TOWARDS IMPACT ASSESSMENT OF TRANSDISCIPLINARY RESEARCH PROGRAMMES

U. J. NAGEL,* T. AENIS*

**Humboldt-University of Berlin*

Abstract

In the last two decades, pressure on researchers to show that research results do have the intended impacts and a research project was worth the money spent has increased (MAREDIA, BYERLEE AND ANDERSON 2000). Simultaneously, obstacles against actually performing meaningful ex post research evaluations are formidable. Impact assessment of transdisciplinary research in particular faces four major challenges:

- The logical problem of linking the outcome of the research project to future changes in society or the environment;
- The question of providing necessary resources for impact assessment;
- The question of who will actually perform the impact assessment function;
- The question of who will use the results of impact assessment and for what purpose.

In the first section, the paper pinpoints recent theoretical discussion on the relationship between planning and assessment. In the second section, both positive and negative experiences of impact assessment of a transdisciplinary research project are reported. These concern the timely definition of indicators, interests and motivations of stakeholders, and necessary resources with a special emphasis on the time factor. Some reflections on potential users of impact assessment information are included. Thirdly, the concept of "impact monitoring" and ways to adjust it to the needs of transdisciplinary research are presented.

Introduction

Agricultural researchers are faced with a paradox that seems hard to resolve. In the last two decades, public funding has been increasingly hard to obtain and, at the same time, accountability is stressed more seriously than before. The concept of accountability itself has been broadened and deepened. In addition to the monitoring of expenditure and the evaluation of research results, the quality of the research process and considerations concerning the impact of research have become important concerns. Both are particularly relevant for transdisciplinary research (TDR): "Joint problem solving among science, technology and society..." is increasingly seen as "...an answer to the demand for greater customer, stakeholder, and user orientation of research and for raising its level of utility." (KLEIN ET AL. 2001: 20). Methodologically, TDR is not a new approach. Its main pillars "interdisciplinary co-operation of researchers", "participation of stakeholders", and "mutual learning" have characterised many farming systems research projects. What is new is the claim to generate solutions for complex problems coupled with at least partial implementation of research results. It is the explicit objective of transdisciplinary research to create impact on end-user level and it is set apart from "development" by the fact that research activities still dominate and short-term impacts may be marginal.

With increasing pressure on researchers to show that research results do have the intended impacts and a research project – regardless of its nature - is worth the money spent, obstacles against actually performing meaningful research evaluations are nevertheless formidable. In

our view, impact assessment of transdisciplinary research faces four major challenges (ESTRELLA 2000: 8f):
First and foremost, there is the logical problem of linking cause (= the outcome of a research project) and effect (= changes in society or the environment). The problem is particularly serious in the case of TDR as the problems addressed will generally require rather complex solutions. Even smaller projects may influence a wide range of factors, a major challenge to indicator definition. However, as long as resources for impact assessment are limited, measurement may be based on a reduced and possibly simplified set of impact indicators (DEFILA and DI GIULIO 1999). The challenge is to negotiate this set within an interdisciplinary team and find acceptable compromises.
Secondly, the question of necessary resources for the impact survey and analysis has to be resolved. Finances, personnel, and time must be made available - not in theory but in practice. Wherever resources are limited, the conventional toolbox of impact research may be too costly and research projects may be forced to apply second best solutions.
Thirdly, the question of who will actually perform the impact assessment function concerns not only professional or methodological aspects but also the issue of participation (NEUBERT 2001). Here, TDR is particularly demanding as stakeholder involvement is one of its constituent elements.
Fourthly, the question of who will use the results of impact assessment and for what purpose will have a strong influence on the way the impact assessment function is performed (PATTON 1997). In other words, even if all methodological and resource problems are overcome, is there a serious commitment by the addressees to utilise impact assessment as a tool to improve the performance of research? If not what are the consequences?
In this paper, we would like to take up some of these questions. Of course, agricultural research is done in many different ways, on a wide variety of topics, in different organisational settings, and with different objectives. We cannot possibly suggest solutions that are generally applicable. We do feel, however, that by looking at a transdisciplinary project in the field of natural resource management we can address the difficulties connected with the four "issues" mentioned above in an exemplary manner. In the following, we will present some theoretical considerations and report on experiences with impact assessment within the GRANO research project. GRANO is a co-operative project supported by the Bundesministerium für Bildung und Forschung (BMBF) as part of its national programme "Research for the Environment". We would like to stress beforehand, however, that in our opinion non of the challenges mentioned above has yet been met in a satisfactory way. This view is supported by recent evaluation research (HORTON and MACKAY, 1999). Consequently, the aim of this paper is a modest one: adding a few, hopefully useful, ideas with the intention of encouraging further debate.

