

SUM Report No. 11

**DOING INTERDISCIPLINARY RESEARCH
ON DEVELOPMENT AND
THE ENVIRONMENT:**

Critical perspectives on SUM's experience

Desmond McNeill and Jemima García-Godos

**Centre for Development and the Environment
University of Oslo**

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Doing Interdisciplinary Research on Development and the Environment: Critical reflections on SUM's experience

Written by Desmond McNeill and Jemima García-Godos

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EXECUTIVE SUMMARY

I. Interdisciplinarity

- Interdisciplinarity does not replace disciplines, it builds on them;
- The best way to undertake interdisciplinary research is through collaboration between researchers with different disciplinary backgrounds;
- Interdisciplinarity requires a critical but informed knowledge of one's own discipline of origin; openness to, and respect for, other disciplines; and the willingness and ability to enter into dialogue with them;
- In the field of sustainable development, the greatest divide is between 'reductionist' and 'holistic' approaches (which is not quite the same as the natural/social science divide). SUM's competence and interest has been in the latter.

II. Research and Policy

- The link from research to policy does not, in practice, proceed according to a linear, rational model, based simply on reliable 'evidence' - but researchers can nevertheless have much to contribute to policy-making;
- Papers in academic journals are what researchers are primarily motivated to write, and these are necessary to test and maintain their academic standards. But they are not what policy-makers need – for them a different medium is required;
- It is important that university-based researchers base their engagement with policy-makers on an adequate degree of competence and expertise in the issue concerned;
- Researchers can and should be critical - both of theories and of policies; but this need not discourage them from actively engaging with the practical issues that confront society.

III. Development and Environment

- There is not a simple 'poverty-environment' link implying 'win-win' solutions; the relationship between economic growth and environmental degradation is complex, and some of the assumed environmental problems (such as desertification) may be misunderstood, or even be revealed as 'myths';
- In fact, affluence may, in many respects, be a greater threat to the environment than poverty; and the costs of environmental degradation tend to fall unequally on poor and rich countries, and on poor and rich within countries;
- 'Institutions matter': although technological innovation can help meet the challenge of sustainable development, changes in human behavior will have a crucial role to play;
- Thus, sustainable development is a political, ethical, social issue as much as it is a technical issue. More research therefore needs to be done in the 'soft' sciences - concerning norms, cultural values, political processes, and 'institutions' in the wider sense of the word.

INTRODUCTION

In over 10 years of existence we have learned a good deal both about development and environment and about the role that a university-based research centre can play in research and researcher training in this field. Of the five national centres established in 1991 as a follow up to the Brundtland Commission Report, SUM at the University of Oslo is the only one still operating as such. Our mandate - to generate and disseminate knowledge on development and the environment - defined not only our research focus but also the approach to be used in our work: interdisciplinary. It is now appropriate to look back on our institutional experience, not only to assess how far we have fulfilled our mandate, but most importantly, in terms of the future, what we have discovered in the process. In the following pages we attempt to answer this most relevant question: *what have we learned from undertaking interdisciplinary research on development and environment?*

Box 1. SUM's Mandate

- SUM is an inter-faculty centre with focus on interdisciplinary research, network activities and coordination of research collaboration within the University of Oslo, and with external institutions. The Centre shall function as a driving force (*drivkraft*) within the University as well as in society and the private sector.
- SUM works with research, teaching and dissemination of knowledge about development and the environment, with emphasis on the interface between development and the environment.
- SUM provides teaching at all levels and offers courses to collaborating faculty programs at bachelor, master and Ph.D. levels.

Source: University of Oslo Board, January 26, 2004

The intellectual, methodological and institutional challenges that confronted us had to be dealt with not only at the institutional level - of the centre as a whole - but also by each and every one of SUMs researchers and students. We may illustrate this situation with the following examples of institutional and individual dilemmas:

- As an institution, SUM is in constant interaction with a range of academic disciplines and their respective departments, some quite sceptical to interdisciplinarity.

- As a knowledge-based institution, SUM has had to find the right balance in working with policy actors: undertaking consultancies on a selective basis in order to ensure quality and maintain the primary focus on research.
- Our researchers, while drawing on the valuable insights and perspectives of different disciplines, still have to satisfy the requirements of a single discipline when submitting their work for examination.

This critical reflection on experience of interdisciplinary research on development and environment can best be presented in relation to three issues that we consider to constitute our main challenges:

- interdisciplinarity;
- research and policy linkages; and
- the interface between development and environment.

In this report, each of these is discussed in detail on a “lessons-learned basis”, that is, starting with specific examples of SUM research, publications and activities illustrative of the issue in both positive and negative ways, followed by a review, assessment and summary of lessons learned. In a final section, postgraduate and under-graduate courses are discussed, since this part of our academic work poses challenges of its own.

This report is not intended to be an all-encompassing discussion of the issues at hand, nor a “how-to-do-it” recipe-book. Our goal is simply to take stock of our experiences; assessing the challenges and how we faced them, on the basis of empirical material rather close to us, our own research work. We should also note that although the report has benefited greatly from inputs – both written¹ and verbal – from current and former colleagues, it is not a consensus document, and might well read rather differently if others were the authors.

¹ We sent questionnaires to many SUM researchers. We have chosen to quote directly (but without attribution) from some of these in this report. We would also refer to two earlier SUM publications based on critical reflections on our work: Berge and Powell: Working Paper 4-1997; and McNeill, García-Godos & Gjerdåker (eds.): SUM Report 10-2001. We thank all current and former SUM researchers who contributed with experiences and comments to this report.

I. INTERDISCIPLINARITY

Interdisciplinarity has been widely advocated as the panacea for understanding and responding to the challenge of sustainable development. But within universities views are often more critical. This is largely because there is much misunderstanding about what it is and how it can best be achieved. On the basis of our considerable experience in how to undertake interdisciplinary research and teaching, we would emphasize the following:

- Interdisciplinarity does not replace disciplines, it builds on them.
- The best way to undertake interdisciplinary research is through collaboration between researchers with different disciplinary backgrounds.
- Interdisciplinarity requires a critical but informed knowledge of one's own discipline of origin; openness to, and respect for, other disciplines; and the willingness and ability to enter into dialogue with them.
- In the field of sustainable development, the greatest divide is between 'reductionist' and 'holistic' approaches (which is not quite the same as the natural/social science divide). SUM's competence and interest has been in the latter.

Interdisciplinarity in practice

Interdisciplinarity has been a central element in research and training activities at SUM since its creation in 1990. Our basic premise has been that in the field of development and environment, a mono-disciplinary approach – whether from one of the natural sciences or one of the social sciences – is insufficient. Throughout the years, the organizational setting adopted at the Centre has promoted interdisciplinarity both within and across research areas and programmes. SUM organizes its research around “research areas”, that is, broad thematic categories under which researchers can both find and contribute inputs on common issues, from varied perspectives. Until 2001, these research areas were '*Cultural values, social change and environment*'; '*Strategies for the use and conservation of renewable resources*'; and '*International trade, national development strategies and environment*'. More recently, our research areas have been as follows:

1. Environmental Values and Social Change;
2. Global and Regional Governance for Sustainable Development;
3. Local Dynamics of Change in Developing Countries; and,
4. ProSus (Programme for Research and Documentation for a Sustainable Society)

Each research area is led by senior scholars and includes both research fellows (usually PhD students) and master students from a number of disciplines. Seminars are carried out periodically according to research activities and priorities, providing a good forum for discussion at various levels, according to the needs of the research group. One such experience was the former *Research Area III “International trade, national development strategies and environment”*, where political scientists, human geographers and economists met to study the various ways in which the globalisation of production, international trade and national industrialisation in certain institutional contexts affect the environment in developing countries and globally; and what consequences this has for devising strategies for sustainable development. A number of case studies were conducted in this research area, providing a solid empirical and comparative base for theoretical analysis. For example, political scientists provided insights on the workings of the state and bureaucracies in industrialisation policies which complemented human geographers’ analysis of policies and practice concerning re/location of industries. This research led to a number of publications, among others the edited volume *International trade regulation, national development strategies and the environment: Towards sustainable development?* published in 1996 (see Box 1).

Establishing interdisciplinary collaboration is generally easier among more closely related disciplines than with those where differences are great. But theoretical battles, and differences of view, can be quite lively even between closely related disciplines. An example is SUM’s research area *Environmental Values and Social Change*, where researchers aim to study social perceptions of and attitudes to nature and the way these are created and changed in various cultural, political and institutional contexts. Disciplines of those in the group include not only philosophy, cultural studies and ethnology, but also history and anthropology. Nina Witoszek, with her humanist background as a cultural historian, has maintained a lively dialogue with the founder of deep ecology, philosopher Arne Næss who is still Professor Emeritus at SUM.

