Mobilising Swedish Social Science Research on Sustainability

– an Evaluation of Swedish Social Science Research on Sustainability

Energimyndigheten MISTRA NATURVÅRDSVERKET Riksbankens Jubileumsfond Vetenskapsrådet formas

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"The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influence, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back."

– John Maynard Keynes, *General Theory* (1935),
Ch. 24 "Concluding Notes" p. 383

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Foreword

The importance of social science research in understanding and dealing with sustainability issues has attracted increased attention during recent years. The natural sciences have contributed heavily to the identification and understanding of environmental problems for several decades now. More and more, focus is shifting to problems of implementation. How can we actually realise ideas and suggestions on how to reach a sustainable society? And how can we prevent problems from appearing in the first place? Social science research on human behaviour, decision-making, socioeconomic structures and institutions, etc, enables us to better deal with these questions. Often, important questions on how to reach sustainability demand interdisciplinary research that involves both natural and social sciences.

As a result of the increased focus on the importance of social science research on sustainability, research funding in this area has increased considerably during the last few years. There is also substantial funding from the Swedish universities in this field, although there has been no mapping of the social science component in this.

After this period of increased funding, it is of interest to evaluate the results both in terms of concrete outputs and in terms of structural characteristics of the research landscape. These results need to be seen in an international context. Therefore, during 2009–2010, a joint international evaluation of Swedish social science research on sustainability was carried out by the main funding bodies in Sweden. The considerations made by the international panel of experts will provide important guidance for future funding initiatives in the area.

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Sammanfattning

Sex forskningsfinansiärer har gemensamt låtit utvärdera svensk samhällsvetenskaplig forskning om hållbar utveckling under perioden 1998–2008. De sex finansiärerna är Forskningsrådet Formas, Energimyndigheten, Mistra, Naturvårdsverket, Riksbankens Jubileumsfond och Vetenskapsrådet. Utvärderingen har genomförts mot bakgrund av den snabba ökningen av finansieringen, för att ge finansiärerna vägledning inför framtida satsningar inom området. En internationell panel av ledande forskare och företrädare för forskningens användare har genomfört en oberoende granskning.

Den internationella panelen ser en positiv utveckling inom området genom den ökade finansieringen, ett ökat antal doktorander och en utveckling mot mer tvärvetenskap. De noterar en snabb ökning av samhällsvetenskaplig forskning om klimat, ekosystem, miljöekonomi och miljöpolitiska styrmedel. Samtidigt ser den internationella panelen flera spänningar inom forskningsområdet som kan göra att potential inte tas till vara. Naturvetenskapliga glasögon på samhällsvetenskapliga forskningsproblem kan leda till felaktiga prioriteringar, konserverande finansieringsformer och kortsiktigt instrumentell syn på forskningsrelevans hos finansiärerna kan hota nya forskningsidéer som kräver mer tid för att kunna bidra till hållbar utveckling. Bristande dialog mellan forskare och praktiker, karriärstrukturer som medför svårigheter att få tjänster för nydisputerade forskare vid universiteten och svagt engagemang i forskningen hos viktiga användare kan också skapa svårigheter för denna forskning att utvecklas. Nya idéer och vågade satsningar behöver få ta mer plats för att forskningsområdet ska bidra till samhällets hållbarhet.

Panelen ger rekommendationer till finansiärerna om hur de kan bidra till att områdets potential tas tillvara:

Rekommendation 1: De metoder som används för att bedöma kvalitet och relevans hos samhällsvetenskaplig hållbarhetsforskning ska motsvara forskningens syften och inriktning.

Rekommendation 2: Ansökningar som skickats in i öppna utlysningar för samhällsvetenskaplig forskning ska bedömas och utvärderas av personer med lämplig expertis i samhällsvetenskaplig forskning och metoder.

Rekommendation 3: När riktade utlysningar görs mot samhällsvetenskaplig forskning, ska samhällsvetenskapliga forskare vara involverade i utformningen av forskningsprogrammen och utlysningarna.

Rekommendation 4: Öronmärk finansiering för samhällsvetare för att definiera större forskningsprogram kring hållbarhet.

Rekommendation 5: Finansiera ett antal långsiktiga (fem år långa) samhällsvetenskapliga stipendier kring hållbarhet riktade mot forskare tidigt i karriären.

Rekommendation 6: Utforma informella mötestillfällen och miljöer för interaktion mellan akademiska och icke-akademiska grupper.

Rekommendation 7: Finansiärerna bör utnyttja sin position mellan användare och forskarsamhälle till att stärka kommunikationen mellan dessa och aktivt odla behovet av innovativa och utmanande former av samhällsvetenskap.

Executive summary

Six research funding bodies have together instigated an evaluation of Swedish social science research on sustainability during the period 1998–2008. The six funding bodies are Formas, the Swedish Energy Agency, Mistra, the Swedish Environmental Protection Agency, Riksbankens Jubileumsfond and the Swedish Research Council. The evaluation has been performed against the background of the rapid rise in funding and is intended to provide the funding bodies with guidance on decisions on future funding activities in this area. An international panel of leading researchers and representatives of the users of the research performed the independent evaluation.

The international panel observed that there has been positive development in the area due to the increase in funding, an increase in the number of doctoral students and development towards more interdisciplinary research. The panel noted a rapid growth in social science research on climate, ecosystem management, environmental economics and general environmental policy tools. At the same time the international panel highlighted several issues within the research area which could lead to its potential not being fully realised. Examining the social sciences from the same perspective as the natural sciences may lead to erroneous prioritisation, conservative forms of funding and short-term instrumental perception of the relevance of the research by the funding bodies that may threaten the development of new concepts and necessitate more time being required for contributions to sustainability to emerge. Lack of dialogue between researchers and users, university career structures that do not provide positions for newly qualified researchers, as well as important users only demonstrating weak interest in the research, may all create obstacles to the development of the research. New ideas and the courage to commit to projects must receive more emphasis for this research area to be able to contribute to societal sustainability.

The panel proposed the following recommendations for the funding bodies with regard to how they can contribute to realising the potential within this research area:

Recommendation 1: Methods of interpreting quality and relevance of social science research on sustainable development should be matched to the specific purpose and orientation.

Recommendation 2: Projects submitted under open calls for social science research should be reviewed and evaluated by people with appropriate expertise in social science research and methods.

Recommendation 3: Where targeted calls seek to attract social science research, social scientists should be more directly involved in designing and writing the programme plans and calls.

Recommendation 4: Earmark funding for social scientists to define major research programmes on sustainability.

