Review of FP5 Biodiversity Research Projects to Assess Current and Potential Policy Impact

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Final Report

Report to the European Commission Research Directorate General, Unit DI-4
'Biodiversity and Ecosystems'

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1. Introduction

Objectives

This report synthesises the review of a series of biodiversity research activities funded under the fifth framework programme of the European Community for research, technological development and demonstration activities (FP5).

The **objective of the review** was to assess these projects' deliverables with respect to their current and potential impact on EU and national policy and to help the Commission services to gear research towards optimum achievement of the aims of the programme. The objective was not to help the Commission with the technical monitoring or operation of the projects.[1]

The review focused on evaluating existing policy interfaces established by the selected set of indirect actions and on assessing the projects' contribution to the implementation or the evolution of EU policies. It therefore focused on the policy relevance and potential impact of the contractually requested deliverables rather than their scientific or technological aspects.

The reviewer's role was:

- to assess barriers and difficulties in implementing these policy interfaces;
- to identify interesting policy interface processes that could be used in other projects in the future;
- to reflect on the possible role the Commission could play in improving the interfaces.

The ways currently used by these projects to add value to the European Platform for Biodiversity Research Strategy (EPBRS) process and the policy-relevant recommendations it produces were also assessed. On this basis, a series of recommendations have been developed to enhance the policy impact of these and future projects in the EPBRS process.

In accordance with the terms of reference of contract letter N° 545920, the **objective of this document** is to report to Commission services regarding: (i) the review and evaluation of projects; (ii) recommendations for enhanced exploitation through the EPBRS; (iii) additional suggestions on how to enhance the policy impact of biodiversity research. This report does not include conclusions regarding specific projects but rather a more general analysis and conclusions which have emerged from the experience of the reviewed projects.

Review method and activities

The review started with the selection of five "promising" projects from the list of FP5 indirect actions concerning biodiversity and ecosystems. This selection was made in collaboration with DG RTD. It aimed as including projects (i) at different stages in the project cycle; (ii) covering terrestrial and marine topics; (iii) having a variety of kinds of deliverables and types of results; and (iv) likely to be characterised by different levels of intrinsic policy relevance. Selected projects were: MacMan, OASIS, BioScene, BioForum and MARBENA.

The subsequent review process was based on:

- project documentation (e.g. description of work, annual reports) and public output (e.g. interim reports, web sites, publications, workshop reports, policy briefs);
- participation in project workshops or events designed to engage policy makers;
- discussions with project coordinators or other key members of the consortium to better appreciate the potential policy relevance of the research and its results;

[1] See Review tasks in Annex I.

- participation in biannual meetings of the European Platform for Biodiversity Research Strategy;
- informal discussions with coordinators of other FP5 projects as well researchers involved in interdisciplinary biodiversity research;
- regular discussions with Commission services – in particular Martin Sharman, but also Karin Zaunberger, Pierre Mathy, Piia Tuomisto and Guy Duke (DG ENV);
- specific inputs on science/policy interfaces and Community biodiversity research that occurred during the preparation by the EPBRS of a review of "Research, identification, monitoring and exchange of information" in the European Biodiversity Strategy. [2]

2. Results

The Fifth Framework Programme for research put a strong emphasis on science to help solving problems and to respond to major socio-economic challenges facing Europe. The Sixth Framework Programme maintains this emphasis on issue-driven science. In particular, a strategic objective of FP6 is to promote research activities in support of other EU policies. Proposals submitted under FP5 and FP6 calls are evaluated according to both scientific quality and policy relevance criteria.[3]

In such a strategic framework, research must recognise the current and future needs of society, and provide information to enable to understand them better. Priority research topics must be relevant to addressing societal concerns and values. However it is not sufficient for research to address a policy relevant question for it to effectively inform decision making. Hence the need for interface processes to ensure that science is informed by, and contributes to the definition of, policy objectives. These interfaces aim on the one hand at contributing to the definition of research priorities which stress the link with policy and the political agenda, and on the other hand at transferring and translating research results for policy design, legislation, policy implementation, and policy assessment.

In examining how the reviewed projects build such interfaces, two important related questions emerged. First, the question of how to develop the interdisciplinary research bringing together various natural and/or social sciences, which is necessary to address complex environmental issues. Second the question of dissemination of research results towards different target audiences. Both these questions are strongly related to that of interfacing environmental science with policy. Hence in this section, we address the barriers, difficulties and successes of science/policy interfaces, interdisciplinary endeavours and dissemination efforts as they emerged from the review. Next, we focus on the links with EPBRS. We then turn to a series of comments on the Fifth and Sixth Framework Programmes, as several of the scientists contacted during this review process insisted on being able to provide some feed back to the Commission on FP5 and FP6. Finally, we briefly address some of the side-effects of this review process.