The Mali Programme, the largest research initiative carried out at SUM in terms of personnel and funding, is also perhaps the most ambitious in terms of the range of disciplines within a single programme. The programme was an inter-institutional collaboration between the University of Oslo and a number of research and higher education institutions in Mali, combining field and analytical research activities with formal academic training. Projects within the programme were defined with the intention of maximising the potential of an interdisciplinary research collaboration drawing upon human and material resources available within the programme. Thus, the team of researchers included social scientists (anthropology, political science), natural scientists (hydrology, geography, biology, ecology) and health scientists (nutrition and traditional medicine). The *SSE Research Project – Environment and Development in Mali*, within the programme framework, aimed to provide research relevant to the use and management of natural resources and food security. The project concentrated on the Gourma region in Northern Mali, an isolated area hit by severe droughts in the 1970’s and 1980’s. By concentrating research efforts in this region, the aim has been to gain as detailed an understanding as possible of the complex ecological, social and economic system of the area. A unique programme of dissemination of results in Mali and internationally has been developed,

Box 2: Interdisciplinarity - A learning process

SUM's research area III in the second half of the 1990s had the title "International trade, national development strategies and the environment". The themes researched upon covered changes in location of production and international trade discussed in the light of environmental problems and in a North/South perspective. The organisers of area III were the professors Jan Hesselberg (human geography) and Helge Hveem (political science). Both were employed full time at their respective departments at the University of Oslo and in addition held part-time positions at SUM.

Scientific literature and public discourse on the programme's research issues had at that time a tendency to be dichotomous. Foreign direct investments in the South were regarded as either harmful to the environment or contributing to the adoption of less polluting technology. The research programme sought to be more open-ended and it applied an empirical approach based on case studies. Furthermore, the trade-off between environmental protection and development used to be presented as a competition in a zero-sum game. The programme investigated when and under which conditions this was true or not.

The researchers in the programme had mostly a social science background (political science, sociology, economics and human geography). In addition, persons from biology and law participated to some degree. The members consisted of students working on their M.phil. thesis, research fellows and senior researchers. The main form of achieving interdisciplinarity was through "The Monday Seminar". Each week the programme had a seminar with presentations by the programme members of the progression of their work. This interdisciplinary *dialogue* proved to be highly useful. It was an important learning process showing the limits of disciplinary discourses and the high level of complexity of the issues that a range of disciplinary perspectives can give.

Thus, the programme was neither organised with a single limited research objective nor with one theoretical point of departure. The participants formulated their own specific objectives inside the thematic of the programme. This gave a useful result that enhanced the understanding of the sub-topics as well as the overall theme, combining thematic broadness and depth of analysis.

SUM was (and is) a very useful institutional *arena* where post-graduate students and research fellows with their place of work at SUM and senior researchers being at SUM a day a week, interacted to discover common ground as well as the limits of their disciplines. General theoretical positions were modified by this interaction, by the interdisciplinary learning process.

Hansen, S., Hesselberg, J. & H. Hveem (eds) (. 1996). *International trade regulation, national development strategies and the environment: Towards sustainable development?* Occasional Papers No. 2. SUM, Oslo.

Hesselberg, J. & H. Hveem (eds) (.1998).. *Production and trade - environment and development*. SUM Report No. 8, Oslo.

Jan Hesselberg, Head of Programme

including museum exhibits, publication series, articles in international journals, and televised documentaries (see also Box 3).

Is it necessary to have many disciplines involved in a collaborative research programme? By contrast with the Mali Programme, the research programme *The Dynamics of Displacement in Situations of Conflict*, led by anthropologist Kristi Anne Stølen, involved only two disciplines (social anthropology and human geography). The strength of this programme was its comparative perspective – drawing on in-depth local case studies in countries as diverse as Sri Lanka, China, Guatemala and Peru. A common theme and a shared methodology proved to be highly valuable for participants in the programme, in spite of contextual differences. The programme served then as a forum for discussion both internally and externally, organizing seminars and a doctoral research course with international experts and participants.

Another successful programme in terms of the range of disciplines included was “Bioprospecting - From plants in the South to Medicines in the North”. This was led by a biologist and included sociologists and lawyers. Based on case studies from Costa Rica, Tanzania, Thailand and Norway the project focused on: the effects of bioprospecting on the conservation of biological diversity; the sustainability of use of biodiversity and economic and social development in source countries, including that in local communities supplying materials; and indigenous knowledge about their properties and uses. Such research requires a fairly large researcher pool, and thus comprised both students and collaborating researchers from Norway and abroad. In its final stages, the programme also benefited from collaboration with anthropologists.

The “Norwegian-Indonesian Rain Forest and Resource Management Project” – the NORINDRA project – is another interdisciplinary initiative coordinated at SUM, between 1991-1995. The project was important both with regard to policy-relevance and linking environment and development, (see chapter 2 and Box 7), but as regards the challenges and advantages of interdisciplinary research it encountered a number of constraints during its implementation. One was the limited availability of relevant expertise on tropical rain forests and forest biology in Norwegian universities and research institutions. This was solved partly by recruiting international research staff, albeit on a part-time basis. The project recruited also Indonesian counterparts, but this too was also subject to limitations: limited expertise available in some fields, and institutional constraints. Perhaps one of the major challenges for the project was the uneven participation of core researchers and the fact that individual researchers had very different forms of engagement with the project.

Interdisciplinary research can also be encouraged through interdisciplinary networks, both national and international, and SUM is well placed to act as host for such networks. Two such initiatives taken by SUM researchers and their counterparts within and outside the University of Oslo are now solidly established and institutionalised at SUM, with funding from the Norwegian Research Council and the Ministry of Foreign Affairs: The Local Politics and Democratization Network (LPD) and the Asia Network. Though operating in different manners, both networks are based on research and organize seminar series, conferences and workshops. LPD has become an attractive forum for researchers

working on local politics and democratization to present their work in the bi-weekly seminars, and holds an annual conference with both national and international participation. The network has also produced co-authored publications with international scholars, and promotes international research collaboration. The Asia Network is a national network emphasizing information and research on Asia, and produces a weekly newsletter with current events and activities organized either by members of the network or others, and includes links to resources relevant for research on Asia. The internet has become a vital tool for the spread of information for both networks.

In a field as complex as development and environment, the advantages of an interdisciplinary approach are numerous, both at the institutional and individual levels. However, the challenges of applying interdisciplinarity are also great. The next part of this chapter discusses both sides of the coin, on the basis of our experiences.

Advantages at the institutional level

Broadening perspectives

At the institutional level, the co-existence and interaction between several disciplines around a specific problem and/or research agenda contribute to widen the perspectives and methodologies that can be used to approach it. This can often make research both more innovative and more relevant. In order to break out of the narrow confines of a single discipline, researchers need to be exposed to inputs from other disciplines, both in formal and informal situations. This is much easier to achieve in an *interdisciplinary environment*.

An interdisciplinary environment not only fosters discussion but also academic tolerance in “learning to respect other fields for what they can bring of insight”. This can provide a rich resource pool for collaborative initiatives on relevant issues. As a SUM senior researcher puts it: “the difference in knowledge and perspective is encouraging, and there is much to be learned.”

Support to innovative dissemination methods

“... effort to present interdisciplinary research to inform and influence policy takes time ... These efforts should not be seen as outside of what we should be responsible for, particularly us who try to work inter-disciplinarily to bring complex light on complex issues to catalyse for change.” (SUM Survey 2004)

As the quote above well indicates, the dissemination of interdisciplinary research results poses a challenge that requires an institutional as well as an individual response. Different disciplines are accustomed to their own well-established methods of dissemination in academic journals and monographs. At SUM, these have often been supplemented by other, sometimes less orthodox, means. The Mali programme is a good case in point, where the array of disciplines involved and the amount of knowledge produced led to creative solutions for disseminating information, such as the Timbuktu

book (now available in Norwegian and French) – in collaboration with a graphic designer/artist; the documentary on Sahel/Timbuktu partly based on the book (in Norwegian, French and English, in collaboration with film makers; and the exhibit in the National Museum in Bamako – seen, among others, by many Malian school children.

