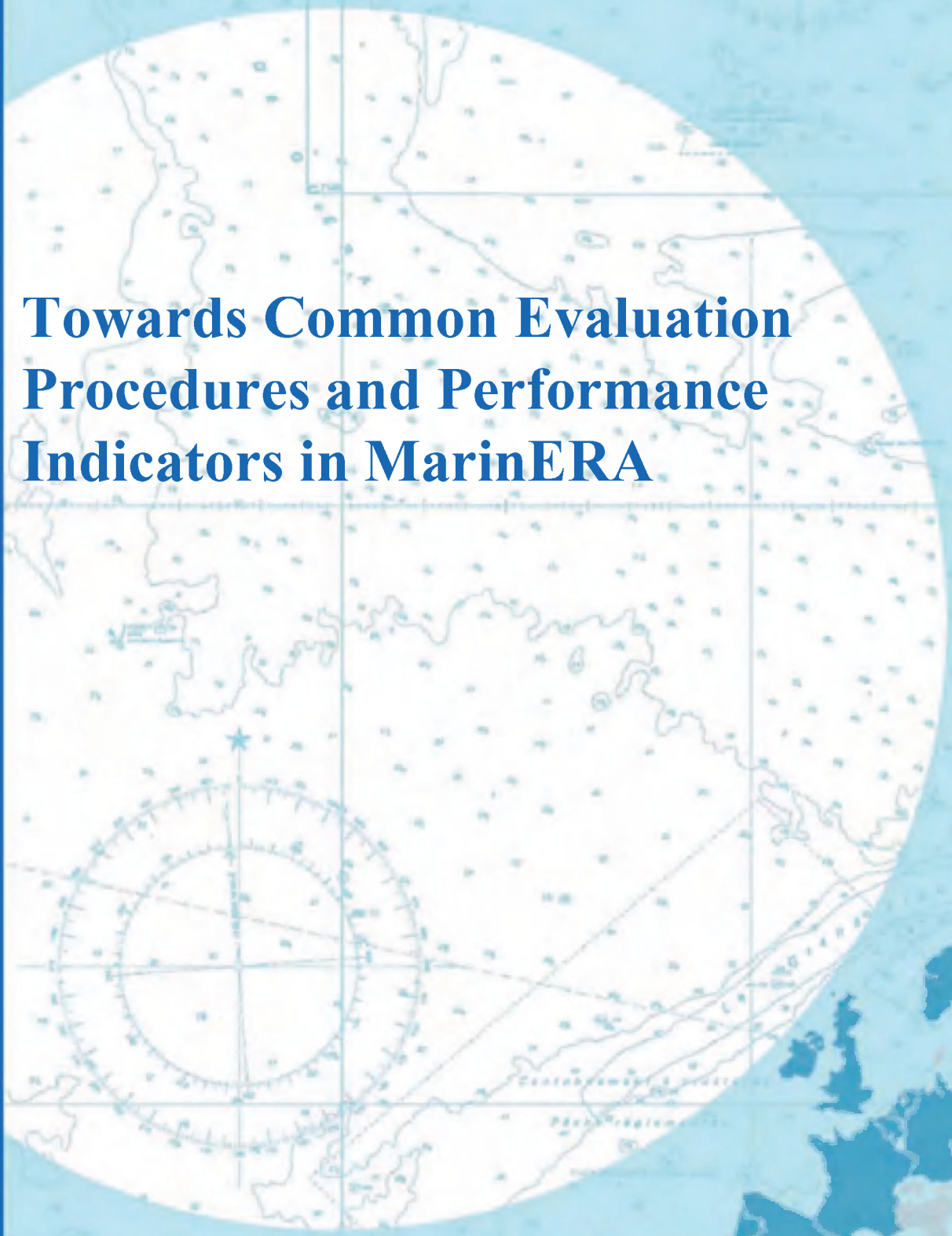
MarinERA Facilitating the Coordination of National and Regional Marine RTD Programmes in Europe 2004 - 2008

MarinERA Publication No. 3

Towards Common Evaluation Procedures and Performance Indicators in MarinERA



June 2008

MarinERA: Facilitating the Coordination of National and Regional Marine Research Programmes in Europe (2004 – 2008).

MarinERA, a EU 6th Framework Programme ERA-NET, is a partnership of leading Marine Research Funding Organisations from 13 European countries, supported by the Marine Board – European Science Foundation. Together these organisations invest over € 80 million per annum in competitive marine research.

The specific objectives of the MarinERA Project are to:

1. Map European Marine Research Programmes and Specialised Infrastructures to contribute towards the development of the marine component of the European Research Area, facilitating the creation of an internal market and quantifying the existing European marine research capacity.
2. Facilitate the networking of Marine Research Funding Agencies in the European Union, leading to a more cost effective and efficient use of EU Member State and Associate Member State resources including scientific personnel, specialist infrastructures and planned investments;
3. Contribute to the development of a European Marine Research Policy, identifying future challenges and opportunities and the priority research programmes that need to be put in place to address / benefit from them;
4. Provide a basis for sharing available resources to address priority issues that are beyond the capacities of individual EU Member State and Associate Member States;
5. Progress the reciprocal (mutual) opening of EU Member State and Associate Member State Marine Research Programmes - a key objective of the European Research Area.

The MarinERA Project Partners are:

- IFREMER – French Institute for Exploitation of the Sea (Ifremer) – France
- Marine Institute (MI) – Ireland
- Research Council of Norway (RCN) – Norway
- Jülich Research Centre GmbH -Project Management Organisation Jülich (FZJ-PTJ) – Germany
- Spanish Ministry of Education and Science (MEC) – Spain
- Academy of Finland (AKA) - Finland
- Netherlands Organisation for Scientific Research (NWO) – The Netherlands
- Natural Environment Research Council (NERC) – UK
- General Secretariat for Research and Technology, Ministry of Development (GSRT) – Greece
- Fundação para a Ciência a Tecnologia (Foundation for Science and Technology, FCT) – Portugal
- Belgian Federal Public Planning Service Science Policy (BELSPO) – Belgium
- Science and Innovation Administration, Ministry of the Flemish Community (AWI) – Belgium
- Malta Council for Science and Technology (MCST) – Malta
- Ministry of Scientific Research and Information Technology / Ministry of Science and Higher Education (MSRIT / MSHE, 2004-2007), The National Centre for Research Development (NCBiR, 2008-) – Poland
- Marine Board – European Science Foundation (MB-ESF) – Oostende, Belgium

MarinERA

MarinERA: building the confidence to create a favourable climate in which to pursue the enhanced co-operation and reciprocal opening of EU Member State and Associate Member State Marine Research Funding Programmes.

For further information on the MarinERA Project see: www.marinera.net

MarinERA:
Facilitating the Coordination of National and Regional Marine RTD Programmes in Europe 2004 - 2008

MarinERA Report No 3 (2008)

Towards Common Evaluation Procedures and Performance Indicators in MarinERA

June 2008.

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Preface

The ERA-NET scheme within the EU Sixth Framework Programme promotes the creation of a European Research Area (ERA) by funding the networking of the Public Bodies responsible for funding or managing research activities on the national or regional level. Among the goals is to progress towards the mutual opening of national or regional research programmes. This is also true as regards MarinERA (*Facilitating the Coordination of National and Regional Marine RTD Programmes in Europe 2004–2008*).

In order to have jointly funded programmes partners need to agree on processes for the implementation of programmes. MarinERA Task 2.3 (*Common Evaluation Procedures and Performance Indicators*) seeks to chart common evaluation procedures as well as to identify common performance indicators that would provide a basis for better comparison of individual programmes. This report summaries the work done in Task 2.3. The present practices applied by the partners have been compared and the best practices for future use have been identified and discussed. The report also includes a full description of project evaluation procedures used by MarinERA partners.

The main work (questionnaires/workshops) of Task 2.3 was carried out between summer 2006 and spring 2007, i.e. this is a window of comparison of the partner practices. Since then, there have been developments in the evaluation practices, and some changes may have occurred. In January 2008, the National Centre for Research and Development (established in 2007) replaced the Ministry of Scientific Research and Information Technology as a Polish partner. The Polish science funding system is undergoing a reform process, and their evaluation strategy is presently under development.

The Task 2.3 report is a joint MarinERA product that has been contributed by MarinERA partners (questionnaires/workshops/feedback) and that has fully utilised the information gathered in previous MarinERA questionnaires for Work Package 1 (*The Collection and Exchange of Information on MarinERA Members State Marine Research Funding Programmes) and Task 2.2 (Barriers to Co-operation – Analyses of Research Management Approaches*).

The technical assistance by Elina Sarro and Reetta Koivisto at the Academy of Finland during the work process and in finalising this report is warmly acknowledged.

1 MarinERA Task 2.3 "Common Evaluation Procedures and Percormance Indicators"

1.1 Introduction

The MarinERA Project (2004–2008) is an ERA-NET Project supported under the EU 6th Framework Programme. The goals of the MarinERA Project are:

- to map European marine RTD programmes and specialised infrastructures to contribute towards the development of the marine element of the European Research Area (ERA)
- to facilitate the networking of Marine RTD Funding Agencies in the European Union, leading to a more cost-effective and efficient use of Member State resources
- to contribute to the development of the European Maritime Policy (October 2007)
- to provide a basis for sharing available resources to address priority issues which are beyond the capacities of individual Member States
- to progress the reciprocal opening of EU Member State Marine RTD Programmes

The MarinERA Project has 14 Marine Funding Organisations from 13 countries as partners. The Marine Board (European Science Foundation) provides project management and administrative services. A description of the organisations can be found in MarinERA Publication No. 1 *Preliminary Description of MarinERA Member State Marine Research Funding Programmes and Implementation Procedures* (www.marinera.net). In January 2008 the National Centre for Research and Development (NCBiR) replaced the Ministry of Scientific Research and Information Technology (MSRTI) as a Polish partner.

This report focuses on MarinERA Work Package 2 Strategic Activities, Task 2.3 *Common Evaluation Procedures and Performance Indicators.* Task 2.3 seeks

- to identify common evaluation procedures which would facilitate progressive mutual opening of research funding programmes
- to identify common performance indicators which would provide a basis for better comparison and benchmarking of individual programmes

Figure 1: *The MarinERA partner countries.*

The aim of the report is to give guidance in identifying the best practices/solutions of evaluation procedures to be used in carrying out jointly funded research programmes. The report also includes a full description of project evaluation procedures used by the MarinERA Project partners.

Task 2.3 contributes to the work of Work Package 3 (*Implementation of Joint Activities and Trans-national Interdisciplinary Research)* and Work Package 4 (*Trans-national Activities Developed a Trans-national Coherence between Marine RTD Programmes).*

1.2 Description of the Methods Used and the Work Process

In the Work Package 2 Meeting held in Mallorca, Spain on June 20–22, 2006, the methodology to be used for Task 2.3 '*Common Evaluation Procedures and Performance Indicators*' was discussed and defined. Two Task 2.3 Workshops were organized, the first to address evaluation practices and processes in different stages of the research programme, and the second to focus on performance indicators. The work plan was presented to the 4th MarinERA Technical Committee Meeting in Sant Feliu (Spain) on October 5–6, 2006.

Workshop I took place in Spain (Sant Feliu) on October 3–4, 2006 as a back-to-back meeting with the Technical Committee meeting. Partners were invited to send a programme manager/ similar representative with good knowledge and practical experience on the evaluation process in his/her own organisation. Thirteen representatives from ten partner organisations participated in the one-and-a-half-day workshop.

Participants, representing different kinds of funding organisations, i.e. research councils and ministries, were asked to give a short presentation on one of the chosen topics: international collaboration or application procedure in one's organisation. The presentations and discussions acted as food for thought for the two parallel working groups in which the more detailed discussion on specific themes took place. Guidelines for presentations and for working group discussions are summarised in Annex 1.

Workshop II took place in Helsinki (Finland) on January 9–10, 2007. Partners were invited to send an appropriate representative from their own organisation to attend the workshop. They were also invited to suggest external experts who could be invited to give a presentation on *performance indicators* in order to facilitate the discussion. Eight representatives from six partner organisations participated in the two-day workshop. The introductory presentations were given by:

- Director Markus Koskenlinna (Impact Analysis Unit, Finnish Funding Agency for Technology and Innovation, Tekes) on *Impact Analysis in Innovation R&D, Case Tekes*
- Science Adviser Anu Nuutinen (Academy of Finland) on *Discipline and Research Fields Evaluation: the AKA Practices and Experiences.*

During the first afternoon the work, which started in Workshop I on the process description of the Call, continued in two parallel working groups. During the second day, the group worked together on performance indicators. In Annex 2 the Guidelines for the work in Workshop II are described.

