which goes back to the materialist tradition of 19th century German philosophy, is used here as a heuristic tool to designate the material and energy flows that sustain the material compartments of a social system (Fischer-Kowalski, forthcoming).

To assess the physical impacts of human activity on the environment more appropriately, monetary indicators should be supplemented by indicators measuring the amounts of material and energy processed or used up by society in physical terms. Among those indicators that account for society's metabolism are HANPP (human appropriation of net primary production) (Vitousek et al. 1986), the concepts of ecospace and ecological footprints (Opschoor 1995, Rees and Wackernagel 1994) or approaches to assess the life cycles of products or processes, such as MIPS (material intensity per service unit) (Schmidt-Bleek 1993). While HANPP provides (usually highly aggregated) measurements of the share of biomass which is used by society, ecospace or ecological footprints are expressions of the demand for materials and resources of a given economy in terms of a multi-dimensional space of representation which can be calculated at different levels, e.g. for a whole country, but also for a city or a region. In a slightly different way, MIPS is related to specified goods or services, and is expressing in quantitative terms the demand for materials processed in order to obtain and maintain them. Focusing on society's metabolism exclusively in quantitative physical terms, these indicators fail to take the specificity of the processed materials into account, while there obviously exists a difference between a ton of iron and a ton of dioxine which in this context does matter. Hence, in addition to measuring society's metabolism in quantitative terms, issues of quality should also be taken into consideration. Consequently, the assessment of society's metabolism should draw on a battery of indicators, including indicators referring to quantity (energy, material throughput), but also include indicators that highlight qualitative aspects, like toxicity, land use patterns etc. Here again, rejection of a single indicator system points to the need of theoretical and methodological

reflection on how the performance of various indicators should be evaluated and how the different levels to which the indicators refer interlink.

c Quality of life

In addition to measurements in physical and monetarized terms, a third set of social indicators should refer to the dimension “quality of life” or “well-being”, as does for example the Human Development Index (HDI) which considers life expectancy, literacy and income. The introduction of quality of life as a separate dimension to which sustainability indicators should apply, intends to widen the focus of the sustainability debate beyond the limits of strictly economic and environmental goals. In this context, development of quality of life indicators provides a representation-space for operationalizing normative implications of sustainability such as gender equity or social justice.

Indicators and measurements related to this field might be directed towards issues of physical health and socio-psychological aspects, but they should also cover individual competence and skills, as well as institutional aspects like empowerment or connectedness. Despite some overlapping concerns with regard to concepts like human or social capital, indicators related to the dimension of well-being should avoid confusing social and economic issues even on a semantical level.

Like metabolism, quality of life should not be considered as an uni-dimensional, but as a multi-dimensional field to which a variety or battery of indicators might apply. These indicators should consider the following factors at different levels

- family, local group, region as well as nation-state:
- access to information (including education, mass media)
- connectedness,
- physical health, psychological health,
- access to life sustaining activities (nutrition, housing, employment, access to land and resources)
- safety in and out of home (control in home, lack of civil discord)

In addition to this suggested list, aspects of procreation and reproduction, such as reproductive health, should be addressed within the framework of well-being.

d Governance and political participation

This somewhat 'hybrid' category encompasses different, but nevertheless closely related processes and aspects. Considering the institutional capacity of a political system, and thus its capacity to implement sustainability related policies, indicators of governance account for the quality of decision making processes. As far as they address issues of political participation, indicators within this field are also related to equity concerns and to social justice, and consequently touch on the normative context of sustainability.

Important aspects which indicators of governance should measure, are the integration of environment and development in decision-making processes, the capacity of institutions to adapt to changing conditions, the decentralization of and access to decision-making processes as a prerequisite of the participation of local actors. Measurements in this field should not be confined to the nation state, but must take into account the local (municipal or regional) and the transnational level as well.

3.3. Critical Links between Social Processes

Economic prosperity, society's metabolism, quality of life and political decision-making are assumed to be the basic dimensions of societal processes. Links between these processes are different due to a variety of factors, such as technology or life-styles. Developing indicators for such parameters is a crucial task. They allow the adjustment of the model to a variety of social, economic and political conditions, and provide a common ground for comparative, cross-country studies. These links, themselves, turn out to be critical points of departure for sustainability related strategies.³ They shape the relationship between the basic processes.

3. Although strictly limited to societal processes, and without including specific indicators for ecological processes or the state of the environment ("ecosystem health"), measurements of economic prosperity, society's metabolism and quality of life can be linked to a systems model that allows for claims on sustainability. Referring to a suggestion made by Marina Fischer Kowalski, the existence of positive feedback relations between these processes accounts for the system's non-sustainability, resulting in repercussions on the environment which are characterized by negative feedback (quality of life and, at least partly, economic prosperity decrease under the condition of stress on the environment). A decrease in non-sustainability, or alternatively, an increase in sustainability, requires decrease in society's metabolism and, hence, decoupling of the positive feedbacks between metabolism, prosperity and quality of life by altering the process parameters linking these basic processes.

Parameters affecting the links between basic societal processes

Parameters affecting the links between economic prosperity and quality of life are

- degree of market economy vs. subsistence economy (access to environmental services and resources, both outside and inside the market);
- income and its distribution
- ecological distribution

Parameters affecting the links between society's metabolism and quality of life are

- distribution of property
- life-styles (use of time/working time, use of income, means of transport, opportunity structures [jobs, leisure, transport] vis à vis life-styles)

Parameters affecting the links between society's metabolism and economic prosperity are

- structure of production (goods vs. services)
- technology (labor productivity and resource use; the structure of costs: labor, resources and energy).