Advantages at the individual level

Enhancing the learning process

SUM researchers agree on the positive impact of interdisciplinarity upon their learning and research process, as the following remarks from our Survey illustrate:

- “Being able to illuminate an area from different perspectives.”
- “To learn something about approaches from other disciplines.”
- “Getting to know and having other people nearby with other disciplinary approaches who were willing to discuss, help and comment on my own texts.”
- “Learning to respect other approaches and ways, and see that they could bring different understanding from my own approach.”
- “Comments and questions across disciplinary boundaries may trigger new thoughts for both parties, if only in a subtle way.”

Improving understanding of individual projects

The possibility of getting feedback and inputs from disciplines other than one’s own can raise our awareness of the complexity of the issue at hand, and expand our horizon for new analytical tools. In most cases, this will involve engagement in a new body of literature or a new research tradition, but without necessarily abandoning one’s own disciplinary base. This is often achieved through discussion forums and seminars. There are some cases where a single researcher gains formal competence in two very different disciplines, as the following case describes:

“Studying a technology from an anthropological perspective provides knowledge of technologies’ social aspects. ... Distinct kinds of knowledge and values, either associated with project leaders (donors, engineers), governments, utility workers or various groups in the villages, are partly found to be in conflict with one another. The interdisciplinary research methodology here provides an advantage. By studying the range of actors and technologies involved, their interrelationships and dynamics can better be understood. One implication of this is that technological objects are not treated as a “black box”, impenetrable for social investigation and seen to be influencing user’s lives in a one-directional way. The electric system is continuously moulded too, in a field of relationships where power (in a wide sense) is negotiated. During fieldwork I particularly experienced that my background as an engineer has helped communication with technicians and energy planners.” (SUM Survey 2004)

Challenges at the institutional level

Interdisciplinarity requires a conscious organisational effort

“I believe that it is difficult to make one truly interdisciplinary project. Interdisciplinary in a centre like SUM, must be made through different projects doing research on the same greater subject in the same area. The sum of the projects will then be interdisciplinary. Publications may be written in collaboration, drawing on results from colleagues with other expertise.”
(SUM Survey 2004)

The above quote is a very realistic assessment of the challenges at the organisational level throughout the research process. The organisational aspect is often underestimated during the planning stage of an interdisciplinary initiative, yet it proves decisive in securing that “the whole is more than the sum of the parts”. This can only be achieved through an awareness of the different organisational challenges posed at different stages of the research process. In turn, this awareness should lead to an organizational structure and strategy that foments interdisciplinary collaboration in work and results. This has implications also for the resources required, as we discuss below.

Resources, planning and timing for interdisciplinarity

The Mali Programme benefited greatly from having a programme coordinator, responsible for organising everything from transfer of funds and car purchases to scientific seminars, public events and publication series. Interdisciplinary research programmes of all scales can benefit from a clear organizational strategy and set-up right from the outset; but unless these are funded as integrated projects this may prove difficult – not least with regard to timing.

Ideally, all components of a single interdisciplinary programme will start at the same point in time, and will have the same duration. In practice, this is not always possible due to funding as well as to academic and/or private commitments, such as teaching, maternity leave, or previous and new academic engagements. A substantial effort thus needs to be made to coordinate the timing of activities in such a way that sufficient time is allocated to common programme activities, such as seminar series, fieldwork, or debriefings. In the *Dynamics of Displacement* programme, only common activities were funded as “programme activities” while basic research components had individual funding with their own timelines to follow. This made timing of collaborative activities more difficult, though it was possible to organise a successful series of seminars, and a doctoral research course.

Managing interdisciplinary research

Interdisciplinary research often involves not only several researchers but also institutions, and the time and effort involved in coordination should not be overlooked. Whatever the organisational structure a project may have, management or administration requirements should be reflected in the budget and work-plan, in order not to “eat up” research time from the researcher responsible for the programme.

In a few cases, projects and networks at SUM have solved this problem by budgeting for a part-time project secretary (often a student involved in the research) to deal with administrative matters.

Management is not however, limited to administration. It is also a matter of professional and interpersonal relations. Learning to direct/manage an interdisciplinary team involves recognising both the advantages and challenges of interdisciplinarity, and successfully establishing trust within the team. Academic differences can easily generate conflicts and misunderstandings if not handled in a professional manner. The role of the team leader is pivotal in reinforcing links within the team, creating an environment of trust and good communication, yet avoiding the imposition of one discipline over the others.

Different disciplines, different publication practices

If it did not happen previously, considerable differences among the disciplines often surface during the development of publications, because of different publication traditions and priorities. What is commonly accepted in one discipline may be less valued in another. Economists, for instance, publish mainly in specialised disciplinary journals, while in other social sciences monographs or edited volumes are more common. Programme management and participants should be aware of the publication requirements of the disciplines involved, and adopt a strategy that fits the aims of the programme and its members.

Challenges at the individual level:

“To maintain own single-disciplinary competence and network represents an important challenge for anybody who gets involved in interdisciplinarity.” (SUM Survey 2004)

Academic requirements from a single discipline

The greatest challenge posed by interdisciplinary research to the individual researcher regards the issue of fulfilling the academic requirements of one's own discipline while benefiting from interaction with other disciplines. This is particularly the case for doctoral research projects, where dissertations will have to be defended within a single discipline. (A partial exception is those few at SUM who took their doctorate in Development Studies, at Roskilde University Centre, Denmark). The many contributions that other disciplines may offer have to be balanced with the need to demonstrate one's own academic identity – theoretically and methodologically – as an anthropologist, economist, biologist or historian.

Box 3. The Mali Programme and Managing Interdisciplinarity

The initial project within the Mali-Programme was the SSE Research Project “Environment and Development in Mali”. An interdisciplinary approach was not an end in itself nor was it mandated in this project; rather, it arose from the need to approach the research question in a comprehensive manner: how to assure food security in the face of drought through sustainable natural resource management? From this general objective, three sub-projects were formulated:

- *Food security and nutrition at the household level and women's role in the management of natural resources and food security*
- *Ethno-botany: The Use of Wild Plants for Food, Medicine, and Handicrafts*
- *Pastoralism and the Judicious Use of Natural Resources*

Combining field and laboratory research activities with formal academic training, the Mali-Programme (MP) was an inter-institutional collaboration between the University of Oslo and a number of research institutions and institutions of higher learning in Mali. The project involved four Norwegian units based at 3 faculties at the University of Oslo (Medicine, Natural Sciences, and Social Sciences); and seven research institutions under three different ministries in Mali. The MP was administered by a steering committee and a coordinator in Mali responsible for the administrative and financial execution, while the Norwegian coordinator was at SUM and had overall responsibilities. The Programme required considerable administrative organization and follow-up in addition to resolving the cultural and language barriers any North-South endeavor would encounter.

Research teams in Mali and Norway were supported by a coordination unit at the CNRST and SUM respectively. Although each project component had its own set of research objectives and focused on specific studies of interest, it was expected that individual researchers involved in the Programme contribute to the extent possible to all project components. Projects were defined with the intention of maximising the potential of an interdisciplinary research collaboration drawing upon the human and material resources available within the Programme. Communication between researchers and the respective institutions involved was assured by the administrative coordinator. The creation of a Malian infrastructure for undertaking interdisciplinary research was seen as an important building block to establishing a national research policy. At the same time, the researchers maintained links to their parent research institutions, thereby increasing the capacity of these institutions.

The Mali-Programme had in all about 50 active participating researchers including graduate students. The Programme in many respects enjoyed a flat structure which had its advantages and disadvantages. Researchers from various disciplines were added to the team as the issues required. It was difficult at times to differentiate between language barriers (French/English/Norwegian) and the eight languages of the various disciplines involved. Weeks were used to develop a common language and methodological approach. Methodological discussions were geared around choices between quantitative and qualitative analyses, fieldwork vs. laboratory analysis. All these issues had great implications for organizing the project – i.e. planning, budgeting, executing – including allocation of project vehicles, purchase of computer hardware and software, and not least the timetable for the entire project. The timetable, it proved, posed the biggest problem both on the organizational side as well as the development of the research results and dissemination of these.

(continues on the next page)

To avoid duplication of efforts, the project was originally designed with an interdependency between sub-projects. The understanding was that one group would carry out fieldwork and analysis that another group would integrate into the final product. This interdependency in the end became a source of conflict, particularly when it came around to publishing the results. Some results could be obtained in 1-2 years while other, particularly ecological monitoring, needed a time-span of up to 10 years. Although several publications came out in refereed academic journals, more might have been possible if all participants had had the same timetable. In the end, several groups wanted to publish their own results before making them available to others groups within the project. This took several years, and by then the project funding had run dry and the researchers dispersed.

Projects such as the Mali Programme need to be assessed in the long term perspective. Perhaps one of the great successes of the Mali Programme at the University of Oslo is how it has continued. The original project, "Environment and Development in Mali", was terminated officially in 1996; however thematic spin-offs from the project have been numerous and highly productive.

