



## Ecosystem Science for Policy & Practice



This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement number 308393.

**Prepared under contract from the European Commission**

Project reference: 308393

Collaborative project

FP7 Environment

Project acronym: **OPERAs**

Project full title: **Operational Potential of Ecosystem Research Applications**

Start of the project: 1 December 2012

Duration: 60 months

Project coordinator: The University of Edinburgh

Project website: [operas-project.eu](http://operas-project.eu)

Deliverable title: Research Implementation Plan

Deliverable number: D1.4

Nature of the deliverable: Report

Work package responsible: WP1

Partner responsible: UEDIN

Other partners involved: VU-IVM, WCMC, EFI, UP

Due date of deliverable: Month 36 – November 2015

Actual submission date: Month 36 – November 2015

Deliverable status:

Version	Status	Date	Authors
1.0	Final	30 November 2015	Rachel Chisholm, Ariane Walz, Astrid van Teeffelen, Diana Tuomasjukka, Claire Brown, Marc Metzger



Introduction to the Research Implementation Plan .....	4
Work package 1: Project Management .....	5
Task 1.1 Compiling project documents .....	5
Task 1.2 Regularly update the OPERAs Research Implementation Plan (RIP) .....	5
Task 1.3 Project Coordinating and Reporting .....	6
Task 1.4 External Contacts .....	7
Work package 2: Practice.....	8
Task 2.1 Meta-analysis .....	8
Task 2.2 Exemplars- Testing Ground for Instruments and Tools	<b>Error!      Bookmark      not defined.</b>
Task 2.3: Practice Design and Synthesis.....	12
Work Package 3: Knowledge .....	16
Task 3.1: Ecosystem function and quantification .....	16
Task 3.2: Social and cultural values of ES/NC.....	19
Task 3.3: Market and non-market valuation of ES and NC.....	21
Task 3.4: Institutional structure and governance systems .....	23
Task 3.5: Trade-offs and synergies in ES/NC and alternative valuation perspectives.....	25
Work package 4: Instruments.....	29
Task 4.1 Demand for ES/NC instruments .....	29
Task 4.2 ES/NC information tools .....	30
Task 4.3 ES/NC Decision Support Tools .....	32
Task 4.4 Implementation and uptake of ES/NC concepts.....	34
Task 4.5 Demand for ES/NC instruments .....	36
Work package 5: Resource Hub.....	39
Task 5.1 Resource Hub development.....	39
Task 5.2 Stakeholder engagement and facilitation .....	40
Work package 6: Outreach and dissemination.....	43
Task 6.1: Constituency building, outreach and project dissemination.....	43

## Introduction to the Research Implementation Plan

The OPERAs Description of Work (DoW) outlines the contractual responsibilities and provides a brief description of the formal project deliverables, but does not provide the detailed information required for successful project management. For example, tasks descriptions are succinct and time and staff allocation are not specified at the task level. The Research Implementation Plan (RIP) provides the necessary detail to ensure appropriate project management by the coordinator and the WP leaders, as well as providing guidance to the project researchers on their specific contributions. It will also be useful to the project review team and the project officer, by summarising the overall project management and planning.

Successful project management will require flexibility and should be able to respond to unforeseen challenges or changing circumstances. The RIP is therefore designed to be a flexible, living document that will be reviewed, updated and amended by the project management team (PMT) as the project develops. There is a formal requirement to update the RIP at each reporting period (D1.3 in M18; D1.4 in M36; D1.5 in M54), but there may also be intermediate revisions to the document if this is seen as useful by the PMT.

The main part of the RIP consists of six sections, one per Work Package, specifying tasks, objectives, deliverables, partners' contributions and an overview of linkages to other Work Packages.

