INDECO

DEVELOPMENT OF INDICATORS OF ENVIRONMENTAL PERFORMANCE OF THE COMMON FISHERIES POLICY

Project no. 513754

INDECO
Development of Indicators of Environmental Performance of the Common Fisheries Policy

Specific Targeted Research Project of the Sixth Research Framework Programme of the EU on 'Modernisation and sustainability of fisheries, including aquaculture-based production systems', under 'Sustainable Management of Europe's Natural Resources'

Final activity report
Months 1- 24

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The INDECO project

The purpose of this Co-ordination Action is to ensure a coherent approach to the development of indicators at EU level, in support of environmental integration within the CFP and in the context of international work on indicators. The principal objectives of INDECO are:

1. to identify quantitative indicators for the impact of fishing on the ecosystem state, functioning and dynamics, as well as indicators for socio-economic factors and for the effectiveness of different management measures;
2. to assess the applicability of such indicators; and
3. to develop operational models with a view to establishing the relationship between environmental conditions and fishing activities.

A consortium of 20 research organisations from 11 EU Member States is implementing INDECO. An Advisory User Group will provide a link between the researchers and policy makers, managers and stakeholders.

More information on INDECO can be found on the project's website:
http://www.ieep.org.uk/projectMiniSites/indeco/index.php

Executive Summary

The achievement of sustainable development and the integration of environmental requirements into sector policies are now established and legally binding objectives of the EU. Building on these objectives, and recognising the deteriorating state of the marine environment, including fish stocks, the Community agreed on a new framework for managing fishing and aquaculture activities under the Common Fisheries Policy (CFP) in December 2002. The aim of the resulting Regulation 2371/2002 is 'to ensure the long-term viability of the fisheries sector through sustainable exploitation of living aquatic resources based on sound scientific advice and on the precautionary approach'. More concretely, the stated objectives of the CFP now include exploitation that provides for; *inter alia,* sustainable environmental conditions. Moreover, 'The CFP shall aim at a progressive implementation of an ecosystem approach to fisheries management.' (Article 2)

The introduction of ecosystem considerations in the management process is now a requirement in the EU. Together with other developments at an international level, this is creating increasing pressure first to understand and then to manage the relationships between fishing activities and ecosystems, as well as finding ways to measure the effectiveness of different management approaches. This, in turn, will allow management strategies to be adapted accordingly. Well-designed indicators are a recognised tool to help assess progress towards policy objectives, as well as to provide a basis for adjusting policies and communicating with stakeholders. Ultimately, the use of indicators should promote action to improve management systems in pursuit of policy goals and objectives. Substantial efforts have been already been made internationally, as well as in European for a, to develop fisheries/environment indicators. While many different indicators have been proposed, very few have been tested systematically or have been put into use.

The purpose of this Co-ordination Action is to ensure a coherent development of indicators at the EU level, drawing on the knowledge and expertise of different organisations and individuals.

The Institute for European Environmental Policy (www.ieep.org.uk) is leading this project in co-operation with 19 research organisations from 11 Member States namely, the Netherlands Institute for Fisheries Research (RIVO), University of Venice (DSA-UNIVE), Renewable Resources Assessment Group (RRAG), Imperial College, London; Institute for Fisheries Management and Coastal Community Development (IFM), Sweden; Sea Fisheries Institute (SFI), Poland; Hellenic Centre for Marine Research (HCMR), Greece; Fundación AZTI – AZTI Fundazioa, Spain; Fishery Research Service Marine Laboratory Aberdeen (FRSMA); Centre for Environment, Fisheries and Aquaculture Science (CEFAS)- Lowestoft Laboratory; Institut Français de Recherches pour l'Exploration de la MER (IFREMER); Institut du Développement Durable et des Resources Aquatiques (IDDRA); University of Rome La Sapienza (UR); Danish Institute for Fisheries Research (DIFRES); Institute of Coastal Research (ICR), Sweden; Finnish Game and Fisheries Research Institute (FGFRI); Central Institute for Marine Research (ICRAM), Italy; Joint Nature Conservation Committee (JNCC), UK; Consiglio Nazionale delle Ricerche (CNR), Italy; and Estonian Marine Institute (EMI), Tartu University.

This project consisted of nine work packages which were executed from month 1-24 (November 2004 – October 2006). Six of these work packages (WP1-6) were technical in nature. Two other work packages (WP7 and WP8) were concerned with the two Conferences (the first in year 1 and the second in year 2). WP 9 led by IEEP was dedicated to coordination and management of the consortium.

In December 2004, the project leaders and teams began their work in earnest with a kick-off meeting which was held in Brussels. Six coordination meetings were held during the two years of this project. These meetings led by the coordinator involved all work package leaders. In the first period two meetings were held at IEEP's office in London on 8 February and 6 July 2005. The third meeting was held on 8th September 2005, following the 1st Annual Conference. In the second reporting period three coordination meetings were also held, the first at the end of WP5 time series workshop in January in London, the second at the end of the Second INDECO Conference in May 2006 in Athens and the third at the end of WP2-6 Indicator Evaluation meeting held in September 2006 in London.