The framework

Let us first clarify what we mean by "impact assessment". *"Impact"* refers to the longer-term effects of research, the benefits or damages resulting from innovations produced by research. Such effects may be economic, social, and environmental. They may be intentional or not, they could be positive or negative. For all practical purposes "longer-term" refers to a time period after the completion of the actual research project. The underlying assumption is that during the time span of a research project, the focus is on producing research outputs. These outputs are not an end in themselves but a means to produce impact (TAC SECRETARIAT 2000).
"Assessment" is more than just the rigid, quantitative measuring of impact. It includes, in our view, all forms of judging, appraising, or determining the impact of research as long as a sufficiently large number of stakeholders/peers agrees on their usefulness. Impact can or

should only be assessed on the basis of objectives set at the beginning of a research process. This is important for two reasons. Firstly, the justification for doing agricultural research (and getting it funded) will be its intended benefits, with the possible exception of basic research. A well-defined research plan therefore must include not only a specification of intended results but also a plausible explanation of how these results will change, for example, the behaviour of people, the quality of goods, or the state of the environment. Thus, researchers justify a priori the resources they are going to use. Secondly, conducting impact assessment on the basis of the original objectives is a question of fairness. It will protect researchers from undue expectations at a later stage and will place the responsibility for realistic planning fully in the hands of researchers.

Though there is no prescription for using a specific planning instrument for research, it has been shown both in theory and in practice that the Logical Framework (or: logframe) planning approach is a tool which lends itself well to research planning at all levels (TAC SECRETARIAT 1999). Planning and impact assessment are closely linked as the latter is done on the basis of predetermined objectives. This seemingly trivial statement hides, however, an enormous complexity, both in terms of methodology as well as in terms of evaluation practice.

The first and foremost factor which plays an important role in research impact assessment is *time*. Even before a research process has actually started, a fairly long time span will have elapsed during which a research team has designed the programme and tried to find funding for its implementation. The core element of a proposal will be a set of objectives - expected research results and envisaged benefits – and a statement on the methodology to be used. As this is only the beginning of a research programme, both results and benefits are hypothetical. The term *"ex-ante impact assessment"* which is often used is, in our view, misleading. What in fact is priority setting and hypothesising on impact pathways could easily be misinterpreted as hard facts and achievements.

Ideally, the impact of a research programme would have to be measured ex-post, i.e., at a time when the tangible or intangible research products have been taken up by the intended users and have produced identifiable benefits. Again, time is a crucial factor and it will have a different effect depending on the type of innovation. Let us take two hypothetical examples. In a commercial firm, the output of a research process may be a new product (ice cream, CD player...) and management will expect to see benefits (profit) fairly shortly after marketing the product. In Europe and North America, commercial agricultural research largely functions this way. At the other end of the spectrum, transdisciplinary research on natural resource management will yield results which, once adopted by a number of persons, may influence a restricted number of factors in a very complex system. Impact, if at all attributable to the innovation, may only be assessable after many years. It is obvious that in the first case, impact assessment can be done shortly after the release of the innovation and, partly as a consequence of the shorter time lag, poses fewer methodological problems.