Task 2.3 fully utilised the information gathered in previous MarinERA questionnaires:

- Work Package 1 *The Collection and Exchange of Information on MarinERA Member State Marine Research Funding Programmes*
- Task 2.2 *Barriers to Co-operation – Analyses of Research Management Approaches.*

Using this information and information, from partner presentations a draft project evaluation procedure was prepared for each partner. As the information was in many cases incomplete and not always comparable, partners were asked in January 2007 to fill the gaps and clarify open questions as needed by completing the pre-filled form sent to them. The gathered information was edited to a compatible format for comparison.

The instructions for providing additional information are summarised in Annex 3. The descriptions of the project evaluation procedures by each MarinERA partner can be found in Annex 4 (12 MarinERA partners were reviewed, AWI, MB-ESF and Ifremer are not included)[1].

This report summarises the work done in Task 2.3 and gives recommendations for common evaluation procedures and discusses future possibilities.

1 See explanations to acronyms on inside cover page.

2 Evaluation Procedures

2.1 Rationale

High-quality evaluation is an integral part of a competed funding schema. Part of the process execution is trust, and this needs to be built between the different parties, i.e. funding partners, and with the scientific community and the general public. To achieve this, evaluation processes must be transparent, predictable and conducted in an equal and objective way.

An evaluation and selection procedure is a tool to find the best research projects for funding. The tool needs to be appreciated by and acceptable to all funding organisations participating in the call. A good evaluation procedure should be appropriate for the occasion. Although common, widely used procedures are appreciated they should be flexible and open for improvements and development. The nature and purpose of the call defines the emphasis of the evaluation. For pure basic research proposals the focus of the evaluation will be on scientific excellence as opposed to, for instance, society-related applied research, where the relevance criteria may play a considerable role.

Marine environmental research, which crosses the traditional disciplinary boundaries being multidisciplinary and interdisciplinary, is an additional challenge to the evaluation processes.

The MarinERA ERANET brings together different kinds of organisations that have a central role in funding marine research in their countries, such as Research Councils, Government Ministries, or Institutes or Project Offices with a mandate to manage a competitive marine research funding programme. However, only 50 per cent of the MarinERA partner organisations have a specific marine research focus, the remaining ones support more general research with a marine component (see MarinERA Publication No. 2 *Barriers to Cooperation in MarinERA Partner State Marine RTD Programmes).*

It is a challenge, therefore, to come up with mutually accepted modes of action. On the other hand, having different kinds of partners is a strength of MarinERA. Building the European Marine Research Area means building collaboration between organisations allocating research funding to this field, both small and large, and representing different administration sectors. Marine research includes both basic research on modes of action of fundamental processes and more applied research on how the achieved knowledge translates into mode of actions, i.e. in maintaining the good quality of our environment or in creating new industry applications. Funding for research comes from very different sources. Collaborating funding organisations may, in general, have different strategies and policies in allocating funding, but with a specific mutual goal may find funding that brings different size contributions together, beneficial.

Collaboration between different kinds of funding organisations also brings together researchers from different fields. Joint funding possibilities facilitate building collaboration and also new kinds of collaboration between parties that do not necessarily have long tradition in collaboration together.

2.2 MarinERA Partners' Evaluation Processes – Similarities and Differences

For this report, 12 MarinERA partner procedures were reviewed as described in Section 1.2 *Description of the Methods Used and the Work Process* (AWI, MB-ESF and Ifremer are not included)[1].

Task 2.3 builds on the work and outcome from Work Package 1 and Task 2.2, hence in some cases, the discussion overlaps. Back-to-back meetings with the Technical Committee, Task 2.2 and 2.3 took place. Due to this, many topics

1 See explanations to acronyms on inside cover page

Table 1: Evaluation procedures in MarinERA partner organisations

Actions	Government Ministries			
	Belgium	**Greece**	**Poland**	**Portugal**
	Belgian Federal Public Planning Service Science Policy (BELSPO)	General Secretariat for Research and Technology (GSRT), Ministry of Development	Ministry of Scientific Research and Information Technology (MSRTI) (See inside front cover page)	Foundations for Science and Technology (FCT)
Theme of the call	Themes for the programme follow Government priorities. Topics for a call are identified in cooperation with the Programme Steering Committee.	GSRT defines thematic areas together with the scientific community. A working group appointed by GSRT specifies call topics.	The basis is the National Frame Programme. Topics for a call are developed by the Interdisciplinary Panel of Experts mandated by the Ministry. Initiations come from the scientific community and other interest groups.	Scientific Councils may suggest opening of specific programmes to the Presidency of FCT. The theme for the programme can also be its own initiative or suggested by the scientific community.
Mode of process	A 'false' two-stage procedure is used. Pre-proposals help in identifying the evaluators needed; they are not evaluated.	One-stage procedure is used.	One-stage procedure is used.	One-stage procedure is used.
Evaluation	External international evaluators are used. They prepare individual external evaluation statements and meet as a panel to discuss the more successful candidates. Consensus reports with recommendations are prepared.	The evaluation is done by a panel of international experts.	The evaluation is done by individual, external, national experts.	The evaluation is done by an international panel of experts; only part of the panel members meet in Lisbon.
Ranking	The Programme Steering Committee can introduce strategic aspects as it suggests projects for funding.	The evaluation panel ranks the proposals.	An appointed Working Group ranks the proposals and makes the recommendation.	The panel in the meeting ranks and decides funding volume. It also gives recommendations to the applicant.
Decision-maker	The final decision is made by the Minister of Science Policy.	GSRT makes the final decision.	The minister makes the final decision.	The evaluation panel makes decisions (see above).
Feedback	Evaluation reports can be consulted at the BELSPO office after the decision. Evaluators are anonymous.	The evaluation report is sent to the applicant. Evaluators are anonymous.	The evaluation report is sent to the applicant. Evaluators are anonymous.	The evaluation report is sent to the applicant. List of evaluators, panel coordinators and their expertise is published.
Monitoring/final evaluation	Projects submit annual scientific and administrative reports, and a final report at the end. Mid-term evaluation of the projects is done by three foreign experts, including a discussion session. Unsuccessful projects can be terminated. There is no final evaluation.	Projects submit monthly report on financial status, and every three months a progress report. Annual reports are assessed by an appointed expert group. There is no mid-term evaluation. A final report is submitted and scientific evaluation of the projects is done by experts. GSRT is responsible for evaluating the programme. The evaluation is used for planning a new programme.	Projects submit annual reports on the progress and funding. The final report is evaluated by the Working Group on the basis of expert reviews.	Projects submit annual reports. The FCT Programme Office reports annually to the Presidency of FCT and to the Ministry. There is no mid-term evaluation normally, specific programmes may conduct them. Projects submit final reports. The programme is evaluated by international experts within one year. The evaluation is used to improve possible future programmes.

Actions		Institutes or Project Offices		
	Spain	**Germany**	**Ireland**	**Malta**
	Spanish Ministry of Education and Science (MEC)	Project Management Organisation Julich (FZJ-PTJ)	Marine Institute (MI)	Malta Council for Science and Technology (MCST)
Theme of the call	The topics for research programmes are defined in the national four-year R&D Framework Plan (FP). The FP is elaborated top-down with some input from the scientific community.	The national strategies in marine research are discussed and harmonised with the scientific community before the release of a programme call. PTJ drafts the call in collaboration with the Federal Ministries.	National marine research objectives are defined in the National Strategy (Sea Change: A Marine Knowledge, Research & innovation Strategy for Ireland 2007-2013). The topics for the calls are defined by the MI in collaboration with advisory groups.	Four priority areas are defined in the National Strategic Plan for Research and Innovation.
Mode of process	One-stage procedure is used.	Two-stage procedure is used. Evaluation of pre-proposal by PTJ includes external national referees.	One stage-procedure is used.	Two-stage procedure is used.
Evaluation	Proposals are evaluated by two panels: the National Evaluation Agency (scientific quality) and the external national experts (relevance, feasibility) organised by the Programme Manager.	There is no general format for evaluation. It can be in-house, or by national and international experts/expert panels.	The evaluation is done by external national and international experts. After completing the individual assessments the experts meet as a panel to prepare a concensus evaluation report.	Pre-proposals are evaluated by individual, international experts and by the Programme Committee. Evaluation of full proposals is carried out by international experts.
Ranking	A specific selection workshop does the ranking, including the budget proposals.	External evaluators together with PTJ establish the ranking list.	The Evaluation Panel ranks proposals on their scientific merit and relevance to the call topic. The ranking of the Evaluation Panel is accepted as final.	The international experts together with the MCST Programme Committee rank the proposals.
Decision-maker	MEC makes the decisions.	The Federal Ministry for Science and Education makes the decisions.	The MI Executive and Board endorses the recommendations of the Evaluation Panel.	MCST makes the decisions.
Feedback	Applicants get only a brief summary of the evaluation statement. Evaluators are anonymous. The list of evaluators used is published in regular intervals.	Applicants receive evaluation reports. Evaluators are anonymous.	Applicants receive the concensus evaluation report. The list of evaluators used is published in regular intervals.	The applicant receives the evaluation report. Evaluators are anonymous.
Monitoring/final evaluation	Project leaders report to the Programme Manager once a year. The additional payment depends on the outcome. There is no mid-term evaluation, however in 2008 a schema to evaluate the core projects one year before termination was introduced. Projects submit final reports, and the Programme Manager estimates the fulfilment of the projects. A more complete final evaluation strategy is under discussion.	Scientific institutes report on progress and budget once, industry twice a year. With over three-year funding there is a mid-term evaluation by PTJ and external evaluators. Funding can be terminated. The final reports are submitted. The assessment of the outcome is done, but no evaluation report is written. The evaluation can serve in identifying future research topics.	Regular reporting on progress in relation to milestones takes place. The interval depends on the duration of the project. For each project a monitor is appointed. The final report is similar to ongoing monitoring reports. The evaluation affects on the final payment.	At regular intervals (defined stages), the Project Coordinator reports on the flow of funds and achievements to MCST. This is needed to ensure the funding. There is no mid-term evaluation. Projects prepare final reports and MCST conducts an audit. So far no formal evaluation of the programme has been carried out.

Actions	Research Councils			
	Finland	**Norway**	**UK**	**The Netherlands**
	Academy of Finland (AKA)	Research Council of Norway (RCN)	Natural Environment Research Council (NERC)	Netherlands Organization for Scientific Research (NWO)
Theme of the call	Research programme themes are initiated by the scientific community and/or other interest groups, including AKA Research Council members.	Research programme themes are initiated by ministries, the scientific community, interest groups or Research Councils.	A Directed Research Programme is generally initiated by the scientific community, and then discussed if it fits within the strategic NERC portfolio.	The Board of the Council for Earth and Life Science defines the priorities for a research programme. The policy is described in a memorandum for a four-year period.
Mode of process	With research programmes, in most cases, a two-stage procedure is used.	One-stage procedure is used.	Directed programmes may have a pre-proposal stage before the submission of full proposals, but not always.	One-stage procedure is used. Pre-proposals are used only when a relative high number of applications is expected.
Evaluation	The Programme Steering Group assesses the pre-proposals and whether the applications fall within the scope. Evaluation of full proposals is done by external, mostly international, expert panels (or individuals as appropriate).	Scientific evaluation of proposals is done by international evaluators, individuals or panels as appropriate. The administration/Steering Committee evaluates the strategic value of the project.	Pre-proposals are assessed by the Programme Steering Committee (PSC), whether they fall within the scope. Evaluation of full proposals is done by external national and international experts. Before decision-making applicants receive the evaluations and are invited to write a rebuttal on the evaluation.	Individual, international experts evaluate the proposals. Before decision-making applicants receive the evaluations and are invited to write a rebuttal on the evaluation.
Ranking	The Steering Group ranks the applications based on scientific evaluations and science policy issues as appropriate. It makes recommendations to the funding organisations.	Ranking is done by the Programme Board, which is selected by the Research Council.	Ranking is carried out by a moderating panel, in the programme this is PSC. The panel makes funding recommendations.	The appointed Programme Committee (PC) ranks the applications as advice for decision-making.
Decision-maker	At AKA, an appointed sub-committee decides on funding. Each participating funding organisation makes its own decision.	The Programme Board makes the decisions (see above).	NERC makes the decisions.	The NWO Board (or the Steering Committee (SC), when multiple organisations are involved) makes the decisions.
Feedback	The evaluation statement is sent to the applicant. The names of the panel members are given. In the case of individual experts, the names are given by request.	The evaluation reports are sent to the applicants. The evaluators are anonymous. A list of the used evaluators within the programme is published.	The evaluation reports are sent to the applicants before decision-making (see above). The evaluators are anonymous.	The evaluation reports are sent to the applicants before decision-making (see above). The evaluators are anonymous.
Monitoring/final evaluation	The quarterly account reports from the site of research are automatically received by AKA. The Programme Manager asks for annual progress reports for reporting to the Steering Group and AKA. There is no mid-term evaluation. The final evaluation is done by an international expert panel; the evaluation report is published. In the final evaluation, emphasis is on the added value and the impact of the programme .	Projects report annually, as does programmes. Annual reports are evaluated by the administration and by the Programme Board; success is needed to ensure funding. No final evaluation is carried out.	An annual online questionnaire needs to be filled in, up to three years after funding has ceased. The Science Coordinator submits annual reports to NERC. There is no mid-term evaluation. At the end PSC is required to provide a detailed Final Programme Report. The report is used to justify the investment made by NERC.	Projects report annually. Mid-term evaluation is a self-evaluation done by PC, and approved by SC. In some cases an external evaluation committee is appointed. SC is responsible for the final evaluation. This is based on reporting by projects, self-evaluation by PC and SC and evaluation by an international review panel. The evaluation reports are given as information to the Board of NWO.

were discussed more or less simultaneously instead of keeping topics and assignments of Tasks separate.