All the projects reviewed are setting up interesting policy interface processes, of which some key components are presented here as illustration of the general results. A more detailed description of some of the reviewed projects will be given in an additional report, which will be made available later and which does not form part of the official deliverables of this review.

[2] This document (available at www.epbrs.org) was part of the process that lead to the overall review of the EU Biodiversity Strategy and its Action Plans performed by the Commission. The author was specifically in charge of synthesising input for the chapter on Science and Policy.

[3] FP5 evaluation criteria included: "Community added value and contribution to EU policies" as well as "contribution to Community social objectives", while FP6 criteria include "contribution to EU policies".

2.1. Science/Policy Interfaces

There is no standard way for a research project to build a science/policy interface. The process will depend on the type of issue at hand, the political levels at which the issue is dealt with, the existing institutional framework and the type of research done. Interesting examples are provided by the OASIS, BioScenes, Bioforum and MacMan projects. Based on the review of these projects and other input to the present report, features that can be deemed essential to most of these science/policy interfaces were identified..

First, because of the characteristics of environmental issues – complexity, uncertainty, irreversibility, large temporal and spatial scales – knowledge is not stabilised (van den Hove 2000). It must be continually and dynamically developed, translated and exchanged. Hence the interfaces should be dynamic and run at least for the lifetime of a project, if not longer.

Second, since environmental issues are embedded in a social context and characterised by various levels of value conflict, other stakeholders also have a significant role to play, both in the scientific process *per se* (e.g. through collaborative research between scientists and indigenous and local communities or NGOs) and in the interface processes. As a consequence these interfaces benefit from being participatory.

It emerged from the review that several barriers and difficulties appear for the development of policy interfaces, some of which are linked to one another.

The first barrier relates to **priorities of scientists**. Scientist do not necessarily put high priority in developing such interfaces and they will often lack time to invest in them. A reason for this is that policy-related tasks are not rewarded in an academic or research career.

The second barrier relates to **experience**. In some cases lack of awareness of the wider political and societal framework does not induce scientists to invest time and resource in interfacing with the policy process. Similarly, a lack of familiarity with interface processes and lack of experience in communication with decision-makers and other non-scientist stakeholders can constitute barriers. Regarding these two difficulties, some scientists suggested that they would prefer that people with competence in making the link with policy be included in research project, rather than having to divert some of their own time to do it. Others indicated that it is not so much a problem of willingness as a question of practical possibility to actually devote the necessary time.

There might also be **language problems**. Different languages are needed to communicate to different groups of end users and policy makers. Scientists might not be trained in –or might not have the time to develop– the necessary translations of their results into knowledge that can be appropriated by the policy processes. In order to tailor the provision and delivery of scientific evidence to the end user, processes and languages are needed to ensure that advice to policy makers is scientifically sound but not too academic and that it does not undermine the credibility of current action.

The **multiple roles** scientists are called upon to play may also be the source of some difficulty as they have to learn to articulate these different roles depending on the audience they confront, for instance when facing peers from a specialised area, or more broadly from the same discipline, or when interacting with scientists from natural or social sciences, when facing decision makers, the public, the press, etc., or finally when facing a heterogeneous assembly (which is typical in participatory settings).

Another difficulty lies in **resource availability**. Financial resources are not necessarily available in a research project to carry on such activities. Two examples can be given here. In the case of one of the reviewed projects, although the science/policy interface was built-in from the start in the project proposal, and was positively viewed by the evaluators, the

consortium was asked during contract negotiations to make significant cuts in its budget for organising stakeholders workshops. This created serious difficulties in the organisation of the workshops. Another example is the case of an integrated project proposed under FP6 in which a science/policy panel is to run through the lifetime of the project and contribute to building a strong science/policy interface by allowing for end-user input to the direction of the project and dissemination of research results toward policy and end-user circles. In this case, it is the evaluators who recommended that the interface science/policy panel be reformulated into an independent international scientific advisory board. Such boards are obviously a necessity in big research projects, but they clearly do not have the same role as science/policy interfaces. Another issue concerning resources that was raised by some coordinators is that people on advisory panels (stakeholders panels or science/policy panels) are not paid for the task and they sometimes do not have the time or resources to invest in these panels.