Is *time* the only difference between these two types of innovations? Can the example of commercial research serve as a general model for impact assessment? One can safely assume that the major indicator for the impact of commercial research is the profit earned as a consequence of marketing an innovation. This does not imply that other concerns are completely disregarded. Ethical issues - raised internally or externally - may play a role, as do image questions. All in all, the set of indicators used to assess impact will be restricted, however, and the time lag between cause and effect will be short enough to allow the management of the research process with the help of impact information.

The second point concerns resources available for impact assessment. Funds for commercial agricultural research - hence also for impact assessment - are gigantic as compared to the public research sector. To give an example: R&D spending of the Aventis CropScience

division alone amounted to € 487 million, or 12.1% of sales (AVENTIS). Within the public research sector, commodity research has always held the lion's share, natural resource management including transdisciplinary research approaches receiving increased attention only in recent years. But this is only one aspect of resource availability. More important, probably, than the volume of funds are problems connected with the project focus of public sector research. Once a research project is terminated, further funding to allow impact assessment is generally not available. Theoretically, resources would have to come from core funding as is the case for commercial research and very large public research organisations like the CGIAR (PINGALI 2000). We hypothesise, however, that in smaller or less well endowed organisations (which includes the university we come from) core funds, if available at all, are not spent on impact assessment of research programmes terminated 5 - 7 years ago. To change fundamentally the lopsided relationship between funding research itself and securing its impact assessment, a major upheaval in public research policy and funding would be required.

Impact assessment in practice: The benefits of an agro-ecological R&D project

In the following, we would like to report some experiences gained within the framework of the GRANO project. These experiences - positive and negative - cover a period of roughly 4½ years. They show that even in a situation where major actors are committed to monitoring and evaluating research *outputs*, assessing research *impact* faces enormous difficulties. These difficulties can be traced to the issues presented above and concern both methodological as well as resource questions. In addition, the problem of qualification of different actors, the interest and conflict of interest of various groups involved, and the question of who will use the results, play an important role.

Problems of indicator definition

Research planning needs to define at least two levels of objectives (project outputs and purposes/goals) and specify them with indicators. Impact assessment measures achievements with the help of these indicators and, in fact, impact assessment starts with the systematic elaboration of objectives at the beginning of a research project. A first methodological challenge for GRANO was how to adapt this condition to the realities of a transdisciplinary project and the rules of donors.

When in 1997 about 20 researchers from 7 institutes came together to write a proposal for "ecologically sound concepts for the formation of regionally typical agricultural landscapes in north-eastern Germany", both participation of local stakeholders and interdisciplinary co-operation of researchers were seen as axiomatic. Research planning foresaw involvement of stakeholders in the complete cycle of goal definition, planning, implementation, and evaluation. What, in theory, seemed to be simple and politically correct was in fact conflict prone when it came to funding procedures. Donors require a formal proposal with well defined outcomes in a relatively short time. Being committed to the principle of participation, the research team, on the other hand, realised that defining a complete goal system together with operational planning for all sub-projects would not only require more time but would have to be started as an open-ended process. To answer the donor's request for well defined output planning, regional development goals were defined as output hypotheses and sub-projects were planned under the assumption that these were preliminary and could / would be changed once the "real" goals were defined. In addition, the process of planning, implementing, evaluating, and establishing a transdisciplinary project in all its phases - including the aspect of impact assessment - became a research goal at the meta-level. Agreement of the funding agency to this procedure was coupled with strong pressure to start local R&D activities immediately. This and methodological considerations called for a rapid

but still participatory approach to situational analysis, strategic and operational planning, and project implementation.
For GRANO this meant:

- Identifying local stakeholders through a snowball system;
- Focusing the situation analysis on subjective views with regard to only 3 questions (subjective view of problems, reasons and solutions, especially in an environmental context);
- Defining visions, development objectives, and potential project areas at regional planning workshops;
- Decentralised operational planning within GRANO working groups, including feedback from relevant actors.