Recommendation 5: Fund multiple long-term (5-year) early career fellowships in sustainability and social science.

Recommendation 6: Design and orchestrate the interaction of informal academic and non-academic communities.

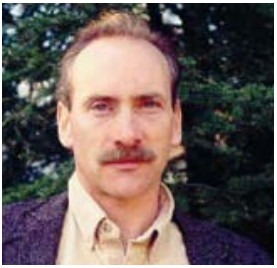
Recommendation 7: Funders should exploit their position between user and research communities to enhance communication between these parties and actively cultivate demand for innovative and challenging forms of social science.

The International Panel of Experts

Chair: *Karen O'Brien,* Professor of Human Geography, Oslo University, Norway.

Jan Erik Enestam, Director at the Nordic Council, former Minister of the Environment in Finland.

Paul McAleavey, Unit Head, European Environment Agency.



John McNeill, Professor of History, Georgetown University, US.

Elizabeth Shove, Professor of Sociology, Lancaster University, UK.

Leena Srivastava, Professor of Economics, Energy and Resources Institute (TERI), India.

Assessment of the expert panel

Preface: The Context and Scope of the Evaluation

Since the Stockholm Conference on the Human Environment in 1972, issues related to environmental, social, and economic sustainability have received an increasing amount of attention at local, national and international levels. Although there have been ebbs and flows in public and policy attention to these questions, an increasing recognition of the threats associated with anthropogenic climate change has raised the urgency for both understanding and addressing the challenges of sustainability. These same threats have closely intertwined the development paths of countries, and have raised the need for responses at the global level.

While much of the research and attention has focused on developing earth systems science and an understanding of the complexity and nonlinearity of biophysical processes, this research has not led to a robust understanding of the societal changes needed to preserve biodiversity, limit greenhouse gas emissions, reduce human vulnerabilities or, indeed, chart adaptation strategies. Understanding these changes would require a sophistication of social science research and application that would transcend and integrate various disciplines of study. There is, as such, increasing recognition that environmental problems cannot be solved by reductionist approaches, and that transformational change may be needed to create a sustainable and resilient future. The social sciences have an important role to play in understanding both drivers and responses to environmental challenges, including interpreting what sustainability means to different people, groups, and institutions, identifying the barriers and pathways to transformative change, and generating and analysing diverse strategies to promote sustainability.

There is a growing recognition of the need to mobilise social scientists and to integrate their contributions into strategic decisions about not only environmental policies, but also economic and social development. An increasing demand for social science perspectives on sustainability is reflected

in the five-fold increase in support for social science research among six funding institutions in Sweden over the years 1998–2008. Social science is defined as the study of human society and of individual relationships in and to society, including the disciplines of sociology, psychology, political science, economics, human geography, and anthropology. In the context of this evaluation, the social sciences are broadly interpreted to include the humanities, law, education and other fields outside the domain of the "natural sciences".

An international panel was convened in 2009 to evaluate the position of Swedish social science research on sustainability supported by six funding bodies. The aim of the evaluation was to provide guidance on decisions on future funding activities in this area. It was based on a collection of background material, including an assessment of the overall picture of the social science research landscape in Sweden, a listing of research projects and programmes funded by the six organisations between 1998 and 2008, international peer reviews of a sample of research projects and programmes,

a bibliometric analysis of publications, and an analysis of the usefulness of research results. Using this collection of material, supplemented by interviews with the authors and groups of funders, users, and researchers, the panel discussed and evaluated the contributions of social science research on sustainability from numerous perspectives. Methodological challenges, combined with recognition of difficulties in interpreting subjective assessments of research quality and usefulness, led to a focus on some of the structural factors that are limiting or inhibiting the contributions of social science research on sustainability and their use. While many of these factors were recognised to be general problems that were also visible in other countries and contexts, the panel tried to distinguish the factors that were peculiar to Sweden, including those which may be addressed through specific recommendations. The panel's recommendations and conclusions are aimed at realizing the potential for social science research to contribute more fundamentally to research and policies for sustainability.

Research Funding for Social Science Research on Sustainability in Sweden

Sweden has a diverse system of research funding. There are for example 20 sectoral research agencies which make resources available for research and development (before even considering county councils, municipalities or private sources of funding).

The six funding bodies included in this evaluation of social science research on sustainability had a combined budget for research funding of around SEK 6.72 billion in 2009. The six comprise:

Two Research Councils

- Formas – Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (with an overall budget for research funding in 2009 of SEK 840 million);
- Swedish Research Council (overall budget for research funding in 2009 of SEK 4.1 billion);

Two Government Agencies

- Swedish Energy Agency (overall budget in 2009 for research funding of SEK 1.13 billion);
- Swedish Environmental Protection Agency (overall budget in 2009 for research funding of SEK 100 million);

One Public Foundation

- Mistra, a foundation for Strategic Environmental Research (overall budget in 2009 for research funding of approximately SEK 200 million);

One Private Foundation

- Riksbankens Jubileumsfond (overall budget in 2009 for research funding of approximately SEK 350 million).

Among them, these six funding bodies have overseen a five-fold increase in funding for social science research on sustainability

over the decade from 1998 to 2008. This five-fold increase approximates to an increase from around SEK 50 million per annum to around SEK 250 million per annum. In relative terms, this means that the percentage of their overall budgets devoted to social science research for sustainability currently stands at around 3.7 per cent.

The six funding bodies estimate that, as a result of the increased focus on the importance of social science research on sustainability, public research funding in the area increased five-fold over the decade 1998–2008. However, the principle of additionality requires that the apparent five-fold increase from the six funding bodies should not simply displace other public funding sources that would have funded the same activities, other things being equal. The additionality principle applies by extension beyond finance itself to other resources, such as research time. As such, any assessment of true additionality requires us to get beyond the five-fold increase to address the actual effect of public policy action.

Introduction

The potential for Swedish social scientists to contribute to innovative research on sustainability is great. A well-developed research infrastructure and substantial funding relative to many other countries present opportunities for innovative thinking, for inspiring interdisciplinary research environments, and for new ideas and paradigms to emerge. The evaluation panel has a strong sense that this potential is not, however, being fully realised.

The gap between the present situation and the potential can be attributed to a number of mismatches among the interests, goals, expectations, and capacities of different actors in the Swedish research landscape. This evaluation focuses on what is and is not working well in relation to social science research on sustainability, and offers some recommendations to address the mismatches and impediments to fostering a vibrant and internationally renowned research environment.