A summary comparison of evaluation/selection procedures of research programmes in different MarinERA partner organisations is presented in Table 1. The full descriptions of evaluation procedures by organisation (MSRTI in Poland) are found in Annex 4.

The different nature of the partner funding organisations with different objectives (Basic Research, Applied Research, Capacity Building, etc.) is reflected in their evaluation processes on many occasions, however, not as often as one would expect. Also, the differences are not necessarily excluding. For instance, in addition to following 'a blue sky' funding strategy, a research council may also be obliged, with other funding instruments, to follow the adopted national priority strategy.

Three of the MarinERA partners (NWO, NERC, RCN)[1] have already experienced a joint Call together, *Rapid Climate Change* (RAPID) launched in 2003 (http://www.noc.soton.ac.uk/rapid/sci/Jointcall.php). Although the participants were all similar organisations, i.e. Research Councils, this successful collaboration paves the way for planning a joint programme call within MarinERA.

2.2.1 Theme of the Call

There are differences between the partners on how the theme of the call comes about. The theme is introduced top-down, designed mainly by Ministries in the National Governments and Institutes/Project Offices. The themes reflect agreed national priorities as defined in National S&T Strategies. In the FCT, a more bottom-up approach, themes initiated by the scientific community, is used. This is, also, the case with the four Research Councils. There are clear differences on the level of the scientific community participation in the planning of the content and the specific topics of the programme. In most cases other interest groups are also involved in defining the topics.

1 See explanations to acronyms on inside cover page

2.2.2 Mode of the Process

Over half of the partners have a one-stage procedure as a practice, submission of full proposals only. In the AKA, FZJ-PTJ, MCST and in some cases the NERC, the two-stage procedure is commonly used with research programmes. Invitation to submit a full proposal is based on the outcome of evaluation of the pre-proposal. In BELSBO, a 'false' two-stage procedure is used with a requested preannouncement of the intent to submit a proposal, which helps to organise the evaluation process of the applications efficiently. In the NWO, pre-proposals are invited only when a high number of applications is expected.

2.2.3 Evaluation

The procedure to evaluate the proposals differs the most between partners. This phase of the process is the most multitudinous in details. The choice of the evaluation procedure does not reflect the organisation categories, i.e. whether Research Council, Ministry or Project Office. In some cases, the language of the proposal guides the selection of experts. In the AKA, BELSPO, FCT and GSRT, evaluation of proposals is mostly carried out by international evaluation panels. The panel work includes homework (individual draft assessments) prior to the panel meetings. In the MEC, two national panels are involved; one evaluates the scientific quality and the other focuses on the relevance and feasibility of the proposal. In the MI, a panel consisting of both national (strategy) and international (scientific quality) experts is used. In the MCST and NWO, individual, international experts evaluate the proposals. However, in the NWO the new Marine Programme uses international evaluation panels. In the RCN, international experts evaluate as individuals or as a panel as appropriate. In the NERC, evaluation is done by external national and international experts, in MSRTI by national experts. In the FZJ-PTJ, there is no established mode of operation, the evaluation can be in-house, carried out by national and international individual experts or panels, on a case-by-case basis.

Only the NWO and NERC invite the applicants to write a rebuttal on the evaluation, which will be taken into consideration when the application is further discussed and decisions made. In the MEC a revision of the proposal evaluation can be requested. Appeals are considered in the selection workshop panel.

2.2.4 Ranking

In all research councils (AKA, NWO, NERC, RCN) and in the BELSPO, ranking of the proposals is done by the appointed Programme Steering Groups. The FCT, GSRT and MI give the Expert Evaluation Panel the mandate to rank the proposals, in the FZJ-PTJ and MCST, external evaluators perform ranking together with the host funding organisation. In the MEC and MSRTI, a specific body (workshop/working group) is appointed to carry out the ranking.

2.2.5 Decision

In all four Research Councils and the MI, the Board or corresponding body makes the final funding decisions. Likewise, in the MCST and GSRT the funding decision is done by in-house bodies. In the case of the FZJ-PTJ, BELSPO, MEC and MSRTI, the funding decisions are made in the higher level in ministries. The FCT is the only partner organisation that gives the evaluation panel the mandate both to rank the proposals and to make the funding decisions, which are later approved by the president of FCT and the minister for science.

2.2.6 Feedback to Applicants

Giving feedback to applicants is a common practice among the partners. Only BELSPO does not send a written evaluation reports (and only summary sent in the MEC) to the applicants, but evaluations can be consulted in the BELSPO office. As mentioned above, both the NERC and NWO send evaluation reports to the applicants before making the funding decisions inviting the applicants to comment on the evaluation.

The identification of evaluators is not a common practice. The AKA reveals the names of the evaluation panel members, and in the case of individual evaluators, gives the name to the applicant by request. In its' new Marine Programme the NWO publishes the names of the panel members. The FCT, MEC and MI publish a list of experts they have used at regular intervals, and the RCN after the funding decisions of the programme have been made. In the NERC, individual evaluators remain anonymous but the names of the ranking moderating panel members are published on the website following the meeting.

2.2.7 Monitoring/Final Evaluation

The regular monitoring of the funded projects takes place in all partner organisations. Commonly, annual scientific and administrative reports are submitted, and in the GSRT even more frequent reporting is required. After completion the projects submit final reports.

Evaluation of a specific Research Programme as such, against a set programme specific goals, is not a common procedure among the MarinERA partners. Three of the partners (BELSPO, NWO and FZJ-PTJ) have mid-term evaluations of projects. These evaluations may have an effect on payments. In the NWO, a mid-term evaluation is in most cases carried out as a self-evaluation by the Programme Committee.

Six of the partners (GSRT, FCT, MSRTI, MI, AKA, NWO) have the Programme evaluated after complition, in the FCT within one year. The evaluation results are used for planning future programmes and for assessing the added value and impact of the Programme. In the NERC, monitoring the outcome of the funded projects continues after the funding has ceased, and the annual online questionnaire is to be completed up to three years after the funding has terminated. The Final Programme Report by the Programme Steering Committee justifies the investment made by the NERC. In the MEC, a more complete evaluation strategy is presently being discussed.

2.2.8 To Summarise

As was identified and discussed in Task 2.2

Report (*Barriers to Co-operation – Analyses of Research Management Approaches)*, one of the enablers for joint funding activities between organisations is the development/agreement of common procedures for a joint call. It was already observed in the work of Work Package 1 and Task 2.2 that similarities of the evaluation processes used in different MarinERA partner organisations are often greater than would first appear. It is foreseen that as soon as a topic is agreed and the countries joining the call identified, it will be quite effortless to find mutually acceptable agreement on the practical execution of the process of a joint call.

It is worth keeping in mind that when developing common procedures and guidelines to facilitate the process, flexibility and an open mind for other alternatives should be maintained. This gives strength and truly helps to build the Marine ERA. The possibility for renewal and joining up of new unexpected partners should thus be maintained.

2.3 Evaluation Procedure – A Suggested Flow Chart for Joint Calls

Partners identify themes of common interest. Participating partners write a call text and define the specific research topics

The level of involvement and contribution of the scientific community and other interest groups in preparing the content of the call is considered on a case by case basis.

Call-specific evaluation and selection criteria are agreed together

The Call is communicated widely through different channels. The criteria and the scoring system are communicated to applicants.

Each partner funds its own researchers. Funding volume depends on availability

In MarinERA, the partners agreed that in the first joint call the decisions are prepared and made together, but that each partner funds its own research groups. At this point in time the partners are reluctant to hand over full control of management and funding decisions (see Task 2.2 Report). It can be foreseen that closer funding collaboration could take place in the future.

Funding term is a maximum of four years

Some of the partners can fund projects only for three years.

Collaborative projects shall have a minimum of three partners from three partner countries

National eligibility rules are followed

The nature of the call and the participating funding partners, as well as their interests and administrative procedures, define the possible industry participation.

Non-partner participation, as collaboration, is possible

The proposal should be viable without the collaboration party, and the application shall be evaluated without it.

Single point entry for application submission

One possibility is that one partner receives the proposals first, and after the evaluation of proposals the most successful applicants are asked to submit a formal application to their own national funding organisation for them to make the decision.

The proposal is submitted in English

One mutual language is essential for a joint evaluation. The instructions and guidelines should be clear, and only necessary information should be asked.

One-stage procedure versus two-stage procedure

A two-stage procedure is favoured. A pre-proposal gives an estimation of the number of proposals and the scientific area covered and

thus facilitates the selection of referees. It also helps to invite only those within the scope of the programme to submit a full proposal.

The process takes one year from a call to the starting of the projects

A preliminary timetable for a call is:
- The call must be open long enough to give researchers time for networking
- Pre-proposals: six weeks to two months
- Review Panel work and meeting: one month
- Inviting full proposals: six weeks to two months
- Review Panel work and meeting: one month
- Feedback from the applicant: two weeks
- Technical Committee work: one month
- Preparation of funding decision: one month

Evaluation

Evaluation of pre-proposals by the Technical Committee (TC) or by the Review Panel as agreed

Partners (TC) agree on review panel members and external evaluators

Use of individual expert evaluators or evaluation panel(s) depends on the scope of the call, with a more narrow scope an evaluation panel is suggested. Review panel members can suggest referees for second-stage proposals.

Scientific evaluation by international experts from non-participating countries

The applicant should have an opportunity to comment on the evaluations.

Relevance evaluation by the partners' representatives

Ranking of proposals and recommendation of funding by the Partners

Ranking of the high-quality proposals is done by representatives of the Partners. The Partners participating in a specific call may agree to give the mandate to rank also to the evaluation panel.

Funding decision by each partner organisation

Funding decisions are expected to follow the above-mentioned joint recommendations.

Conflict of Interest

Conflict of interest issues are carefully considered and agreed on before the call

In MarinERA collaboration, conflict of interest issues shall be carefully considered beforehand in order to avoid mistrust among the general public and the partner organisations. The dilemma is caused by the fact that some partners (such as Ifremer and Ireland Marine Institute) are both research funding organisations and research performing organisations, i.e. they may also be applicants. Clear protocols how to conduct the meetings should be planned in advance.

Review Panel members cannot be involved in the applications

Evaluators are asked to sign a declaration indicating that they do not have a conflict of interest with the applications. Everyone else involved in the process should be aware of and declare any possible conflict of interest, such as family relations and joint professional activities.

Running of the project/programme

Agreements need to be drawn between the collaborative project's partners

A Memorandum of Understanding (MoU) should be considered as appropriate. Intellectual Property Rights agreements and data ownership agreements should be completed before starting the projects.

Co-ordination of selected projects agreed on

A programme co-ordination is a valid tool and brings added value, when the number of funded collaborative projects is high. Co-ordination

of the collaborative projects is done by the Principal Investigator (PI). When only a few collaborative projects are funded the projects themselves should be responsible for building collaboration between them. A kick-off meeting, a mid-term meeting and a final seminar are highly recommended.

MarinERA partners shall agree on management funding, i.e. the possible co-ordination, monitoring and final evaluation of the jointly funded call, as the ERANET terminates in spring 2009 at latest.

Establishing the Steering Group of partners

The Steering Group (to be agreed amongst the funding partners) will be responsible for the organisation of the final evaluation of the call after termination of funding.

Reporting/monitoring/evaluation

Each project submit an annual report

Partner organisations in most cases require annual administrative and progress reports. Principal investigator's progress reporting to the MarinERA management group (partners) should make use of these reports.

Mid-term evaluation considered

With longer-term funding, a mid-term evaluation is recommended. The assessment of achieving the set milestones can be done by external evaluators or as self-evaluation. A mid-term evaluation provides advice and guidance to the projects.