Twenty four deliverables (D1-D24) were successfully completed during this project. This included reviews of thematic indicators (D4-D9); detailed reports on testing different types of indicators (D11—13), the utility of socio-economic indicators (D14), evaluation of role of models in identifying the best indicators (17) and further evaluations of modelling methods in indicator selection, biological and socioeconomic indicators (D19-23) and a policy implementation plan (D24). Two additional reports on the two INDECO conferences have also been compiled. All deliverables can be found on the INDECO website (http://www.ieep.org.uk/research/INDECO/INDECO_Home.htm).

1 PROJECT OBJECTIVES AND MAJOR ACHIEVEMENTS (M1-M24)

1.1 Overview of general project objectives

The three principal objectives of INDECO are to:

- To identify quantitative indicators for the impact of fishing on the ecosystem state, functioning and dynamics, as well as indicators for socio-economic factors and for the effectiveness of different management measures
- To assess the applicability of such indicators and
- To develop operational models with a view to establishing the relationship between environmental conditions and fishing activities.

To date, progress on identification and selection of indicators for fisheries management purposes has been limited to projects undertaken by the Food and Agriculture Organisation (FAO), Oslo and Paris Commission (OSPAR), the European Environment Agency (EEA) and the International Council for the Exploration of the Sea (ICES). In all cases, while many different indicators have been proposed, few have been tested systematically and even fewer have been put to use in fisheries management.

INDECO was directly related to the state of the art on fisheries/environment indicators at the European and international level and this was evident from the research undertaken by work packages 2-6 with WP 1 providing the policy context for most efforts during the two years of the project. There were some variations to the project plan during years 1 and 2, which were based on expert advice from AUG members as well as indicator developments, external to INDECO. The two Conferences which benefited from input from external experts and the project coordination meetings provided opportunities for critical review and discussions during the life of the project which led to the successful completion of the 24 deliverables highlighted in the Gantt chart (Annex 1).

Despite these achievements, there are a number of issues which should be noted:

- Work package leaders faced their own challenges with the lack of engagement of some partners in their research activities during both years. This was despite attempts to organise coordination meetings and regular e-mail and telephone contact. Various strategies were used to ensure engagement, led by WP leaders and the project coordinator and these proved to be successful in a number of instances.
- There were often delays in the delivery of the reports and milestones, but regular contact between work package leaders with the project coordinator and the Commission alleviated technical problems which may have occurred as a result.
- The involvement of external peer reviews was limited to a few committed individuals. While the members of the AUG committed themselves to active involvement at the beginning of the project, it was difficult to maintain a high level of engagement due to their individual financial and professional constraints.

A summary of the activities and outputs for entire project is provided in the individual work package progress reports below.

2 WORK PACKAGE PROGRESS FOR THE FIRST REPORTING PERIOD

2.1 Work Package 1: Institutional framework – linking indicators to management and policy objectives

Objectives

The objectives of this work package were to ensure that the indicators identified in the project were suitable for measuring the effectiveness of the management framework. Other objectives included the identification and evaluation of policy changes needed to implement the use of indicators as well as the identification of gaps and weaknesses in the policy framework in relation to the use of indicators.

Progress towards objectives

In March 2005, an advisory user group (AUG) for INDECO was established (D1). Their role was to ensure that policy priorities and needs are adequately reflected in the work of this coordinated action while providing guidance and quality assurance. From the outset, it was agreed that the AUG would provide a good link between the researchers in INDECO and stakeholders including policy makers, NGOs and fishing industry. During the project, AUG members provided comments on individual deliverables in a timely manner. In addition, members of the AUG participated in the two annual conferences of INDECO in 2005 and 2006.

D4 was also completed in May 2005. This was a comprehensive review and analysis of the EU fisheries management framework and identifies the policy objectives for which indicators are needed as a tool to measure effectiveness. This review was updated in October 2006, based on input from the first Annual INDECO Conference in September 2005.

In 2006, WP 1 focussed on the three tasks identified in the Gantt chart (see Annex 1):

- A final analysis and evaluation of the indicators selected by INDECO
- An examination of the policy and institutional frameworks to examine ways of ensuring that indicators are used actively in the management system and
- The production a policy paper presenting the results of the first two tasks in a form which could be directly accessible to and relevant for the policy makers. that indicators

Due to the overlap between the three tasks, it was agreed that WP 1 would produce two key deliverables instead of three, D23, a final analysis and evaluation of indicators selected and a combined delivery D24 and D25 whocu would set out the policy changes needed to facilitate the use of indicators in a policy implementation plan or PIP. These two deliverables were completed in Jnauary 2007. .

Del. No.	Deliverable name	WP number	Date due	Actual/Forecast delivery date	Lead contractor
1	Advisory User Group established	1	M3	M9	P1
4	Review of the current management framework – Policy objectives for which indicators are needed	1	M5	M6	P1
23	Final evaluation and analysis of selected indicators	1	M22&23	M26	P1
24 & 25	Policy Implementation plan	1	M24	M26	P1

Milestone No.	Milestone name	WP Number	Date due	Actual/Forecast delivery date	Lead contractor
M.1	Establishment of AUG	1	M3	M9	P1
M4	Completion of policy review report	1	M5	M6	P1
M. 3	Evaluation of proposed indicators	1	M22	M26	P1
M 4&5	Report on necessary policy changes Policy paper	1	M23&24	M26	P1

2.2 Work Package 2, 3 and 4

Objectives

The overall objectives for WP2, 3 and 4 are to review existing indicators, develop new indicators and objective of each of these deliverables was to provide a review of the available indicators at the levels of population, community and ecosystem respectively.