The panel recognises a number of strengths in Swedish social science research on sustainability. The increase in the scale of funding, as well as the support being provided to PhD scholars, speaks to the creation and strengthening of a large cadre of professionals that should enhance the position of Swedish social science research on sustainability at a global level.[1] The peer review process of this body of research (Appendix D) reveals that there has been some positive movement towards integrated multi-disciplinary projects of the type needed for sustainability transitions, although with the caveat that much more needs to be done in this area. While there are some reservations about the use and

[1] It has not been possible for the panel to establish the actual effect of the five-fold increase upon social science outputs, upon the number of social science researchers, the number of permanent posts in these fields in universities etc. The six funding bodies might therefore consider some baseline indicators for 2010 against which they could then establish the additionality of their funding across coming years.

value of the bibiliometric study, one inference that can be drawn from this analysis is the increasing level of cooperation/collaborative efforts as indicated by the increasing trend of addressing fractionalised publications. The trends on field-normalised citation rates are also extremely encouraging. Significantly, the establishment of the evaluation process itself signals the seriousness, the commitment and the funding bodies' appreciation of the social sciences in the service of sustainability. Sweden is the first and only country, as far as we know, to undertake such a multi-institutional self-examination. This augurs well for the social science community and the pursuit of sustainable development.

The pattern of funding across themes indicates a rapid increase in funding for topics such as climate and energy, ecosystem management, environmental economics and general policy tools as compared to the more modest increases in funding for other discipline-focused areas. These themes reflect the opportunities that have been created for integrative, interdisciplinary, social science research in the last decade or so. Indeed, Sweden has developed some exemplary models for interdisciplinary research, such as the Resilience Centre and the Graduate School for Energy. In other words, the funding community in Sweden appears to be creating new spaces for interdisciplinary research on sustainability, as well as challenging the social science research community to come together in an unprecedented manner in search of sustainability solutions.

The positive directions in social science research on sustainability should not, however, be uncritically heralded, without looking more closely at the conditions and factors that support or hinder the mobilisation of social science research on sustainability. The position of this research internationally is influenced by many factors, in addition to the existence of significant funding and well-trained researchers. A holistic view of the research landscape can provide insights into the bottlenecks and channels for improving participation in sustainability research, including the factors that are currently limiting and constraining social science research on sustainability.

The Research Landscape: Mismatches and Tensions

The research landscape evaluated by the panel includes researchers, funders and nominated users (these did not include any international users). It is important to acknowledge that these three groups stand differently in relation to each other, and with respect to the types of social science they prioritise. Some social science focuses on applied problems and issues of short-term or direct relevance, other research is aimed at generating new ideas, where defining problems and agendas is itself part of the research process. In thinking about these tensions, it is important to note that Sweden is unusual by international comparison, in the sense that research institutes account for only a very small share of the publicly-funded research; the vast majority of publicly-funded research is conducted in higher education establishments.

As Table 1 shows, there are many ways to classify the distinctions between these types of research, which are more accurately represented as a spectrum rather than a dichotomy.

Table 1. Classification of social science research for sustainability.

Applied	Spectrum	Theoretical
Problem solving		Problem shaping
Instrumental		Exploratory
Apply existing knowledge		Novelty of ideas and methods
Empirical emphasis		Theoretical emphasis
Conventional		Critical
"Normal" science		"Revolutionary" science
Local impact		International impact
Limited circulation		Wider circulation
Policy audience		Academic audience

The panel has identified numerous tensions in the research landscape that are related to mismatches in the positioning of instrumental, problem-oriented research (i.e. applied research) relative to generative, idea-oriented research (i.e. theoretical research), vis-à-vis specific funding opportunities defined by funding bodies with various missions; cohorts of researchers at different points in their careers and a wider

world of users/evaluators/co-producers of knowledge. In some situations the match is good: for example, the Riksbankens Jubileumsfond and the Swedish Research Council share many ambitions with researchers and the two groups are sufficiently familiar with each other and their expectations. Likewise, some social science disciplines (e.g. parts of economics and applied psychology) are routinely engaged in providing data or in solving specific policy problems, again producing knowledge that is in line with that which is expected by their user community.

However, systemic mismatches were also identified:

- **Mismatch 1 (agenda definition):** arises when the social science agenda is explicitly or implicitly defined by the natural sciences, or when it is narrowly defined in terms of implementing policy. Mismatches also arise when non-social scientists evaluate proposals submitted by social scientists in response to seemingly open calls.

- **Mismatch 2 (lack of innovation):** occurs when funding increases, but when there is no change in the type of research or in the sorts of approaches that are supported. Research funds increase but there is no novelty because funders all support research framed in terms of the same paradigms.

- **Mismatch 3 (quality versus relevance):** becomes an issue when funders expect researchers to generate new and challenging ideas (in terms of scale, innovation, interdisciplinarity, engaging with the big questions of sustainability etc.) and produce high quality publications, whilst also meeting narrowly instrumental interpretations of relevance.

- **Mismatch 4 (limited view of relevance):** results when interpretations of 'relevance' and utility are confined to instrumental or managerialist forms of problem-solving, and when there is little scope for thinking much more broadly about where these agendas come from, or how knowledge circulates through public debates, policy, and academia.

- **Mismatch 5 (imbalanced focus):** occurs when social science on sustainability becomes so strongly associated with commissioned consultancy work that scientists not yet involved in the field are wary of pursuing a career in this direction.

- **Mismatch 6 (limited interactions):** arises when academic researchers have limited experience or expertise in seeing how their research might inform or usefully challenge non-academic actors, including policy-makers, NGOs, civil society, and businesses. This is a particular problem when networks and opportunities for interaction do not naturally exist, and when there are few incentives to build them.

- **Mismatch 7 (career trajectories):** arises because career structures in Sweden are such that many young researchers, at just the moment when they might be challenging disciplinary boundaries and producing innovative, cutting-edge work, find themselves constrained by the hierarchical academic system, competing for relatively short-term grants on topics that are either not of their own making, or that have to be cast in terms that emphasise immediate relevance. Systems that should encourage and empower new talent have the opposite effect.

- **Mismatch 8 (lack of engagement):** occurs when there are strong expectations or requirements for user-engagement despite the fact that non-academic communities have limited capacity to interact with social science knowledge in its own terms.

The mismatches are discussed in more detail below, focusing first on different perspectives on agenda setting for sustainability research, then discussing issues of quality, relevance and usability. The challenges of engaging social science researchers with sustainability issues, and of making social science engaging to user communities, is then discussed. Recommendations are made, and in conclusion we offer suggestions for building capacity to mobilise the Swedish research community to meet a growing demand for informed responses to environmental problems that take into account insights from the social sciences.