(documented in MÜLLER ET AL. 2000)
Though the overall outcome of this process was judged positive by all relevant groups, there were serious shortcomings concerning the (non) definition of indicators (output and impact) at this point. If indicator definition is indeed as crucial as mentioned above, why this neglect? In TDR, indicator definition is the result of a process of negotiation between all relevant stakeholders and not a dictate by scientists. Even if scientists accept this view, we are dealing with a time-consuming process. None of the interest groups were willing to invest the necessary time in an activity of which they did not see an immediate benefit. As a consequence, implementation of local R&D projects which was given absolute priority by external evaluators, started with rather vague purpose definitions. Ad-hoc activities replaced for a certain time systematic planning procedures - with negative consequences for impact assessment.
Activities for impact assessment did not start before donors finally gave the go-ahead for the full project period. Due to the earlier neglect, indicators now emerged - quasi inductively – from the activities that were undertaken to reach the R&D objectives which had been redefined and sharpened as planned. Obviously, elaborating success indicators while outputs are already being produced presents a serious challenge to the integrity of researchers. One could easily be accused of defining only those impacts which were certain to be achieved. In addition, monitoring was done almost exclusively by project personnel, introducing another possible bias.
Solutions found were rather pragmatic and - compared with the GRANO standards of participation and scientific rigidity - may be classified as only "second best". First, it was decided to divide responsibility for indicator definition within the research team. Indicators at the meta-level (participation and interdisciplinary co-operation) as well as for assessing the quality of the research process were prepared by experts ("process advisors") and subsequently discussed and adopted by the full research team during one of the regular workshops. The definition of impact indicators for the practical field projects was decentralised and delegated to the project teams. Some of the resulting difficulties are listed below:

- Trivial indicators: Downsizing of expected impacts and of assessment activities;
- Logical mix-up: Lack of clear distinction between output and impact indicators;
- Too many indicators: Unrealistic assumptions concerning evaluation resources (time, personnel, collaborators).

Notwithstanding the problems mentioned above, the elaboration of indicators for short term effects (output indicators) proved fairly successful. The set of impact indicators showed considerable weaknesses, however. We conclude that an iterative approach would have been more helpful. (Re-)Defining or sharpening output indicators requires teams to reflect on

previously set objectives and helps to come to a shared understanding. Concentrating on *direct* impact of these outputs increases chances for realistic impact hypotheses.

Actors and resources

Actors, both internal and external to the project, were playing different and partly overlapping roles. Involving all **researchers** of a team in indicator definition requires major investments in communication, qualification, and co-ordination of the process:

- Good researchers are not necessarily qualified planners. Unless there is a clear and mutual understanding of the planning logic, meaningful indicator definition is virtually impossible.
- A multi-disciplinary group will tend to define disciplinary indicators and hence have problems in deciding on a shared set. Hard negotiations occurred between natural scientists who wanted to measure “environmental quality objectives”, social scientist who looked at "social learning" processes, and economists who were interested in "profitability".
- Acceptance of the principle of impact orientation may fade once the research project progresses, resulting in unwillingness to define impact indicators.

For **management** and **process advisors,** organising impact assessment proved to be a full-time job over a number of months: preparation of impact assessment for the comprehensive programme output, facilitation of research teams, and co-ordination of the overall process. Together with one pilot group, a structure and procedure for defining indicators was developed to be used by other groups. The intention was, i. a., to have teams agree on a limited number of indicators as well as on the data collection methods. Unfortunately, this methodology did not spread by itself. As the experience from the pilot group showed, further (and considerable) inputs in terms of facilitation and training would have been necessary to ensure timely success.
Investing in communication always seemed to produce the desired effects – in the long run. After a third round, teams were finally able to agree on a reasonable set of indicators. With growing openness and trust, natural and social scientists were re-discovering common ground: “In order for nitrification to decrease, land users' minds have to change. Information from our project may help."
Outside **experts or consultants** can complement the expertise available within the team. They will face problems similar to those of internal process advisors unless the research teams specify tasks and experts work "on demand". Excellent experiences were made as one team commissioned a survey to capture feedback from extension staff and farmers on extension instruments and topics. The team defined "criteria of acceptance" beforehand and asked the consultant to develop indicators and conduct the survey on her own. Results were fed back to the team. “Acceptance” is not yet full and final impact in the sense of changing peoples' behaviour. But it is a pre-condition and therefore a good proxy.
External reviewers’ assessment role is ambiguous. They will judge a proposal ex ante, but whether they do this in terms of outputs or impacts is not necessarily clearly defined. Strictly speaking, they should use the same scientific rigidity (and thus define indicators) that we have prescribed for the implementation of the research project itself. This is, of course, rarely the case. Once the project has developed its own set of objectives and indicators, a monitoring of project progress - also with regard to potential direct impacts - becomes fairly easy for the review team. In the case of GRANO, the participatory approach chosen delayed the implementation of field activities. At the first intermediate evaluation, reviewers could thus be provided neither with exact information on short term outputs nor on presumed long term