Final reporting of projects and evaluation of the call are carried out

Final administrative and progress reports are submitted to the Funding Organisations. A call is evaluated by external evaluators who assess the success of the call, the scientific achievements and its' impact. The evaluation is mainly based on written reports and questionnaires.

3 Performance Indicators

3.1 Rationale

It is generally expected that public funding is efficiently used. There is also an increasing interest in how well government support for research is being used and what results and societal benefits derives from it. As the funding input increases, the need to assess the outcome increases accordingly.

In order to demonstrate the effectiveness and efficiency of funding, quantitative and qualitative indicators to assess the outcome are needed. The tools presently available have their limitations. Not all outcomes can be quantified and universal measures suitable for all purposes and research fields do not exist, which makes comparisons difficult. The importance of having reliable tools to assess whether the expectations of funding are fulfilled and the set goals achieved has been acknowledged. Such tools are needed for individual research projects as well as for larger entities such as Research Programmes which, due to their extensive collaboration, are expected to generate added value. Development work on performance indicators is active worldwide.

The general public and the funding agencies have their expectations and a keen interest in learning both the immediate and long-term outcome of the funded research, which is not always easy to show. From the earliest planning stages, projects/programmes are expected to have a plan to assess the outputs and impact, with set milestones and identified outputs.

In situations where productivity is to be compared between different projects/programmes, it is important to have a common language to be able to measure/count the same things. Likewise, it is crucial to understand the nature of the commonly used quantitative (countable) indicators, their strengths and weaknesses, and use them keeping this in mind. What are the best measures to use depends on the purpose of the assessment, the context in which they are needed and the level of assessment to be carried out, i.e. individuals, networks, institutions, field of research. For the best outcome a suite of different indicators should be used. When appropriate performance assessments are selected the costs of the exercises (including the efficiency and costs of gathering the information and time needed) shall also be considered and these should be commensurate with the value of the funding programme.

3.2 Use of Performance Indicators

Performance indicators, in the context of this initiative, are defined tools used to manage, monitor and evaluate a research project or programme to establish that it achieves pre-determined objectives or targets. The most widely used model is the **Input-Output-Impact (Outcomes) Model**. The ultimate goal is to demonstrate the achieved impact. However, the impact is not easy to assess and may be evident only after several years.

Difficulties in evaluating the impact of basic research include its unpredictability, complicity and the fact that it is often indirect. The link between a specific funding and the generation of commercialisable intellectual property later on may be difficult to observe due to a time-lag. A particular challenge is how to evaluate and how to put a value on non-metric outcomes. The use of performance indicators cannot be mechanical counting as the same indicators in different areas reflect different matters.

Production and products differ in different scientific sectors as traditions vary in different disciplines. In the Australian Research Council Linkage project '*Strategic Assessment of Research Performance Indicators*' the possibility of having field-specific weights to performance measures, for better comparison when there are field-specific characteristics, has been suggested. Besides improving the indicators to assess academic achievements, better indicators to assess more applied and industry-related research are much needed.

In MarinERA Publication 1 *A Preliminary Description of MarinERA Member State Marine Research Funding Programmes and Implementation Procedures* Box 4.3 inputs, outputs and outcomes/impact are defined, and the same definitions are used here for consistency:
Inputs represent the inputs invested in the programme to achieve identified outputs and impacts. Inputs include the amount of funding, number of projects and also other facilitating factors, such as programme management activities.
Outputs are the immediate results of investments (often countable) and are time dependent as they may take some time to realize.
Outcomes are the impact of investment, often hard to measure and can take several years to become apparent (and often cannot be quantified). A list of possible performance indicators is given in Annex 5.

Important output indicator includes **education** and **expert training**, the number of degrees produced in the funded research group. However, the number of Master's/Doctoral degrees does not tell of the quality of expert training and research, or how the research benefits end-users. The acquired expertise is reflected in the invitations by end-users and other parties to provide the needed knowledge for their activities.

Scientific performance has been commonly assessed by **bibliometric indicators** (including citations), i.e. scientific and professional publications and other publications. It is, however, acknowledged that publication counts alone are not a very good measure of quality. Also, as publishing traditions are field specific, the sole use of the number and nature of publications gives a biased understanding of the performance. To assess the quality and impact of publications advanced bibliometric indicators, such as citation counts, h- and m-index (Hirsch index) [2] and impact factors of the journals, have been introduced as additional measures.

2 h-index quantifies both the scientific productivity and the apparent scientific impact of a scientist (Hirsch 2005), m-index is h/n, where n is the number of years the scientist has been publishing papers.

Standard citation indicators relate to publications appearing in journals indexed by ISI (Institute for Scientific Information). The natural sciences are reasonably well covered in ISI, but there are limitations with applied sciences and more so with the social sciences and humanities. Thus, it should be remembered that impact factors are biased against some disciplines. To seek a high impact-factor journal is not necessarily always the best and most efficient forum for disseminating and transferring the information to the right scientific community. The journal used should be highly ranked but also the most appropriate forum to reach the optimal target group for the research at hand.

The role of the **non-ISI indexed publications**, books, book chapters, conference papers etc, can be often diminished as a meaningful source of new information and means to disseminate the research results to wider interest groups and end-users. As a quality measure for books, the ranking of publishers by their prestige may be used.

The importance of the quantifiable **non-bibliometric products**, such as patents, prototypes and new processes, as indicators of performance is more emphasized in industry-related and applied research than in curiosity-driven basic research. Reports, presentations and publications for the end-users, by request of end-users, are indications of direct transfer of information and acknowledgement of the relevance of the research for these users. Revenue received from the sale of services based on the research results or intellectual property rights indicates commercial value, and intellectual property protection sought illustrates potential commercial value. It needs to be kept in mind in assessing performance, especially in industry-related research, that all research is not necessarily rapidly published, as intellectual property and prototypes are considered trade secrets, and protected due to potentially high economic value.

Networking, **collaboration** and creating new lasting partnerships – also across disciplines, sectors and with industry, are other means to assess the performance of research projects/

programmes. Networking and collaboration can be carried out on many levels, from exchange of information to co-funding. As a funded project proceeds, potential end-users (industry/user of knowledge) may later join the collaboration, which reflects a success of the project. Collaboration may also lead to the transfer of the commercialisation of the products produced within the project to a company for mutual benefit.

Honors, awards, prizes and fellowships received by the researchers are **acknowledgements of esteem** by peers in the scientific community, but also in many cases by society as a whole. Invitations to serve on editorial boards, professional bodies and grant committees illustrate the trust and appreciation of the professional expertise the scientist has. Scientific excellence and performance by a researcher can also be valued by recognition of his/her highly cited publications and invitations received as keynote speaker in major high-profile international scientific symposia and other forums.

Recently more and more attention has been given to transfer of information to the general public through newspapers, TV and other science communication activities as part of outputs from the research project/programmes. **Outreach** is a means to show taxpayers the good use of public funding and to use the latest scientific understanding in education at all levels, from elementary schools to universities. In the National Science Foundation (NSF, USA), outreach has been adopted as an integral part of science, and is considered as much a responsibility of the scientists as is the dissemination of information as conference presentations and scientific papers. The policy is gradually being followed by other funding agencies worldwide. However, the scientific community has been slower in appreciating the need to allocate enough of their time to outreach activities, as competition for funding is tough and the evaluations still very much take into account scientific productivity, i.e. number of papers in peer-reviewed journals.

Typically a project/programme is evaluated soon after its termination. In some cases, especially if funding is granted for a longer period, not only annual monitoring but a mid-term evaluation is carried out. The best/optimal time for evaluating the true final outcome of a project/programme is not easy to define. It takes time to get publications released, and it is especially difficult to predict when and how the non-quantifiable impact will be seen. Practical aspects in gathering information need also to be taken into account. For how long after the termination of funding researchers can be expected to contribute by updating the information needed. Also, if a researcher leaves the site of research for other endeavors, the updates needed for assessments are not necessarily received. Programmes are normally evaluated immediately after termination and completed within about one year.

An assessment of the **broader social impact** of any funded project/programme requires re-visiting after several years. At this stage, the accomplishment of many activities can be acknowledged, i.e. manuscripts have been published, prototypes have been developed to products, new joint grant applications have been submitted and sustainable new collaboration has been established. However, the means to assess whether there has been improvement of understanding or how policy makers have utilized the provided new knowledge are quite limited. **Questionnaire surveys** have been used. This method has its own limitations in ensuring good-quality material. The questions should be designed carefully and the completion of the forms by parties involved with similar thoroughness is also very much needed.

Peer-review is a key element in ensuring quality in evaluation of research in many funding agencies, and is typically used to assess applications for funding. Final reports of the projects can also be assessed and rated by peer-reviewers to give quality valuation of the research outputs and potential social impact, as is done in the *Biotechnology and Biological Sciences Research Council (BBSRC)*, UK.

3.3 Use of Performance Indicators by MarinERA Partners

In MarinERA Publication 1 *A Preliminary Description of MarinERA Member State Marine Research Funding Programmes and Implementation Procedures,* Table 4.16 presents indicators that are used to evaluate RTD programme performance by nine MarinERA partner organisations.

In Task 2.3 Workshop II (Annex 2), the participating MarinERA partners identified some of the performance indicators presently used in their own organisations, discussed other known indicators and considered their potential as a tool in the future (Annex 5). In many MarinERA partner organisations, the strategy of the final evaluation of projects/programmes and the way of using of performance indicators is under review. Intensive work is being done to identify and define better means to assess/measure the efficiency of the investment of public research funding.

To evaluate how the goals and objectives of projects/programmes have been attained, MarinERA partners commonly gather information on **training** (degrees produced), **productivity** (scientific and other publications published, patents and prototypes), **networking and collaboration**, and **dissemination** of the results (attendance at and organisation of meetings and seminars). The different nature of MarinERA partner organisations is reflected to some extent by the emphasis given to some indicators to assess performance. In Applied Research Programmes, the enhancement of **collaboration with industry** and having new products on market, i.e. the immediate economic outputs, are especially appreciated. However, also in Research Councils, information on industry collaboration is increasingly gathered to illustrate the societal relevance of the research funded.

As discussed in the previous Chapter, the timing of *a posterior* evaluation is crucial to the outcome of the performance assessment. The overall picture can be seen only several years after the termination of funding. In the NERC, a system has been established to gather information for a longer period of time. Researchers are obligated to update the products of their research projects annually up to three years after the termination of funding. In the UK, the Research Councils are expected to provide information on broad social impact of the research. The NERC actively encourages and seeks indications of collaboration between public and private sectors and with industry. Of the MarinERA partners, the NERC is the only one that strongly emphasises several indicators of outreach activities.

Information on the number of new participating and funding enterprises joining the project/programme, new scientists collaborating and new full-time employees being hired reflect the transfer of information and can also be seen as an attempt to quantify networking.

3.4 Performance Indicators – Concluding Remarks

The goals and objectives of the Research Programmes together with the planned level and intensity of monitoring (project/programme-level), determine the process of assessing the success of the funded research. There is no single general performance indicator/quality measure and hence there is a need to choose the indicators best suited for each case to give the best outlook. There should also be a balance between the expected benefits of the assessment and the costs of the exercise.

The mutual research interests of the MarinERA partners fall in the area of environmental research with strong societal links, which is a challenge when choosing the performance assessment tools. In collaborative research programmes, such as ERANET Joint Calls, not only performance by individual research groups but also the added value that the research collaboration brings should be evaluated. A plan of assessment of the programme after its termination, and the indicators to be used should be drafted together with the

overall planning of the call. However, there should be continuous awareness of ongoing development work, and any plan should be flexible enough to include any novel elements and tools for the benefit of the assessment.

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Mikko Syrjänen, Alina Pathan, Sanna Ahvenharju, Mari Hjelt (2006) Teknologiaohjelmaraportti, Arviointiraportti 20/2006 (Ex-post evaluation of joint technology programmes, Tekes, in Finnish).

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The impact of research in biosciences and environmental research. Publications of the Academy of Finland 7/06, in Finnish (English abstract).

Strategic funding for enhanced research impact? Three examples from the field of health research. Publications of the Academy of Finland 8/06, in Finnish (English abstract).

Useful Further Reading and Links

Annamaija Lehvo and Anu Nuutinen (2006) Finnish Science in International Comparison: A Bibliometric Analysis, Publications of the Academy of Finland 15/06 (www.aka.fi/publications)

BONUS ERANET Guidelines for a Common Evaluation Scheme for Joint Baltic Research Programme, BONUS Publication No. 4, 2006, www.bonusportal.org

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SKEP ERANET Approaches and Practices in Mid-term and Ex-post Evaluation of Environmental Research Programmes (P. Kivimaa, M. Mela and E. Fuhrman) 2007, http://www.skep-era.net/site/files/WP3%20final_eval.v1.2.pdf

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ANNEX 1

Task 2.3 Workshop I Summary of the guidelines for presentations by partners

3–4 October 2006, Sant Feliu

The idea is to first have short presentations on chosen topics from the partners, representing different kinds of funding organisations, i.e. research councils and ministries. The presentations and discussions will act as food for thoughts for the parallel working groups in which the more detailed discussion on specific themes will take place.