This list intends to present some of the most important parameters which are shaping and influencing the links between economic prosperity, society's metabolism and quality of life. It is open for further extension, especially in order to identify parameters of the links between governance/political participation and the other basic processes. Based on these considerations further research has to be carried out to develop an appropriate set of indicators applying these to processes and parameters in a way that also fits the needs of decision-making.

3.4. Social Meaning of Environmental Targets

An important field of investigation, which also entails strong implication for the assessment of existing indicators and the development of innovative indicators for measurements of sustainability, relates to the social meanings and the political context of these indicators. Thus, the focus is shifted from the "what" and "how" of measurement to considerations of the strategies and institutional framework (Redclift 1996). Here, the direct relationship of the usefulness of sustainability indicators and the policy context in which they are used is taken into consideration by asking for whom, and for which goals, indicators are developed. This approach focusses on the processes of negotiating sustainability targets. Examination of the political context of the debate on indicators also touches on the issue as to whether they have the aim of ecological modernisation in order to enhance the efficiency of the economic system. The question also arises if the setting-up of environmental standards and targets is instrumental in the improvement of the quality of life.

The emergence of indicators and acceptance of environmental targets can be viewed as a measurement of the public's awareness of the problems of sustainability and the environment. Special attention should be paid to impacts and implications of the specific kinds of targets which are chosen (related to issues like climate change or biodiversity etc.), and the types of indicators employed. Within a cross-cultural perspective, the meaning and implications of environmental targets within different socio-political contexts should also be investigated.

It is crucial to know how the social actors are affected by various indicators and measurements. Here, the question of which groups of actors and levels of action are addressed, and which options are chosen and which are precluded, at the various levels, should be examined. It has been pointed out, that global studies tend to focus on population growth as a primary problem, while local studies tend to give more weight to economic and social factors. As a consequence, global studies will not be of great concern to poor countries as they put emphasis on global commons and problems arising from rapid population growth, while neglecting the regional or local socio-economic conditions (c.f. Makinwa 1996). Carrying this

argument further, it can be maintained that indicators of high aggregation referring to a global level will not prove very useful for local movements, while on the other hand certain aspects of large-scale environmental degradation remain invisible at a local level.

In view of this discussion, it should be further examined how the incorporation of the factor of agency might lead to a more “self-reflexive” approach to the development of indicators. The considerations presented above might be instrumental not only for the understanding of the logic of societal processes, but also for the identification of critical fields of action and actors with respect to sustainability related strategies on a global scale. In highly industrialized countries in the North, an “environmentalism of engineers” attempts to reduce society’s metabolism by means of technological innovations, and an “environmentalism of affluence” promotes a shift towards less material and energy consuming life-styles. By contrast, in countries of the South, environmental justice movements engaged in ecological distribution conflicts, or an “environmentalism of the poor” struggling around the distribution of property rights affect the links between prosperity and quality of life, and between metabolism and quality of life.

4. Achieving Sustainability: Key Actors and Processes

While the participants in the Rio-Conference agreed that strategies towards sustainability require efforts at a global level, the conference also set topics such as participation of local actors, both in the management of resources and in decision-making processes, as central issues on the agenda. In face of the range and scope of these topics, the limitations of a single top-down strategy, based on the assumption of a homogenous set of actors on a global level, soon become obvious. Hence, a move towards sustainability on a global level requires acknowledging the emergence of a multiplicity of agencies and actors operating at different levels, engaged in various kinds of processes and conflicts, and situated in a broad spectrum of contexts, varying according to the North/South-axis, or different gender or cultural experiences.

Exploring the needs and experiences of different sets of actors in different regions of the world can be considered as an important contribution of the social sciences, both with respect to the building of alliances, as well as with regard to potential conflicts that might arise among them (c.f. Paehlke 1996). Analysis of environmentally related behaviour implies capturing the links between people's understandings of environmental issues, and the investigation of economic, social, political and cultural conditions that enable and constrain people's interaction with the environment. In this context, the concept of agency provides a tool for understanding the capacity to act, not as a static quality of given actors, but as the outcome of a dynamic process, encompassing social and economic conditions, as well as issues related to citizenship, such as access to decision-making processes and the recognition of a variety of gender, cultural etc. experiences.

Critical Processes and Key Actors for Sustainability

Based on the concept of agency, the following list of key actors is suggested as part of a framework for an understanding of the logic of sustainability-related processes, strategies and conflicts. It highlights common features among the experiences

of heterogeneous agents at various regions and levels, without erasing potential differences among them. Within this framework, different groups of actors can be identified as key actors, while the constellations among them vary according to the types of processes and conflicts they are engaged in.

a Actors Struggling Around Livelihood

A first set of key actors encompasses people engaged in struggles around livelihood. These actors emerge out of collective action forms, related to specific threats to the fulfilment of basic needs, like intoxication by industrial production plants or (potential) accidents with large scale consequences for people and the environment, or related to threats to the social appropriation of territory, encompassing both a material and a symbolic dimension. Struggles of local communities to maintain patterns of management and use of local resources might arise from opposition to economic marginalization. However they also might be directed against a devaluation of traditional practices and forms of knowledge.

Social movements engaged in struggles around livelihood might address local issues of survival directly (e.g. “ecology of the poor”), or move beyond these issues to larger sustainability consensus, ideological questions and a critique of the development paradigm.

Special emphasis should be given to the importance of the struggle of poor third world women who suffer disproportionately from the many manifestations of the global environmental crisis. Playing a fundamental role in sustaining the household in informal, rural and even market economies, and in the management of natural resources, they are excluded from decision-making both in the family and in the public sphere, and are denied control over the products of their activity. Empowerment of women, hence, must be a crucial concern of sustainability-related strategies, especially with respect to the struggle around issues of population control.

b Technological Actors Engaged in Production and Consumption Processes

A second set of agents encompasses actors within industry, finance, advertising and science and technology. These new

actors emerging at the intersection, or interface, of production and consumption are predominantly related to an "environmentalism of affluence" in the North. Here, the link between production and consumption is crucial, as also are the advantages and limitations of market mechanisms and regulatory pressures on the private sector by the state.