Progress towards objectives

In the first year, one major activity was undertaken - a review of available indicators to further develop indicators at the population, community and ecosystem levels. Due to the overlap in terms of the available indicators as well as the data on which these indicators could have been based, the outputs of WPs 2, 3 and 4, that is, deliverables 5, 6 and 7 were combined into a joint report.

Initially, this review of existing indicators, joint report D5-7 was expected to deliver an overview of state indicators that describe the structure and functioning of the ecosystem at different hierarchical levels (i.e. at the level of population, community and ecosystem). However, having established the relevance of pressure and response indicators in an EAFM and the importance of a thorough understanding of their link to state indicators, it was decided that an overview of potential pressure indicators was relevant for the CFP and that this also fell within the remit of the three work packages. Importantly, it was highlighted that any suite of indicators should be tailored to fit the characteristics of the ecosystem in question, and the number and types of indicators used to support the EAFM will therefore vary among management regions (e.g. ecoregions). Therefore an overview of data sources available by geographical areas was also collated with the type of indicators that they would support. Finally in the combined report, D5, 6 and 7, no distinction was made between metrics that measure something specific and indicators that are supposed to indicate something different from what they actually measure. The term indicator was used for both indicators and metrics. One other joint deliverable D11-13 was also due in the first year, but this was delayed until year 2 (see below). D11-13 was based on the review completed in the first reporting period, a preliminary suite of indicators were selected using the Rice and Rochet framework (Rice and Rochet 2005). This framework and the review of indicators were used to select a suite of pressure and state indicators. In addition, a framework for each type of indicator was used to assess

the quality of the indicator and representivity of all of the features of the ecosystem to be covered by the indicator. In this final phase, WP2-4 undertook a preliminary evaluation of the list of candidate indicators identified in the previous deliverable (D11-13) with the aim of selecting state and pressure indicators for the RAC regions. The evaluation of the indicators, final joint deliverable D19-21, was believed to be the first attempt to explore the Rice and Rochet framework for the evaluation of indicators and therefore the advantages and possible sources of bias were also highlighted as these may be important for future evaluations.

Deviations from original work programme during the project

WP2 – 4 worked collaboratively in the first reporting period to produce a unified deliverable, D5, 6 and 7. The second joint deliverable D11, D12 and D13 was also due in the first year, but this was delayed and was supposed to be submitted in M16. There was a further delay in the submission of D11-13 and this meant a further delay on the final deliverable D19-21 which was completed in M23.

Del. No.	Deliverable name	WP Number	Date due	Actual/Forecast delivery date	Lead contractor
5, 6and 7	A review of the indicators for ecosystem structure and functioning	2,3 and 4	M6	9	P2 and P3
11, 12 and 13	Testing indicators	2,3 and 4	M12	M20	P2 and P3
19 -21	Theoretical framework	2,3 and 4	M20	M23	P2 and P3

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Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
1	A review of population, community and habitat and ecosystem indicators	2, 3 and 4	M6	M9	P2 and P3
2	First subgroup meeting to discuss and agree on ecosystems	2,3 and 4	M7	M7	P2 and P3
3	Identification of a set of potentially useful indicators	2, 3 and 4	M12	M20	P2 and P3
4	Second sub-group meeting	2,3 and 4	M13	M14	P2 and P3
5	Third sub-group meeting	2,3 and 4	M20	M22	P2 and P3
6	Conclusions on the applicability of the selected indicators	2,3, and 4	M23	M23	P2 and P3

2.3 Work Package 5

Objectives

The objective of WP5 was to review and identify conceptual and quantitative modelling methods that could incorporate the most informative indicators of the status of ecosystems that are impacted by fishing activities. A key objective of WP 5 was to

make recommendation on the future application and research of indicators that may offer a basis to assess the CFP.

Progress towards objectives

D9, a review of the literature undertaken by WP 5, addressed the modelling of indicators of impacts of fishing on marine ecosystems was completed in the first year. It set out to summarise current understanding about how indicators can be utilized within modelling frameworks for the provision of fisheries management advice. The aims, information requirements, information offered by, and limitations of, the different modelling approaches were reviewed in the context of facilitating the use of indicators in an ecosystem-based approach to fisheries management. Recommendations were provided on the main useful features of each of the modelling approaches offered for facilitating the use of ecosystem indicators in fisheries management. It was found that although recent literature had provided some useful methods for doing statistical power analysis of indicators, there was plenty of room for additional refinement of the methodologies.

Early in the second year, WP 5 proceeded with an evaluation of the utility of some of the modelling methods and indicators in a few different marine ecosystems. This evaluation was done at a practical workshop on time-series methods and statistical power hosted by RRAG and IEEP in London in January 2006. Partners with particular datasets participated in the workshop in London and the results of these analyses were presented in D17 which was submitted to the Commission in September 2006.