The **different logics** of research versus decision-making, in particular differences in time scales and in ways of dealing with uncertainty, and the fact that scientific input is only one factor affecting policy-making and implementation processes can also hinder the development of effective science/policy interfaces.

There are also a series of difficulties relating to the setting of effective **science/policy panels** or stakeholders advisory boards as a key element of science/policy interfaces in research projects. They clearly constitute useful means to establish and maintain a two-way dialogue between a project and its stakeholders – including decision makers. However in practice it is difficult to strike the right balance between finding panel members as influential as possible in policy and user circles and securing their regular participation in panel activities through the life of a project. Here again, the availability of resources to ensure presence of panel members at meeting is crucial.

Finally, where envisaged, the science-policy interface is often added to a research project when the work has already been done and the natural science researchers are 'packing to go'. Although better than nothing, this kind of **"end-of-pipe" interface** is often weak and it is clearly inappropriate to channel the needs of policy makers to the research community in real time. For research projects to develop functioning links to end-users, it is vital that end-users participate in the formulation of research questions and in research planning.

BioForum, as a project whose main objective is to create a European forum for dialogue between stakeholders to reduce the conflicts between the conservation of biodiversity and human activities, can be seen as an attempt at addressing the issue of lack of experience. It is a place where scientists step back and think about conflict relating to biodiversity conservation. It is a learning process where researchers learn to engage in the science/policy interface. In particular, scientists (i) learn how to analyse these conflicts with new tools (and contribute to the development of these tools); (ii) learn how to engage with stakeholders; (iii) build awareness of the political and institutional frameworks of the conservation conflict at hand; and (iv) learn to take account of cultural issues (e.g. national or local specificities).

To avoid the pitfall of an "end-of-pipe interface", the inclusion in the project of partners whose task is specifically to build and manage the science/policy link is an asset. In the case of **OASIS**, the NGO WWF is a full partner whose main task is the organisation of the science/policy interface for the project through: the management of a stakeholders advisory committee, the organisation of stakeholder workshops, the maintenance of a continuous information flow between the project and stakeholders and the dissemination of scientific results in political bodies at the European and international levels.

The science/policy interface of **MacMan** mainly aims at establishing direct and indirect links with what they call their "type II" users: governmental conservation and land management

organisations, local nature conservation agencies, land-users, planners, NGOs, and EIA specialists. This is done through: (i) inclusion in the project of partners whose institutions have a dual role as supplier and user of biodiversity research results; (ii) an advisory board of users – consisting of a small core group, drawn from the scientific community, governmental administrations, impact assessment specialists and local users, with balanced national origins – for regular consultations to ensure that the project's approach to research develops alongside their requirements, and to catalyse the dissemination and application of results ("multipliers");[4] (iii) a series of sub-projects designed to apply and test the consortium's ideas and results, these subprojects are sub-contracted by MacMan partners to 'pure' user (conservation organisations, national parks,…) who work e.g. with farmers alongside the scientific teams, and/or to Environmental Impact Assessment specialists; (iv) organisation by national teams of meetings between members of the research groups and local users, including farmers and beneficiaries from eco-tourism (e.g. tourist guides and hoteliers); and (v) active involvement of users in the project's conferences, and publication of results in journals and handbooks that are generally accessible to type II users. From a scientific point of view, the links established by MacMan with users have the dual function of dissemination and application of results and of testing the scientific models on a wider scale.

Recommendations

To enhance the policy impacts of biodiversity research in Europe, additional measures could be taken to reinforce the enabling conditions for the development and implementation of the science/policy interfaces in research project. In particular:

- The proposal evaluation process should assess the quality of foreseen interfaces. This entails giving clear criteria and instructions to evaluation panels and selecting panels which have the expertise to evaluate both the scientific excellence and the policy interface.
- Resources for these interfaces should be explicitly available in the research project budgets. This includes in particular resources for the operation of science/policy panels and stakeholders workshops.
- Where possible, in applied research projects, end-users should collaborate with the researchers from the very beginning in formulating research questions, planning the research, implementing the research, commenting on results and disseminating them
- Opportunities for scientists – in particular project coordinators – to exchange experience on science/policy interfaces and share best practices should be developed. In particular specific support actions or other similar measures could be set with this aim.
- Actions aiming at specific training of scientists on policy and governance issues should be supported.
- Participation in research consortia of NGOs and SMEs with expertise in science/policy interface could be encouraged.
- Processes for benchmarking science/policy interface practices should be developed. One option would be through evaluation of the policy relevance of project results and the way they achieved the science/policy interface.

[4] To circumvent the difficulties relating to availability of the members of the board, a lot of interaction is either one to one or electronic.