The topics for presentations are international collaboration and application procedure. Partners are asked to prepare a short (15 minutes) presentation on the topic assigned. The presentation should not only describe what is the present situation in the partners' organisations but also describe possible new strategic approaches and plans for new practices.

INTERNATIONAL COLLABORATION

Suggested partners to give presentations on this topic are: AKA (Finland), AWI (Belgium), FCT (Portugal), Ifremer (France), HCMR (Greece), NERC (UK), MCST (Malta).

Some suggested themes and ideas to be considered:
- Goals of collaboration
- Are there geographical or thematic priorities?
- Is international collaboration as a strategy increasing or decreasing in importance?
- Tools/instruments for international collaboration
- Carrying out collaboration, practical examples
- Possible problems in international collaboration
- Pros and cons
- Common pot idea – not thought of, not appealing/can not be justified, would be difficult to carry out, legally impossible at present. Note the difference between cannot be done due to law and no willingness to do.

APPLICATION PROCEDURE

Suggested partners to give presentations on this topic are: FZJ-PTJ (Germany), MEC (Spain), MI (Ireland), MSRIT (Poland), NWO (The Netherlands), PPS (Belgium), RCN (Norway).

Some suggested themes and ideas to be considered:
The process from the submission of application – evaluation – ranking – decision
- Identified problems, suggested solutions, planned strategies in the process
- Number of applications, how to deal with masses, oversubscription
- How to organise the evaluation of interdisciplinary and multidisciplinary applications
- How to take into consideration the socio-economical aspects/end-user expectations in evaluation
- Etc.

Suggested topics to be discussed in working groups:

Group 1

Evaluation of applications – selection of projects for funding
- One or two-step procedure? Why?
- Who evaluates and rates? In-house or external?
- The nature/qualifications of reviewers? Who selects them?
- Procedures to avoid conflict of interests?
- What do they evaluate, criteria? – scientific quality, networking, policy relevance, innovativeness, social benefits, applicability, industry/business relevance, research training, other?

- How the evaluation is done? Individuals, panels, combinations?
- How to ensure multi-, inter- and transdisciplinarity in evaluation as needed?
- How different criteria are weighed? Thresholds?
- Who ranks, decides priority – makes the suggestion for funding?

Group 2

Funding and funding instruments in MarinERA

- Funding for joint projects only?
- Funding for seminars, research exchange, training courses?
- Each fund own or some form of common pot – 'virtual', i.e. money does not leave the country, but is reserved, earmarked for the purpose?
- Coordination – should joint activities be coordinated, if yes, by who and how?
- Monitoring of progress and reporting – what is it for, for whom, the nature?
- Annual seminars, workshops?
- Funding reports, other reports?
- Possible external advisory body? If yes, who – and why?

ANNEX 2

Task 2.3 Workshop II Summary of the introduction and the task description for the participants

9–10 January 2007, Helsinki

Drafting a *Guide to Evaluation Procedures and Performance Indicators*

INTRODUCTION

Task 2.3 proposes common procedures in assessment and performance indicators for partner organisations. A Guide is a suggestion or several alternative suggestions for consideration. The aim is, with concrete suggestions, to pave the way to the first joint call, so that in preparing the call the emphasis is on discussing the scientific themes and content of the call, so practicalities of the call can be adopted quickly based on the work done in Task 2.3.

THE TASK OF WORKSHOP II

The task is to continue the work started in Workshop I to prepare a detailed process description of the call (with possible alternative suggestions).

The fuel for this work is experience and knowledge of partners and any other information known to partners. Any problems foreseen should be acknowledged and addressed and it should be considered how to solve them. For alternative suggestions, strengths and weaknesses should be discussed.

The list of questions/comments below is only a starting point and by no means an exhaustive list. Partners are expected to raise many other issues for discussion based on their own experience and expectations of how to carry out a successful joint call.

PRELIMINARY LIST OF ISSUES AND QUESTIONS TO BE DISCUSSED:

Part A

- Call text – who drafts?
- Aims – scientific aims/other possible identified aims? Who defines?
- Funding/Funding term – Term, 3 or 4 years or combination/funding volume?
- Applicants – who are eligible/role of possible non-partner country?
- Point of entry for the applications?
- Planned/expected timetable of the process, from call to the start of projects?
- Submission – detailed instructions of the application format?
- Two- or one-stage process? Who evaluates the pre-proposals?
- Technical check of the proposals?
- Different scenarios for evaluation? Their strengths and weaknesses? – who evaluates/who ranks/who decides?
- Conflict of interest issues
- Start of the project – what kind of agreements/rights and duties?
- Running of the project – joint activities between projects?
- Running of the programme – how is coordination/monitoring organised?
- Collaboration with other ERA-NETs and their calls – level of collaboration?
- Future scenarios – ERANET+?

Part B

Reporting/Monitoring/Evaluation – financial and/or scientific?

- Annual reports – how is the report information used?
- Mid-term reporting – is it needed?
- Final evaluation – is it needed/how is the information used?

Performance/outcome indicators

- Countable/measurable indicators – what are they?

– How deal with non-countable/non-metric?

Impact – immediate/in the future
Impact – measurable/non-measurable

As an example an environmental project:
Expectations and impacts could include
– Training of experts
– Economic and technological impacts
– Cultural impacts
– Impact on governance and policies
– Impacts on nature conservation and restoring ecosystems
– Estimating environmental risks and threats – enhancing general well-being

How estimate/measure whether the goals were achieved?

If set goals (defined by milestones, deliverables) were not achieved as planned, but something else, even better instead – how is the performance rated?

ANNEX 3

Guidelines on filling in project evaluation procedure form

Partners are asked to fill in the pre-filled COUNTRY form using the Finnish case as a template. Clarity and precision is needed in who is doing/who are they/what is done/who decides/who recommends/who rates/who ranks. For any comparison, alignment similar information on the same level is needed – descriptions should be self-explanatory.

With the attached forms (template – Finnish case and the pre-filled form to fill in/correct) the following information is sought:

The Call
- How and by whom is the topic for the research programme chosen?
- How and by whom is the more detailed content of the programme (themes) defined?
- How is the call published, how long is it open, what information is included in the announcement?

Application phase
- Is one-phase or two-phase procedure in use (pre-proposals/full proposals)?
- Instructions for pre-proposals?
- Who makes, and how, the selection for the second phase? What criteria are used?
- Instructions for full proposals?
- Who evaluates the full proposals and how?
- Who chooses and decides evaluators? Are they anonymous?
- Is evaluation report given to the applicant? At what stage? Is commenting by the applicant possible? Are comments taken into account in decision-making?

Selection phase
- Who ranks the applications, i.e. decides the order of priority for funding?
- Who recommends, who decides on funding?
- Is there contract negotiation, and if yes, how is it done?

Monitoring and mid-term evaluation phase
- Questions here are in two levels – a project in the programme, and the programme itself.
- Is there regular monitoring of the project/programme?
- What is reported on the project/programme?
- Who assesses the reports of the projects/programmes?
- Is there a mid-term evaluation of the programme? If yes, who evaluates, who assesses evaluation, what are the consequences?

Final evaluation phase
- What are the general aims of the final evaluation? Why is it done?
- What kind of final reports are required for projects/programmes?
- How is the final evaluation done – step by step? Who does it? When is it done, at termination of the programme, later or both?
- How is the final evaluation utilised?

Missing parts
- In the list above are there gaps, missing information, that should be included?

ANNEX 4

Descriptions of evaluation procedures by organizations

BELGIUM – Belgian Science Policy (BELSPO)

Type of organisation Government Ministry

The Call

The theme for a programme is based on the Belgian Federal Government's priorities (Government declarations, obligations, etc.) or on demands of the Federal Government. Specific topics for each call are identified in cooperation with the Programme Steering Committee. This committee is composed of representatives from all federal, regional and community administrations concerned by the programme thematic area. It is up to the researchers to identify the specific research questions within a topic and how they will address them.

The call is published nationally in the Belgian Law Gazette and on the Belgian Science Policy website. A letter is also sent to all Belgian universities and research institutes announcing the call and also by email to all potential interested researchers.

Selecting the Projects

All steps, general instructions and programme-specific instructions as well as the evaluation criteria are given in the call guidelines. Applicants shall use a standard form downloadable from BELSPO's website.

Calls follow a 'false' two-stage procedure. Pre-proposals are mandatory, as they help BELSPO in finding evaluators, but there is no selection at this point.

First, for the full proposals, an eligibility check (number of partners, type of partners, English proposal, etc.) is done by the Programme Manager. Second, the proposals are evaluated by at least three foreign experts (non-Belgians) in a two-step procedure. The individual experts evaluate the proposals using a standard evaluation form (written evaluation). The form and the proposals are sent to the reviewers by email or hard copy. As a second step the evaluators are invited to Brussels to work in a panel meeting where proposals with a total score on the written evaluation of at least 66 per cent (average of the final score of the three experts) are discussed. Proposals below 66 per cent with very divergent scores among the experts in the written evaluation are also discussed. At this panel meeting an evaluation matrix is filled in, where the proposals have to be grouped into four classes according to their quality (highest, high, average, low). The consensus report is then drafted, where the proposals are ranked in five classes: A+ (Highest recommendation for funding), A (High recommendation for funding), B+ (Recommendation for funding), B (Minor recommendation for funding) and C (Not recommended for funding). At this stage the experts are asked to take into account also the available budget, programme coverage and overlap between projects.

The experts are selected from a database of experts that have worked with BELSPO in previous programmes, or are sought mainly on the Internet. The selection is based on their CV. The Programme Manager makes the final decision on experts. Evaluators are anonymous (even for the Programme Steering Committee).

Scientific ranking is done by the evaluation panel. Starting from the scientific ranking the Programme Steering Committee can introduce strategic aspects in suggesting projects for funding.

Funding decisions are made by the Minister of Science Policy, based on the advice of the Programme Steering Committee.

The completed evaluation forms (written evaluation and consensus report, for the proposals discussed in panel) can be consulted at the BELSPO office after the decisions have been made. The Programme Manager will explain the evaluation procedure and summarise the discussions of the panel and the Programme Steering Committee.

Applicants cannot comment on evaluations. An appeal on the decision may be made to the Supreme Administrative Court of Belgium.

A standard contract is drawn up taking into account the recommendations of the experts and the Programme Steering Committee.

Monitoring and Reporting

Projects shall submit one scientific and administrative report annually and a final report at the end of the project.

Mid-term evaluations of the projects are done by three foreign experts (possibly the same as those who evaluated the proposal). The researchers have to prepare a special evaluation report based on guidelines sent by the Programme Manager. The reviewers have to formulate questions on the report. A discussion meeting with the reviewers and researchers is organised in Brussels. Projects that do not pass the mid-term evaluation are cancelled. The budget allocated to the second part of these projects will be used for a new call. This happened once in the previous programme SPSD II (2000–2005).

Final Evaluation

No final evaluation is carried out. Funded projects have to prepare a scientific final report preferably in English, but it can also be done in the language of the coordinator (Dutch or French).

FINLAND – Academy of Finland (AKA)

Type of organisation Research Council

The Call

A research programme theme is initiated bottom-up, i.e. the scientific community or other interest groups suggest the topic to AKA. If the research programme proposal receives support from the Research Councils, a working group will be established. Members in the working group represent AKA, other potential interested funding organisations and the research community. The working group may organise a preparatory workshop to identify the best or most important research topics within the theme. After AKA decides to launch a call for the programme, a Programme Steering Group will be appointed (Research Council members, representatives of partner funding organisations and possible invited experts). The Steering Group together with an appointed programme manager will finalise the call text.

Calls for applications are published two months before the application submission deadline. The call is announced widely on the Internet, in publications and through email bulletins by the AKA Communications Unit and in national newspapers.

Selecting the Projects

Research programme calls are usually carried out in two stages (pre-proposal followed by full proposal by invitation). Detailed guidelines for preparing an application are available on the AKA website and in the online services.

All steps, general instructions and programme-specific instructions are given in the Programme Memorandum. The evaluation criteria are described and the form for external evaluators is available on the AKA website.

The Programme Steering Group assesses the pre-proposals; emphasis is on whether

the application falls within the scope of the programme. The Steering Group recommends to the Sub-committee (decision-making organ at AKA) the applicants who are invited to submit a full proposal.

At AKA, no written assessment is given to the applicant at this stage. This practice is under reconsideration and development.