# Work package 1: Project Management

## Task 1.1 Compiling project documents

Lead: Mark Rounsevell

### Overall task objective

1. To effectively start up the project
2. Prepare a number of documents, including contracts and the Consortium Agreement
3. Produce a detailed Research Implementation Plan

### Link to deliverable/milestone

**D1.2 OPERAs Research Implementation Plan (Month 6)**

### Partner contributions

- UEDIN: Mark Rounsevell, Marc Metzger, Jess Bryson

## Task 1.2 Regularly update the OPERAs Research Implementation Plan (RIP)

Lead: Mark Rounsevell

### Overall task objective:

1. The Project Management Team (PMT) will regularly discuss the progress of the project on the basis of the OPERAs Work Plan, and adjust the specifications where necessary.
2. In the case of inappropriate performance of one of the partners the Project Management Team (PMT) will react immediately and advise on measures to ensure proper functioning.
3. An updated RIP will always be available on the OPERAs intranet.

### Link to deliverable / milestone

**D1.3 Updated OPERAs Research Implementation Plan (Month 18)**

**D1.4 Updated OPERAs Research Implementation Plan (Month 36)**

**D1.5 Updated OPERAs Research Implementation Plan (Month 54)**

### Partner contributions:

- UEDIN: Mark Rounsevell, Marc Metzger, Rachel Chisholm, Meriwether Wilson



- VU-IVM: Peter Verburg, Astrid van Teeffelen
- KIT: Almut Arneth, Anita Bayer
- Prospex: Martin Watson, Katharina Zellmer
- UP: Ariane Walz
- ULUND: Kim Nicholas, Paul Weaver
- EFI: Marcus Lindner, Diana Tuomasjukka
- WCMC: Claire Brown

## Task 1.3 Project Coordinating and Reporting

Lead: Mark Rounsevell

### Overall task objective:

1. Throughout the project lifetime progress will be monitored, the quality of the project deliverables reviewed and financial and administrative resources managed by experienced staff.
2. The modular project structure and regular meetings of the Project Management Team (PMT) will ensure effective interaction between the various work packages.
3. Project reports will be prepared every 18 months.

### Link to deliverable / milestone

**D1.1 Management of project dissemination: Strategy for managing project dissemination (Task 1.3) Month 3**

### Partner contributions:

- UEDIN: Mark Rounsevell, Marc Metzger, Jess Bryson, Meriwether Wilson
- VU-IVM: Peter Verburg, Astrid van Teeffelen
- KIT: Almut Arneth, Anita Bayer
- Prospex: Martin Watson, Katharina Zellmer
- UP: Ariane Walz
- ULUND: Kim Nicholas, Paul Weaver
- EFI: Marcus Lindner, Diana Tuomasjukka
- WCMC: Claire Brown

### Links to other work packages

D1.1 will provide guidelines for the overall dissemination plan (D6.1)

## Task 1.4 External Contacts

Lead: Mark Rounsevell

### **Overall task objective:**

1. This task includes the organisation and implementation of the communication with the Commission, the Advisory Council, parallel projects (OpenNESS), and other external actors, if and as appropriate.

### **Partner contributions:**

- UEDIN: Mark Rounsevell, Marc Metzger, Jess Bryson, Meriwether Wilson
- VU-IVM: Peter Verburg, Astrid van Teeffelen
- KIT: Almut Arneth, Anita Bayer
- Prospex: Martin Watson, Katharina Zellmer
- UP: Ariane Walz
- ULUND: Kim Nicholas, Paul Weaver
- EFI: Marcus Lindner, Diana Tuomasjukka
- WCMC: Claire Brown

## Work package 2: Practice

### Task 2.1 Meta-analysis

Lead: ALU, Carsten Dormann

#### Task Objectives

1. Set-up a database to characterise ES/NC assessments based on published case studies (Subtask 2.1.1), (UFZ, ALU, UBO, PU)
2. Assess the evidence-base for methods used in ES/NC assessments (Subtasks 2.1.2) (UFZ, ALU, UBO, PU)
3. Develop efficiency indicators for the instruments used in ES/NC assessments (Subtask 2.1.3) (UFZ, ALU, UBO)
4. Conduct a meta-analysis of existing case studies (Subtask 2.1.4) (UFZ, ALU, UBO)
5. Identify the knowledge gaps based on the analysis of the database (Subtask 2.1.5) (UFZ, ALU, UBO)