2.2. Interdisciplinarity

When research addresses complex environmental issues with the aim of transferring information to the "real world" and producing policy-relevant knowledge, interdisciplinarity, in particular research integrating natural and social science approaches, will often –if not always– be needed. (see e.g. Funtowicz & Ravetz 1994, Lawrence & Després 2004)

The difficulty of carrying out genuine interdisciplinary research impacts on the possibility of producing policy-relevant results. In particular in the case of biodiversity, research up to now has contributed more to advancing ecological knowledge than to improving our understanding of the economic and social dimensions of biodiversity.

An essential feature of issue-driven research on biodiversity and ecosystems is that it must bring together natural and social scientists. Not only economics but also psychology, sociology, anthropology, history, human geography, philosophy, marketing, law, management studies, political science, education, and many more, can all be relevant disciplines to research on biodiversity conservation, and should be brought into research projects according to their needs and scope.

Although often called for, and while it is a specific focus of FP5 and FP6, interdisciplinary research is still hindered by several barriers and difficulties, many of them of a social or institutional nature. Some of these barriers are quite similar to the barriers to the development of science/policy interfaces.

First is the problem of **motivation of scientists** who are often not rewarded for interdisciplinary research by the academic system. This can relate to a difficulty to publish in high ranking academic journals, less opportunities for promotion, less recognition by their "monodisciplinary" peers, etc. (Bruce et al. 2004) Significant cultural shifts are required in the academic world (and its journals, performance targets etc.) if scientists are to be encouraged to do interdisciplinary work.

Another difficulty is related to **communication**. Scientists from different disciplines may have difficulties at first in understanding the concepts and methodologies used by other disciplines. However such communication barriers can relatively easily be overcome with time and a good management structure where opportunities for dialogue, debate and cross-learning are offered. Hence this becomes a **time** and **resource** issue and again a matter of what the priorities of researchers are.

A key barrier is in the **lack of training and experience** of many scientist in interdisciplinary approaches. Coordinators of, and participants to, interdisciplinary projects are interested in learning how to manage and to carry interdisciplinary research.

Finally, the difficulty of integration may also arise because interdisciplinary projects often begin by trying to **combine the abstract concerns of each discipline**, rather than by bringing their applied insights to bear on practical conservation issues.

All the project reviewed put a strong emphasis on interdisciplinarity. **OASIS** for instance is proposing an interdisciplinary scientific study of seamounts which integrates physical, biogeochemical and biological research. Lessons to be learned from the OASIS approach to interdisciplinarity lie in the quality of the dialogue and collaboration between disciplines. It is expected that this will lead to high quality outputs in terms of integration. In this project the socio-economic aspects and institutional framework are identified. This is mostly the task of the NGO partner, WWF. But socio-economic research *per se* is not integrated. However several partners pointed to the need to integrate social and economic research in future marine biodiversity projects.

Interdisciplinarity also appears to be one of the major successes of **MacMan**. The project effectively brings together ecologists, conservationists, laboratory geneticists, and field ecologists with respect to producing a common output. From a policy point of view, the fact that this interdisciplinarity goes beyond pure science is important.

BioScene provides an example of a project that is pursuing strong interdisciplinarity between ecological and socio-economic sciences. In each country where the project is run, there is both an ecological and a socioeconomic partner. The co-ordinator identified interdisciplinarity as the critical challenge for policy-relevant research. He stressed the issues of understanding the languages of other disciplines and of practical real-time interaction between scientists from different disciplines as two key barriers. In those countries where the natural and social scientists involved in the project are physically working in the same premises, communication is easier. Interdisciplinary research efforts do require more time and resources as languages and methodologies to bring together different understanding need to be developed and learned. However if the aim is policy-relevant biodiversity science, then it is worth the investment.

Recommendations

To produce policy-relevant knowledge on biodiversity and ecosystems, interdisciplinarity research should be further developed and supported. To achieve this goal, the following measures could be taken:

- Epistemological knowledge and methodological approaches for interdisciplinary research should be further developed and disseminated towards those who are aiming at interdisciplinary biodiversity research.
- Options for high quality interdisciplinary training in Europe should be increased and made available not only to young researchers but also to established scientists who wish to carry out interdisciplinary work.
- The Commission can help in inducing the cultural shift necessary to support interdisciplinary research in academia by providing a lead, giving out supportive messages and encouraging funding applications of this kind. This may mean allowing a space for smaller scale applied research projects, the lessons of which can then be learnt more widely by bringing together such researchers in networks of excellence and integrated projects.
- Evaluation of research proposals should encourage high quality interdisciplinary endeavours where appropriate for the development of issue-oriented research. This entails giving clear criteria and instructions to proposers and evaluation panels and selecting panels which have the expertise to evaluate interdisciplinary proposals.