Agenda Setting for Sustainability Research

One key issue that emerged from an evaluation of the catalogue of responses on Swedish researchers' views on social science research on sustainability (Appendix B), as well as through interviews with a group of senior researchers, relates to the setting of research priorities and agendas. Not all Swedish social scientists who can potentially contribute to this field are interested in applying for funding for research on sustainability. This raises important issues concerning problem identification and the framing of the research. The way that a problem is defined and framed influences the research questions that are asked, the methods and approaches that are prioritised, and the solutions or responses that emerge from research. We identify three key tensions in this area.

Natural Science Framing

The panel noted frustration among some researchers because the majority of the social research on sustainability carried out in Sweden is expected to "fit" into natural science paradigms, which are often based on quantitative, empirical research of behaviours or systems. When research questions are developed and framed by natural scientists, there are often limited opportunities for critical or cutting-edge social science research that focuses on values, perceptions, beliefs, worldviews, cultural meaning, historical significance, power relations, or social conflicts.

The systems approach has been very useful to research on water management, climate change, air pollution, and many other environmental problems, and has identified a number of important social factors that influence – or are influenced by – the environment. However, this systems framework limits the range of social science in circulation in that it tends to position social researchers as those who can fill in the 'social' boxes, e.g. with data on economic, social and demographic trends.

Economics and Individual Behaviour

The social sciences provide many important contributions to understanding behaviour, either by studying economic tools and incentives, or individual and public attitudes and motivations. Although this research has much to contribute to policies for sustainability, many important insights from the social sciences are again excluded, including research that challenges managerial paradigms, or that develops more fundamental alternatives to current social, political, and economic structures.

Economics is a special case in that of all the social sciences, this is the one that has come to dominate understandings of what social research has to offer policy. This is problematic in that social sciences that do not share typically individualistic theories and models of human behaviour are excluded by a discourse in which social change is thought to depend, almost exclusively, upon shifting individual attitudes, behaviours and choices. The 'behavioural' emphasis, shared by a number of research funders, leads to a duplication of research efforts; many studies apply essentially the same concepts to relatively similar problems, resulting in an over-reliance on a limited body of experts and expertise.

A healthier research landscape would be one in which research agendas, funding bodies, reviewers and evaluators recognised the contribution that social sciences can make in terms of understanding social change, infrastructural transformations and systemic transitions in practice, and in ways of thinking.

The Policy Agenda and the Research Agenda

Potential users typically understand the expression "agenda setting" with regard to setting the policy agenda (what happens "inside the box" of policy-making processes), rather than with regard to setting the research agenda. There may even be an assumption among potential users that mechanisms such as management boards of funding bodies are in place primarily to ensure that the broad headings of the existing policy agenda are adequately reflected in the research agenda. These broad headings have been strikingly consistent over time and across European

countries. However, the feedback mechanisms by which the research agenda in turn sets, frames or challenges the policy agenda are less clearly understood. These observations point to underlying tensions regarding the ultimate purpose of social science research on sustainability.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Quality and Relevance of Social Science Research on Sustainability

The evaluation panel was asked to assess the scientific quality and productivity of Swedish social science research on sustainability, and its usefulness and relevance. The way these questions are framed raises a number of issues that social scientists often confront in terms of positioning their work within the dominant discourses on sustainability. Interpretations and understandings of relevance and quality are not universally agreed upon, and in fact there are tensions between the two in social science research. Ideas about how to conceptualise the usefulness or quality of research are contested and this influences how social science research is communicated. Our observations build on these insights.

The Idea of Relevance

The panel recognises the fuzziness of the term relevance in relation to sustainability. To some, that will mean usefulness in improving the efficiency with which local governments communicate the rules of their recycling schemes to local populations. This is practical, instrumental research. To others, relevance may mean research that explores the variety of ways in which populations around the world understand their place in the biosphere. This has no direct policy implications, and is not immediately practical. However, it may be supremely relevant to the problems of sustainability if one believes sustainability is a global-scale problem, and if one believes that human behaviour is rooted in human attitudes.

By and large, to judge from the project titles in the database of projects funded (Appendix A) it seems that Swedish research supported by the six funding bodies is heavily weighted toward the immediately practical and instrumental side. Another disclaimer is required, however: project titles such as ”Outdoor Life in Change” are sufficiently vague that one cannot tell what they encompass, and there are hundreds of such titles. That concern aside, those who consider relevance in the immediate practical sense should feel satisfied that Swedish research is highly relevant, especially that funded by the Swedish Energy Agency and Environmental Protection Agency. To judge by the peer review data (summarised

in Table 4 of the Background Document), Mistra and the Riksbank's projects are rated highest for relevance to sustainability.

It is also interesting to note from the study on use of research based on a small sub-set of the projects accounting for the bulk of the funding, that 12 out of the 14 projects found use among the decision making community. The authors of this study (Appendix F of the material circulated), while recognising the different definitions of use (direct/indirect, short-term/long-term, instrumental/generative etc), have highlighted the commitment of the researchers to communications in line with the budgetary resources available to them for the purpose. Having said that, several funders argued for greater pressure/encouragement to ensure that research output reaches users.

Quality of Research

Few things are harder to measure than the quality of a diverse aggregate of scholarship. The authors of this report are familiar with only a tiny fraction of the Swedish work in social science on sustainability and prefer not to generalise on that anecdotal basis. Moreover, the bibliometric study (Appendix E), as its author recognises, suffers from vast imperfections. It may well be the least bad method available for arriving at quantitative measures of the quality of Swedish research in this arena, but it captures only a minority of publications in this field (32 per cent according to its author) and far fewer of the citations in this field, because it does not take account of books and other lengthier publications which carry more citations. Its principal significance is to remind us all that assessment methods derived from the world of the natural sciences, which may serve that world well, are a poor fit for the world of social science.

A somewhat better indicator of overall scientific quality is the comments and ratings provided for some of the funded projects (Appendix D). While this of course encompasses a considerable range of opinion about most projects, the aggregate reveals that in general peers rated projects funded by the six bodies from good to excellent (3.3); that Mistra projects rated the highest by far (3.8) and Swedish Energy Agency projects the lowest by far (2.9). To know what this might mean, however, it would be necessary to measure these (incomplete) data against other social science research rated on the same scale.