Besides the material dimension, the symbolic dimension has to be respected. This is especially true for consumption and the transformation of life-styles by advertising and mass media, like the propagation and spread of "North Atlantic consumerism". Understanding the links between these dimensions is crucial, both with regard to questions of identity and to "underlying social commitments" (Michael Redclift) which refer to factors that govern everyday behaviour and routines. Consumers can be seen as key actors with respect to changes of life-styles in the North, while in the South changes of aspirations are involved.

In the context of production/consumption gender relations play an important role. In the countries of the North, basic consumption issues, such as diet, clothing or waste management, are mainly assigned to women who may be excluded from the process of designing new products.

c Nation State

Although a key actor in struggles and conflicts around sustainability, the role of the nation state is highly ambivalent. While it is expected to regulate and steer towards sustainability, often there is an enormous gap in performance between the nation state's legislative function and the implementation of laws, while its steering capacity generally is threatened by a variety of processes.

- The legitimacy of the nation-state is threatened by its own poor performance, privatization, globalization, inter-national conditionalities, the power of multinationals and supernational organisations, and eroded at the grass-roots by NGOs and social movements. This leads to a weakening and fragmentation of politics and citizenship.

- The countries of the North try to achieve sustainability at a national level by shifting the environmental burden outside their own boundaries.

- The perceptions of the legislative role of the state in the North and the South are very different. Whereas in the North, the state is usually seen as a promotor (and ideally also implementer) of good laws, in the South it is a target representing unjust laws. Thus the state is perceived as a strategic partner in the North, but is considered to be the main adversary (together with industry) in the South.

d Local and Municipal Governments

Local and municipal governments are important actors with respect to land use, water supply or waste management, but often suffer from a lack of competency compared to authorities at higher (e.g. regional, nation state) levels.

This set of actors can be identified both in the North and in the South, but they are juxtaposed in different constellations. In the North the state, industry and individual consumers are viewed as key actors together with social movements; in the South the state and industry are regarded as chief adversaries, individual consumers are ignored and local communities, social movements and poor women are viewed as playing the crucial role.

This list of key actors cuts across local, regional national and global levels. The main concern is the improvement of representation of local actors in global negotiations and international governance. Non-governmental organizations (NGOs) or local groups supporting political change in the direction of sustainability (such as local agenda 21 initiatives) intervene in the political decision-making process at different levels and try to connect local issues with global problems.

e Social Sciences as a Key Actor

Analyzing the contributions of different sets of intellectuals to sustainability related strategies, touches upon the commitment of social scientists. In close cooperation with decision makers and social movement activists, a new type of social scientific activity is emerging. This transformation not only reshapes the role of the individual social scientist, but also entails far-reaching implications for the entire social scientific community in its relation both to other scientists and to civil society.

The classical role of social scientists in the North and in the South is to influence public policy from within and outside the government. This model is increasingly giving way to a new role for social scientists, as observers and participants, who assist in an analysis of social problems and actively engage in community building rather than providing immediate and technical solutions as “experts” or consultants (Werner 1996).

In the South, the new role of social scientists consists of responding to, giving visibility or voice to, and theorizing about local environmental struggles and social movements. Thus, social scientific activity no longer is addressing exclusively governmental organizations, but is increasingly directed to a variety of agents and actors within civil society. Based on a comprehensive understanding of citizenship, and a recognition and respect for diversity, participative efforts to increase control over resources and regulative institutions on the part of groups and movements hitherto excluded from such control, offer crucial sites for intervention and commitment with respect to a democratic organisation of society. The new role of social scientists also stresses alternative visions or possible futures (“imagineering”) as a goal of social sciences. Sustainability can be part of this process.

Reshaping the links between scientists, governmental organisations, NGOs and other non-scientific actors, also implies a redefinition of the role of the social scientific community within civil society and the status of the scientific expert witness as an authoritative resource. Science no longer is seen as an activity endowed with a superior status, but is understood as a contribution to a broader discussion within civil society. Scientific activity is a practice for which the scientist assumes responsibility. Doing research is a process involving people both scientists and non-scientists. This is especially true with respect to sustainability where different cultural and social experiences have to be translated into issues of scientific discourse, and scientific findings have to be transferred back as usable knowledge.

5. Creating a New Knowledge Base for Sustainability

5.1. A New Knowledge Base for Sustainability

The exploration of the scope of the concept of sustainability has outlined the range of potential contributions social sciences can make to the understanding of sustainability. Based on the joint efforts of parts of the scientific community, decision makers and NGOs, stimulating approaches for an appropriate understanding of the multiple dimensions of sustainability are already emerging at the margins of (social) scientific disciplines. However, the goal to “integrate the physical, economic and social sciences to better understand the impacts of economic and social behaviour on the environment” as proposed in the Agenda 21, is far from being achieved.

A major challenge for social scientific investigation and management of complex issues related to sustainability arises from a highly fragmented knowledge base. This fragmentation is closely tied to a perspective that separates societies from nature, and segments the separation through studies of different parts of social activities. This fragmentation and segmentation is reinforced by a disciplinary system of academic rewards. Different disciplines are involved in different ways, and at different levels, in policy making. Within a discipline different theoretical orientations and frameworks have differing interests in, and use for, policy impacts.