2.3. Dissemination channels

Dissemination of research results towards different target audiences directly and indirectly relates to the capacity of research projects to impact on policy. Dissemination of project results may aim at five categories of public which relate to different types of policy-impacts: (i) users at different levels, (ii) scientists, (iii) the public, (iv) NGOs, and (v) science policy makers.

At the local level, **users** of biodiversity and ecosystems research results include local authorities, conservationists, NGOs, land managers, farmers, fishermen, etc. They can benefit from outputs of a research project for instance in the form of guidelines for management, restoration, monitoring, etc. At the EU-level, users include decision-makers and other

stakeholders (NGOs, business, etc.). They can benefit from more general principles to encompass in policy or management frameworks. Hence the need for those research projects which focus on very specific species or ecosystems to enlarge their conclusions towards application to other species and habitats, to wider scale, to the development of indicators, baselines, and monitoring systems, to priority setting, and to policy impact assessment.

Key issues in the dissemination towards end users relate to the availability of resources, to the development of the appropriate language and to the timing of dissemination in relation to the timing of policy process. Another issue is the availability of key decision-makers who might not have the time or who might have other priorities.

The establishment of dynamic and participatory science/policy interfaces as discussed above is a main tool – although not the only one– for dissemination towards users. The policy-impact expected from dissemination towards users is direct, as it aims at integrating the scientific results in decisions and practices.

Scientists constitute another target group for dissemination. Scientific results will traditionally be disseminated towards the "peer community". Now as biodiversity projects become more and more interdisciplinary, this involves disseminations towards different communities. An important aspect as far as policy impact is concerned is that results are disseminated to encourage the application of the approach and methodologies developed in a project to other species, habitats, levels, or socio-economic situations. The aim is to "cross-fertilise" ideas from one project to another.

The main barriers here are again time and resources. For instance some scientists, in particular coordinators, indicated that although the idea of clusters (such as Biota) is good, coordinators and key partners have very little time to attend yet another meeting and they rather rely on their existing networks of interactions to create synergies with other scientists. The weakness of this approach is that relying on one's existing networks might hinder the possibility to create links with other networks in other countries (e.g. in new member states) or in other disciplines, which in turn limits the possibility to develop interdisciplinary partnerships.

The policy-impact expected from dissemination towards scientists is indirect, as it aims at spreading methodologies and practices for policy-relevant research towards other research groups and can result in increased policy-relevant research efforts. In this regard, fora, workshops or seminars which specifically aim at creating a space where scientists can share experience and best practices in policy-relevant environmental research and in science/policy interfaces would be valuable.

Dissemination towards the **public** includes dissemination towards the general public via traditional means (the media, the Internet, brochures, videos, conferences, etc) as well as specific efforts towards education (in schools and universities).

The policy-impact expected from dissemination towards the public is even more indirect than dissemination towards scientists. Nevertheless it is extremely important, since public support is of paramount importance for policy actions in the field of biodiversity. It is now recognised that the development of biodiversity research has helped to raise awareness and to remind society of the importance of biodiversity. Educational actions towards children and the public in general impact on peoples' values and attitudes and on their support for biodiversity policies, as a consequence, in the medium to long term they may contribute to the success of biodiversity policies.

The key barriers to more dissemination and educational efforts towards the public relate to lack of resources, of peer recognition and of rewards for this type of activities in a scientific surrounding. An example is the **MacMan** project, where the coordinator stressed that the

reviewer's comment during a project meeting that MacMan is a *pedagogical goldmine* "really was important as it has put more confidence to those interested in education; finally a working group on specifically this topic was created during the last day of the meeting".

Another important target group for disseminations are **NGOs** who can act at different levels. They can be partners, intermediaries or facilitators in the science/policy interfaces set up by the project. A successful example in this regard is the **OASIS** project which includes WWF as a full partner (see above).

NGOs can also play a role in dissemination towards scientists working in non-academic and non public research institutions (e.g. NGO research, conservation organisation, industry, …).

Finally, NGOs can be partners and/or intermediaries in public dissemination and educational activities.

Dissemination towards **science policy** makers is seldom considered explicitly by research consortia. Nevertheless scientists have a key role to play in the future development of science policy to ensure that biodiversity research is a high priority in future science policy. The expected indirect policy impact being that more relevant biodiversity research would become available to support biodiversity policies. This highlights the importance of linking EC-funded biodiversity and ecosystems research projects with the European Platform for Biodiversity Research Strategy (EPBRS). (See point 2.4 below).