impact. This caused considerable irritation which was only overcome after R&D activities had actually started.
Although “participation” was a central theme, we did not find a sensible solution for ensuring the integration of **regional stakeholders** in long term impact assessment. Apart from the neglect mentioned before, two objective difficulties must be highlighted. GRANO operates in rather large geographical areas. Stakeholders are thus not only very heterogeneous but also large in number. Already during the initial planning process, compromises with regard to representation had to be made. Even the fairly small group of original workshop participants can not be expected to co-operate permanently in impact assessment. The project consequently decided to involve regional stakeholders only in an exemplary way.
Secondly, experience gained as part of the “participatory M&E” sub-project show that local partners are clearly more interested in project *outputs* than in the more abstract concept of *impact*. There were, however, also positive findings: active involvement in the implementation of single field projects (and not necessarily the whole R&D project) increases interest in evaluation. In other words, local partners are not necessarily unwilling or unable to co-operate but they should not be overburdened by project demands.

Who will use the results of impact assessment and for what purpose?

With the GRANO project still continuing, answers to these questions are a bit speculative. Still, user oriented TDR projects must contemplate this question from the very beginning. Planning, implementation, as well as contents and form of impact assessment must facilitate uptake of research results. If this is the case, it is very likely that impact assessment results themselves will be taken seriously. If "impact" is a proven fact, it is a good argument for further promoting the project’s outputs. For example: if it can be shown that user-friendly information bulletins help to promote techniques to combat soil erosion, it will be easier to convince an NGO to sponsor reprints and extension staff to utilise them.
For a transdisciplinary project dealing with natural resource management *regional stakeholders* are important addressees for impact assessment. At least indirectly, their decisions on land-use will be influenced by knowledge of positive or negative outcomes of project activities. This presumes feedback communication and one way of doing this is GRANO’S regional end-of-project workshops.
One would assume that *researchers* themselves are especially interested in learning about the impact of their work. We have the feeling that this is not always the case and attribute it to the following factors:

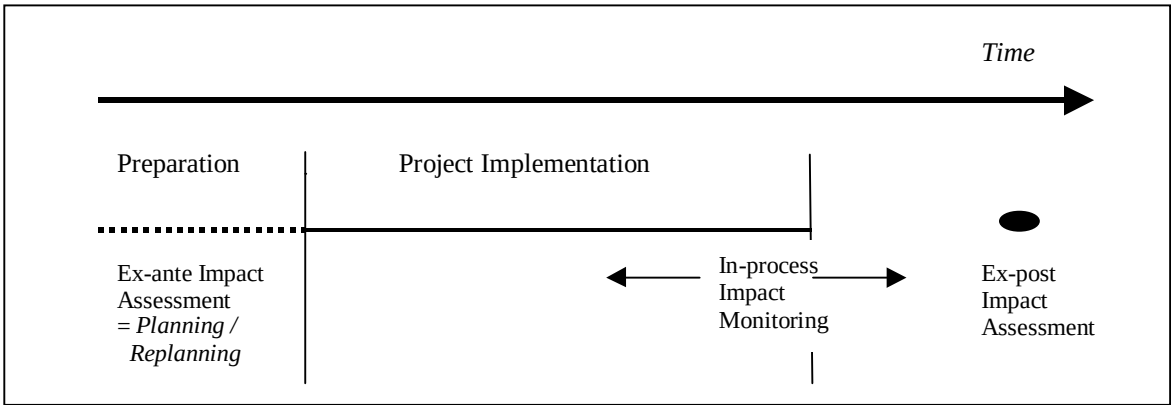
- Impact assessment is seen as an end-in-itself, an exercise in methodology development;
- As long as there is no proven methodology, resources are rather invested in "regular" research activities than spent on impact assessment with doubtful outcomes;
- Researchers doubt that positive impact is rewarded or fear disclosure of negative impact;
- A principal rejection of user orientation ("freedom of science").