#### Link to Milestones and Deliverables

MS 2.1 Review of existing ES/NC assessment protocols with input from T 2.3 (DS). (May 2013)

MS 2.3 a) Preliminary report on knowledge gaps and demand for instruments reported to WPs 3+4, gaps b) work of existing exemplars, and c) results on gaps (July 2013)

**D2.1 Description of Study Design: exemplars, SH needs, tools, instruments (All WP2) (Feb 2014)**

MS 2.7 Ranking of effectiveness of ES/NC based measures as valued in the scientific literature (Mar 2014)

**D2.2 Report on standardized metrics/indicators for monitoring the efficiency of ES/NC based measures (Nov 2014)**

#### Methods to achieve objectives:

Quantitative literature review with a statistical meta-analysis of the data base. If necessary, interviews with main investigators of case studies will be conducted as an additional source of information.

#### Partner contributions:

- (ALU) Albert-Ludwigs Universitaet Freiburg, Germany: Carsten Dormann
- UFZ Helmholtz-Centre for Environmental Research: Ralf Seppelt, Martin Volk



- UBO Rheinische Friedrich-Wilhelms-Universit ts Bonn, Sven Lautenbach
- PU, University of Potsdam, Arianne Walz

### Exemplars potentially involved:

Meta-analysis provides baseline information for all Exemplars, and links with specific exemplars and investigators around particular sites and issues will develop through the project.

### Link to WP Instruments:

The meta-analysis will be the base for an analysis of the use of instruments in the Exemplars that will be a part of sub task 4.1.2 "Bottom up analysis: demands and needs for ES/NC instruments by key stakeholders".

### Results for Resource Hub

- The results of the meta-analysis (2.1.4), the knowledge gap identification (2.1.5), as well as the assessment of the evidence base for methods used (2.1.2) and the efficiency indicators (2.1.3) will be made accessible to the community of excellence via the Resource Hub.
- The design of the database will build on the BluePrint Protocol (2.3) designed to ensure consistency in reporting.

## Task 2.2 Exemplars- Testing Ground for Instruments and Tools

Lead: ULUND, Heather Schoonover and Kimberly Nicholas

### Task Objectives:

1. Launch of OPERAS cooperation, identification of stakeholder needs for different tools and instruments in each exemplar and optimisation of study design (*Subtask 2.2.1*) (UP, ULUND, UEDIN, VU-IVM, KIT, UCD, CNRS, ETH, WWF Bulgaria, WWF Romania, SGM, FFCUL, CIFOR, CSIC)
2. Regular reporting and evaluation of the process of tool and instrument testing (*Subtask 2.2.2*) (UP, ULUND, UEDIN, VU-IVM, KIT, UCD, CNRS, ETH, WWF Bulgaria, WWF Romania, SGM, FFCUL, CIFOR, CSIC)
3. Iterative learning processes between end-users, stakeholders, researchers and developers of tools and instruments. (*Subtask 2.2.3*) (UP, ULUND, UEDIN, VU-IVM, KIT, UCD, CNRS, ETH, WWF Bulgaria, WWF Romania, SGM, FFCUL, Denkstatt, CIFOR, CSIC)
4. Final reporting and critical evaluation of the process as a contribution to the Resource Hub (*Subtask 2.2.4*) (UP, ULUND, UEDIN, VU-IVM, KIT, UCD, CNRS, ETH, WWF Bulgaria, WWF Romania, SGM, FFCUL, CIFOR, CSIC)

**Link to Deliverables and Milestones:**

MS 2.6: Draft description of exemplars study design, stakeholder needs and tested tools/instruments (Nov 2013)