To design and implement a dissemination strategy that is successful in terms of policy relevance, a project needs to **identify its key users** at the onset. For instance MacMan identifies 3 broad categories of users: (i) population ecologists and conservation scientists, (ii) governmental conservation and land management organisations, local nature conservation agencies, land-users, planners, NGOs, EIA specialists, …, and (iii) the general public.

Recommendations

To strengthen the capacity of research projects to impact on policy, further measures could be taken to facilitate the dissemination of research results towards different target audiences:

- It should be ensured that resources for dissemination are available in the research project budgets.
- Criteria regarding the quality of dissemination and exploitation plans in research proposals should have more weight (both arithmetically and psychologically) in the evaluation process. This entails giving clear criteria and instructions to proposers and to evaluation panels and selecting panels which have the expertise to evaluate dissemination plans.
- The possibility should be encouraged for consortia to attract new partners, as associated or full partners, as the project develops since it can open dissemination channels towards different types of users.
- Processes allowing for the sharing of best practices in dissemination towards different users could be implemented.
- It should be explored whether educational actions towards children and the public could be implemented cooperatively by research consortia, DG Research and other DGs (including DG Environment, DG Education and Culture, DG Development and DG Audiovisual).

2.4. Links with EPBRS

The European Platform for Biodiversity Research Strategy is a European forum at which prominent natural and social scientists, influential policymakers and stakeholders exchange views and combine forces to plan, implement and exploit the research needed to underpin the conservation and sustainable use of biodiversity in Europe. As such it is part of the interface between biodiversity science and biodiversity policy. It contributes to the definition of science policy for biodiversity that will generate understanding to inform biodiversity policy.

The main conclusion concerning EPBRS is that it is not well known (often not known at all) by project partners and coordinators. When there is awareness of existence, EPBRS process, activities and recommendations are not known. The rare exceptions are those scientists who are directly involved in the EPBRS process (such as e.g. the coordinator and several partners of **BioForum**).

The reasons for this situation are various, the two most important being:

- The weak communication strategy of EPBRS up to the Florence meeting.
- The lack of time and/or resources on the side of scientists. As with policy interfaces in general, many scientists do not have time or resources to concentrate on science policy.

Based on this recognition, the steering committee of EPBRS and/or the reviewer took a series of actions to try to improve the situation:

- In Florence in November 2003, the newly appointed steering committee and the new EPBRS secretariat supported by Belgium developed an extensive communication strategy, which is now being gradually implemented. This included the opening of a specific EPBRS website www.epbrs.org.
- At the Florence and Killarney meetings, co-ordinators of FP5 and FP6 projects where invited to present their project to the plenary session of EPBRS.[5] The objective was to open an additional dissemination channel to those projects and to raise awareness of the EPBRS among FP5 and FP6 consortia.
- During her participation in project meetings and workshops, it was proposed to the reviewer to present her task to the participants. She also took this opportunity to present the EPBRS.
- The reviewer also transmitted to the steering committee a series of suggestions for priority topics that could be addressed in future EPBRS meetings which were made by partners from the reviewed projects.[6]

Two FP5 projects – Marbena and Bioplatform – are directly adding value to the EPBRS. One of the main objectives of **MARBENA** is to create awareness on the issues at stake and enlarge the visibility of marine biodiversity research in Europe. It is a key voice on marine

[5] In Florence Marbef was presented by Herman Hummel, AlterNet by A. Watt, MIDI-CHIP by A. Wilmotte, CASCADE by F. Villani, EUMAR by F. Pannacciulli, and Marine Genomics by C. Gernez. In Killarney, OASIS was presented by B.Christiansen, BioScene by J. Mitchley and ALARM by S. Klotz.

[6] Proposed topics were: (i) Interdisciplinary research for policy-relevant biodiversity and ecosystems research; (ii) Science for biodiversity policy assessment tools and processes; and (iii) Application of fundamental science in real life conservation projects. For the latter, the idea is try to extract the science from conservation project. This would require medium to long term scientific programmes to scientifically study the conservation projects. It would also involve testing the hypothesis of the hard core ecological science in practice (e.g., concerning habitat restoration, species conservation, …). This would lead to a whole lot of important ecological questions. Funding for such science is usually very hard to secure. It is regarded as "soft science" by research funding agencies and academic resource providers. They should rather be considered as large scale (mega) experiments.

research issues relevant to European policies as discussed by the EPBRS. To this aim, MARBENA organises e-conferences on selected themes before EPBRS meetings. The objectives of these e-conferences are to raise a dialogue on the themes selected for the EPBRS meetings, involving a wide range of participants, both from the scientific community and from policy making circles. MARBENA also makes presentations of marine biodiversity issues at each EPBRS meeting.