Benjaminsen, T. A. & G. Berge (2004). *Une Histoire de Tombouctou*. Paris: Actes Sud.

Abdrahamane, D & J. Gjessing (eds) (1999). *Gestion des Ressources Naturelles: Morpho-pédologie du Gourma*. Oslo: CNRST-IER-Université d'Oslo.

Diallo, D.; Hveem, B.; Ag Mahmoud, M.; Berge, G.; Paulsen, B.S.; Maiga, A. (1998)., "An Ethnobotanical Survey of Herbal Drugs of Gourma District, Mali", *Pharmaceutical Biology* 36 (5) : 1-12.

Gunnvor, B. (2000). *In Defence of Pastoralism: Form and Flux among Tuaregs in Northern Mali*. PhD Thesis in Social Anthropology, Institute for Museum and Anthropology, University of Oslo.

"Environment and Development in Mali: A research collaboration between North and South." Video

Alida Jay Boye, Mali Coordinator

Social and academic expectations

Researchers at SUM relate both to members of other disciplines at the Centre as well as to their fellow colleagues from their own "parent" disciplines. While some disciplines are more open to interdisciplinarity, others are quite restrictive as to what is considered rigorous research. In human geography, for instance, it is not only acceptable but also desirable to combine different theoretical approaches and methods from various disciplines. The programme on Location of Polluting Industries combined theories from economic geography, political science and economics, along with statistical and qualitative methods to address the issue of industrial shift of polluting industries from industrialized countries to countries in the South. Similarly, the project on social reconstruction after guerrilla war in Peru combines a social history approach with anthropological methods and sociological theory, as the combination allows a comprehensive view of the research problem. By contrast with human geographers, other researchers involved in such projects might face reactions from colleagues from their own discipline that regard such interdisciplinary work as "amateurish".

Fortunately, however, interdisciplinary approaches – not least in relation to issues of development and the environment - are becoming more legitimate in academic circles. Indeed, in several cases the doctoral theses of SUM researchers have proved to be ‘the best of both worlds’: not only fully satisfying the requirements of their discipline, but also being praised for their originality of topic and perspective.

Approaching other disciplines

“The first challenge I faced, by first trying to getting better acquainted with the field which I needed input from. Then, to a much greater extent than with my “discipline” papers, I had to actively seek researchers from the discipline that I needed input from, to discuss with them and to ask them to comment on the paper I wrote.” (SUM Survey 2004)

In practical terms, interdisciplinarity within a single project means getting acquainted with extensive new literature from other disciplines where the researcher has few reference points. Not only is this an intellectual effort, but also time consuming. This is where participation in an interdisciplinary research team can prove extremely beneficial. Other interdisciplinary events such as SUM’s internal research seminars offer the possibility to get feedback from other disciplinary stand-points.

Publication

As mentioned earlier, there are varying norms for how publications should be written in different disciplines, as well as what is found to be acceptable or worthy of publication in scientific journals. It often appears that ‘interdisciplinary journals’ are rated lower than mono-disciplinary journals when it comes to the valuation scale. This can be discouraging for the interdisciplinary researcher, who might therefore opt for a mono-disciplinary approach in order to get full value for his/her publications.

II. RESEARCH AND POLICY

Policy-makers continue to emphasize the need for more and better research, but both researchers and policy-makers express deep dissatisfaction at their failure to relate adequately. There is often an unwillingness to fully recognize the differences in perspective and priority of researchers and practitioners. We would emphasize the following:

- The link from research to policy does not, in practice, proceed according to a linear, rational model, based simply on reliable ‘evidence’ - but researchers can nevertheless have much to contribute to policy-making.
- Papers in academic journals are what researchers are primarily motivated to write, and these are necessary to test and maintain their academic standards. But they are not what policy-makers need – for them a different medium is required.
- It is important that university-based researchers base their engagement with policy-makers on an adequate degree of competence and expertise in the issue concerned.
- Researchers can and should be critical - both of theories and of policies; but this need not discourage them from actively engaging with the practical issues that confront society.

Linking research and policy in practice

SUM’s mandate established clearly that the core of our activities was to be research, and this has guided our work ever since. In addition, the mandate provided the centre with a networking and information dissemination mission which the Centre has fulfilled in different ways, e.g. through the establishment of thematic research networks, and academic events such as conferences and seminar series. Throughout the 1990s, efforts were specially directed towards establishing SUMs academic reputation as a research centre within the University of Oslo. This strategy implied a rather selective approach with regard to consultancies. This has not, however, impeded the Centre from engaging in valuable collaboration with institutions such as NORAD, the Ministry of Foreign Affairs, the World Bank and the Inter-American Development Bank. A few examples of linkages between research and policy from SUM’s experience will illustrate the point.

One of the first, and perhaps also clearest, examples of direct policy implications of SUM research is the NORINDRA project. The “Norwegian-Indonesian Rainforest and Resource Management Project“ was an interdisciplinary collaborative initiative between researchers from the University of Oslo and various other Norwegian, Indonesian and international institutions. The programme was coordinated by SUM, and aimed to make an in-depth study of a single sub-district (Seberida, in the district of

Indragari Hulu, Riau in Sumatra) from the perspective of several disciplines, including anthropology, human ecology, forestry, economics, ethno-botany, geography, and others. A major concern was that the insights gained in the fieldwork area itself should be made available to support conservation and sustainable resource utilization in that area. NORINDRA research facilitated the declaration in 1995 by the Indonesian Government of a National Park to conserve the rainforest on the Bukit Tigapuluh hills in the NORINDRA project area. Furthermore, research results furnished a basis for designing a 5-year integrated conservation-development programme to support the establishment and management of the new national Park.

The project “Energy and Security in the South China Sea” had a policy-orientation right from the start. Both research and competence building components were aimed in part at providing advice to the Norwegian and other governments, media and oil companies engaged in an area where the use and benefits of natural resources are highly contested (see Box 4). A proposal for how to resolve the dispute, based on the research project, has become widely known internationally. Historian Stein Tønnesson led this interdisciplinary project, which included researchers and students from history, sociology, political science, economy and international law. An active recruitment of graduate students was encouraged throughout the duration of project, so that a total of nine theses were produced. A line of dialogue with potential users of the research was established through international workshops in 1998 and 1999, a major conference in 2000 and a conference panel in 2001. Results were disseminated through journal articles, two special journal issues (*Ocean Development and International Law and Pacific Review*), a number of SUM Reports, and a much used website.

An interesting experience on research and policy has been the CANDID project, which studied how ideas are used and abused in development policy. It thus provided a critical analysis of development policy processes, based on empirical examples of ideas such as ‘sustainable development’ and ‘social capital’. (see Box 5). The project has links to other SUM activities, both at the academic and institutional levels, including two initiatives presented below, the TFESSD and the Development Ethics program.

The Trust Fund for Environmentally and Socially Sustainable Development (TFESSD) was set up in December 1999, initially as a Norwegian-funded "umbrella" trust fund in the World Bank, replacing many separate trust funds on environment and social development. In July 2001, funding for poverty issues was added to the trust fund. In November 2002, the Government of Finland joined the fund. The Environment, Social Development, and Poverty Boards in the World Bank prioritize areas and proposals for funding every year and monitor the progress of trust fund activities, making sure that the funds are used for strategic activities and in close coordination with the Bank's own Economic and Sector Work (ESW) and projects. The TFESSD has a Reference Group, which advises the Norwegian and Finnish Ministries of Foreign Affairs on the progress, direction and usefulness of the fund, and assists in promoting a substantial dialogue between the World Bank and the Norwegian and Finnish ESSD communities. SUM was involved in this initiative from the establishment phase, through the fund's reference group.

Box 4: Research for Policy on Energy and Security in the South China Sea

The security situation in the South China Sea region is characterised by a multinational dispute over the territorial delimitation of the South China Sea. There are overlapping claims between no less than six states to the Spratly area. The lack of a firm security structure in the region makes the territorial dispute an explosive issue. On the other hand, the dispute provides the regional states in Southeast and East Asia with an incentive and opportunity to develop regional co-operative institutions. The southern part of the South China Sea contains rich reserves of oil and gas, and this may also be the case for the Spratly area. Exploration for oil is already going on in areas claimed by more than one country. The fishing zone around the South China Sea ranks fourth among the world's nineteen fishing zones in terms of total annual marine production. As the traditional fishing grounds in the region are suffering from over-fishing, the renewal of resources in the South China Sea is expected to be of major importance for the coastal states in the future. The security of the region is of vital importance also to external powers, primarily to the oil-hungry economies of Japan, South Korea and Taiwan, and increasingly the southern provinces of China, which all depend on safe and open sea lanes through the South China Sea.