**D2.1: Description of Study Design: exemplars, SH needs, tools, instruments (All WP2) (Feb 2014)**

MS 2.11: Exemplars Interim report (Jun 2015)

MS 2.14: Evaluation of processes in each exemplar with potential adaptation to the work plan (Jan 2016)

MS 2.19: Final OPERAs Exemplar Conference (Jan 2017)

**D2.3: Compilation of reporting of all exemplars for further evaluation and synthesis (Feb 2017)**

**Methods to achieve objectives**

Exemplars will follow the study design set out in the Blueprint Protocol to develop research projects in collaboration with key stakeholders. At least two instruments will be implemented in each Exemplar, based on needs identified by stakeholders and the instruments available or ready to be developed in WP4. Exemplar leads will stay in regular contact with each other through reporting and conference calls, to develop synergies between exemplars, and with their “point person” from the WP leadership team to ensure adequate progress is being made. The interim report will identify further opportunities for collaboration between Exemplars, which will be highlighted with lessons learned in the final report and conference.

**Partner contributions and Involved Researchers:**

- ULUND - Lund University Centre for Sustainability Studies, Kimberly Nicholas, Heather Schoonover
- UP - Univ. of Potsdam, Ariane Walz, Rene Sachse, Jennifer Schulz
- UEDIN - University of Edinburgh: Meriwether Wilson, Marc Metzger
- VU-IVM - VU University Amsterdam: Peter Verburg, Astrid van Teeffelen, Pieter van Beukering, Mark Koetse
- KIT - Karlsruhe Institute of Technology, Almut Arneth, Anita Bayer
- UCD - University College Dublin, Marcus Collier, Craig Bullock, Deirdre Joyce
- CNRS - Centre National de la Recherche Scientifique, Sandra Lavorel, Adeline Bierry, Clemence Vannier
- ETH - Eidgenössische Technische Hochschule Zurich: Adrienne Grêt-Regamey, Sibyl Brunner, Thomas Klein

- WWF Bulgaria - World Wildlife Fund Bulgaria: Yulia Grigorova, Raina Popova, Apostol Dyankov -
- WWF Romania - World Wildlife Fund Romania: Orieta Hulea, Cristian Tetelea, Monia Martini, Raluca Dan, Ioana Betieanu
- SGM – Consultadora de Servicios Globales Medioambientales SL: Jose Lasurain, Anna Feres, Gloria Feiu
- FFCUL - University of Lisbon: Margarida Santos-Reis, Cristina Maguas, Rui Rebelo, Ines Rosario
- CIFOR - Centre for International Forestry Research: Bruno Locatelli
- CSIC - Agencia Estatal Consejo Superior de Investigaciones Cientificas: Carlos Duarte, Nuria Marba, Ana Ruiz

### **Exemplars involved (All)**

- i. Urban-rural fringe of the Greater Dublin Region:**
  - UCD - University College Dublin: Marcus Collier, Craig Bullock, Deirdre Joyce
- ii. Urban dunes in Barcelona:**
  - SGM - Jose Lasurain, Anna Feres, Gloria Feliu
- iii. Conservation of cultural landscapes in the LTER region of Montado in Portugal:**
  - FFCUL - University of Lisbon, Margarida Santos-Reis, Cristina Maguas, Rui Rebelo, Ines Rosario
- iv. Co-beneficiary management of marine/coastal ecosystems for Blue Carbon on the Balearic Islands:**
  - CSIC - Agencia Estatal Consejo Superior de Investigaciones Cientificas: Carlos Duarte, Nuria Marba, Ana Ruiz
- v. Trans-boundary River and Wetland Management of the Lower Danube:**
  - WWF Bulgaria - World Wildlife Fund Bulgaria: Yulia Grigorova, Raina Popova, Apostol Dyankov
  - WWF Romania - World Wildlife Fund Romania: Orieta Hulea, Cristian Tetelea, Monia Martini, Raluca Dan, Ioana Betieanu
- vi. Effects of landscape management and infrastructure development on rural and peri-urban areas of the central Alps:**
  - CNRS - Centre National de la Recherche Scientifique, Sandra Lavorel, Adeline Bierry, Clemence Vannier
- vii. Wine production and cultural landscapes in Europe:**
  - ULUND Kimberly Nicholas, Heather Schoonover