Further investigation of modelling methods and indicators of marine ecosystem status were presented in D22. In particular, four of the INDECO indicators chosen by WP 2-4, namely catch, catch per unit effort (CPUE), effort and size spectra were discussed in relation to how these indicators may be incorporated in models to assess the impacts of fishing.

In D22, WP 5 concluded that the use of indicators to measure the impact of fishing on marine ecosystems is still in the infancy stage and much more work is required to establish the reference limits before indicators can be incorporated in an ecosystem-based approach to fisheries management. A series of basic requirements for using candidate indicators to model the impact of fishing are outlined in the concluding section of D22. By M23, all deliverables for WP 5 had been submitted to the Commission.

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
9	Review of modelling methods	5	M8	M14	P4
17	Evaluation of the utility of modelling	5	M18	M22	P4
22	Synthesis of review and case study applications	5	M21	M23	P4

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
1	Initial draft of useful modelling methods	5	M6	M11	P4
2	First sub-group meeting	5	M7	M10	P4
3	Review of modelling methods	5	M5	M15	P4
4	Second subgroup meeting	5	M15	M18	P4
5	Evaluation of the utility	5	M18	M22	P4
6	Third subgroup meeting	5	M20	M22	P4
7	Synthesis of review and case studies	5	M21	M23	P4

Deviations from work plan

A WP5 workshop was planned for 21-22 July 2005 in London at Imperial College in the first year, but this workshop was delayed until January 2006 and was held at IEEP's office in London.

There were delays in the submission of all deliverables. However these delays were due to several reasons including a change in work package leader at MRAG but this did not these delays did not hamper progress in other parts of the project.

2.4 Work Package 6

Objectives

The objectives of Work Package 6 were to review and analyse the utility of socio-economic indicators in fisheries management with reference to the impact on the environment. On the basis of this strategic review and the comparative case studies, (North Sea and Mediterranean), and a thorough understanding of the usage of socio-economic indicators, WP 6 was expected to identify the critical gaps and make recommendations for development of appropriate methods and their application. A key aspect of the work was to broaden the perspective on socio-economic analysis into the key domains of policy development and institutional change (with reference to fisheries management systems), and how appropriate stakeholder participation and feedback might *bring* this about.

Progress towards objectives

In the first reporting period, a review of the existing use of socio-economic indicators that have been used to understand the impact of fishing on marine ecosystems was undertaken(D8). A comprehensive literature review was completed describing the evolution and purpose of socio-economic indicators particularly in the EU CFP context. This is followed by an assessment of the reference frameworks for the elaboration of sector specific sustainability indicators developed by international organizations such as FAO, OECD and ICES and the framework adopted and practised in Australia.

In the second reporting period, WP 6 completed the final two components of WP6. The second component was a comparison of two case studies to evaluate existing utility and future possibilities for the use of socio-economic indicators. The first case study was the French Mediterranean trawl fishery and the second was the Danish Pelagic fisheries in the North Sea. The two case studies were chosen on the assumption that they were easily identified at the metier/fishery level and that further comparisons would be possible because of their different political and institutional structures. In addition, their impacts on the different ecosystems would be interesting. The results of this comparative study are presented in D 14a and D14 b.

In the third and final component of WP 6 (D 18), gaps in the usage of socio-economic indicators are identified and analysed. This analysis was based on the review (D8) and the case studies (D14s and 14b) and a series of recommendations to increase the utility of socio-economic indicators. D18. The final deliverable of WP 6 was submitted to the Commission in M23.

Deviations from the work programme

The submission of D8 was delayed by 1 month. The deadline for D14 was December 2005 or M12. At the Conference in Poland, a decision was taken to extend the deadline for submission to March 2006 (M 16). This was consistent with the decision to extend the deadlines of WP2, 3 and 4 but allows enough time for initial review prior to the 2nd Conference in May 2006.

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
D8	Review of existing socio-economic indicators	6	May 2005	June 2005	IFM
D14a and 14b	Utility and uses of socio-economic indicators on the environmental impact of fishing activities a) The French case study b) The Danish pelagic case study	6	M16	M18	P5
D18	Recommendations and gaps for uses of socio-economic indicators on the environmental impact of fishing activities	6	M19	M23	P5

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
1	Completion of the review of the current usage of socio-economic indicators	6	M6	M7	P5
2	Identification of existing utility and future possibilities for socio-economic indicators	6	M12	M18	P5
3	Identification of gaps and recommendations for future usage of socio-economic indicators	6	M18	M23	P5

2.5 Work Package 7 – First Annual Conference

Objectives

The objective of WP7 was to organise the 1st Annual Conference for INDECO, in cooperation with IEEP.

Progress towards objectives

The 1st Annual Conference was held in Gydnia, Poland on 6-7 September 2005. The meeting was attended by INDECO partners, members of the AUG, the European Commission and the European Parliament and was chaired by Indrani Lutchman, IEEP.