The aim of the project "Energy and Security in the South China Sea" was to build competence on economic, diplomatic, political and military relations in the South China Sea region, with a view to providing advice to the Norwegian government, media and oil companies engaged in the area.

The project was originally based at SUM between 1998-2001, and was conducted within the Norwegian Network for Pacific Asian Studies. A more modest project entitled "Security & Maritime Conflict in East Asia" was developed on the basis of research results from the previous project, and is now carried out at the International Peace Research Institute of Oslo (PRIO). The original project was funded by the Petropol program of the Norwegian Research Council, Statoil, the Norwegian Shipowners' Association, the European Science Foundation and the Norwegian Ministry of Foreign Affairs.

Timo Kivimäki, T. (ed.), (2002). *War or Peace in the South China Sea?* Copenhagen: NIAS Press. (160 pages).

Stein Tønnesson, S. (2000):. "China and the South China Sea: a Peace Proposal", *Security Dialogue*, Vol. 31(, 2000, No. 3):, pp. 307-326.

Source: SUM and PRIO websites.

The background for the "Development Ethics" project is the initiative taken by Inter-American Development Bank (IDB), to place ethical issues on the IDB agenda as well as on the development agenda in the Americas in general. One of the main means for doing this is to establish an academic network that will study issues related to ethics and development, raise ethical issues in the public debate and contribute to increased emphasis on ethics and development in teaching at the universities. The role of SUM is to be a Norwegian counterpart in this network, and collaborate with Latin American universities on research on issues in ethics and development.

Another interesting experience on doing research *on* policy is the History of Norwegian Development Assistance project, based at SUM and funded by the Ministry of Foreign Affairs through the Norwegian Research Council. As its title indicates, the aim of the project was to study and document the history of development assistance in Norway. A team of historians and one anthropologist participated in the project, focusing on the interaction between Norway and the beneficiaries in relation to both a Norwegian and international context. This has been an important contribution to ongoing debates on development cooperation in Norway.

In considering the link between research and policy, the work conducted at ProSus should be especially highlighted. The mandate of ProSus is to produce knowledge for the realisation of a sustainable society. Since 2000 it has been a Strategic University Programme, based at SUM. Its mandate provides ProSus with a clear applied-research orientation, which enables it to actively engage with policy-makers at the local, national and international levels (see Box 6)

Over the years, researchers at SUM have undertaken a number of consultancies, often evaluations. A necessary condition for undertaking a consultancy has been that SUM researchers have the necessary knowledge and competence. In addition to earning revenue, an important criterion has also been that the study may be useful in terms of obtaining new data, new insights, or new contacts. SUM's Director, and individual researchers as well, are quite often approached to compete in bids for consultancies. In some cases consultancies have been undertaken by individual researchers, in others more than one has been involved (e.g the evaluation of Swedish Aid by Hveem, McNeill and Bøås, *Is Swedish Aid Rational?*).

Another practice that has proved beneficial in terms of contacts and experience for SUM researchers are secondments (to multilateral institutions, sponsored by the Norwegian Ministry of Foreign Affairs). A good example is secondments of SUM researchers at the Inter-American Development Bank, particularly in the late 1990s; these formed the basis for future research and policy-related collaboration. Secondments can also go in the other direction, and SUM has occasionally been host to practitioners from NORAD and UD interested in broadening their insight into particular research areas relevant for SUM. These exchanges have proven beneficial for both research and institutional networking.

Advantages at the institutional level

Access to information & data

Active engagement with policy-makers can occur in a number of forms, for example as direct services through consultancies and commissioned reports, or through advisory boards and committees. Such exposure and participation can constitute a good source of information and data relevant to research, as the CANDID project demonstrated (see Box 5). Another example is a consultancy for the IDB in Guatemala undertaken by anthropologist Kristi Anne Stølen. This sowed the seeds of both the

“Dynamics of Displacement Programme”, and a collaborative Masters Programme in Central America, supported by NUFU (the Norwegian Council for Higher Education).

Box 5: Doing Research on Policy

Some of SUMs research is not merely related to policy, but actually seeks to study policy processes themselves. A good example is the ‘CANDID’ project. This study was concerned with multilateral institutions – such as the World Bank, UNDP, the regional development banks and WTO - and its aim was to study the relationship between "ideas" and development assistance through a system-wide approach to the Creation, Adoption, Negation and Distortion of Ideas in Development. In each case, the aim was to trace:

- how an “idea” is taken up by the development assistance community;
- how it is interpreted; and translated into policy;
- how it is modified, in response both to debate and to feedback from implementation experience.

A follow-up project is nearing completion: The Influence of Private Actors on the Multilateral System. This builds on the insights, information, and contacts gained from the CANDID-project on the relationship between power and ideas in the multilateral system. It builds also on the doctoral thesis of the third researcher involved (Benedicte Bull) “Aid, Power and Privatization: Domestic and International Sources of Tele-communication Reform in Central America”, (forthcoming as a book published by Edward Elgar). In brief, the aim is: (i) to improve knowledge about the causes of the changes currently experienced; (ii) to analyse the consequences for the multilateral institutions and their strategies for achieving their goals; and (iii) to contribute to a better understanding of the evolving role of private actors. WHO, UNESCO, World Bank and UNDP are the focus of study. A third project has recently started, studying how four multilateral organisations deal with issues of ethics and human rights.

Another related activity is the ‘Bridging Research and Policy’ project, under the auspices of the Global Development Network, in which the focus is on how local research is used in the PRSP process in four countries in East Africa. SUM also plays a supporting role in the Ethics and Development Initiative of the Inter-American Development Bank, and in the Reference Group for the Trust Fund for Environmentally and Socially Sustainable Development in the World Bank.

Activities such as these allow SUM researchers to study policy-making processes close at hand, and also perhaps to exert some modest influence on them - in a spirit of ‘critical engagement’, i.e. addressing practical issues of policy, but on the terms of an independent researcher.

Bøås, M. and D. McNeill (eds.) (2004) *Global Institutions and Development: Framing the world?*. London: Routledge Press.

Bøås, M. and D. McNeill (2003) *Multilateral Institutions: A Critical Introduction*. London: Pluto Press.

Bull, B, M. Bøås and D. McNeill (2004) “Private Sector Influence in the Multilateral System: a changing structure of world governance?” *Global Governance*.

Desmond McNeill, Head of Programme

Access to contacts & networks

A similar opportunity arises in regard to contacts and networks, not only within the sphere of policy-making, but also with other public and private institutions, users of the information, NGOs, etc.

Contacts and networks relevant for research can prove extremely beneficial for collaborative initiatives both nationally and internationally. A recent consultancy for the World Bank involved the participation of both SUM and CICERO for different yet related components. Researchers involved opted to work as a team rather than separately, a decision that led to more rewarding research and learning experience, and provides the basis for collaboration also in the future.

Expanding source of income

Active engagement with policy-makers in need of knowledge-based services such as consultancies or advisory services can constitute an expanding source of income for research activities at the institutional level. Such financial gains need not conflict with the priorities of basic research. SUM's strategy in this regard has been to welcome consultancies that are based on existing competence and clear linkages with research activities carried at the Centre.

Advantages at the individual level

Access to information & data

For the individual researcher, access to information and data through consultancies and other engagement with policy-makers can be extremely useful, as this can become part of the material to be used during research. In some cases, such material would not be available otherwise. One example is a recent consultancy on socio-economic impacts of the El Niño-events in Peru and Ecuador which provided access to new information from public institutions. Another is the advisory services provided in connection with Norway's peace-making efforts in Southern Sudan.

Access to contacts & networks

Contacts and networks are vital for the individual researcher at all phases of the research process, both as a source of information and as discussion partners. Income opportunities can also be mediated through professional contacts. For researchers who do not wish to pursue an academic career, policy-related experience can be most useful in better qualifying them for a range of different jobs.

Challenges at the institutional level

Finding a balance between research and policy

How to ensure that projects are relevant for both the research community and policy? Although fields of interest might intersect, it is not always easy to accommodate policy interests into the research agenda, or, vice versa, to include research issues and results into policy. At SUM we have been selective in taking on assignments, giving higher priority to

Box 6: PROSUS - Strategic Research for Sustainable Development

In the year 2000 the research programme ProSus (Programme for Research and Documentation for a Sustainable Society) transferred its administrative affiliation from the Research Council of Norway (RCN) to SUM/UiO. ProSus then became a “Strategic University Programme” within SUM, maintaining its own identity as a more applied research unit with an integrated three-point mandate: (1) to carry out documentation and evaluation of Norway’s efforts to follow up international commitments on sustainable development; (2) to conduct strategic research on the barriers and possibilities for a more effective realization of SD goals; and (3) to engage in active efforts to disseminate the results of SD research and promote discussion of SD-related themes among decision makers and in the mass media.