Society - in the case of public research represented by the *donors* - is committed to sustainable rural development and, thus, to long term impact. By accepting the GRANO proposal, including its open process orientation, a general interest in impact assessment was apparent. The project interpreted this also as a strong plea for methodology development in such areas as participation, interdisciplinarity, and impact assessment. At the same time, insistence by donors on quick implementation of field projects showed that GRANO 's arguments had not been convincing enough.

Applying the concept of impact monitoring to the needs of TDR

Undoubtedly, the use of rigid natural science and socio-economic methods in impact assessment will be more convincing to a large section of the scientific community. As long as the resources (and in many cases the methodology) necessary for such approaches are not readily available, we suggest an intermediate approach which may be more acceptable under present conditions. If ex-ante assessment gives at best plausible hypotheses and rigid ex-post evaluations are not feasible, *impact monitoring* may be an acceptable alternative. Impact monitoring "...focuses on the achievement of direct project / programme impacts during the implementation period." (BALZER and NAGEL, 2000, p.5;). Its relationship to ex-ante and ex-post assessment is shown in graph 1.

Graph 1: The Place of Impact Monitoring within a Research Project Cycle



Source: BALZER and NAGEL, 2000: 5.

Impact monitoring is an *ongoing* impact assessment and thus, first of all, a management instrument which, secondly, ensures the documentation of crucial impact issues within a short time span after research project completion. Monitoring is usually equated with internal evaluation processes and may thus be accused of biased judgements. However, a well managed TDR project will greatly reduce the danger of bias for two reasons. First, stakeholder participation introduces an element of control and allows evaluators to take different positions into account. Secondly, we feel that transparency is a trade mark of good research management, critical analysis and objectivity being in the self-interest of any TDR team.

Impact monitoring has a very clear and direct relationship to ex-ante impact assessment: it is done on the basis of detailed objectives defined during the planning period. A transparent, consistent, and realistic set of objectives is a necessary condition for a feasible impact monitoring approach. Indicators specify each objective in terms of quality, quantity, time, and location. With regard to impact monitoring, the logical levels to be indexed are purpose (uptake of an innovation) and goal (benefit for end users) levels. It is at this level that "impact" may be observed. In other words, it is not the output or result of a specific research project which is to be assessed but the way this result causes or affects change. Logically, monitoring the impact of research does not differ from any regular monitoring activity performed in development projects. Practically, however, it is much more complex and therefore difficult to implement. The degree of difficulty increases for research concerning natural resource management, especially if transdisciplinary approaches are being pursued (KLEIN et AL. 2001: 17). Critical issues include:

- Impacts to be achieved in the distant future may be overestimated in order to secure funding in the present. Indicator definition which requires an often unwanted transparency may thus not necessarily be a priority for research planners.
- Participatory priority setting and definition of objectives may increase the degree of realism with regard to impact of research. However, the process itself is complicated and time-consuming as background and culture of different actors have to be reconciled.
- Research in natural resource management will rarely yield immediate tangible and visible results. Impact may only be perceptible after a considerable time lag. Thus, researchers can not be sure that they are still dealing with the same actors in the same environment.
- In the case of social change - strengthening networks, empowering local people, changing attitudes - indicators allowing rigid measurement are extremely hard to find and, once developed, may require high cost data collection procedures.