The conference objectives were to review progress of the INDECO project and debate and identify the way forward for an internally consistent monitoring framework i.e. reporting unit and scale for all indicators. The meeting agenda was designed to facilitate structured discussions towards the meeting objectives and during the two days, there were some very productive discussions on indicators, reporting units and components. Outside of the main plenary sessions, participants worked in three regional groups - North Sea, Mediterranean and Baltic Sea, each consisting of biologists, socio-economists and modellers. The main conclusions from the conference were instrumental in guiding the next phase of the project and are listed below. These included:

- The biological definition of the PSR framework was relatively simple and straightforward and was accepted in preference to the DPSIR framework to be used within the context of the ESD framework for the INDECO project.
- Socio-economists agreed that they could work with this framework but from a different perspective, where state would be associated with socio-economic indicators.
- The type of indicators to be developed within the different regions was very dependent on the availability of data and expertise available. This was particularly true for state and pressure indicators.
- The policy framework paper should be updated by the Project Coordinator to further inform work packages of the context for their deliverables.

Deviations from the work programme

There were a number of logistical problems in planning the Conference due to the summer holiday period. As a result, the Conference date was delayed by one month.

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
D10	A successful first annual conference	7	M9	M10	SFI

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
1	1st Annual Conference in Gydnia	7	M9	M10	SFI

2.6 Work Package 8 – 2nd Annual Conference

Objective

The objective of WP7 was to organise the 1st Annual Conference for INDECO, in cooperation with IEEP.

Progress on meeting objectives

Planning for the 2nd INDECO Conference began in first reporting period. By January 2006, all key tasks were completed including booking of Conference facilities, invitations to external experts and arrangements for INDECO partners attending the Conference.

The Conference took place on 2-4 May 2006 and was attended by all INDECO partners and a number of external experts include representatives of EEA, DG Fisheries and Maritime Affairs, WWF and two external experts from the USA and Canada. Dr. Jason Link (NOAA-USA) and Dr. Alida Bundy (DFO-Canada) are two leading experts in the development and use of indicators and were the keynote speakers for the Conference. They also participated in the review of progress on the INDECO work packages during the two day Conference and provided substantial contributions to the final stages of INDECO.

Progress reports on the development of indicators within WP2-6 were presented by the respective work package leaders and this led to substantive and constructive discussions on the role of INDECO, the expected results and impact on EU policy. The criteria for indicator selection were reviewed in-depth leading to a decision that if the Rice/Rochet criteria were to be used for selecting INDECO indicators, they would need to be communicable.. An important point emerging from the two days was the importance of linking the INDECO outcomes to the management objectives, but emphasized that this will be ongoing challenge since some objectives have been poorly defined. A detailed record of the 2nd Conference, with the presentations by all speakers appended, was prepared by IEEP and submitted to the Commission as deliverable 16 (D16) in August 2006.

Deviations from the work programme

A decision was taken at the project meeting in September to delay the 2nd Annual Conference. The Conference was held in May 2006 (M16) instead of March 2006 (M14).

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
D16	A successful 2nd Conference	7	M16	M18	HCMR

Milestone No.	Milestone name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
1	2nd Annual conference	7	M16	M18	HCMR

3 CONSORTIUM MANAGEMENT

3.1 Objectives and Achievements

IEEP was responsible for the management and coordination for this Coordination Action. The objectives of Work Package 9 were:

- The management of the project and the preparation of progress report
- Liaison with other projects
- Organisation of coordination meetings
- Provision of information to the participants and facilitation of communication between participants
- Dissemination of results, conference reports and papers to a wider audience
- Communication with AUG

There were three coordination meetings in this reporting period, a kick-off meeting in Brussels and two subsequent meetings in London. Work package leaders for work packages 1-6 attended the meetings. The agenda for these meetings and minutes have been posted on the partner's sections of the website. Regular contact between IEEP and partners was maintained using e-mail. The dedicated webpage ((http://www.ieep.org.uk/research/INDECO/INDECO_Home.htm)) was established in to prove the public interface and to provide easily accessible and relevant material. All deliverables are now available for downloading from the publications section of the website.

To maintain a high quality, all reports and deliverables were reviewed by the AUG and senior IEEP staff. The aim was to produce high quality publications to raise awareness of the outcomes of INDECO. IEEP carried out extensive editorial work which helped ensure that all outputs were of an appropriate standard and meet the objectives as set out in the work package and remain relevant to the aims and objectives of the project.

Regular contact has been maintained with the Commission, members of the AUG and other stakeholders through direct e-mail, telephone and face-to-face contact. In the next reporting period, there are plans to raise more awareness of the project through attendance and presentations at relevant meetings.

IEEP played a key role in facilitating dialogue between partners and work packages resulting in closer collaboration and integration between work packages towards the overall objectives of the project. The partners in WP2-4 worked closely on the next set of deliverables but there was also good collaboration with WP5 and WP 6 to ensure coherence between approaches and relevance of their research activities to the objectives of the project

Del. No.	Deliverable name	WP No.	Date due	Actual/Forecast delivery date	Lead contractor
D2	Project leaflet	9	M3	M4	P1
D3	Website	9	M3	M4	P1
D15	First periodic report to the EU	9	M12	M14	P1
D26	CD rom containing the publications of the CA	9	M24	M26	P1
D27	Second periodic report/periodic to the Commission	9	M24	M26	P1

Milestone No.	Milestone name	WP No..	Date due	Actual/Forecast delivery date	Lead contractor
1	To manage consortium in such a way that we deliver products	9	M1	M24	P1

3.2 Project Team

The project team remained the same during the entire duration of the project.