Evaluation of full proposals is done mostly by external international experts (seldom by Finnish, but is possible). In most cases, evaluation panels are used. However, if needed, also individual external experts are used (at least two). Evaluators are asked to evaluate the scientific quality (incl. appropriateness to the programme) of the proposals against the given evaluation criteria.

The Steering Group with practical help from the Programme Manager is in charge of organising the evaluation and selecting the evaluators. Evaluators are not anonymous. The names of the panel members will be given with the decision letter (not the division of tasks in the panel). The names of the individual external evaluators are given if asked (required by the Finnish Act on Openness).

A written evaluation by external evaluators (evaluation drafts done at home before the panel meeting where one consensus statement is prepared) is done using a standard form. The consensus evaluation statement is given to the applicant together with the decision letter. The applicant has no possibility (is not invited) to comment on the written evaluation. AKA funding decisions cannot be appealed officially (Act on the Academy of Finland).

The Steering Group ranks the applications based on the external evaluation, which ensures the quality. In ranking the scientifically excellent applications the Steering Group takes into consideration also other science policy issues as appropriate. The Steering Group makes a suggestion to the participating organisations on candidates to be funded. Each of the participating funding organisations (AKA and others such as ministries, foundations) makes its own decisions.

At AKA, there are no specific contract negotiations. The application is signed by both the applicant and the representative of the site of research. By signing, the site of research commits to providing facilities and practical support. The applicant and the site of research are notified of the decision and the accounting office of the site of research is given access to a governmental account as determined in the decision.

Monitoring and Reporting

The general practice with AKA funding is to ask for final reports from project leaders electronically (standard form) after termination of the three-four-year project. However, if the project leader applies for new funding before termination of the ongoing funding, the application needs to have a mid-term report as an appendix. How the project uses the funding (flow of funding, not detailed information) is monitored automatically, and the information is transferred to the AKA data system four times a year from the site of research.

Research programmes have a slightly different system, and each programme has its own modification. For programme coordination activities the project leaders are asked to report to the Programme Manager and the Steering Group once a year on their progress, results, productivity and possible drawbacks. The Steering Group discusses the progress of the projects and the programme as a whole. The Programme Manager annually makes sure that the funding is used as planned.

The Programme Manager annually reports besides to the Steering Group also to AKA on the progress and coordination activities of the programme.

At present there is no mid-term evaluation of research programmes. However, there is a working group at AKA where different

evaluation strategies are considered. This may change in the future, especially as programmes are planned to be longer (duration has already changed from three to four years).

Final Evaluation

The objective of the final evaluation of a research programme is to estimate to which degree the programme has succeeded in fulfilling the objectives originally set for it in the Programme Memorandum. Of specific interest are the programmatic approach, added value and programme impacts, interdisciplinarity, applicability of research, networking, and dissemination of results. The evaluation is done against the goals and funding volume of the programme.

The final evaluation is carried out soon after termination of the research programme. This is under active discussion as it takes time before the full impact of the programme can be evaluated.

For final evaluation, projects in the programme are asked to report on their results and also to perform a quite detailed self-evaluation (standard form), as well as to reveal the benefits or shortcomings of the programme. The Programme Manager also completes his or her coordination report.

Each project also needs to draft the final report according to the rules of the funding organisation (incl. AKA projects, as this standard reporting serves other purposes, such as national statistical needs, etc. – these reports are approved by the Research Councils).

AKA invites and appoints (the Board appoints as proposed by the Steering Group) an international evaluation panel to evaluate the research programme and to prepare a written evaluation report, which is published. The work includes examination of the research reports, self-evaluation assessments, publications and other products of the programme and discussions with the Programme Steering Group, key stake-holders, researchers, and programme coordination, as well as other relevant interest groups – as appropriate with the specific programme.

The Programme Manager gathers all the relevant programme material and prepares summaries for the evaluation panel. All the material with instructions and more information on AKA are sent to the panel members, for their work at home before the panel meeting. The panel has its meeting at AKA, where the members have an opportunity to interview the above mentioned parties.

The Research Councils and other funding organisations make use of the recommendations in so far as they are considered justified. Evaluations can serve as one element in ongoing efforts to identify future research needs and directions. Also, recommendations from the panel help to improve the research programme as a funding instrument.

GREECE – General Secretariat for Research and Technology (GSRT)

Type of organisation Government Ministry

The Call

GSRT, in cooperation with the scientific community, defines thematic areas coping with social and cultural needs, which also affect economic competitiveness. A working group appointed by the GSRT specifies certain topics within each thematic area and a call for proposals is established.

The Call for proposals is advertised through GSRT's website as well as in public newspapers. Workshops presenting the programme and guidelines on preparing proposals are organised around the country. Calls are published in the public press at least 30 days before the proposals submission deadline.

Selecting the Projects

An implementation guide is attached to each call, with all necessary instructions about the proposals form and a description of the evaluation criteria and process.

A one-stage procedure is used.

The evaluators use a standard form and instructions provided by GSRT.

Invited scientists, with expertise on each topic, constitute the panel of experts that will evaluate the submitted proposals, with the assistance of GSRT personnel. Proposals are evaluated and graded. The evaluation panel also proposes possible cuts to the budget. The evaluation panel ranks the applications according to the marks given. The final decision about the priority for funding is taken by GSRT. The anonymity of the evaluators is maintained.

All applicants receive a letter stating the approval or the disapproval of their proposal together with the evaluation report. The applicant has no possibility to comment on the evaluation report.

There are no formal negotiations. The successful applicant accepts the project's total budget and the grant proposed by GSRT in the form of a letter.

Monitoring and Reporting

The responsible scientist gives monthly reports on financial status and money flow. He also reports to GSRT on the project's progress every three months, from both a scientific and financial point of view. Annual reports are submitted and the progress of the project, according to the proposal, is assessed by an appointed group of experts.

Every three months reports concerning the finances of the projects are sent to a specific Authority of the Ministry of Finance. There is no mid-term evaluation process of the programme performed by GSRT.

Final Evaluation

A final report of a project is submitted by the project manager, with a comprehensive description of the implementation of the project stages, the deliverables and the outcome of the project. A report on the finances is also submitted. Upon the completion of a programme all necessary documents concerning the financial data are sent to a specific Authority of the Ministry of Finance.

A scientific evaluation of a project is performed by experts. If the scientific evaluation is negative, the project is rejected and the financial contribution is returned to GSRT through a decision. If the scientific evaluation is positive, an internal financial evaluation follows. A decision concerning the approval of the results is sent to the scientist as well as to the financial manager responsible for the project.

The Authority of the Ministry of Finance performs the financial evaluation of the programme. GSRT is responsible for the scientific evaluation of the programme, which will be used in the planning of a new programme.

GERMANY – Project Management Organisation Jülich (FZJ-PTJ)

Type of organisation Agency mandated by ministry to implement marine RTD programme

The Call

The national strategic priorities in marine research are discussed with the scientific community, e.g. committees of the German Research Foundation or German marine stakeholders such as 'Konsortium Deutsche Meeresforschung'. The programme call is released by PTJ.

Details of the themes and specific topics are finalised by the German Ministry of Education and Science in collaboration with other ministries of relevance, e.g. Federal Ministry of

Transport, Building and Urban Affairs; Federal Environment Ministry; and Ministry for Food, Agriculture and Consumer Protection.

Calls for selected topics (e.g. Coastal Zone Management) are published via the 'Bundesanzeiger', which is released by the Federal Ministry of Justice, by email distribution lists compiled by PTJ, and also on the ministries' and PTJ's websites. Scientists may also submit proposals outside of specific calls based on a given programme.

Selecting the Projects

General scientific and administrative instructions for application are included in the programme and the specific call texts. The call is drafted by PTJ in close cooperation with the Federal Ministries. Scientific excellence, contribution to international and application potential are among the key criteria. There is no standard form for evaluation. Within a specific call, guidelines on the evaluation criteria are published where applicants are informed about the evaluation criteria.

A two-stage procedure is used. Applicants submit pre-proposals. The evaluation by PTJ includes external referees (in some cases permanent scientific steering committees).

There is no general format for the evaluation procedure. The evaluation can be done in-house (exception) or by national and international external experts or expert panels. PTJ nominates evaluators according to their expertise. Evaluators are either anonymous for applicants, or, in selected cases, applicants present their proposals to the expert panel and discuss them with the panel.

Applicants receive an anonymous evaluation report. If the general ranking is positive, the applicants may be asked to consider the comments and suggestions of the evaluators.

The applicant may comment on the written evaluation before decision-making.

The external evaluators (in panel one consensus statement) give a written recommendation to PTJ. External evaluators together with PTJ establish a ranking list. Evaluation results are not binding; the final decision is made by the Federal Ministry for Science and Education (BMBF) by PTJ's recommendation. PTJ recommends the proposals for funding after detailed discussions with the applicants on formal requirements.

There are no negotiations. The funding is limited by the annual budget provided by the ministry. Therefore, PTJ controls and in some cases can cut the budgets for the applicants.

Monitoring and reporting

Scientific institutions have to report once, industry twice a year. Information on project progress (compared to the planned work) and the correct use of the budget has to be provided. The reports are assessed by PTJ.

In case of long-term funding (more than 3 years), a mid-term evaluation will be carried out. External referees (or panels) together with PTJ assess the project results and decide on the continuation. If evaluation is negative the project will be stopped

Final Evaluation

The applicants have to write a final report and are in some cases asked to organise a closing seminar or conference. The aim of the final reports and conferences is to estimate to which degree the research activities have succeeded in fulfilling the objectives and how the results will be utilised in the future.

The evaluation includes examination of the reports, self-evaluation assessment, publications, and other products of the projects. In general, there is no need to write an evaluation report.

Evaluation can serve as one element in ongoing efforts to identify future research topics

IRELAND – the Marine Institute (MI)

Type of organisation Research Institute mandated by a Government Ministry to implement a competitive Marine RTD Funding Programme

The Call

National marine research and innovation objectives and research priorities for the period 2007–2013 have been defined in a National Strategy for Marine Knowledge, Research and Innovation (***Sea Change***) following a lengthy foresight and consultation process with stakeholders (industry, government departments and state agencies, and the research community). The strategy has defined objectives and RTDI priorities for 15 Research Programmes within three Research Measures (Industry, Discovery and Policy Support).

The specific topics for funding calls are drawn from the **Sea Change Strategy** on the advice of an Implementation Group made up of representatives of the different stakeholder groups.

Calls are published 6–8 weeks before the closing date on the Marine Institute's funding website (www.marine.ie/home/funding) and in the National Press and trade journals. In addition, an electronic mail shot is sent to Research Offices in Third-level Institutions. An electronic call subscription service is available on the Marine Institute website. In some instances, an advance notice detailing the broad nature of the call is issued up to one month ahead of the actual publication of the call.

Selecting the Projects

It is important to note that the majority of funding calls issued under the Sea Change Strategy consist of pre-defined projects, where the Terms of Reference and objectives are laid out. Thus, proposals are evaluated with the view to selecting the best proposal for each of the defined projects. It is possible under the Sea Change Strategy to issue open / bottom-up-defined research, for example in the 'Applied Industry' Programme, where bottom-up / open calls are the norm.

In general, a one-stage procedure is used. Full proposals are checked for eligibility by the Sea Change Funding Office. Proposals meeting the eligibility criteria are evaluated based on their individual merit by a panel of expert evaluators established for this purpose.

Once the experts, to whom proposals have been assigned, have completed their individual assessments, they are brought together in plenary. During this plenary or consensus meeting the individual experts agree on a final mark for each of the evaluation criteria and on an overall mark (score) for the proposal. They justify their marks with comments suitable for feedback to the applicant and agree on an overall Consensus Evaluation Report.

The selection of expert evaluators is the responsibility of the Sea Change Office. All reasonable measures are taken to ensure objectivity, fairness, quality and confidentiality. The names of the experts assigned to individual proposals are not made public. Lists of all the experts participating on evaluation panels are made available and are published at regular intervals.

All applicants receive a copy of the Consensus Evaluation Report and Consensus Score, whether their proposal is successful or unsuccessful. The applicant has no possibility to comment on the evaluation during the evaluation phase.

The evaluation panels rank applications in relation to each pre-defined project. This is a simple 1, 2, 3 based on the consensus score. The Sea Change Funding Office then recommends that, subject to achieving a minimum (pre-defined) score on each evaluation criteria and a minimum (pre-defined) overall score, the highest scoring applicant for each project be funded.

The Board of the Marine Institute approves the recommendation on the list of projects to be funded.

Once a decision is made to grant funding the applicant is asked to address the evaluators' comments and incorporate these into an amended proposal before the contract is negotiated and signed. These comments are generally minor (e.g. changes to work packages, budget alterations etc) and would not affect the overall outcome of the evaluation.