As a consequence, scientific attempts to cope with the complexity of issues raised by sustainability, cannot simply aim at adding some new pieces to an already existing knowledge base. The investigation of the relationship of societies to their natural environments, and of the relationships between the different (social, economic, political, cultural etc.) dimensions of sustainability (and their relationship to the environment), sets up the task of overcoming the limitations imposed by the fragmentation and segmentation of social scientific knowledge.

In order to achieve an integrated and comprehensive understanding of processes of societal transformation, as well as the relationships between individuals and the environment in

their social, political, economic, psychological and cultural aspects, a paradigm shift towards a “new knowledge base” (Choucri 1996) is required. Strategies which lead to fragmentation of knowledge building have to be replaced by practices of integration. Focusing on issues of sustainability and environment, the new knowledge base sets out to provide a conceptual space to think about alternative paths and alternative futures which is open for the articulation of a variety of trajectories of social-ecological transformation processes. With respect to issues like gender difference or multiculturalism, but also to cope with ongoing processes of social segmentation, the acknowledgment of heterogeneity and the recognition of diversity in knowledges, cultures, theories, methods and social objectives is another important feature of the new knowledge base.

The need to overcome the limitations of the present knowledge base entails two major implications. Firstly, a rethinking of the nature/society-relationship within the various social science disciplines can be considered one of the most urgent theoretical tasks. Conceptualizations of society “without nature“ and of a “people-free” nature have to be replaced by a conceptual framework which focuses on the complex interactions between society and nature.

Secondly, traditional forms of interdisciplinarity, consisting of interactions only at the margins of the individual disciplines, should give way to new strategies of integration of knowledge. Historically drawn boundaries between social science disciplines have to be reexamined and a rethinking of conceptual and methodological tools is needed, both with respect to new forms of cross disciplinary cooperation - also between social and natural sciences - and with respect to reorientations within individual social science disciplines.

As a consequence of this paradigm shift, the concern with sustainability and the environment should not remain restricted to specialized, environmentally oriented subdisciplines at the margins of individual disciplines. Rather it has to be moved to the center of disciplines in order to support a process of reexamination of the fundamentals of these disciplines, including self-reflexive awareness of their conceptual and methodological presuppositions and limitations. Reorientation should address all subfields of a discipline which have to be reconceptualized to include in their core the constraints of

ecological imperatives in addition to those imposed by their proper field of study, like economy, political system, etc., as well as to explore the connections to other imperatives (Eichler 1996).

5.2. Reconceptualizing the Relationship of Society and Nature

Despite broad agreement within the sustainability debate that social sciences should focus on the complex interactions between society and nature and incorporate the society/nature difference as a fundamental point of reference, it is less obvious how this relationship could be addressed at a conceptual level. Within different disciplines, and committed to various theoretical orientations, a variety of attempts have been worked out on which a conceptualization of the society/nature relationship might draw.

In a systems theory-based framework, the relationship between society and nature is conceptualized either as a relation of different systems, or in terms of a system/subsystem-relationship. Other attempts draw on the distinction between society and environment in terms of process and condition, while from a social constructionist perspective attempts are made to theorize this difference in terms of text and context, of embodiment and embeddedness, or as a relationship between different discourses.

Within a systems theory framework, however, it remains to be explored how the society/nature-difference might be conceptualised appropriately. A crucial issue emerging in this context is, whether the interrelations between society and nature should be approached in terms of separate systems operating relatively isolated, or - giving more weight to the complexity of interactions among the different systems - in terms of strong couplings between systems or, alternatively, in terms of stable and discrete sub-systems of a complex system, as is suggested by attempts that draw on concepts from ecology and evolutionary biology (c.f. Wang 1996). It remains an issue for further investigation, how interactions and exchanges between different systems, or levels, can be accounted for, and if concepts borrowed from the physical sciences, like self-organization, entropy or information, might be useful to a more comprehensive understanding of the relationships between social and ecological systems.

On the other hand, drawing on the framework of a theory of action, and referring to Giddens' theory of structuration, nature is conceptualized "as a structure which both enables and constrains human agency, while at the same time acknowledging that human agency may change the environment itself" (Redclift/Woodgate 1994, p. 54). As an important consequence, this approach allows for both the material and the symbolic dimensions of human agency, which will be referred to again below.

Another issue which implicitly touches on the normative, as well as the strategical level, is whether the relationship between society and nature should be regarded as co-equal, or if human activities should be considered to constitute a sub-system within the ecospheric system. Within this framework it can be asked whether this unequal relationship should be conceptualized as containment or - drawing on ecology and evolutionary biology - as nested levels of stable and discrete sub-systems of a hierarchically organized complex system.

Given these various disciplines and theoretical orientations, a variety of conceptualizations will prove to be more fruitful for anchoring the concern with societal relations with nature within the various social science disciplines than focusing on a single approach. Nevertheless, it must be said that the discussion has hardly begun, and is therefore far from being settled. It should be continued in order to explore the range and limitations of the various approaches with special regard to the issue how aspects of agency are addressed within the various conceptualizations.

5.3. Innovative Forms of Cross-Disciplinary Cooperation

Apparently, new forms, methods and theoretical foundations for cross-disciplinary cooperation and research will be required as a result of the sustainability discussion. Existing models of cross-disciplinary cooperation are often biased towards hierarchal organization, as can be observed in environmental research in the "biology first model". Here, a single (usually natural scientific) discipline is enthroned as key discipline while others are instrumentalized as auxiliary disciplines for certain well-defined questions. This model hardly seems suitable for the study of the multi-layered complexity of sustainability issues,

and this form of cooperation is not attractive for involving social scientists in sustainability research.

Considering that the scientific division of labour represents an important form of the social division of responsibilities and the legitimization of knowledge, this debate is of great epistemological interest, and is also significant for sustainability as a social and political project.