3.3 Cooperation with other projects

Although there was no formal cooperation between INDECO and related projects on indicators, INDECO project partners have been involved in related projects, namely SCOR, BECAUSE and INDENT. Progress reports on INDECO were presented at two key meetings, the EFARO Director's meeting in 2006 and the STECF subgroup meeting on the review of the DCR.

3.4 Timetable and status

All deliverables have been completed and submitted to the Commission.

Table 1. UPDATED IMPLEMENTATION TIME TABLE

WP	Task	Month																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		2004	2005												2006										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
WP 1: Institutional Framework																									
	1.1: Establish user group	■■■	■■■	D01	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═	═
	1.2: Review and analysis of fisheries management framework	■■■	■■■	■■■	■■■	D04																			
	1.3: Evaluation of proposed indicators						■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D23		
	1.4: Report on necessary policy changes																							D24	
	1.5: Policy paper - PIP																								D25
WP 2: Population indicators																									
	2.1: Review & development of indicators	■■■	■■■	■■■	■■■	■■■	D06																		
	2.2: Test of indicators							■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D11								
	2.3: Dvlp Theoretical framework													■■■	■■■	■■■	■■■	■■■	■■■	■■■	D19				
WP 3: Community indicators																									
	3.1: Review & development of indicators	■■■	■■■	■■■	■■■	■■■	D07																		
	3.2: Test of indicators							■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D12								
	3.3: Dvlp Theoretical framework													■■■	■■■	■■■	■■■	■■■	■■■	■■■	D20				
WP 4: Ecosystem indicators																									

WP	Task	Month																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		2004	2005												2006										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	4.1: Review of indicators	■■■	■■■	■■■	■■■	D05																			
	4.2: Test of indicators						■■■	■■■	■■■	■■■	■■■	■■■	D13	■■■	■■■	■■■	D13									
	4.3: Dvlp Theoretical framework													■■■	■■■	■■■	■■■	■■■	■■■	■■■	D21					
WP 5: Modelling																									
	5.1: Review modelling methods	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D09																
	5.2: Evaluate utility									■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D17						
	5.3: Synthesis																			■■■	■■■	D22			
WP 6: Socio-economic indicators																									
	6.1: Review of existing socio-economic indicators	■■■	■■■	■■■	■■■	■■■	D08																		
	6.2: Two comparative case studies							■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	■■■	D14								
	6.3: Identification of gaps and recommendations													■■■	■■■	■■■	■■■	■■■	D18						
WP 7: 1st annual conference									■■■	D10															
WP 8: 2nd annual conference															■■■	■■■		■■■	D16						
WP 9: Co-ordination																									
	Project Leaflet	■■■	■■■	D02																					
	Design and maintain CA website	■■■	■■■	D03	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	Produce CD-ROM				—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	D26
	Coordination meetings				X				X			X				X				X					

WP	Task	Month																						
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		2004	2005												2006										
		Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov
	Sub-group meetings							X						X							X				
	Progress reports													D15											D27

4 OTHER ISSUES

4.1 The final science and society reporting questionnaire

Science and Society Reporting Questionnaire

Introduction

FP6 was designed to focus, integrate, structure and strengthen the European Research Area (ERA). The influence of science and technology on society was acknowledged when the ERA was established and the importance of having a healthy dialogue between science and society was recognised. This area now forms part of the policy to structure the ERA under the heading Science and Society. It incorporates ethical, gender and communications issues together with issues affecting education and youth and governance.

This questionnaire has been compiled for FP6 Project Coordinators. It has been designed to help coordinators respond to contractual reporting requirements (Article II.10.3 of the contract states that consortia must engage with actors beyond the research community) and to facilitate the monitoring of the science and society dimension in FP6.

The information gathered through this exercise will be confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

Please complete the questionnaire by ticking boxes or filling out information where requested. It would be appreciated if as many questions as possible could be completed.

Please note that Part A will be completed automatically when the contract number is entered.

A General Information on Contractor

1	**Contract Number:**	513754
2	**Instrument:**	Coordinated Action
3	**Thematic Priority:**	Priority 8.1 Modernisation and sustainability of fisheries
4	**Title of Project:**	INDECO

5	**Name and Title of Coordinator:**	Ms. Indrani Lutchman
6	**Period Covered, Start Date:** 01/12/04	**End Date:** 30/11/06
7	**EC Contribution to project:**	€ 500,000

B Ethics

8 Which (if any) of the following does your research project involve?

- ❑ Human beings
- ❑ Human biological samples
- ❑ Personal data
- ❑ Genetic information
- ❑ Animals
- ❑ Human embryos or human embryonic stem cells
- ❑ Non human primates and other animals
- x None of the above

9 To what extent do you believe ethical issues are relevant to your research project?

- x Not relevant
- ○ Minor relevance
- ○ Significant relevance
- ○ Critical

10 Do you have Ethicists or others with considerable ethics experience involved in the project?

- ○ Yes
- x No

11 Did your project have a separate EC ethical review?

- ○ Yes
- x No

12 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with ethical issues?