**viii. Multi-scale implementation of environmental policy in Scotland:**

- UEDIN - University of Edinburgh, Meriwether Wilson, Marc Metzger

**ix. Circum-Mediterranean agricultural land abandonment:**

- CNRS/IMBE – Institut Méditerranéen de Biodiversité et d'Ecologie marine et continentale, Wolfgang Cramer, Alberte Bondeau, Emilie Egea, Ilse Geijzendorffer, Ana Paula Garcia Nieto

**x. Pan-European regulatory Directives:**

- ETH - Eidgenössische Technische Hochschule Zurich: Adrienne Grêt-Regamey, Sibyl Brunner, Thomas Klein
- VU-IVM - VU University Amsterdam: Astrid van Teeffelen, Peter Verburg

**xi. Mechanisms for Climate Protection and Habitat Conservation at the global scale:**

- UP - University of Potsdam, Ariane Walz
- KIT - Karlsruhe Institute of Technology, Almut Arneth, Anita Bayer
- CIFOR - Centre for International Forestry Research: Bruno Locatelli

**xii. Swiss Alps**

- ETH, Adrienne Grêt-Regamey, Sibyl Brunner, Thomas Klein

**Link to WP Instruments:**

Exemplar leads will work with the developers of Instruments to ensure that the most relevant Instruments are developed and selected for implementation, based on stakeholder needs.

**Results for Resource Hub:**

Each Exemplar will nominate one key stakeholder to participate in the User Board and give feedback on the early design of the Resource Hub. Stakeholders from the Exemplars are the key target for the Resource Hub, and will be linked with the Hub throughout the project, both in contributing to it and receiving information from it.

## Task 2.3: Practice Design and Synthesis

Lead: UEDIN, Genevieve Patenaude

**Task Objectives:**

1. Elaboration of the Blue Print Protocol (*Sub task 2.3.1*) UEDIN, UFZ, ALU, UBO, VU-IVM, UP, ULUND

2.Synthesis of Lessons Learned (*Sub task 2.3.2*) UEDIN, UFZ, ALU, UBO, VU-IVM, UP, ULUND, WCMC)

3.Design of a suite of decision trees (*Sub task 2.3.3*) UEDIN, UFZ, ALU, UBO, VU-IVM, UP, ULUND, WCMC)

### Link to Deliverables and Milestones

MS 2.2: Draft Blue Print Protocol for systematic reporting of Exemplars and Meta Analysis (May 2013)

MS 2.4: Discuss draft BluePrint (Nov 2013)

MS 2.5: First Reporting Blue Print Protocol (1.0) revisit each 18 month reporting period) (Nov 2013)

**D2.1: Description of Study Design: exemplars, SH needs, tools, instruments (All WP2) (Feb 2014)**

MS 2.8: Database designed to compile lessons learned across WP (Sept 2104)

MS 2.9: Report on Second Blue Print (2.0) revisit each 18 month reporting period. (Sept 2014)

MS 2.10: Interim decision trees for selecting instruments for maintaining and protecting ES (April 2015)

MS 2.12: Workshops to elaborate iteratively lessons learned from Meta-Analysis and Exemplars (Aug 2015)

MS 2.13: Report on Third Blue Print (3.0) (Sept 2015)

MS 2.15: Final decision trees for selecting instruments for maintaining and protecting ES/NC (Jan 2016)

MS 2.16: Decision tree workshops in collaboration with MA and EX (March 2016)