The only reliable conclusions are 1) that the available sample of Swedish social science research on sustainability, which may or may not be a biased sample, is rated from good to excellent by peer reviewers, and closer to good than to excellent; and 2) that at present there is no remotely satisfactory tool for making such measurements. Some thought might go into trying to rectify this situation. But it is also well to remember that much of what counts most in the world of research and scholarship cannot be counted.

The Possible Tension Between Relevance and Quality

If one takes as the definition of quality the fact of publication in international journals, and the definition of relevance as the utilitarian one, then there is a likely conflict between quality and relevance. The work of most interest to international journals is unlikely to be that with the highest relevance to sustainability in Sweden (which might be of superb quality when judged on its own terms).

There is a second component to this tension: time frames. Highly relevant research (judged by the utilitarian criterion) almost always has its impact quickly because it is designed to address a perceived current problem. If it has not had its impact within three years it is unlikely to have much at all. High-quality research, measured by its intellectual contribution (or, more prosaically, by its appearance in international journals), often takes many years for its impact to tell. Major ideas in social science – as in society as a whole – normally succeed gradually rather than suddenly (indeed the same case is often made for ideas in natural science too).

Usefulness of Research

The concept of usability in relation to social science research goes well beyond a simple utilitarian model. Users of social science research on sustainability should themselves be challenged to think actively about the forms in which they use research – as sources of inspiration and ideas, as data, as a critical voice, as evidence in relation to specific pre-defined problems etc.

The table below provides a deliberately polarized view of how research may be used. The point is that different forms can all have an impact and people and organisations cast in the role of 'users' should themselves be encouraged to reflect on the fact that not all research should belong to the variant set out in the left-hand column.

Table 2. The usefulness of social scientific research on sustainability.

Usefulness of Applied Research	Spectrum	Usefulness of Theoretical Research
Short-term impact		Long-term impact
Direct		Indirect
Instrumental		Generative
Responding to 'implementation of pre-defined policy solution'		Agenda setting or framing the problem
Facts and numbers		Conceptual
Handed over to users in the digestible form of executive summary, bullet points, table, short briefing, visualization		'Knowledge' imparted to users in a more diffuse way, co-produced
Passive/responsive 'in the box'		Challenging, outside the box

Note: The flow and interactions between these two types of research should not be underestimated, thus the usefulness of one type of research often impacts on the usefulness of the other type.

The six funders may have specific responsibilities for promoting different types of research (applied versus theoretical), but all are potentially relevant and usable in light of the above table. In other words, although more applied research funding bodies may evaluate and judge relevance in terms set out in the left-hand column, they should also be alert to the potential for longer-term, more theoretical relevance.

In short, there is a need to expand the terms in which judgments of relevance are made throughout the research system, not only by funders but also by reviewers, researchers and evaluators (see Background Paper). In practice, 'usefulness' is not a property of research as such, but of the specific situations and contexts in which it is, or is not, appropriated. Promoting usefulness is therefore not a matter of favouring one mode of funding over another, but of encouraging serious consideration of this relationship and hence of how social science knowledge circulates. This arguably requires some capacity building in its own right.

Engagement

The relevance, quality, and usability of social science research is important, but it requires as a prerequisite both the engagement of social science researchers with questions of sustainability and the engagement of users with social science perspectives on sustainability issues. Such engagement includes not only the active recruitment of excellent researchers, but also interaction between researchers and users, and improved communication. One challenge is to encourage a wider range of social scientists to work on topics of sustainability, and to draw them into the field and support their development as cutting-edge researchers. In parallel, a second challenge is to encourage non-academics to engage more fully than at present with what the social sciences have to offer. Addressing these challenges, which are referred to here as 'engaging with the social sciences,' would lead to considerable changes to the research landscape, and eventually to the international position of Swedish social science research on sustainability.

Attracting Social Scientists into the Field

The panel identified two problems in recruiting social scientists to the field of sustainability research. First, an overly narrow emphasis on immediate relevance is unlikely to attract researchers into the field. Second, the academic career structure has specific qualities that influence the flow of talent into and out of social science for sustainability. While there is funding for PhD students, postdoctoral fellows and professors, potentially creative academics in the middle of their careers are in a difficult position. As noted in the introduction, Sweden is unusual by international comparison in the sense that research institutes account for only a very small share of the publicly-funded research; the vast majority of publicly-funded research is conducted in higher education establishments. Due to a limited number of positions within Swedish universities, many mid-career scholars have no clear institutional home within the research landscape. Although they can, and do, bid for research funding, few enjoy the continuity required to build durable and exciting

research programmes of their own. Instead they constitute a pool of labour perhaps willing to respond to funding opportunities defined by others, but unable to carve out their own agendas. There is a need to construct and develop a viable career track for researchers committed to social science and sustainability.

The career structure is such that many young researchers – at just the moment when they might be challenging disciplinary boundaries and producing challenging, innovative work – find themselves in an institutional wilderness, competing for relatively short-term grants on topics that are either not of their own making, or that have to be cast in terms that emphasise immediate relevance. This is an inadvertent but powerful disincentive for creative and ambitious people to take part in research. Indeed, these arrangements amount to an unintended selection process (in the Darwinian sense of the word 'selection'). As one senior professor noted, young researchers in the field tend to be very idealistic in their desire to make the world a better place and will often accept a certain amount of career frustration as a result. However, those who are creative and ambitious, but not boundlessly idealistic, or those whose life responsibilities (e.g. children) constrain their willingness to accept career frustrations, are probably weeded out of social science research through this unintended selection process. Thus there may well be a hidden tax upon Swedish social science research in the form of the loss of many of the most promising people.

Incentives for Interaction

Since so much research, including that with an applied orientation, is undertaken in the university sector, researchers are likely to confront conflicting demands. Within the university system, academics have few incentives to focus on promoting their work to non-academic communities, or to spend time cultivating these networks. Contributions to international research programs, scientific boards and committees, review panels, and other efforts that can heighten international awareness of social science research on sustainability at the international level is often neither recognised nor rewarded in university promotion systems.

Persuading non-academics to engage with social science, and to extend the range of ideas on which they draw, constitutes another challenge. This is an area in which experimentation and risk-taking is important. The flow of trained social scientists into policy positions represents one conduit for exchange. The research funders also have the potential to extend and exploit their role as intermediaries in building demand for more challenging forms of social science in the policy realm.