€ [ ]

C Gender (to be completed for all projects except IPs and NoEs)

13a Did you undertake Gender Equality Actions in your research project?

○ Yes
x No

13b If no, why not?

x Not relevant

○ Team not gender aware
○ No budget
○ Not supported (no will)
○ Other: [ ]

13c If yes, which of the following actions did you carry out and how effective were they?

	Not at all effective				Very effective
❑ Design and implement an equal opportunity policy	○	○	○	○	○
❑ Implement mentoring schemes for women	○	○	○	○	○
❑ Family friendly working conditions	○	○	○	○	○

14 Was there a gender dimension associated with the research content?

○ Yes. If yes, please specify [ ]

x No

15 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with gender issues?

€ [ ]

D Science Education, Training and Career Development

16a Does this project anticipate having a direct impact on the local economy?

- ○ Yes
- x No

16b If Yes, is the project:

- ❑ Stimulating employment
- ❑ Retaining highly trained personnel
- ❑ Creating possible spin-out/start-up companies

17 Does your partnership employ and train researchers?

- x Yes
- ○ No

18 Does your project involve working with young people at schools?

- ○ Yes
- x No

19 Is there any education material being produced directly or indirectly by your project?

○ Yes
x No

20 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on considering and dealing with Science Education, Training and Career Development issues? **€**

E Engaging With Actors Beyond the Research Community

20a Is the project likely to generate outputs (expertise or scientific advice) which could be used by policy makers?

x Yes

○ No

20b If Yes, is this a primary or secondary objective of the project?

x Primary

○ Secondary

21a Did your project engage in significant communication with the public before research commenced?

○ Yes
x No

21b Was the focus or methodology of your project modified in response to any communication with the public?

○ Yes
x No

22 Does your project involve someone whose role is solely to communicate with the public?

x Yes

○ No

F Use and dissemination

23 How many articles were published?

In refereed journals: 3 Other journals: 2

24 How many patents have been applied for?

0

25 How many other Intellectual Property Rights were applied for?

0

26 How many spin-offs were created?

27 Have you issued press releases related to your project (and if so, how many)?

○ Yes, number:

x No

28 Have you held media briefings? If so, how many, and on average roughly how many journalists attended?

○ Yes, number of briefings:

Average number of journalists:

x No

29a Roughly how many items covering your project in the printed press, on radio or television can you identify?

Press: | Radio: | Television:

29b Roughly how many items were:

Specialist Press: | Non-specialist Press:

National Press: | International Press:

30a Was there on-line information about the project?

○ Yes

x Specific web site

○ No

30b Roughly how frequently has it been updated?

Every 3 months

---

31 Do you have an e-mail mailing list to send news about the project? If so, how many subscribers to the list are there?

○ Yes, number of subscribers:

○ No

32a Have you created or participated in an event (e.g. workshop, conference, information day) in order to communicate with the public (not just other researchers or the press)?

○ Yes

x No

32b Roughly how many people attended these events and learned about your project?

33a Have you produced a video or DVD film about your project?

- ○ Yes
- x No

33b If so, how effective do you believe it has been in communicating with the public?

- ○ Unable to assess
- ○ Completely ineffective
- ○ Mostly ineffective
- ○ Partially effective
- ○ Significantly effective
- ○ Extremely effective

34a Have you produced posters, flyers or brochures about your project?

- x Yes
- ○ No

34b If so, how effective do you believe they have been in communicating with the public?

- ○ Unable to assess
- ○ Completely ineffective
- ○ Mostly ineffective
- x Partially effective
- ○ Significantly effective
- ○ Extremely effective

35 In how many different languages were these products (video/DVD, posters, flyers, brochures) produced?

1

36 How have you distributed these products (video/DVD, posters, flyers, brochures)? Please tick all methods you have used.

- x Sent on request
- ❑ Sent to schools/academic institutions
- ❑ Distributed through government agencies/public buildings/libraries etc.
- ❑ Sent to potentially interested non-governmental bodies (NGOs, citizen's associations etc)
- ❑ Other: See plan for dissemination of information below

G Total Communication Spend

37 How much (including the value of time spent, as well as paid-out costs) do you estimate your project (when it is completed) will have spent on communication activities (engaging with the public, use and dissemination) as described in the current questionnaire?

€

H Comments

38 If you have any comments about your experience of meeting the Science and Society objectives within your project, or any suggestions of improvements to the programme please add them here:

Thank you for your help!

4.2 The final socio-economic reporting questionnaire

SOCIO-ECONOMIC REPORTING QUESTIONNAIRE

(To be completed by each contractor in the project)

INTRODUCTION

In the process of building the European Research Area, democratic governance must ensure that social and economic issues are taken into consideration in the research activities and that citizens are informed about and aware of the social aspects with regard to scientific and technological progress. In this context, it is also acknowledged that the benefits of research in support of socio-economic policy challenges would be enhanced by an appropriate integration of socio-economic research dimensions.

The importance of the integration of socio-economic aspects in research was recognised in FP6 and should be duly taken into consideration by contractors where relevant for the actions concerned in horizontal and thematic activities of FP6.