In order to structure the debate about cross disciplinary cooperation, the following section distinguishes three basic models. All of them are appropriate for cross disciplinary research into sustainability. However, different implications emerge from these models of cooperation.⁴

The first model can be referred to as “goal-oriented multi-disciplinarity”. This type of research examines the possibilities of achieving a given objective, for instance a reduction in car exhaust fumes, with the help of various disciplines. Generally speaking, the objectives here are specified and fixed in advance by policy makers; the individual disciplines can adhere almost entirely to their traditional methods, theories and approaches. Within the framework of such research, there is only a small impetus towards interaction between the disciplines. A “synthesis”, if undertaken at all, only refers to the level of results. It is usually done via the policy makers, as clients, and often involves only a mere adding together of results from the different disciplines. To stick with the traffic example: taking the technical options as the point of departure, economic, legal, and possibly behaviour-oriented measures, are put forward without explicit consideration of the interaction of such options and their perhaps contradictory effects.

4. In some points this distinction corresponds (although in others it does not) to the threefold classification of science categories (Applied Science; Professional Consultancy; Post-Normal Science) suggested by Funtowicz and Ravetz (1991).

Although there are, without a doubt, numerous questions that can be meaningfully dealt with in this way, the limitations of this model of cross-disciplinary research are relatively plain to see. Taking the normative implications of sustainability as a frame of reference for the evaluation of political objectives, one of the major limitations of this model lies in the fact that, whether implicitly or explicitly, it works with certain notions of the importance and ranking of the various disciplines: economics is usually assumed to be more important than psychology, technology more important than politics, etc. An effect of the

discussion on sustainability is that such hierarchies are laid open to question.

A second form of cross-disciplinary cooperation can be addressed in terms of "problem-oriented interdisciplinarity". Here too, socially relevant problems or solutions are at the centre of proceedings; the definition of the problems, however, is tied more closely to a process of negotiation between non-scientific actors and the scientists involved. In this way, the different disciplines agree, at least roughly, on a common description of the problems under review; they then proceed to process certain aspects of the whole problem on a relatively independent basis and, for the most part, using their customary disciplinary theories and methods. The results, however, are viewed in the context of results from other disciplines, thus becoming subject to relativization and modification. Thus, an interdisciplinary exchange takes place, albeit on the level of findings rather than that of theories and methods. The concept of sustainability provides in this case a general framework for the definition of socio-ecological problems and a line for their transformation into scientific questions. This model can prove effective for many issues; indeed, it does offer greater scope for dealing with sustainability issues since it makes partial allowance for their complex and multi-dimensional character. And yet this model does not produce enough in the way of impulses and stimuli for self-reflexive changes to the disciplines, and for a review of the range of their theories and methods with regard to the problems raised by sustainability.

Finally, "self-reflexive transdisciplinarity" offers a third model of cross-disciplinary cooperation. It begins with explicitly recognizing that the issues of sustainability extend beyond the traditional subject matter of the respective disciplines and, as such, constitute a "transdisciplinary field" (Martinez-Alier 1996). As a consequence of this acknowledgement, the conceptual and methodological limitations which are tied to each disciplinary perspective are critically examined in the light of these issues. Thus, in contrast to the establishment of environmental oriented sub-disciplines at the margins of existing disciplines, self-reflexive transdisciplinarity promotes theoretical, conceptual and methodological reorientations with respect to core concepts of the various social science disciplines (e.g. the discussion about the substitutability of production factors, capital, labour, land in economics).

However, it is important to emphasize that the processing of sustainability issues within this transdisciplinary field requires not only self-reflexive shifts within the various disciplines, but also the improvement of cross-disciplinary cooperation by an integrative conceptual framework and organizational structures for cooperation. The role of such a theoretical framework consists mainly of offering a flexible, analytic model for the problems under review, thus structuring the scientific work and cooperation. This role should not be underestimated since there is evidence that even multi- or interdisciplinary cooperation is likely to fail in the absence of an integrating conceptual framework (Reboratti 1996). Nevertheless, the reference to a theoretical framework is not intended as a rigid and highly general meta-theory, but rather as a flexible, problem-oriented framework concept, that itself has to be open to self-reflection to the highest degree.

It should be emphasized that in this context “theoretical framework” does not mean “unifying” framework. Thus, the conflict between a unifying framework and the plurality of theoretical and methodological approaches need not necessarily arise. On the contrary, a theoretical framework can even promote and strengthen methodological pluralism, by structuring a wide range of new questions and suggesting and stimulating new methodological and theoretical accesses. In this way, “self-reflexive transdisciplinarity” can open up the field of sustainability studies for new modes of processing, and sustainability as a concept provides analytical dimensions for disciplinary self-reflection. At the same time, and equally important, the focus on the transdisciplinarity of the sustainability field points to the limitations of scientific expertise in general. Highlighting the limits of authoritative judgements of any particular expert in any particular discipline, self-reflexive transdisciplinarity also provides a base for the incorporation of other forms of knowledge and attempts at bridging the gap between scientific and non-scientific actors. Thus, self-reflexive transdisciplinarity also can contribute towards the social opening up and democratization of the discourse on sustainability and sustainable development.

Re-orienting social sciences towards sustainability

Disciplinary level

- rethinking of the nature/society-relationship
- moving the concern with sustainability and the environment to the center of social science disciplines
- reconceptualizing all subfields of a discipline to include in their core the constraints of ecological imperatives in addition to those imposed by their proper field of study
- exploring the connections of the discipline's own imperative to other imperatives

Cross-disciplinary cooperation

- starting cross-disciplinary cooperation on an equal base
- joint negotiation between scientists and non-scientists about the description of problems and the definition of research goals
- review of results of each disciplines in the light of the findings of other disciplines
- examination of conceptual and methodological limitations tied to each discipline's perspective
- re-orientation of core concepts within each discipline
- establishment of a conceptual framework for trans-disciplinary research
- translation of the research's results with respect to the needs of specific scientific and non-scientific users

With respect to the transdisciplinary field opened up by sustainability, ecological economics, social ecology or human ecology offer promising models for cross-disciplinary cooperation. Drawing on different disciplinary traditions, these approaches provide stimulating and important suggestions for developing conceptual frameworks which further explorations of the trans-disciplinary field of sustainability studies may draw upon.