BioPlatform is a Thematic Network which aims to improve the effectiveness and relevance of European biodiversity research, to contribute to European Research Area for Biodiversity and to promote the dissemination of current best practices and information regarding the scientific understanding of biodiversity conservation. BioPlatform was designed as a learning process where members of the consortium build capacity to input into science policy and benefit from the opportunity to increase the impact of science in policy. To this aim, it specifically supports the EPBRS by participating to the organisation of EPBRS meetings, organising preparatory discussions on selected themes before EPBRS meetings in the form of e-conferences, promoting National Platforms for Biodiversity in each country and linking them with EPBRS and other European and International Biodiversity Organisations, and performing a "gap analysis" of the biodiversity research currently funded by the EU and member states, to identify areas where more effort should be employed.

Both these projects have been highly successful in terms of preparing inputs to EPBRS meetings and contributing to the dissemination of EPBRS results towards their communities – respectively the marine science community and the 20 National Platforms for Biodiversity. However their life-span is finance-bounded and both projects will soon come to an end.

Recommendations

On top of actions already taken, others could be implemented to enhance the policy impact of FP5 and FP6 projects in the EPBRS process:

- Invitation of FP5 or FP6 projects to make presentation at EPBRS plenary meetings should be continued at all future EPBRS meetings.
- EPBRS could systematically inform project coordinators of its activities and results, asking them to forward the information to their consortium. In particular, FP5 and FP6 research project partners could be more widely and more systematically involved in identification of research gaps, in e-conferences, and in other preparatory discussions leading up to EPBRS meetings.
- Conversely, FP5 and FP6 project co-ordinators could be asked to systematically inform EPBRS of any significant research result and of interesting methodological developments.
- National platforms could develop more systematic links with their country's partners to FP5 and FP6 projects.
- It should be ensured that the networks initiated by Marbena and BioPlatform remain durable beyond the end of the funding period. Two options could be pursued here, which are not incompatible with one another. First, new projects with similar objectives could be funded under FP6 and future FPs. Second, the FP6 funded networks of excellence and integrated projects (such as AlterNet, Marbef, ALARM and HERMES) could be systematically associated to EPBRS preparatory discussions and activities.
- EPBRS should further encourage policy-makers – in particular those presents at EPBRS meetings – to express their research needs and requests, and contribute to their diffusion in the research community.

2.5. Some feed-back on FP5 and FP6

During discussions with the reviewer, many scientists where keen to comment on FP5 and FP6, and in particular on the new instruments. Some of the more recurring comments are listed here for information.[7]

- FP5 provided an excellent opportunity to bring in a huge number of young people. The added value of FP5 projects lies in particular in: (i) increased synergies between disciplines; (ii) FP5 projects as nucleus around which to add other funding sources to work on the same or related areas; (iii) the creation of "unofficial consortia" around existing consortia (see e.g. the MacMan case).
- The size of the projects supposed by new instruments could limit innovation in scientific research on biodiversity. One reason for this is that a lot of excellent scientists have decided not to get involved in the big consortia as they are convinced that they can do better cutting edge science in smaller endeavours. As summarised by a MacMan partner, the question for FP6 which is important in terms of building the ERA is *"which scientists are you not getting?"*. Others see the problem as not being so much the size of instruments but the insufficient resources available in the framework programme. This led to the rejection of high quality integrated projects and networks of excellence, leaving out excellent research institutions, which in turns hinders the key objective of integration.
- If coordinators were to receive a questionnaire asking their opinion on the FP6 structure and suggestions for FP7, they would gladly participate in such evaluation.
- When projects become too big, the ratio between manpower for science and manpower for administration changes. It is not a linear relationship and bigger projects tend to require a bigger and bigger proportion of administrative manpower. This sometimes leads to seeing excellent scientists doing management only.
- In FP6, the limited number of big consortia replaced competition between smaller groups. This not seen as a guarantee of more excellence.
- FP6 gives the impression that the EC is *"acting like a businessman"*, always looking for short-term returns on investment and forgetting the bigger picture and longer term.
- In many funding programmes, including FP6, the time-scale of research funding is out of range with that of ecological processes. Moreover, if funding philosophy continues to change as rapidly as it has over the last years, it is likely to lead to low quality research with no relevance to conservation. Some scientists referred to the field of particle physics where huge amounts of money are committed for long-run research and where excellence ensues. Science policy needs to take stock of this situation to ensure effective research orientation towards achievement of EU sustainable development objectives.