Monitoring and Reporting

Grantees are expected to submit regular reports during the course of the project. The reporting interval depends on the duration and nature of the project and can vary between three and 12 months. Grantees report on the project's progress in relation to identified tasks and milestones and highlight any issues arising. They also report on any outputs from the project: publications, presentations, workshops attended etc. Grantees also submit an annual cost statement outlining actual v. projected expenditure.

Projects are monitored and evaluated on an ongoing basis. A monitor is appointed for each project. This monitor may be an internal Marine Institute expert (where available), an independent expert (in some cases one of the original project evaluators) or a combination of the two. In other cases a project steering committee, with a Marine Institute representative, will be convened to oversee the project. As a rule of thumb, a project will be 'monitored' after each interim report is submitted. This may consist of a meeting or conference call between the monitor and project partners.

Monitors are provided with a monitoring report template and comment on the project's progress in relation to tasks, milestones and deliverables, highlight any issues arising, and make suggestions on how these can be addressed. Where appropriate, monitors are encouraged to provide advice to the partners on the project to assist them in delivering on the objectives.

Final Evaluation

The final evaluation of projects is similar in nature to the ongoing monitoring (see above). The monitor will report to the Sea Change Funding Office, using a standard monitoring template, on whether they feel the terms of reference of the project have been met. In the case of non-delivery they will justify if this is acceptable.

The final project evaluations are used to make a recommendation on whether the final payment on the project should be carried out.

The Marine Institute/Sea Change Funding Office maintains a database on all projects funded, which is published at regular intervals (see below).

Oceans of Opportunity, Exploring Ireland's Marine Resources: Review of Projects 2000–2005 supported under the Marine Research, Technology, Development and Innovation (RTDI) Measure of the National Development Programme 2000–2006. 76pp Marine Institute (2006).

MALTA – Malta Council for Science and Technology (MCST)

Type of organisation Agency mandated by the Office of the Prime Minister to implement the National R&D programme

NOTE: The information provided in this Questionnaire is based on the National Research and Innovation Programme 2006.

The Call

The National Research and Innovation Funding Programme does not address a specific topic – it allows proposers to submit proposals in one of the four priority areas identified in the National Strategic Plan for Research and Innovation 2007–2010 that was approved by the Cabinet of Ministers and launched by the MCST in 2006. These priority areas include: Health-Biotech; Energy and the Environment; ICT; and High Value Added Manufacturing Services.

The MCST is to undertake, every three years, a horizon scanning exercise in order to identify

new trends and emerging research and technology needs in these and other areas of importance.

The topics funded under the National Research and Innovation Funding Programme must be in line with the priorities mentioned above. The National Strategic Plan for Research and Innovation 2007–2010 was drafted following consultations with major stakeholders in a number of key sectors for Malta (from the public, university and private sectors).

Action plans for each of the four areas or topics are currently being drafted by the MCST in collaboration with key local players. These action plans will also serve to define more clearly the specific research requirements within the priority areas.

A Committee within the MCST is responsible for managing and implementing the R&I Funding Programme. Together with the Programme Manager, it finalises the call text, launches the call, oversees the evaluation of the proposals and interacts with the successful applicants.

Normally, the Call for Applications is launched via an information meeting organised by the MCST for interested parties, wherein the objective of the call is outlined and guidelines provided for filling the forms. Information with details on goals of the research programme, guidelines for applicants and application forms, is made available to all potential project proposers on the MCST's website. The call is publicised also in local newspapers and through email lists.

Selecting the Projects

A two-stage procedure is used: first, a pre-proposal, followed by a full proposal for those project proposals that are shortlisted in the first round of evaluations.

The information published with the Call for Applications includes the Rules for Participation and the Guidelines for Detailed Project Proposals. These provide information on the scope of the programme, timeframes, reporting and auditing commitments and the necessary guiding steps to submit a proposal. Evaluation criteria are also described. Evaluation forms are not provided on the website.

The National Strategic Plan for Research and Innovation emphasises the following three principles:

1) Focusing resources on strategic areas
2) Knowledge transfer – closer links between academia and industry
3) Focus on research that will generate economic benefits

The Research and Innovation Funding Programme 2006 was developed as an instrument to achieve these aims.

In the first phase of evaluation, all the pre-proposals submitted are reviewed by international experts as well as by the Programme Committee within the MCST. The evaluation criteria were designed to reward project proposals fulfilling the aforementioned three key objectives.

The pre-proposals that are shortlisted are invited to submit a full proposal. The applicants can discuss with the MCST Programme Committee what should be included in the final proposal.

Evaluation of full proposals is carried out by international experts – this second-stage evaluation focuses on the proposed work plan of activities and costs; the MCST Programme Committee oversees the process.

The MCST Programme Committee organises the evaluation, in terms of choosing the international experts and making appropriate contacts. Evaluators are anonymous; the evaluator list is not made public.

An evaluator's report is prepared for each proposal reviewed. The applicant receives the report together with the decision letter. The international experts together with the MCST

Programme Committee rank the applications. The final decision on selection of projects rests with the MCST. Applicants may not comment on evaluations.

Negotiations are held between the applicant and the Programme Manager of the National R&I Programme. Such negotiations eventually lead to contract signature.

Monitoring and Reporting

For the purpose of reporting, a project is divided into a number of stages of 12 to 18 months depending on the overall duration of the project. At the end of each stage, the Project coordinator is expected to submit a project report to the MCST with details of actual expenditure over the past stage, together with forecasted project expenses, project activity and achievements to date. This report is essential to secure funding advances.

Following the first phase of proposal evaluation, a report is drafted highlighting the quantity of proposals submitted, the total requested funding and the topics that the proposals spanned. This provides information on the extent of take-up of the research programme by the local community.

No formal mid-term evaluation of research programmes is currently in place.

Final Evaluation

A final project report must be submitted to the MCST with a full account of the project activity and achievements, as well as actual expenditure. The MCST conducts a detailed audit following termination of the project and based on the information provided in the final project report.

No formal evaluation of the research programme has been carried out.

The National Research Programme was first launched in 2004 with a Call for Applications. A final report entitled "Internal RTDI Final Report" was produced by the MCST, though this remains an internal document. This document provides an analysis of the research programme 2004, the methodology used, and provides useful tips for drafting the 2006 programme.

THE NETHERLANDS – Netherlands Organisation for Scientific Research (NWO)

Type of organisation Research Council

The procedures described apply to the Council for Earth and Life Sciences of NWO

The Call

The priorities of the Council for Earth and Life Sciences of NWO are defined by the Board of the Council. The policy is described in a strategic memorandum for a four-year period (scientific community is consulted). The Board decides on the programmes to be launched.

Once the decision to launch a programme is made, a Programme Committee is installed. The Programme Committee consists of scientists that are responsible for defining the programme contents and coordinating the research. It is the Programme Committee that drafts the call. When multiple organisations (external or other divisions within NWO) fund the programme, a Steering Committee is installed. The funding organisations are represented in the Steering Committee and they are responsible for the policy and financial aspects of the programme. The final decision on the content of the call is made by the Steering Committee or the NWO Board (when there is no Steering Committee).

Calls are published on the website together with guidelines that include details on forms, criteria and the evaluation procedure. Additionally, the call is advertised in two national journals (for biology and geology). The call is open for two to four months. For specific programmes, dedicated web pages are established where information on funding is posted and electronic newsletters can be issued to targeted researchers groups.

Selecting the Projects

Detailed instructions are given in the call, as well as a description of the evaluation criteria and the evaluation procedure. A pre-proposal stage is only used when a relatively high number of applications is expected. The Programme Committee invites full proposals.

Full proposals are checked for eligibility and format by the secretary of the Programme Committee (NWO). After this, the individual applications are sent to external international experts (minimum 2–3). These referees are selected by the secretary of the Programme Committee together with the Programme Committee members. The review reports are anonymous.

The anonymous evaluation reports are sent to the applicant before decision-making. The applicant is invited to write a rebuttal on the evaluation reports. Applications, review reports and rebuttals are sent to the Programme Committee and used for ranking purposes.

Proposals are ranked by the Programme Committee. This ranking has the status of an advice. To obtain the ranking, first, the individual members of the Programme Committee score each application. The outcome, i.e. a pre-ranking, sets the agenda for the Programme Committee meeting, where the proposals, referee reports and rebuttals are discussed and a final ranking is obtained.

The Steering Committee (or the NWO Board) makes the final funding decision based on the ranking of the Programme Committee and the available budget.

There is no negotiation phase. NWO issues a grant letter based on fixed grant levels for salaries and the budget in the application. Applicants are informed of average scores and their individual ranking. There is a legal six-week term to make objections against the funding decision. For applications where ship-time is requested, there is a separate negotiation to include the project in the national cruise planning.

Monitoring and Reporting

Each project reports annually on its progress and outcome, such as publications.

The Steering Committee is responsible for the mid-term evaluation of the programme. The mid-term evaluation is a self-evaluation by the Programme Committee, to be approved by the Steering Committee. In some cases, an external evaluation committee may also be appointed. The mid-term evaluation can be used to steer the programme.

Final Evaluation

Each project prepares a final report, which includes a list of publications, a description of other achievements and a half-page report for the general public.

The final evaluation of the programme is performed for the Board of the Council for Earth and Life Sciences. The Steering Committee is responsible for the evaluation. The evaluation involves three different stages:

1. Reporting on the projects by scientists, by means of a questionnaire to the Principal Investigators.
2. Reporting on the Programme, by means of a self-evaluation by the Programme Committee and the Steering Committee.
3. Evaluation by an external review panel. The review panel consists of 3–4 international experts. Members are selected by the Steering Committee or the NWO Board.

Evaluation reports are sent for information to the general Board of NWO and possible external funding organisations.

NORWAY – Research Council of Norway (RCN)

Type of organisation Research Council

The Call

A theme for a research programme is initiated by ministries, scientific communities, interest groups or the Research Council. The specific topics are defined by the Research Council together with the ministries financing the programme and in collaboration with scientists.

Calls are published on the website with detailed instructions and information on the evaluation criteria six weeks before the deadline.

Selecting the Projects

The steps of the selection procedure are described in the call text. A one-stage selection procedure is used.

The eligibility check is done by the administration. The evaluation of full proposals is carried out by external international evaluators, individuals or panels as appropriate. The external evaluators evaluate the scientific quality of the proposal, the merits of the applicant and the feasibility of the project. The administration or the Steering Committee evaluates the strategic value of the project.

The evaluators are selected from an existing database and among known experts in the field. The administration decides who should be used as evaluators. Evaluators are anonymous, but the list of used evaluators within the programme is made public after decisions have been made.

A written evaluation statement by the external evaluators or the panel is drafted using a standard form. This is sent to the applicant together with the decision letter.

It is not possible for applicants to comment on the evaluations.

Ranking and decisions are made by the Programme Board based on written reviews and their own judgement of the relevance. The members of the Programme Board are selectd by the Research Council and they represent scientists and end-users.

Grant-aid negotiations are carried out between successful applicants on the basis of a standard grant-aid agreement protocol and taking into account the recommendations of the Expert Evaluation Panel.

Monitoring and Reporting

All projects report annually by filling in a questionnaire and commenting on their progress. The programme also reports annually to the Research Council and to the ministries.

Based on the annual reports, the projects are evaluated by the administration and the Programme Board. A project may be stopped if the deliverables not are accepted.

Final Evaluation

No final evaluation is carried out after termination of the programme and the projects.

POLAND – Polish Ministry of Science and Higher Education (MSHE/MSRTI)

Type of organisation Governmental Ministry

NOTE: In January 2008 the National Centre for Research and Development (established in 2007) replaced the MSHE as Polish MarinERA partner. At present evaluation and selection procedures are under development. The procedures described here applied to MSHE/MSRTI before 2008.

The Call

The Minister of Science and Higher Education has entrusted the development of topics for research programmes (in basic research or

technology) and the conditions for their realisation to an Interdisciplinary Panel of Experts (the Panel). The Panel works on the basis of the National Framework Programme and defined priorities of the country's scientific, technological and innovative policy, A research programme topic is initiated bottom-up, i.e. the scientific community and/or other interest groups suggest topics to the Minister.

If the suggested research programme topics are chosen, the Minister appoints a working group to define the titles of the projects within the research topics and enacts conditions for the realisation of these projects. A programme manager (also an Institution) may be selected.

After the Minister has decided to launch a call for the programme, the Ministry announces the call in a journal of nation-wide coverage and on the Ministry's website 60 days before opening of the call.

Selecting the Projects

The announcement includes terms of the call, e.g. project title, thematic range, period of realisation, deadline for submission of proposals and the management of the realisation of the project. Detailed guidelines for preparing an application are available on the Ministry's website and via the electronic service.