In carrying out the first point of its mandate, ProSus has developed a distinct profile as an evaluation unit independent of both governmental and NGO influence. As a member of the European Evaluation Society (EES), and in close cooperation with similar applied-research units internationally, ProSus has developed an evaluation approach which emphasizes the crucial role of objective assessment for democratic effectiveness and legitimacy. ProSus evaluations are conducted in relation to three types of standards: (1) the principles, strategies and action plans adopted by international and regional organisations (the UN, EU and Nordic Council); (2) the specific programmes and policies adopted by Norwegian authorities to implement international and regional commitments; and (3) the empirical progress made by other countries in pursuing the same goals. Results are published as reports and working papers on an ongoing basis, and more comprehensive national reports are issued at five-year intervals.

On the basis of its ongoing evaluations ProSus conducts strategic research on removing barriers and promoting synergy within the implementation process. Given the official commitment to SD goals, “What works, where, when and how?” in achieving them. The research is often conducted in direct communication with the strategic actors necessary for achieving change, and is organized within a project framework called “SusLink”. The approach structures implementation research according to major decision-making arenas – supranational influences, central government, local government, business, and households – and aims to synthesize the findings from each area into a broader multi-level understanding.

The third task of the mandate is pursued through an active strategy for communication and dissemination. The applied-science nature of ProSus, and the increasingly pressing nature of many SD challenges, dictates an active policy of interjecting research results and SD information into the mainstream of Norwegian public debate and decision-making. This is done through a series of integrated initiatives: advanced information profiles for each project; active communication with strategic actors; a monthly newsletter with both paper and Internet versions; frequent contributions to the mass media; and the publication of numerous books, reports, and academic articles.

Lafferty, W. M. (ed.) (2004). *Governance for sustainable development: the challenge of adapting form to function*. Cheltenham, England: Edward Elgar.

Lafferty, W. M. and J. Meadowcroft (eds.) (2000). *Implementing Sustainable Development. Strategies and initiatives in High Consumption Societies*. Oxford: Oxford University Press.

William Lafferty, Head of Programme

research relevance rather than income opportunities, with the aim to consolidate the research character of the Centre. Within academia, the use of research for political purposes is sometimes regarded with suspicion, and extensive consultancies are not necessarily seen as a sign of quality in the research undertaken. By selecting carefully the consultancies to be done, however, we believe it is possible – and indeed important - to engage with policy-makers, without endangering one’s critical and independent standpoint.

Attracting the attention of policy-makers

Linkages between research and policy go in both directions. While policy-makers may approach research institutions for advice and expertise, researchers may also see the need to approach policy-makers to bring to their attention issues which are absent or inappropriately discussed in policy-agendas. The strength of dealing with this aspect at the institutional level is that open lines of dialogue can be institutionalised, thus facilitating contact between SUM researchers and policy-makers. The Framework Agreement between the Ministry of Foreign Affairs and SUM on Multilateral Organisations is one such channel. Other channels can be academic fora, and public events such as *U-landsseminaret* (a seminar series on developing issues), where relevant policy issues are often debated in panels that combine invited policy makers, practitioners and academics.

Administrative requirements

Particularly with regard to consultancies, SUM initially met an institutional challenge in the area of administration, since our accounting system is integrated in the larger organization of the University of Oslo. Procedures and routines had to be established to facilitate the engagement of our researchers without unduly cumbersome administrative constraints.

Challenges at the individual level

Being critical and constructive at the same time

“[the] challenge is to cooperate with policy makers and make research relevant without being captured by policy interests.” (SUM Survey 2004)

“The policy makers I met were very competent and smart, but I found it difficult to cater to their requests for black and white answers to highly complicated matters.” (SUM Survey 2004)

The above quotes identify very clearly the greatest challenge that individual researchers face in approaching policy-makers, which is how to be critical *and* constructive at the same time. As researchers, we are used to keep a critical point of view on whatever it is we study, analysing the complexity of our research agendas. In policy-making, complexity calls for simplification and eventually, prioritising. For some researchers at SUM, this challenge is seen as a learning experience; for others, it simply testifies to the undesirability of doing consultancies.

Methodological and ethical challenges

Being an active participant as well as an observer in policy processes raises significant methodological and ethical challenges. Those with whom one is working need to be informed of the dual role that the researcher is playing; and the challenge of being objective in one's analysis is even greater than usual. These issues are the subject of ongoing discussion among SUM researchers.

III. DEVELOPMENT AND ENVIRONMENT

The concept of ‘sustainable development’ has played a crucial role in putting the environment on the agenda, and giving priority to this central challenge, but it has some significant deficiencies – both as an analytical concept and as a basis for policy. Our own research, and that of others, leads to a number of conclusions - although these are to varying extents still disputed:

- There is not a simple ‘poverty-environment’ link implying ‘win-win’ solutions; the relationship between economic growth and environmental degradation is complex, and some of the assumed environmental problems (such as desertification) may be misunderstood, or even be revealed as ‘myths’;
- In fact, affluence may, in many respects, be a greater threat to the environment than poverty; and the costs of environmental degradation tend to fall unequally on poor and rich countries, and on poor and rich within countries;
- ‘Institutions matter’: although technological innovation can help meet the challenge of sustainable development, changes in human behavior will have a crucial role to play;
- Thus, sustainable development is a political, ethical, social issue as much as it is a technical issue. More research therefore needs to be done in the ‘soft’ sciences - concerning norms, cultural values, political processes, and ‘institutions’ in the wider sense of the word.

Sustainable development

Especially since the report of the Brundtland Commission, and subsequently the UN Conference on Environment and Development (Rio de Janeiro, 1992), the term ‘sustainable development’ has played a very central place in debate. It has been challenged by both researchers and practitioners - and a small industry has grown up offering alternative definitions - but it remains a core defining concept. It is concerned with powerful and often competing interests and perspectives; to some, the concept successfully offers a solution, to others it evades or obfuscates the issue. Some see it as predominantly concerned with the environment, and even promoting a ‘Northern’ agenda; others emphasise that it seeks to combine the objectives of development and environmental conservation. Like other ‘catchwords’ it has played a significant part in putting an issue on the international agenda; but it may also risk the fate of some catchwords – that other issues, and concepts, come to replace it.

ProSus at SUM has actively engaged in debates on sustainable development. In addition to producing many publications concerned precisely with sustainable development (e.g. Lafferty and Langhelle, eds. 1999; Lafferty and Meadowcroft, eds. 2002; Lafferty and Narodslawsky, eds. 2003), ProSus has

also undertaken studies of the extent to which the term itself has been adopted. The concept was also studied under the CANDID Project (see chapter 2).

Research on development and environment in practice

In the late 1990s, the research area on “Strategies for the use and conservation of renewable resources” dealt with issues concerning the management of natural resources, widely defined to include both land and water resources, ranging from genetic material to entire ecosystems. Conservation in this case related to the sustainable use of natural resources as well as to the maintenance, rehabilitation, enhancement and protection of populations and ecosystems. Sustainable use may include both consumptive use (e.g. harvesting) and non- or low consumptive use (e.g. tourism, recreation, relaxation). The research area was led by anthropologist Arne Kalland, and included both social and natural scientists. It successfully brought together students and researchers working on Norway and developing countries in a stimulating and productive group.

Research at the interface between development and the environment is often concerned with the management of natural resources. The Mali Programme (see chapter 1) was another good example. A third was the NORINDRA project, as mentioned in the previous chapter, an interdisciplinary research initiative to study rainforest and resource management in Indonesia. This involved a number of issues related both to biodiversity conservation and the social-economic and cultural activities of the people inhabiting and/or working in the forests. The situation is often one of diverse, but not necessarily conflicting, interests, as NORINDRA demonstrated (see Box 7).