The general systems-theory seems to provide a model for such a frame of reference. But the limitation of the concept to the level of sustainability-relevant problems too strongly restricts the discourse and fades out the perspective of actors. On the other hand, the interrelations between different systems and levels will be conceptualized quite successfully in a systems approach.

Besides ecological economics which emerged from the incorporation of a physical dimension into the perspective of economics, various social ecological approaches attempt at integrating the interrelations of social and natural or environmental processes into sociology. Despite its rich and long tradition which, for example, in India dates back to the social ecological writings of Radhakamal Mukerjee in the 1920's (cf. Guha 1994), social ecology has not yet attracted as much public attention as the debate within ecological economics. Nevertheless, social ecological concepts like "society's metabolism" or a "theory of societal relations with nature" can be considered as interesting contributions for transdisciplinary research into sustainability.

Although studies in ecological economics and social ecology focus on different aspects of the society/nature relationship, growing awareness of social activities outside the market economy, in terms of "social sustaining functions" (as analogous to "ecological sustaining functions") (Gowdy 1996), or to institutional aspects within Ecological Economics, might indicate a converging tendency. It remains to be seen, however, whether these tendencies will result in the emergence of a single transdisciplinary model of sustainability research, or whether a stimulating multiplicity of cooperating approaches will emerge.

5.4. Elements of a Conceptual Framework for Transdisciplinary Research on Sustainability

Given the various existing transdisciplinary approaches and the multi-dimensionality of sustainability, a conceptual framework for transdisciplinary research into sustainability should meet the following requirements. Firstly, it should focus on the interactions of societies and their natural environment, and, secondly, refer to the different (social, economic, political etc.) dimensions of societal processes. As a consequence, a conceptual framework for transdisciplinary research into sustainability should provide a model for problem-oriented incorporation of all social scientific disciplines without any stipulations as to the meaning and role of the different disciplines; instead, these have to be determined anew according to the respective problems and subject matter.

Another important issue arises with respect to values, ideas and beliefs by which social relations with nature are shaped. Taking

into account that social actors are “material/symbolic builders of their own scenarios” (Acselrad 1996), this framework should incorporate a hermeneutic access to the field, and encompass both the material and the symbolic dimensions of the society/nature-relationship.

Some of the consequences of these considerations can be demonstrated drawing upon the approach called ‘social-ecological’ research as developed by ISOE over the past few years. A short outline of a “theory of societal relationships with nature” provides a suggestion of how various aspects of a conceptual framework for discussing sustainability issues might be worked out in greater detail.

This concept, explained in more detail in Becker/Jahn (forthcoming), and referring, among other inspirations, to the Frankfurt critical theory before Habermas’ “linguistic turn”, tries to define the core of society as a structured set of societal relationships with nature in different spheres of action, e.g. work and consumption, food, mobility, reproduction, etc. It is assumed that these different relationships with nature are historically shaped, each with a material and a symbolic dimension which are inextricably linked with one another into a comprehensive structure: as much as being processed and transformed as a material structure, society and nature are also interpreted as symbolic forms and provided with meanings.

Two major consequences result from this approach. Firstly, involving a plurality of both material and symbolic dimensions and focusing on the links between these dimensions, appears to be an appropriate means to overcome the limitations both of realism, or naturalism, and social constructionism. On the one hand, in opposition to naturalism, the inaccessibility of nature outside societal relationships with nature is maintained, so that resorting to nature as a guiding principle of human agency turns out to be either a theoretical misunderstanding or else a means of legitimizing and disguising particular societal interests. On the other hand, in opposition to rigid social constructionism, nature is stressed as a complex material structure to which social agency and construction may indeed refer but which cannot be fully observed, transformed or controlled by societies. Thus the complex, and in no way immediate, one-dimensional and causal links between the material and the symbolic dimension of society/nature relationships, become the focus of interest and

analysis. These historically shaped and changeable connections are seen as specific forms of regulating societal relationships with nature, whereby, in so-called modern societies, science and technology play an ever increasing role within these regulations.

Secondly, this approach allows for a differentiated position towards the natural scientific description of environmental problems: on the one hand, there is explicit recognition of the fact that natural scientific statements represent socially shaped constructions and, as Frederick Buttel puts it, are “not simply a mirror of the natural world” (quoted by Redclift 1996). On the other hand, findings of natural sciences as well as other forms of environmental knowledge, refer to the material dimensions of nature, not only transformed by society, but also resistant to scientific and technical control. This conceptual framework thus opens up a wide range of criticisms of scientific models (stemming from the natural as well as the social sciences) by analyzing their modes of social construction. It does not, however, assert that the results based on these models are to be neglected due to their having been socially constructed.

5.5. Capacity Building for Research on Sustainability

With respect to the building of sustainability research capacities in the social sciences, there is a strong need for new forms of interdisciplinary research institutes and organizations able to adequately study the problems raised by the objective of sustainable development. Establishing new interdisciplinary “Centers for Sustainability Studies” on international, national and especially regional levels could be a suitable and successful way to meet this need. In addition, existing institutions for development studies ought to incorporate the different dimensions of sustainability in their research. This implies a re-orientation of training and research in the industrialized countries of the North, as well as the building of independent training and research capacities in the countries of the South. Interdisciplinary post-graduate programmes with appropriate curricula should be established at the universities in the North and South. The UNITWIN UNESCO Chairs programme can be used as an appropriate framework in this respect. In this context, special effort on the part of the industrialized countries in supporting and enhancing this process is of the utmost importance.