Communication

One of the areas in which researchers, funders, and users of social science research on sustainability would all like to see improvement is in the communication of results. Some users said that they suspected they used social science research without even knowing it, meaning they acted on ideas that reached them indirectly from the research community. Most said that they did not pay direct attention to social science research, aside from economics, due to too little time and regarding natural science research as more worthy of attention. The hoped-for conduits (e.g., reference groups, steering groups, or the media) between researchers and users seem to act as barriers or at, best, as filters. Part of the responsibility lies within the research community, which no doubt sometimes couches its findings in arcane language; part lies with the user community, which at times (we are told) assumes that a general knowledge of society serves as an adequate guide to social questions, making social science research superfluous compared to the natural sciences; and part may lie with the funders if they do not structure grants with appropriate incentives to ensure suitable communication of results. It is also possible that the Swedish media are less active in publicising social science research than are the media in other countries.

In order to address this situation, researchers should be encouraged to produce non-academic outputs (e.g. in the media), in addition to academic publications. Regarding other forms of advice communicated directly to users, researchers should be encouraged to recognise that the preparation of easily digestible outputs (e.g. short executive summaries, briefings, tables or visual aids) is a skill in itself rather than a dumbing-down of their findings. There may be a need to help researchers acquire new or improved

communication skills, including the ability to convey salient research insights to the media, which can be an effective way of communicating the relevance of social science research on sustainability to diverse audiences.

In the United States, for example, it is routine for the major newspapers to report on findings from the social sciences in general, including research pertaining to sustainability. Admittedly this is sometimes skewed toward the quirky and amusing, but often the newspapers succeed in locating serious issues and presenting them in a comprehensible fashion. They send reporters to the annual meetings of the American Anthropological Association, for example, (which does its best to make reporters feel welcome). Weekly and monthly magazines often report on ideas in the social sciences at greater length. One of the reporters for The New Yorker, Malcolm Gladwell, has made a career presenting social science ideas in highly readable forms and as a result has introduced some ideas to business and political leaders. Mass-circulation magazines and newspapers also occasionally open their pages to prominent social scientists eager to communicate with larger audiences and prepared to adjust their writing to meet journalistic expectations. Indeed, some universities employ people whose role is to help scholars write for mass audiences and to interview acceptably on TV and radio. To achieve this level of public access to research, scholars must be prepared to adjust their styles of communication; research institutions must encourage (or at least not scorn) such outreaching efforts; and the gatekeepers in journalism must also reach out toward the research community.

More generally, researchers and research funders should also be encouraged to apply intellectual energy to the practical and theoretical problems of knowledge circulation. This involves more than nominating individuals to represent user communities, and it involves more than organising steering groups and reference groups populated by non-academics, although both may have a function if carefully designed and if expectations are mutually aligned. In addition, research funders should build in a requirement from the outset for researchers who receive funding to regularly communicate the findings of their research work, rather than as a bolt-on once the research

is completed and the final report submitted. Finally, users themselves could be encouraged to not only give greater thought to how they articulate their needs when it comes to applied research, but also to create opportunities to improve their receptiveness to more theoretical social science research on sustainability.

Recommendations

The developments in social science research on sustainability are very promising, and the five-fold increase in funding by the six funders is to be applauded. Although the evaluation panel recognised many positive trends in social science research on sustainability in Sweden, from an international perspective Swedish research would benefit from making more daring and innovative theoretical contributions that contribute to new ideas and ways of thinking about environmental problems. The panel's attention was drawn to existing and potential mismatches between the interests, goals, expectations, and capacities among researchers, funders and users. Many of these mismatches can be addressed by some relatively straightforward strategic interventions.

In combination, the seven recommendations set out below could be very effective in elevating the position of Swedish social science research on sustainability.

Recommendation 1: Methods of interpreting quality and relevance of social science research on sustainable development should be matched to the specific purpose and orientation.

This recommendation draws on section 3 of the report and refers to Mismatches 1, 3, and 4. It is intended to apply to all stages of the research process, from proposal selection through to final evaluation. Suggestions for realising this include: working with, and if necessary developing, measures of quality and relevance appropriate to the purpose and orientation of the research.

Recommendation 2: Projects submitted under open calls for social science research should be reviewed and evaluated by people with appropriate expertise in social science research and methods.

Recommendation 3: Where targeted calls seek to attract social science research, social scientists should be more directly involved in designing and writing the programme plans and calls.

Recommendations 2 and 3 draw on sections 3 and 4 of the report and refer to mismatches 1, 2, 3 and 4. They relate to the challenge of attracting the best social scientists into the environmental field, which is considered contingent upon the appropriate framing of research questions and fair evaluations of both proposals and projects.

Recommendation 4: Earmark funding for social scientists to define major research programmes on sustainability.

Recommendation 4 draws on section 4 of the report and refers to mismatches 1, 2, 4 and 5. This recommendation recognises the value and importance of interdisciplinary research among the social sciences, which may either include natural sciences directly, or draw upon findings from natural science research. The key is for social scientists to define the research agenda, including the priorities and gaps.

Specific suggestions include: exploiting the academic status of research funding from the research council/Riksbanken Jubilemsfond, and potentially including other funding bodies. The programmes should be oriented toward sustainability, but would not be specifically defined. The aim should be to provide a protected space in which to cultivate innovative, interdisciplinary research – whether applied or theoretical – within the social sciences and humanities. The programmes should have a dedicated academic programme manager to facilitate integration between component projects, help network between young researchers from different social science disciplines and promote the programme as a whole (see for example, the UK ESRC's 'global environmental change programme')

Recommendation 5: Fund multiple long-term (5-year) early career fellowships in sustainability and social science.

Recommendation 5 draws on section 4 of the report and refers to mismatch 7. The fellowships would provide funding for researchers who have completed a PhD but have yet to secure a stable academic position, and for PhD stipends associated with the fellowship (these students would be supervised by the research fellow). These fellowships should be designed to help build capacity, to allow excellent and committed researchers to develop agendas of their own, to acquire experience of academic management, and contribute to international research initiatives. The call would be within a social

science/humanities-defined remit, and selection criteria, including relevance, would be interpreted broadly and with a view to the longer term. The purpose of the fellowships is as much to build and retain talent as to produce results. It aims to support excellent researchers and at the same time develop vibrant research environments led by younger scholars.

Recommendation 6: Design and orchestrate the interaction of informal academic and non-academic communities.

Recommendation 6 draws on section 4 of the report and refers to mismatches 6 and 8. The aim is to enhance the range of academic researchers 'known' to policy communities, business and NGOs; to provide academic researchers with access to a range of potential users, and to develop the diversity of the research landscape in this respect. Familiarising diverse audiences with social science perspectives on sustainability is considered a priority for realising transformative change.