Biodiversity prospecting (or bio-prospecting, as it is usually known) can be considered another form of resource management, one which has attracted considerable academic and public interest in the last decades, particularly since the Convention on Biological Diversity (CBD) was signed in 1992. Today, many pharmaceutical companies focus on bio-prospecting of plants, which are collected, taxonomically identified, and screened for medically active components. It is well established that the tropics are rich in biological diversity. More than two thirds of all plant species are located in developing countries. Therefore, developing countries attract bioprospectors, who have, during the last few years, collected medicinal plants in large number. This raises important questions of ownership, control and distribution of benefits from biological diversity. The project “From Plants in the South to Medicines in the North – An interdisciplinary project on bio-prospecting” addressed these issues through case studies in Costa Rica, Tanzania, Thailand and Norway. It is led by biologist Shivcharn S. Dhillon and involves Norwegian and international researchers from biology, sociology and law (see Box 8).

Box 7: Rainforest Management in Indonesia

Management of natural resources in developing countries is one of those areas where research at the interface between development and the environment can best be explored. The “Norwegian-Indonesian Rain Forest and Resource Management Project” – or NORINDRA project, coordinated at SUM, is a good example of the challenges and advantages of joining research efforts in the study of forest management.

Three basic goals and priorities were decided upon for the project. *First*, reflecting its researcher initiated origins, it was basically to be a research project rather than an applied project; i.e., it was to produce primary data which would add to the general fund of knowledge and insights about tropical rain forest areas and the various modes, causes, and consequences of their utilisation. A major concern was that the knowledge produced should facilitate cross-sectoral or integrated analysis of management problems. *Second*, although knowledge-oriented research was a basic priority, there was also a clear intention that the privileged insights gained in the fieldwork area itself should be made available specifically to support conservation and sustainable resource utilisation in that area. *Third*, the project was intended to contribute to the development of human resources, i.e., of rainforest-related research capacity and experience.

The fieldwork core area was the subdistrict of Seberida in the district of Indragiri Hulu, Riau, where many options and aspects of resource management problems commonly found in Indonesia's outer islands, and indeed in the tropical rain forest regions generally, could be studied in some depth and in a fairly interrelated manner. An important management option for part of this area was conservation of the Bukit Tigapuluh forests which had earlier been proposed in the Indonesian National Conservation Plan, but never implemented.

Project outputs furnished a basis for designing an integrated conservation-development programme for the Bukit Tigapuluh part of the fieldwork area. The knowledge produced by the project has facilitated the establishment in 1995 by the Indonesian Government of a 127,000 ha National Park, to conserve the rain forest on the Bukit Tigapuluh hills in the NORINDRA project area. To support the establishment and management of the National Park, NORINDRA's research results have been used to produce a 5-year integrated conservation-development project with Norwegian funding and implemented by the World Wide Fund for Nature (WWF).

Sandbukt, Ø. (ed.) (1995). *Management of Tropical Forests: Towards an Integrated Perspective*. SUM Occasional Paper 1/95. Oslo: Centre for Development and the Environment, University of Oslo.

Sandbukt, Ø. and H. Wiriadinata (eds.) (1994). *Rain Forest and Resource Management. Proceedings of the NORINDRA Seminar. Jakarta 25-26 May 1993*. Jakarta: Indonesian Institute of Sciences.

Source: NORINDRA Final Report

As the above initiatives indicate, research programs and projects carried out at SUM have been related to the issues of development, environment, and/or the intersection between development and the environment. Streamlining the different research areas has proven more difficult than initially

expected. However, this has also led to the flowering of new research areas that are now well established at SUM and that constitute important elements in its institutional profile.

The program “Environmental Values and Social Change” led by cultural historian Nina Witoszek illustrates the above issue well. The program focuses on social perceptions of, and attitudes to, nature and the way these are created and changed in various cultural, political and institutional contexts. Senior and junior researchers have developed an active and challenging interdisciplinary team working on the natural environment; the relationship between human experience of place, identity and quality of life; environmental philosophy and environmental ethics; the relationship between environmental discourse and practice, especially with regard to the use and abuse of natural resources; and other related themes. Although the linkages with development research are limited, this type of research is highly relevant in our approach to environment and nature, and has found a ground base at SUM.

Researchers working on multilateral institutions and transnational corporations, but coming from the side of development research, have also focused on environment-development linkages, and especially the opportunities and constraints for national development policy caused by developments in multilateral trade and financial institutions (see also Box 5).

Advantages/Challenges at institutional and individual levels

Identifying the interface

Since the beginning, researchers at SUM have discussed what precisely constitutes the interface between development & environment, and what is the relationship between the two. A broad definition (either environment or development) is extremely wide; while a narrow definition (both environment and development) is unduly limiting. This definitional problem is exacerbated by the fact that the relationship between the two is contested: does development necessarily constitute a threat to the environment? What are the linkages between poverty and environmental degradation?

Of programmes that have been concerned with both, we may mention, for example, the NORINDRA and Mali programmes, as well as the “International trade, national development strategies and the environment” and “Bioprospecting” programmes. Overall, more of SUM’s research programmes have been related to development than to the environment, but at the level of individual research projects, we see an increase over time in the number of projects working at the interface between the two, for example: Consumption and Sustainability in India; Electrification in Zanzibar; Vascular Plant Diversity in a Neo-tropical Rainforest; Multilateral Development Banks and the Environment; Water Irrigation and Development in India; Bio-prospecting from a Comparative Perspective.

Debating the development/environment relationship

Several of the research projects at SUM have challenged, or modified, conventional views concerning the relationship between development and environment. To give a few examples, we can mention T.A.

Box 8: An Inter-disciplinary Project on Bioprospecting

Some observers characterize bioprospecting as a win-win situation (Reid et al. 1993). The use of biodiversity contributes to the conservation of these resources. Developing countries are faced with the opportunity of earning foreign currency relatively easily while building the capacity for the transformation to a technologically more advanced industry. Income can be generated for such development purposes as well as for the conservation of biodiversity. On the other hand, there are observers criticising bioprospecting as a new type of neo-colonialism where developing countries are exploited and biodiversity is threatened by over-exploitation (Shiva, 1995).

The ownership, control, and distribution of benefits from biological diversity have been contested vigorously - through economic, political, legal and even military means - for centuries. In recent years, especially since the coming into force of the Convention on Biological Diversity, more formalized and internationally-sanctioned mechanisms have begun to emerge. Chief among these are the use of contracts and other agreements between source countries/institutions and recipients, who seek access to biological materials for the purpose of research, development and commercialization.

“From Plants in the South to Medicines in the North – An interdisciplinary project on bio-prospecting” assesses bioprospecting arrangements for biological diversity related to medicine, focussing on the effects of bioprospecting on:

- the conservation of biological diversity;
- the sustainability of use of biodiversity;
- economic and social development in source countries, including that in local communities supplying materials and indigenous knowledge about their properties and uses.

Effects of bioprospecting in a source country are closely related to the sharing of benefits between the country and bioprospector as well as the allocation of benefits within source country. The project examines the importance of the following factors:

- the methods applied in the collection of plants;
- legal principals for bioprospecting and their implementation in source countries;
- characteristics of the state (bureaucratic and regulatory structures, etc.) relevant to bioprospecting;
- the source country's capacity to negotiate specialized contracts in this area competently and skilfully (ability to draw on legal, economic, biological and negotiating expertise, as well as having access to relevant information);
- the manner and degree to which various actors and interests are represented in the decision-making process;
- legal factors in recipient countries as it may affect the content and flexibility of bioprospecting agreements;
- ethics and policies of the bioprospectors.

Dhillion, S.S., H. Svarstad, C. Amundsen, & H.C. Bugge (2002). Bioprospecting. Effects on environment and development. *Ambio*, 31(6):491-493.

Svarstad H. & S.S. Dhillion, (eds.) (2000) *Responding to Bioprospecting: From Biodiversity in the South to Medicines in the North*. Oslo: Spartacus Forlag.

Svarstad, H., S.S. Dhillion and H.C. Bugge (2000) “From Norway to Novartis: cyclosporin from *Tolypocladium inflatum* in an open access bioprospecting regime”. *Biodiversity and Conservation*, 9(11).

Source: Project website.

Benjaminsen's work on the desertification myth, J. Hesselberg on location of polluting industries; H. Wilhite and K.A. Brekke's work on consumption; McNeill's work on the concept of sustainable development; Bøås study on environment policy in multilateral institutions; and K.A. Stølen and I. Nessheim on internally displaced people and environment.

Debates on the relationship between development and environment sometimes relate to the challenge of interdisciplinarity, and the perceptions of natural scientists.

“I find many natural scientists' prioritisation of environmental quality hard to accept, especially in the context of development and poverty”. (SUM Survey 2004)

We find that conceptual approaches differ greatly between the disciplines studying development and environment. This is particularly apparent in environmental issues, where approaches adopted by natural and social sciences can even be incompatible.