With respect to the global dimension of sustainability problems the need to foster social scientific research on sustainability at the international level is obvious. The MOST-Programme (“Management of Social Transformations”) of UNESCO, as a social scientific research program, provides an appropriate, internationally agreed institutional frame for sustainability-related and policy-relevant research in the social sciences.

The MOST-project “Sustainability as a Concept of the Social Sciences” has given a strong impulse to a re-orientation of research policies in the social sciences towards the new issue of sustainability. It also offers a starting-point for building an international discussion and research network of (social) scientists, policy-makers and other activists from NGOs and social movements, concerned with sustainability and sustainable development policies.

6. Outlook: Elements of an International Social Scientific Research Agenda

Complementary efforts on the part of the natural sciences to join problem and user oriented social scientific research on sustainability aims at deepening the understanding of the relationships of societies to their natural environment, including the relationship between social, economic and political processes, and their relationship to the environment, with special emphasis on the role of culture and gender. Topics such as land use, social use of natural resources linked to biodiversity and production and consumption patterns, provide areas for problem oriented social scientific investigation. Other topics are the sustainability dimension of issues like poverty, food security, urbanization, migration, citizenship or international relations. The translation of scientific results and findings according to the specific needs of scientific and non-scientific users, such as scientists, policy makers and actors within global civil society, can be considered a major contribution of problem oriented research into sustainability.

The contributions of the social sciences within this field are as follows:

- Incorporating a local dimension into sustainability research. In order to investigate how sustainability conditions at one place are linked to sustainability conditions in other places, and to explore the linkages between the local situation and the global level with special emphasis on the intersections between the North and the South.
- Including an interpretative, or hermeneutic, perspective. This addresses the spatial, temporal and territorial situatedness of societal processes not only in their physical dimensions, but also in their cultural or social meanings (socially signified space or social time). The variety of social, economic, political, cultural and gender conditions in the context of sustainability related issues; and social scientific exploration of the links between values or attitudes and material processes provide insights into institutions and beliefs that result in existing practices of non-sustainability. This helps to understand how these practices are affected, constrained or empowered by practices at other places or other (local, regional, nation state, global) levels and might also contribute to an opening up of social trajectories to more sustainable states.

- Adopting an action-centered point of view. Exploring different agencies and actors is of crucial importance with respect to the identification of critical processes and actors as well as the monitoring of sustainability or sustainable development policies. Understanding the interrelatedness of different groups of actors, and the analysis of the impact and implications of the policies, could help to point out the area of cooperation and potential conflicts that might arise among different groups of actors. It could contribute to the implementation of sustainability related policies.

At present, sustainability related policies draw upon environmental targets, limits, standards, and indicators. Present practices of social evaluation of the natural environment also offer a crucial area for social scientific intervention.

Firstly, existing practices of the social evaluation of environmental targets have to be investigated in order to develop new sets of indicators that account more appropriately for the social dimension. A more realistic assessment of the costs of social sustaining activities outside the market economy can be regarded as a major issue. However, evaluation procedures should also address intrinsic and non-quantifiable values. In this context, the suggested conceptual and heuristical framework for the development of innovative evaluation procedures beyond conventional cost benefit analysis should be refined and worked out in greater detail, especially with respect to the operationalization of the social and the political dimension. Further research should be carried out in order to improve measurements and indicators in this field and to understand better the relations between them.

Secondly, the political and institutional contexts, as well as the social meaning and consequences of environmental targets and indicators, have to be examined. The emergence and acceptance of targets and indicators can be analyzed as part of the social history of environmental conflicts or - more simply - of the public awareness of environmental problems. In this context, special emphasis should be given to the role of scientific expert witnesses. Another focus of research should be on the impact and implications of choosing one set of specific targets rather than another, for example issues like climate change or bio-diversity and the types of indicators employed. An important area of research is linked to a cross-cultural

perspective: How are targets devised in different societies? What is the meaning of targets within different socio-political contexts, e.g. what does it mean for the Netherlands to set a target? What does it mean for a country like Bangladesh?

Special attention should be paid to studying the conditions under which people would alter non-sustainable practices, implying research on opportunity structures that encourage lifestyle change in the North (production and consumption patterns, mobility etc.), while issues such as new clean energy sources, food security or public transportation should be addressed with respect to changes in the South. In addition, the role of industry, finance, advertising etc. as actors should also be analyzed. Further topics are :

- the influence of institutions at a local level (community or local governance) on the (mis-) management of natural resources, including the linkages to processes at other (nation-state, global) levels;
- the analysis of issues raised with regard to the erosion of the nation-state's legitimacy and the simultaneous demands on it to provide regulation in order to achieve sustainability;
- the links between national level sustainability and international institutions or regulations in the context of globalisation, especially with respect to issues like joint implementation, and the shifting of unsustainability outside national boundaries.

In order to promote social science research on sustainability, model research projects, especially in a cross-cultural and comparative perspective, are to be worked out. In this context, a main concern should be the examination of policies followed by the industrialised countries in order to contribute to a global change towards sustainable development strategies, especially the impact of sustainability policies in the North in interaction with the situation in the South.

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Enhancing Social Scientific Understanding of Sustainability

Declaration on the occasion of the conference "Sustainability as a Social Science Concept" within the UNESCO-MOST Programme, Frankfurt, November 1996

AGENDA 21, the final document of the Rio-Conference on Environment and Development emphasises the importance of new scientific efforts and approaches for achieving sustainable development. The following four "programme areas" are identified:

- Strengthening the scientific basis for sustainable development
- Enhancing scientific understanding
- Improving long-term scientific assessment
- Building up scientific capacity and capability.