This questionnaire applies to all projects and must be filled in by each contractor in the project. It is designed to facilitate the monitoring of the integration of the socio-economic dimensions in FP6 and to finally support the assessment of the research that will guide the future policy formulations and decisions.

The submission of this questionnaire will be done on-line. The details of the procedure to be used will be communicated by the Commission to the project coordinator in due time.

The information gathered through this exercise will be kept confidential and will not be disclosed to any third parties or used in any way that could be linked to individual projects.

QUESTIONS

1.1 Do your tasks in the project include socio-economic research activities[1]? | *Yes*

[1] - Ex-ante or ex-post assessments (or contribution to such analysis e.g. cost-benefit/cost-effectiveness studies, etc…) of the expected impact of the knowledge and/or technology generated from the research (project, programme or framework programme), as well as analysis of the factors that would influence their exploitation (e.g. statistical indicators, standardisation, ethical and regulatory aspects, impact on consumers and markets, public awareness/acceptance and understanding of science, political/societal and/or economic implications, etc…)

- Any type of models or tools to support the assessment of impact on society, economy and businesses resulting from the deployment of new services or technologies.

- Any research seeking both a better integration of Science in Society and Society in Science.

- Any type of research aiming at understanding the societal and economic phenomena (research in social sciences and humanities)

1.2 If "Yes", what is the estimated total budget allocation that addresses these activities ?	*€33,527*
2.1 Do your tasks in the project include foresight methods[2] ?	*No*
2.2 If "Yes", what is the estimated total budget allocation that addresses these activities?	*(Cost in Euro or N/A)*
3. How many person/months (estimated) are allocated to researchers with a background in social sciences[3], to perform your tasks for the project ?	*3.50*

- Actions e.g. assessments, tools & methods, comparative research, etc to support the formulation and implementation of Community policies.

- Any type of activity involving scientist(s) with a specific background in social, political sciences or in economy (discipline approach).

[2] - Any type of foresight, i.e. participative vision-building approaches, future studies and forward looking activities, including scenarios of the evolution of Europe's potential in a related field, forecasting, prospective studies, forward looks, etc.

[3] Domains of academic disciplines covered by the social sciences are: Psychology, Economics, Education sciences, Anthropology (social and cultural) and ethnology, Demography, Geography (human, economic and social), Town and country planning, Management, Law, Linguistics, Political sciences, Sociology, Organisation and methods, Miscellaneous social sciences and interdisciplinary.

Annex 1. Plan for using and disseminating knowledge

A plan for using and disseminating knowledge for INDECO can be found in Annex 1 of the Contract, that is, the Description of Work, point 6.2.

The follow is the final plan for using and disseminating the knowledge from INDECO which provides a complete picture of all activities undertaken and plans for further use of in further research.

Dissemination of knowledge – A list of activities

Planned/Actual Dates	Type	Type of audience	Countries addressed	Size of Audience	Partner responsible/involved
March 2005	INDECO leaflet	General public	global	large	P1
March 2005	Project website	General public	global	large	P1
Conferences and meetings					
September 2005	1st INDECO Conference	Invited stakeholders (members of AUG)	INDECO countries	medium	P1-20
May 2006	2nd INDECO Conference	Invited stakeholders	INDECO countries	medium	P1-20
June 2006	STECF Sub-group on the DCR	Scientists, experts DG Fish	EU	medium	P1 and P….
February 2005	Direct mailing	IEEP database – mixed experts	global	large	P1
Publications					
2005	Publication	Scientists	global	large	P10
Presentation					
March 2006	EFARO Directors meeting	Scientists and DG Fish representatives	EU	medium	P
July 2006	European Marine Science meeting	scientists	EU	medium/large	P10
November 2005	German Ministry of Research	scientists	Germany	medium/large	P10
November 2005	IFREMER	scientists	EU	medium/large	P10
December 2004	Talk to Norwedian Pollution Control Authority	scientists	EU	medium/large	P10
November 2004	EC European marine Strategy	scientists	EU	medium	P10

Outputs contributed to					
2005	STECF	scientists	EU	medium	P10
2005	WGEIF	scientists	EU	medium	P10
2005	STECF	scientists	EU	medium	P1
Projects influenced by INDECO					
2006	Research (IMAGE)	scientists	EU	large	P2, P3, P5, P10, P12

In addition to the activities listed above, all technical deliverables, D4-D9, D11-D15 and D17-D23 (inclusive) have been peer-reviewed by the AUG and uploaded to the INDECO website, maintained by IEEP. IN the second reporting period, there were 9479 hits to this website. While 3249 were to the 'index' the others were to specific deliverables.

Regular contact was maintained during the entire project with scientists at ICES and other DG Fish/Research funded projects, namely, PROTECT, BECAUSE and EMPAFISH.

Regular contact was also maintained with NGOs, industry and other stakeholders including the European Parliament to disseminate the results of INDECO. Specifically regular contract was maintained with the North Sea RAC, Europeche and MEDISAMAK. There are future plans to take forward the outcomes of INDECO at an upcoming meeting at DG Fish in June 2007 on indicators and the DCR.