Recommendation[8]

As regards the management of research, channels for regular exchanges of experience might be interesting for benchmarking project management practices.

[7] It should be noted that these comments neither represent the unanimous view, nor necessarily the opinion of the reviewer.

[8] It is out of the scope of this contract to address FP6 in general. Hence I only included one recommendation which was suggested by several scientists during this review process.

2.6. Side effects of the review process

The review carried out here has had a series of "side effects" which are worth mentioning as they relate to the issues addressed in the review itself.

First, through participation in some project meetings, the reviewer had the opportunity to provide systematic information to the coordinators and partners about the aims and activities of the European Platform for Biodiversity Research Strategy. In general it raised a lot of positive interest.

Second, contacts established during the review process allowed for informal discussions on EU research priorities and EU framework for research in general, stressing the interest and concerns that researchers have regarding their development.

Third, the fact that the review took place induced some partners and coordinators in visited projects to further reflect on the applied and policy aspects of their research.

In general, all visited projects and all contacted persons showed great openness and interest in the review process and were very encouraging. The feeling is that scientists were positively surprised by the fact that a review of the science/policy interface was occurring. They also welcomed the possibility for dialogue and were keen to get some feed-back from the reviewer.

2.7. Acknowledgements

The reviewer wishes to thank all reviewed project coordinators and partners for their openness and support, as well as all persons contacted during this review for their valuable input. Thank you also to all members of Unit DI-4 of DG RTD.

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Annex I: Review tasks[9]

Objectives

- Review of selected FP5 biodiversity research projects to assess their deliverables with respect to their current and potential impact on EU and national policy and to help the Commission services to gear research towards optimum achievement of the aims of the programme.

Description of the work

The review work will include the following tasks:

- In collaboration with DG RTD, selection for in-depth review of 5 from the following list of FP5 indirect actions concerning biodiversity and ecosystems. The selection should include projects (i) at different stages in the project cycle; (ii) covering terrestrial and marine topics; (iii) having a variety of kinds of deliverables and types of results; and (iv) likely to be characterised by different levels of intrinsic policy relevance.
- Review and evaluate the quality of the deliverables of the selected set of indirect actions. This review will be based on project documentation and public output (e.g. interim reports, web sites, publications, workshop reports, policy briefs).

  The review will focus in particular on assessing the project's contribution to the implementation or the evolution of one or more EU policies. It will therefore focus on the policy relevance and potential impact of the contractually requested deliverables rather than their scientific or technological aspects.
- Review and evaluate existing policy interfaces established by the selected set of indirect actions. This review will involve participation in project events (e.g. workshops) designed to engage policy makers, and where necessary, discussions with project coordinators or other key members of the consortium to better appreciate the potential policy relevance of the research and its results.
- Review the ways currently used by these projects to add value to the European Platform for Biodiversity Research Strategy (EPBRS) process and the policy-relevant recommendations it produces, and on the basis of this review, develop recommendations that will tend to enhance the policy impact of these and future projects in this process. This will entail participation in EPBRS biannual meetings.
- Report to and brief Commission services regarding: (i) the review and evaluation of projects; (ii) recommendations for enhanced exploitation through the EPBRS; (iii) additional suggestions on how to enhance the policy impact of biodiversity research.

Candidate projects for the review:

1. ACES
2. ALIENS
3. BABE
4. BASICS
5. BioAssess
6. BIOCOMBE
7. BIOECON
8. BIOFORUM
9. BioHab
10. BIOMAN
11. BIOMARE
12. BioScene
13. BIOSTRESS
14. CASCADE
15. CoastBirdDiversity
16. CONSIDER
17. CRAYNET
18. ENBI
19. EUMAR
20. Euro+Med PlantBase
21. SPECIES 2000 EU
22. EUROGEL
23. EUROPHLUKES
24. Fauna Europaea
25. Fossilva
26. FRAP
27. FRAXIGEN
28. Giant Alien
29. IMEW
30. LACOPE
31. MARBENA
32. MaBenE
33. MacMan
34. MIDI-CHIP
35. MIRACLE
36. OASIS
37. PASCALIS
38. PGR Forum
39. Plant Dispersal
40. RECIPE
41. TLinks
42. TRANSPLANT

[9] as per Annex I of Appointment Letter N° 545920.