With respect to the understanding of sustainable development, AGENDA 21 proposes a need to "intensify research to integrate the physical, economic and social sciences to better understand the impacts of economic and social behaviour on the environment and of environmental degradation on local and global economies". While the natural sciences traditionally are involved in environmental research to a very high degree, the support for the social sciences as well as the systematic enlisting of social scientific contributions to interdisciplinary research in this field has not yet been matched to the expectations of the post-Rio-process. A new strategic effort is needed both on the part of scientists and policy-makers, all the more so as sustainable development does not merely deal with the conservation of nature or the management of ecosystems, but more broadly and fundamentally aims at new models of societal development and social transformation. Sustainability refers to the viability of socially shaped relationships between society and nature over long periods of time. Therefore, environmental sustainability is closely linked to supposedly "internal" problems of social structure, such as social justice, gender equality and political participation of local actors.

With regard to such issues, there can be little doubt that substantial and problem-oriented contributions of the social sciences are indispensable for the understanding of sustainability. This means it is necessary to open both the natural and social sciences to local environmental knowledge and different cultural and gender experience in order to deepen the understanding of sustainability in its environmental, economic, social, political and cultural aspects and to avoid the supremacy of hegemonial, technocratic and ethno-centric approaches.

We feel the following points reflect burning needs as how science and related research policies should strengthen the role of the social sciences within the research into sustainability:

- Of crucial importance is the establishment of new interdisciplinary research programmes on the national as well as international level. Within such new research programmes, the social sciences should not only play an instrumental role for national governments or natural scientific experts, but must express the multiplicity of cultural, regional or gender perspectives on sustainable development.
- Closely linked to this issue, the building of scientific capacities for sustainability research has to get started, particularly in the so-called developing countries. - Social scientists themselves must get involved in a process of re-orientation towards new issues as well as towards interdisciplinary - or transdisciplinary work not only among the social science disciplines but also in conjunction with natural sciences.

Given this situation in general and with the aim of strengthening chapter 35 of AGENDA 21 we claim:

1. The MOST-Programme (Management of Social Transformations) of UNESCO which can be regarded as an appropriate institutional frame for sustainability-related and policy-relevant research in the social sciences must play a central role in international research activities on sustainable development. Therefore, we exhort both national governments, particularly those of the industrialised countries, and international institutions to give more and adequate financial and organisational support to the MOST-Programme in order to create a basis for interdisciplinary and problem-oriented social scientific research into sustainability.

2. Regarding the building of sustainability research capacities in the social sciences, there is a strong need for new forms of interdisciplinary research institutes and organisations able to adequately study the problems raised by the objective of sustainable development. Establishing new interdisciplinary "Centers for Sustainability Studies" on international, national and especially regional levels could be a suitable and successful way to meet this need. In addition, existing institutions for development studies ought to incorporate the different dimensions of sustainability in their research. This implies a re-orientation of training and research in the industrialised countries of the North as well as the building of independent training and research capacities in the countries of the South. Interdisciplinary post-graduate programmes with appropriate curricula should be established at the universities of the North and South. The UNITWIN UNESCO Chairs programme can be used as an appropriate framework in this respect. Here too, the industrialised countries should engage much more in supporting and enhancing this process.

3. As the concept of sustainability represents a fundamental challenge at the theoretical and methodological levels, re-orientation within the social sciences themselves is required, implying

- firstly, to give more attention to now vital issues such as land use, the social use of natural resources like water or wood, production and consumption patterns, the loss of biodiversity, etc.;

- secondly, to improve and intensify interdisciplinary cooperation among the various social science disciplines. This is necessary to achieve a more integrated and comprehensive understanding of development processes, as well as the relationships between individuals and the environment in their social, political, economic, psychological and cultural aspects. With regard to this, the historical boundaries between the disciplines must be re-examined and methodologies of interdisciplinary research are to be developed;

- thirdly, to expand the problem-oriented cooperation between the social and the natural sciences on issues and questions of sustainability. Of crucial importance here is that natural and social sciences cooperate on an equal basis, starting from the phase of defining the problems under study.

4. The project "Sustainability as a Concept of the Social Sciences" within the MOST-Programme of UNESCO has given an important impulse for enhancing re-orientation of both the research policies and the social sciences towards the new issues of sustainability. Moreover, it is intended to be the starting-point for building an international discussion and research network of social scientists concerned with sustainability as well as sustainable development policies. Policymakers interested in sustainability issues should also be part of this network. In order to promote social science research on sustainability, exemplary research projects, especially in a cross-cultural and comparative perspective, are to be sketched out. Within this framework a main concern should be the examination of policies followed by the industrialised countries in order to contribute to a global change towards sustainable development strategies. Substantial steps towards sustainable development can only be made, if national governments, Development Aid Agencies in industrialised countries, the UN system, particularly UNESCO, UNDP, UNEP, the World Bank, GEF (Global Environmental Fund), the European Union as well as private foundations are willing to support social scientific research on a broad organisational and financial basis. As a first step, political and financial support must be given to cross-national, social scientific pilot projects on sustainability, including scientists from countries of the North and the South.

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Management of Social Transformations Programme

Most was established by UNESCO in 1994, to promote international, comparative and policy-relevant research on social transformations and issues of global importance.

It aims at contributing to a better knowledge of, and policy formulation in these processes, as well as to promoting closer links between research and decision-making.

The areas, on which the networks from many regions co-operating within the MOST framework focus, are the management of change in multi-cultural societies; the study of cities as arenas of accelerated social change; and coping with local-global interactions in economic, technological and environmental transformations.