Impact monitoring as a pragmatic approach to impact assessment

The concept of impact monitoring is in itself a reflection of pragmatism. It aims at compromises between what is necessary under the dictate of scientific rigidity and what is possible under given resource restrictions. However, even within the proposed pragmatic procedure, further adjustments are quite likely to be necessary. We are aware that suggesting 2nd best solutions may be highly controversial but maintain that these are still preferable to not doing impact assessment at all. This is in no way an argument against rigid ex post impact measurement. Resources, organisational culture, and methodological development permitting, these are no doubt preferable to our concept of impact monitoring (PINGALI 2000; MAREDIA, BYERLEE and ANDERSON 2000). Yet some adjustments may have to occur at various levels, wherever these pre-conditions are not fulfilled.

Levels of accuracy necessary to assess impact will, of course, vary according to the type of research output and impact of a research project. Monitoring the actual research process, its results, and the way in which the research results are to be achieved will require data which allows rigid and scientifically accurate analysis. Information necessary to manage a research project in such a way that the hypothesised impact will be achieved may well be less sophisticated.

Improvements in the methodology of **data collection** have enhanced the reliability of both ex-ante and on-going impact assessment. This includes not only the use of modern technologies and economic modelling but also the application of unconventional appraisal methods (BECKER 2000; LEEUW 2000). In TDR, both natural science data as well as economic and social data will have to be gathered and this may result in a fairly unconventional combination of data collection methods (CHRISTINCK 2002, VOM BROCKE et al. forthcoming). Whatever the choice, we must assume that for *impact* monitoring, resources will be limited - regardless of the scope of previous data collection while producing the actual research *results*. Limited resources require a special focus on cost efficiency and one way to deal with this is the use of low cost data collection such as mid-term evaluation workshops (COLES, EVANS and HEATH, 1998).

Actors in impact monitoring are numerous. Researchers, funding organisations, evaluation specialists, management of research organisations or projects - and of course a group we may call "target actors", i.e., those persons where change has taken place. The interests of these groups in impact monitoring will vary considerably and there will be no homogeneity of interests within a specific group. Funding agencies may want to use monitoring as support or as control mechanisms, management may be mostly interested in assisting target actors or in safeguarding long term financial support, specialists may be concerned about meaningful results or about purity of methodology, researchers may want to optimise impact or further

their career, target actors may be interested in actively influencing research or they may not care at all, etc. There is no given consensus, either on whose priorities count first or on how these diverging interests may be reconciled.
As a consequence, impact monitoring has to be seen as a process in a double sense. Change in natural resource management hardly ever occurs as qualitative leaps but as gradual transformation. Obviously, monitoring activities must also be performed along a time line. They will yield intermediate information which can be used to steer the research project towards fulfilling expected impacts. Prior or parallel to this, the objectives of monitoring, the roles of different actors, and the ways in which impact information is utilised have to be negotiated and thus will evolve over time. Changes in the environment entail changes in behaviour and vice versa.

Concluding remarks

Impact assessment starts early - even before planning the research project - with a decision of donors on whether systematic assessment of impact is wanted or a mere output evaluation by peers is sufficient. If the need for impact assessment is felt then drastic changes will be necessary, in the funding system as well as in the minds of researchers.
These changes can not be accomplished without shifting or adding resources, e.g., by extending the impact monitoring phase to a period after a project has come to its regular end. But this is not enough. Impact assessment requires both committed and methodologically qualified personnel. In the case of transdisciplinary research projects, this combination will probably be rare. From our experience, the integration of training, external expertise, and process management can bring positive results. We feel very strongly that the use of a logical framework as a base for impact monitoring and assessment is helpful as long as flexibility is assured and, in the course of project implementation, iteration is allowed. A next step and methodological challenge is to find acceptable ways of conducting impact monitoring: increasing awareness of relevant actors, finding a balance between available resources and quality of data needed, using results for decision making and improvement of research.

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