The evaluation of proposals are carried out by Polish experts from the list of experts (now volunteers). Evaluators are asked to evaluate the scientific quality (incl. appropriateness to the programme) of the proposals against the given evaluation criteria (available to applicants on the website).

Applications are considered by one of the Committees of the Council of Science, the advisory body to the Minister, a formal representation of the research community. One of the members of the Committee authorised by the Head of the Committee appoints the reviewers. The proposals are evaluated by three reviewers. The reviewers are anonymous.

The Head of the Committee appoints a Working Group for the evaluation of projects.

A written evaluation (in a panel one consensus statement) is drafted using a standard form. The form is given to the applicant together with the decision letter.

The applicant has the possibility to lodge an appeal to the Committee of Appeal of the Council of Science.

The Working Group ranks the applications. The Minister makes the final funding decisions.

No specific contract negotiations are held with applicants.

Monitoring and Reporting

The head of a scientific institution, to which funds have been transferred for the realisation of the project, submits together with the project manager an annual and a final report. Both reports are composed of a description of the realised tasks and a financial statement. On realisation of the project, the annual report is subject to verification by proper organisational units of the Ministry on the basis of the enclosed annual costs estimation, to confirm the execution of the project and the proper schedule of the planned work. Final reports should be prepared within 60 days after termination of the project.

Final Evaluation

In the final report, the following aspects are taken into consideration:

1) congruity of the performed tasks;
2) approach to the analysis of results;
3) value of the scientific results and their significance to the progress of science;
4) social or economic applicability of the projects' results;
5) correct use of funds and legitimacy of expenses in relation to the results;
6) category and place of presentation of research results, e.g. monograph, publications, abstracts at conferences, multimedia presentations;

7) doctoral theses or works qualifying for assistant professorship (with habilitation); and
8) applicability of the research, how inventions were put into practice.

The final report is evaluated by the Working Group (preferable the same that evaluated the project) on the basis of the reviewers' or experts' opinions.

The evaluation of the final report should include conclusions concerning the execution of the agreement; or a request calling for repayment of financial funds used incorrectly, and possible payment of conventional penalties.

PORTUGAL – Foundation for Science and Technology (FCT)

Type of organisation Government Ministry

The Call

At FCT, as a rule, a funding programme is open to all scientific topics. However, FCT's Scientific Councils may suggest opening specific programmes to the Presidency of FCT, by their own initiative or by representing the will of specific groups of the scientific community. The Scientific Councils propose the scientific content of a target-oriented programme.

A call is published and announced using a press release, the FCT website and mailing lists.

Selecting the Projects

Calls are carried out using a one-stage procedure and only full proposals are submitted to FCT. The information for submission can be found in the call text, regulations and application forms. All steps, general instructions and programme-specific instructions as well as the evaluation criteria are given.

If the proposals are in accordance with the rules of the programme they are submitted to scientific evaluation, carried out by international panels of experts in each field of science. FCT, taking into account advice of the Scientific Council, invites a recognised international expert (in each discipline) to act as a coordinator of the evaluation, and he or she is also responsible for selecting the other evaluators who will constitute the panel (the number of evaluators depends on the number of applications received on each topic).

The evaluators are provided with the rules and budget of the programme and with access to an internal web-based platform where the proposals can be evaluated. Each project needs to have a minimum of two scientific evaluations.

The FCT Office checks the applications for eligibility. Evaluation of full proposals is done by international experts who work as panels through an online system (i.e. the majority of evaluators do not need to be in Lisbon). After having a minimum of two online evaluations per project, the Coordinator and other experts of the panel (selected from the initial panel according to requirements of the proposals submitted) meet in Lisbon to harmonise the evaluations, rank them and decide on the funding volume (requested funding vs available funding for the programme). The evaluation panel is requested to write an extensive statement that fully explains the panel judgement on the proposals and states recommendations.

The evaluation panel both evaluates the applications, ranks them and decides on funding, and also gives recommendations on the applications, i.e. how the human resources should be used.

There is no specific contract negotiation involved, unless the money that the panel proposes for the project is less than what was initially requested in the proposal.

The list of panel members is published on the FCT website, identifying the coordinator of the panel and the field of expertise of each evaluator. The written evaluation report is given to the applicant when FCT informs the applicants of

whether or not their proposal has been accepted. The applicant can comment on the evaluation after the decision has been made, and is entitled to request a revision of the evaluation. The Coordinator and the panel are invited to meet again and reconsider the project based on the comments received (it may be necessary to invite new experts in a specific topic). The panel then gives a new final decision.

Monitoring and Reporting

Project coordinators submit annual reports to FCT. The programme office at FCT reports annually on scientific progress and financial status to the Presidency of FCT and to the Portuguese Ministry of Science, Technology and Higher Education. Normal ongoing programme funding for projects in all fields of science does not require mid-term evaluation, whereas specific programmes may, depending on initial regulations or the respective scientific council. In this case the original panel is asked to monitor the achievements of the projects and provide guidance to the projects and to FCT. The consequences of a negative mid-term evaluation may range from asking the project to adopt the recommendations of the panel, and terminating funding for specific projects, to asking for the devolution of the money transferred to projects.

Final Evaluation

Projects submit final reports to FCT (scientific and financial, including audit certificate). FCT Programme Services report on scientific progress and finance to the President of FCT and to the Ministry (which approves or rejects the internal evaluation), according to impact indicators and financial execution. The external evaluation is carried out by international scientific experts who take into account the benchmarking indicators (number of publications, number of degrees under the project etc.) and assess whether or not the programme has been a success. The external evaluation is done within one year of the end of the programme.

The evaluation is used to improve possible future programmes, both in terms of definitions of topics as well as improvement of procedures or platforms used.

UK – Natural Environment Research Council (NERC)

Type of organisation Research Council

Evaluation process of Directed Programmes

The Call

When a topic is identified it is suggested to NERC for informal discussion with the Director of Science and Innovation, who will then discuss the issue internally to determine if it fits within the strategic NERC portfolio. A Directed Research Programme is generally initiated bottom-up by the scientific community.

If the topic receives support an outline proposal will be developed, between the proposer and NERC, to be submitted to the NERC Science and Innovation Strategy Board (SISB). If SISB agrees that the proposal links with the Strategy (NERC strategy defined nationally), a full proposal with costings is developed by a working group (with a SISB champion to advise) to submit to the NERC Council to decide if the programme will receive funding and how much. Partnerships involving co-funding from the private and public sectors are encouraged. Once the Directed Programme has been approved a programme manager, a programme administrator (both usually NERC administrative personnel), an external science Coordinator and an external Steering Committee (an open call for nominations for membership is held) are appointed who will be responsible for developing the Science and Implementation Plan and subsequently the actual call texts.

Research grant rounds are advertised on the NERC website and through the NERC listserver. All contracts over 150,000 pounds are advertised in the Official Journal of the European Union.

Selecting the Projects

Directed Programmes may have an outline bid stage before applicants proceed to full applications, but not always. All necessary information will generally be provided in the Announcement of Opportunity.

Outline bids are assessed by the Programme Steering Committee, with emphasis on whether the application falls with the scope of the Programme.

All necessary information will generally be provided in the Announcement of Opportunity.

An internal assessment is carried out for eligibility. Applications are then sent for external (UK and international) evaluation by reviewers. Reviewers are selected by the NERC internal administrative team from referees suggested by the applicants, an internal database and the Internet, and may also be suggested by the Programme Steering Committee. A number of individual reviewers are approached for each grant.

Review forms are available on the NERC website. Reviewers are asked to grade scientific excellence, fit to priorities, risk-reward and cost-effectiveness.

External reviewers are anonymous, but members of moderating panels are published on the NERC website (before the meeting).

Applicants are provided with the referee comments (but not the grades) before the moderating panel meeting and also with the opportunity to respond to the referee comments. The responses are seen alongside the referee comments by a moderating panel.

Ranking is carried out by a moderating panel, which for a programme is the Programme Steering Committee. If deemed necessary, additional external experts may be also be invited to sit on the moderating panel. The moderating panel will provide final grades and make funding recommendations to NERC, which will make the final funding decision.

Moderating panels may make recommendations for financial cuts to the applications. Applicants then liaise with NERC administration to ensure that their work can continue in light of these cuts. Exceptionally, revisions in the research plan may be requested.

Monitoring and Reporting

All Principal Investigators must complete an annual online questionnaire on the specific outputs from their research grant (Output Performance Measures – OPMs). Short summaries, in plain English, of scientific achievements or advances during the previous year will also be required. OPMs are collected on all current research grants and up to three years after funding has ceased.

Annual programme reports are submitted each year to NERC by the Science Coordinator (overseen by the Programme Steering Committee). These reports will partly be based on the information provided from the individual project's OPMs.

There is no mid-term evaluation.

Final Evaluation

Project (grant) level – Each project is required to submit an online final report on the conduct and outcome of the project (achievements of the project with respect to the original aims, research progress and development, and dissemination of results) within three months of the end of the research grant. No further application from a Principal Investigator will be considered while a final report is overdue.

Final reports from Directed Programme grants are assessed by the members of the Programme Steering Committee. Final reports from research grants are evaluated by the relevant Science Programmes Officer (NERC administration) and graded either satisfactory or unsatisfactory. Where a final report is judged to be unsatisfactory the Principal Investigator will be asked to submit an amended report to provide a formal response to specific issues of concern. If the grading is upheld as unsatisfactory, the Principal

Investigator will be barred from submitting further grant applications for a specified period (in practice this rarely happens).

Programme level – At the end of the Programme, the Steering Committee is required to provide a final programme report to NERC Science and Innovation Programmes (the division that funds the programmes). This should report on how well the Programme has delivered its objectives and on the added value generated by the management of the Programme, including that provided by the Steering Committee, Science Coordinator and Swindon Office Staff. The report should consider the major activities during the programme, the immediate products and outcomes emerging from the programme, and any longer-term, broader legacy and impacts. A key input to the final programme report will be the final reports of individual research projects funded by the Programme. The report is usually required approximately nine months after the formal end of a Directed Programme.

The report is used to justify the investment made by NERC.

The reports are mainly used to feed into the NERC Annual and Operational Reports, and to provide information on NERC's activities with respect to scientific achievements, knowledge transfer, science and society, and science into policy.

ANNEX 5

Examples of Performance Indicators

Inputs

Number of projects
- Number of subprojects / PhD students / post docs

Amount of funding
- Available major infrastructure, access to core instrumentation

Programme management activities

Outputs

Training

MSc degrees / PhD degrees / Post docs /
Expert training (capacity building), including for private sector, administration / management

Production

Scientific and professional publications (bibliometrics)
- Refereed international scientific publications
  - *citations, highly cited, h-index, m-index*
- Refereed international edited volumes and conference proceedings
- Refereed national (own language) scientific journals
- Refereed national edited volumes and conference proceedings (own language)
- Scientific monographs (in own language)
- Scientific monographs published abroad
- Other scientific publications – non-refereed journals, conference proceedings, university series, software, CD-ROM etc.
- Textbooks
  - *ranking by impact factor (journals), prestige of the publisher (books)*
  - *citations to non-ISI indexed articles*

Other products
- Patents / other intellectual property protection
- Intellectual property licensing / licensing income
- Innovations
- Spin-off developments
- Products / Computer programmes
- Prototypes
- New processes, practises, technologies, applications
- Quality data, utilized by others

Networking and collaboration / partnerships – national and international

Exchange visits
Conferences / workshops / seminars organized
Co-funding / co-authored papers (also with industry)
New collaboration / new kind of collaboration
- *new partners / partnerships / industry links*
- *will these be maintained after the funding term*

Other outputs

New employees / new jobs created
Other competed funding (national, EU) / further funding
Sale of services or intellectual property
Other interaction with end-users/stakeholders/ general public
Expertise provided for administration, policy making (national and international agreements)
Consultants

Esteem indicators - Honours / awards / prizes / invited services

Keynote invitations / fellowships
Journal editorships – editors / board memberships
Visiting positions
Grant committees / reviewers

Outreach

Newspaper / general paper articles
TV and radio programmes
Other scientific communication activities and

events
level of spend on science communication activities
staff time spent on science communication activities
contribution to science week and similar events
interaction with schools

Impact/outcome

Applicability and importance to the users
How are the results exploited in future
Improved understanding / increase of the knowledge base
Increase the capacity for scientific and technological problem solving
Used by policy makers / implemented by managers
An effect on the scientific field /can be utilized
Sustainable enhancement of new contacts, sharing data and other facilities
Raising the general awareness of the importance of the topic/scientific field
Changing public sentiment
Increase an interest in the research, more funding in general for the area
New joint grant applications
Enhancement of interdisciplinarity
Added value (especially in research programmes), what was achieved, which would have not been achieved without this call (funding)

For further information on the MarinERA Project why not visit our website: WWW.MARINERA.NET

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