Specific suggestions include: developing forms of secondment between social scientists working on sustainability and policy; organising public events at which social scientists talk about their research; developing topic-specific workshops involving academic and non-academic speakers; setting up working parties involving PhD students and early career people in policy, business, or NGOs. These initiatives could be led by researchers, funders or user-groups.

Recommendation 7: Funders should exploit their position between user and research communities to enhance communication between these parties and actively cultivate demand for innovative and challenging forms of social science.

This recommendation draws on section 4 of the report and addresses mismatches 5, 6 and 8. Specific suggestions include: incentivising and rewarding social scientific engagement with the media for example, radio or press coverage of PhD projects, interviews, magazine articles and other forms of exposure; helping user communities to take a broader view of the potential and status of Swedish social science research through targeted efforts to promote new ideas as well as research insights and results. There is scope for encouraging researchers to experiment with new forms of interaction, beyond the normal reference and/or steering groups.

Mobilising Capacity for Sustainability

The seven recommendations made by the panel do not capture all of the points and topics discussed during the evaluation process. There is more to say, for example, about the international context and the move towards transdisciplinary approaches.

The health and future of critical and engaged social science research on sustainability depends on fostering the demand for fresh and challenging ideas from many disciplines across a range of academic and non-academic communities of researchers, funders, and users. There is no single institution taking a view of the overall status and health of the social science-sustainability research system in its totality, now or with a view to the future. Funders seem to be content as long as there is a sufficient supply of research applicants to respond to open and managed calls. Issues of career trajectories and impediments are viewed as matters for the university sector, and there is little attention to explicitly developing future generations of social science researchers to participate in interdisciplinary and transdisciplinary research. Without a forward-looking approach, there is a risk that Swedish research will be considered disconnected and limited in its contributions to cutting-edge international research.

Appendix 1. Purpose and Organisation of the Evaluation

A joint international evaluation of Swedish social science research on sustainability in the period 1998–2008 has been carried out by the main funding bodies in Sweden:

The funding bodies are:
Formas, Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning

Mistra, The Foundation for Strategic Environmental Research

Riksbankens Jubileumsfond

Swedish Energy Agency

Swedish Environmental Protection Agency

Swedish Research Council

Formas has coordinated the joint evaluation effort. The evaluation was carried out during 2009–2010.

The Rationale for the Evaluation

The importance of social science research in understanding and dealing with sustainability issues has attracted increased attention during recent years. The natural sciences have contributed heavily to the identification and understanding of environmental problems for some decades now. More and more, the focus is shifting to problems of implementation. How can we actually realise ideas and suggestions on how to achieve a sustainable society? And how can we prevent problems from appearing in the first place? Social science research on human behaviour, decision-making, socioeconomic structures and institutions, etc, enables us to better deal with these questions. Often, important questions on how to reach sustainability demand interdisciplinary research that involves both the natural and social sciences.

As a result of the increased focus on the importance of social science research on sustainability, public research funding in the area has increased quite rapidly during the last few years. There is also substantial funding from the Swedish

universities in the sustainability field, although there has been no mapping of the social science component in this. The research landscape in this area is thus very different and much bigger today that it was only a decade ago.

After this period of increased funding, it is of interest to evaluate the results both in terms of concrete outputs and in terms of structural characteristics of the research landscape. These results need to be seen in an international context. This will provide important understanding and guidance for future funding initiatives in the area.

Purpose of the Evaluation

The overarching purpose of the evaluation is to inform the main funding bodies about the position of Swedish social science research on sustainability as seen in an international context. The evaluation will also provide guidance for decisions on future funding activities in the area.

Both scientific quality and relevance to sustainability have been evaluated. Much of the increased funding in the field has been motivated by the need for social science research in order for society to be able to handle sustainability issues. Therefore, relevance to sustainability has been considered to be as important as scientific quality in the evaluation.

Main Questions of the Evaluation

- Structural issues characteristic of the research landscape were examined, for example, research funding, research projects and programs, research environments, and PhD exams
- Scientific quality and productivity
- Relevance to sustainability and usefulness of research results
- Overall strengths and weaknesses of Swedish research in the area
- Recommendations and important issues for future research in the area

What is Social Science Research on Sustainability?

Social science research on sustainability is very heterogeneous, drawing upon several disciplines. In fact, the multidisciplinary and often interdisciplinary nature of the research is one of the important characteristics of the area. We therefore use an inclusive definition of the concept.

Social science research refers to the study of human society and of individual relationships in and to society, including sociology, psychology, political science, economics, law, history, anthropology, etc., together with various interdisciplinary approaches. **Sustainability** refers to environmental sustainability and the ability to meet the needs of the present without compromising the ability of future generations to meet their own needs, as definied by the Brundtland Commission in 1987, which connected ecological, social and economical aspects. The connection between the ecological, social and economic aspects of sustainability is often at the very heart of social science research on sustainability.

Time Frame for the Evaluation

The motivation for the evaluation was to study the results of the recent increase of funding in the area. The most dramatic increase in funding happened from a couple of years after 2000 and onwards. Research from approximately the last ten years will therefore give us a good picture of the state of the research, including the effects of the increase in funding. Thus, research funded from 1998–2008 has been included in the evaluation.[1]

Outline of the Evaluation

The overall evaluation of Swedish social science research on sustainability was performed by a panel of prominent international experts. The panel examined the main issues for the evaluation (please see section 'Purpose of the Evaluation' above), including both scientific and relevance aspects.

In order to make it possible for the international expert panel to judge the main issues of the evaluation, background preparations were made. The following activities were carried out in preparation for the evaluation by the international expert panel:

- Background report on research funding in Sweden
- Funding of social science research on sustainability in Sweden 1998–2008
- Swedish researchers view on social science research on sustainability (questionnaire)

[1] The Swedish Research Council and the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning (Formas) were not created until 2001. Research funded by these bodies has therefore been evaluated from 2001 onwards.

- Mapping of the research landscape
- International distance peer review of a sample of projects and programmes
- Bibliometric analysis
- Analysis of the usefulness of research results of a sample of projects and programmes[1]

These preparations have been used by the panel as background material for its assessment.

Joint Organisation and Implementation of the Evaluation

The evaluation preparations have been implemented jointly by the six funding bodies. Formas has coordinated the work. The evaluation was initiated by Formas in the autumn of 2008. The preparative work was carried out during 2009. The international expert panel made their overall evaluation at its meeting in Stockholm on February 22–26, 2010.

[1] No projects from the Swedish Research Council or Riksbankens Jubileumsfond were included in the separate analysis of usefulness.