Methodological approaches

The methodological dimension of the development/environment relationship poses yet another challenge: most notably the contrast between large number, statistical analyses and in-depth, context-specific, qualitative studies. Although many have argued for the complementarity between quantitative and qualitative analysis, the combination of these approaches within a single study is difficult to achieve. At SUM, many of the projects have adopted the case-study approach, making use of field-work and qualitative methods. There has been a rather limited use of quantitative methods, related no doubt to the limited participation of economists and natural scientists.

Development and environment as a field of study (teaching)

Closely related to research on development and the environment, is the establishment of this topic as a field of study or training in higher education. Although this will be discussed at length in the next chapter, it should be stressed that the development of these issues as a university course in Norway is a rather recent event, one in which researchers at SUM played an important role.

“[Development & environment] was not established as a field, there was a lack of adequate literature and established expertise. We were young people who had to find our own ways.”
(SUM Survey 2004)

In 1998, T. A. Benjaminsen and H. Svarstad published “Samfunnsperspektiver på miljø og utvikling” (“Social Perspectives on Development and Environment”), the first edited volume in Norwegian dealing with these issues from a social science perspective in a comprehensive manner. The book resulted from the need to teach a new generation of students about the interface between development and the environment, and the under-graduate courses offered at SUM helped to identify relevant issues.

IV. TEACHING

SUM undertakes teaching at all levels, but has concentrated especially on graduate level. At the University of Oslo, as in most universities, teaching is organised primarily on the basis of disciplines rather than topics. As students progress, and develop a greater degree of specialisation, they become – often without being aware of it – less able and willing to see alternative perspectives; and at higher levels find it difficult to communicate across disciplinary boundaries. Our own experience in teaching varies somewhat according to the level, as follows:

- PhD and Masters (hovedfag). Those who sit at SUM gain valuable experience in working with other disciplines. But they often find it a challenge to also satisfy the disciplinary requirements of their department for the thesis. (SUM does not itself award PhDs and Masters in specific disciplines, and students attached to SUM must therefore satisfy the requirements of a specific department).
- Masters. The new master's courses, (post 2003, following the university reform) offer an opportunity to experiment with alternative approaches. At this level, students are beginning to be 'socialised' into specific disciplines, but may not have yet have enough experience to reflect on the challenges this poses. (Today, SUM's offers one Master Programme: *Culture, Environment and Sustainability*).
- Undergraduate. There is often considerable interest in the topic of development and environment, and students are not yet 'disciplined'. The challenge for course design is to ensure an adequate degree of coherence between the lectures.
- Summer School. The challenge of interdisciplinarity is perhaps least here. Students (from all over the world) often have practical experience, and the course is more problem-oriented and less academic than others.

Teaching development and environment in practice

Since its creation in 1990, SUM has offered a number of undergraduate courses on development and environmental issues for students at the University of Oslo. Both the content and format of SUM's undergraduate courses have progressively developed following changes in the field of study, increased expertise at SUM, and the re-organization of educational programmes offered by the University of Oslo. SUM researchers participated not only in the design and teaching of these courses, but also engaged in developing reading materials to provide conceptual and methodological frameworks for the study of development and environment. Benjaminsen & Svarstad's edited text book on environment

and development is a good example of this. Today, SUM offers courses at both bachelor and master levels, based on the Centre's own research staff and expertise. The courses emphasize interdisciplinarity and issues at the interface between development and environment:

“The focus is always on the linkages between development and environment, though, and the co-coordinator has an important though difficult role. The course emphasizes the significance of positioning, i.e., how questions are variously perceived (differing world views, valuation of humans versus nature and so on) as well as power relations between groups and nations. Thus the main objective is to make students aware of a range of dilemmas and be conscious about their own positioning as well as other actors' (researchers, politicians etc).” (SUM Survey 2004)

In addition, a number of researchers at SUM are involved in developing and teaching graduate courses. A good example is the course “The Politics of Poverty” which is a collaboration with the Department of Political Science and has attracted students also from other departments, as well as staff from NORAD and NGOs. SUM has for many years hosted the International Summer School's annual course on Energy Planning and Sustainable Development.

The most recent addition to the Centre's course programme is the International Masters Degree “Culture, Environment and Sustainability”, an interdisciplinary course to provide students with insights into the cultural dimensions of sustainable development at both the local and global level. The course introduces students to the complexities of interdisciplinary research on development and the environment, with an emphasis on humanist, value-orientated perspectives.

Since the second half of the 1990s, SUM has been involved in the organization of doctoral research courses, either independently or in collaboration with University departments or other research institutions. Although examination and award of doctorate degrees is the responsibility of University faculties, SUM's doctoral courses – with their explicitly interdisciplinary character - have attracted students from both Norway and abroad (particularly Nordic countries). Doctoral courses are a good way to profile our research activities nationally and internationally.

As far as possible, teaching should be research-based. A good example, which combines also with the dissemination of results, is our experience with the “Globalization of the Lake Victoria Fisheries” project. The project addressed the impact of globalisation of fisheries in Lake Victoria in terms of food security for the local people, local employment possibilities and the sustainable exploitation of the fish resources. A major objective of the project was raising awareness of these issues. The project produced a video entitled «Big Fish - Small Fry» which summarizes its main findings, and has been actively used in teaching activities at SUM, particularly at the bachelor level courses, but also for courses within NORAD and the Ministry of Foreign Affairs, and high school courses throughout Norway. A companion teaching booklet has also been produced addressing the issues of fisheries development in Lake Victoria, globalization of fisheries, women's participation in fisheries in Lake

Victoria, and the role of development aid and multilateral financial institutions in Lake Victoria fisheries.

Advantages and challenges

The main advantage of interdisciplinary teaching on development and environment is the opportunity to apply different perspectives to a field that is highly complex. As a course coordinator explains:

“The great variety of subjects and disciplines in the course has the advantage of introducing topics from many angles and with distinct emphasis. Many students seem stimulated by this, as they vary in their interests and concerns.” (SUM Survey 2004)

Although interdisciplinarity can be intellectually stimulating for students and teachers, it can also be a challenging experience. Subjects may seem to be disparate and unrelated. Students’ academic background can facilitate or inhibit learning of certain subjects or approaches at the expense of others. And group work tends to be more demanding and time-consuming than in a single discipline, as a course coordinator reports:

“I observed the challenges the students had writing a group project report together... their major challenges involved different practices with regard to the way a report is written. [...] different expertise languages would confuse the group at times. [...] the starting phase of such a group takes longer time than of a group of similar background. Personal qualities such as openness and respect for the other expertise, being able to listen and therefore also personal chemistry are crucial for the success of such a project.” (SUM Survey 2004)

ANNEX I: LIST OF SELECTED PUBLICATIONS

Agder, W.N., T.A. Benjaminsen, K. Brown & H. Svarstad (2001): Advancing a political ecology of global environmental discourses. *Development & Change* no. 4, vol. 32:681-715.

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Lafferty, W. M. (ed.) (2004). *Governance for sustainable development: the challenge of adapting form to function*. Cheltenham, England: Edward Elgar.

Lafferty, W. M. and J. Meadowcroft (eds.) (2000): *Implementing Sustainable Development. Strategies and initiatives in High Consumption Societies*. Oxford: Oxford University Press.

McNeill, D., J. García-Godos and A. Gjerdåker (eds.) (2001). *Interdisciplinary Research on Development and the Environment*, SUM Report No. 10, 2001.

Sandbukt, Øyvind (ed.) (1995). *Management of Tropical Forests: Towards an Integrated Perspective*. SUM Occasional Paper 1/95. Oslo: Centre for Development and the Environment, University of Oslo.

Sandbukt, Øyvind and Harry Wiriadinata (eds.) (1994). *Rain Forest and Resource Management. Proceedings of the NORINDRA Seminar. Jakarta 25-26 May 1993*. Jakarta: Indonesian Institute of Sciences.

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Video

Big Fish, Small Fry : Globalisering av Fiskeriene ved Victoriasjøen (Documentary film from the Fisheries in Lake Victoria project; in Norwegian)

Miljø og Utvikling i Mali - Et forskningssamarbeid mellom nord og sør, Hvem skal legge premissene for en bærekraftig utvikling? Og hvordan kan det skapes et likeverdig samarbeid innen utviklingsforskning? (Documentary film about the planning of the Mali-programme; in Norwegian). Also available in english. Produced by the Audio Visual Center (now Intermedia), University of Oslo.

TIMBUKTU — fra eldorado til utkant (Documentary film – part I; in Norwegian)

TIMBUKTU — der vann er liv og melk er føde (Documentary film – part II; in Norwegian)