Appendix 2. Figures

Funding

In order to obtain an overview of the research funding in the area, the six funding bodies examined their project and programme catalogues in order to find all relevant funded projects and programmes during the period 1998–2008. As Formas and the Swedish Research Council were not created until 2001, projects funded by them can only be included from that year onwards. All information on the funding for years 1998, 1999 and 2000 is therefore subject to some inadequacies, as the funding for these years is underestimated.

It is very important that all funding data and statistics are interpreted with great caution. The registers on funding at the funding bodies are different and it has been difficult to create a homogenous data set. The quality of the data in itself is not perfect: Some figures on the social funding parts in larger programmes are only approximate, as no actual data is available. In order to avoid overestimations, large programmes with a small but unknown proportion of research relevant for this evaluation have been excluded altogether from the statistics. This is to avoid overestimations and due to this, the majority of the figures on funding levels are likely to be somewhat underestimated instead.

The data on funding is presented as nominal sums. A correction for inflation has been considered somewhat disingenuous, as the data itself is far from perfect.

With all of this in mind, the statistics can still provide a general picture regarding the funding from the six funding bodies during the period 1998–2008.

Quality and Relevance

An international external peer review of a selection of relevant research projects and programmes has been conducted. Projects and programmes from all the six funding bodies are represented in the selection. 81 projects and programmes, representing approximately 20 percent of the funding in the area during the period 1998–2008, have been reviewed.

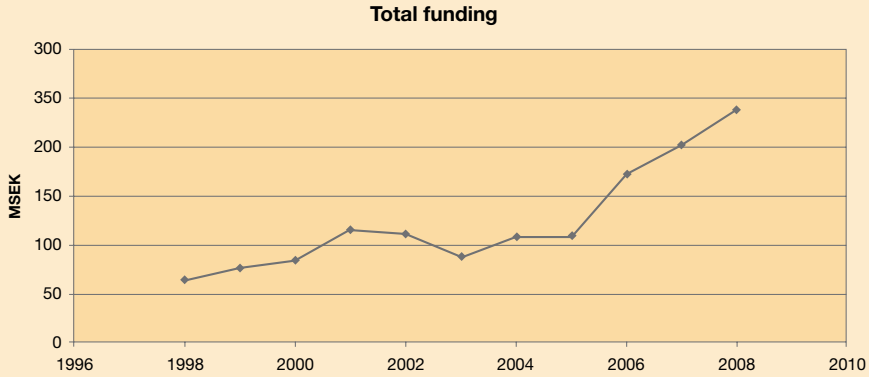

Figure 1. Annual funding from all the six funding bodies 1998–2008

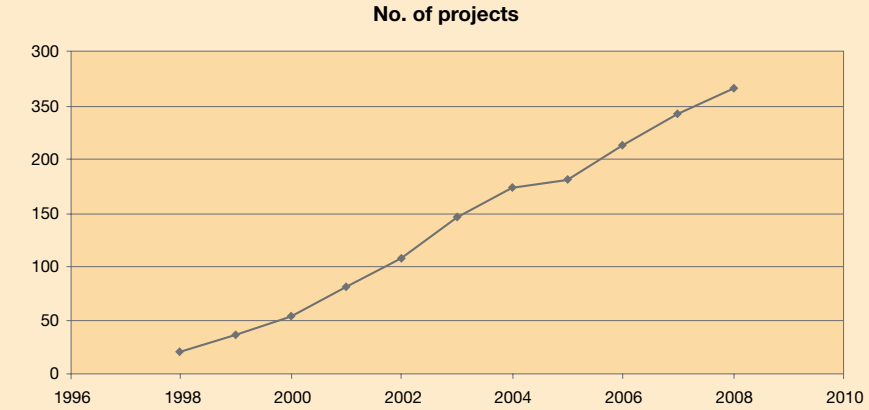

Figure 2. Number of funded projects from all the six funding bodies 1998–2008.

The external peer review covered both aspects of scientific quality and aspects of relevance to sustainability.

The aim of the international external peer review was to give the expert panel a more profound understanding of the quality of the Swedish research in the field, although for practical reasons far from all relevant research in the area was covered. The aggregate results of the peer review are presented here.

Criteria for the External Peer Review

Scientific Value

Research issues

- Scientific significance and originality
- Relation to international research frontier

Method and performance

- Feasibility and adequacy
- Innovativeness

Results

- Scientific significance
- Contribution to international frontier research

Value for Sustainability

Research issues

- Significance for sustainability
- General or limited value

Results

- Already existing contribution to sustainability
- Potential for future contribution to sustainability

The reviewers have used a joint scoring system. A scoring system is obviously never an exact instrument in measuring quality. It can, however, give a general view of the quality of a large amount of material. In addition to the scoring, a written assessment was made for each project.

Scoring for the External Peer Review

Overall scientific value and overall value for sustainability have been scored separately according to the following:

5. *Outstanding*
   World leading research with major impact on science/sustainability

4. *Excellent*
   Research at the international forefront of the field with an important impact on science/sustainability.

3. *Good*
   Quality science, but not leading edge, with moderate impact on science/sustainability.

2. Fair
Research with limited impact on science/sustainability.

1. Insufficient
Research of insufficient quality with no impact on science/sustainability.

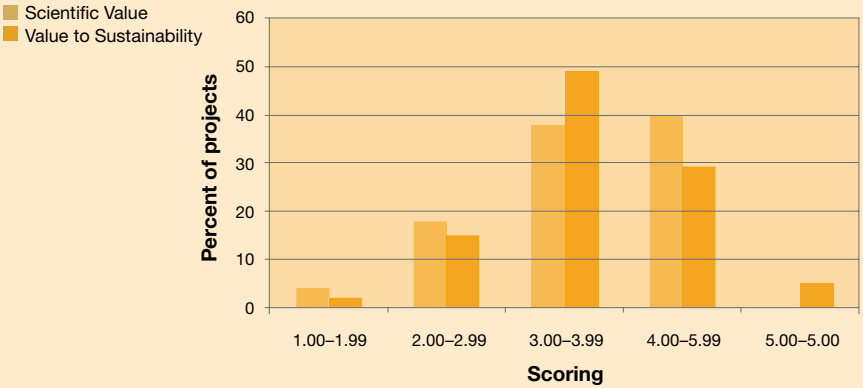

Figure 10. Relative distribution of scores for all peer reviewed projects and programmes.

Formas, the Swedish Research Council for Environment, Agricultural Sciences and Spatial Planning, is a governmental research-funding agency. Formas encourages and supports scientifically significant research related to sustainable development.

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