MS 2.17: Report on Fourth Blue Print (Oct 2016)

MS 2.18: Contributions to the Resource Hub (Jan 2017)

**D2.4: Targeted Synthesis: Lessons Learned from Meta Analysis and Exemplars (April 2017)**

**D2.5: Suite of decision trees to assist users to decide on ES/NC based on instruments and tools (April 2017)**

### Partner contributions and Researchers Involved:

- UEDIN - University of Edinburgh, Meriwether Wilson, Marc Metzger
- UFZ - Helmholtz-Centre for Environmental Research: Ralf Seppelt, Martin Volk
- ALU - Albert-Ludwigs Universitaet Freiburg, Germany: Carsten Dormann
- UBO- Rheinische Friedrich-Wilhelms-Universitaet Bonn, Sven Lautenbach

- VU-IVM - VU University Amsterdam: Peter Verburg, Astrid van Teeffelen, Pieter van Beukering, Mark Koetse
- UP - University of Potsdam, Ariane Walz
- ULUND - Lund University Centre for Sustainability Studies, Kimberly Nicholas
- WCMC - World Conservation Monitoring Centre, Claire Brown

### **Exemplars involved**

Through Task 2.2 (Exemplars), all exemplars will be involved in contributing to the Synthesis) as per researchers listed in Task 2.2., above.

- i. Urban-rural fringe of the Greater Dublin Region
- ii. Urban dunes in Barcelona
- iii. Conservation of cultural landscapes in the LTER region of Montado in Portugal
- iv. Co-beneficiary management of marine/coastal ecosystems for Blue Carbon on the Balearic Islands
- v. Trans-boundary River and Wetland Management of the Lower Danube
- vi. Effects of landscape management and infrastructure development on rural and peri-urban areas of the central Alps
- vii. Wine production and cultural landscapes in Europe
- viii. Multi-scale implementation of environmental policy in Scotland
- ix. Circum-Mediterranean agricultural land abandonment
- x. Pan-European regulatory Directives
- xi. Mechanisms for Climate Protection and Habitat Conservation at the global scale

### **Link to WP Instruments:**

- The development of the decision-tree platform which aims to provide contextual guidance on the best tools and instruments to adopt for the governance and maintenance of any given ecosystem service project. Sub task 2.3.3 therefore requires close collaboration with the range and structure of the instruments available as well as evaluation data, which are necessary for the efficacy of the decision-tree platform.
- WP4 should also provide feedback and guidance on the development of the blueprint protocol through the forthcoming discussions on the blueprint drafts.

### **Results for Resource Hub:**

- The sub-task “Synthesis of the Lessons Learned” will be made accessible to the community of excellence via the Resource Hub.



- The blueprint is designed to ensure consistency of reporting from the research efforts of the Instruments and Exemplar Work Packages and is crucial for the efficient dissemination of information in the Resource Hub.

## Work Package 3: Knowledge

### Task 3.1: Ecosystem function and quantification

Lead: Almut Arneth

#### Overall task objective:

1. Provide operational means to link ecosystem function, biodiversity and ES provision (T 3.1.1).
2. Apply process-based modelling frameworks to derive metrics usable in the operational ES/NC domain (T 3.1.2).
3. Explore the temporal and spatial dimensions of the ES/NC concept (T 3.1.3).
4. Evaluate methods and metrics to assess uncertainty in EC/NC quantification (T 3.1.4).

#### Link to deliverable / milestone (number and title)

##### **D3.1: Transferable geo-referenced metrics and GIS based quantification functions (May '14, CNRS)**

MS3.1: Set strategy for first applications and identify development needs, WP meeting, (Feb '13, KIT)

MS3.2: Evaluation of the knowledge needs emerging from the initial OPERAs meta-analysis, (Apr '14, UBO)

MS3.13: Paper submitted: Framework for model-based quantification of ES and their uncertainty (June '16, CNRS)

MS3.20: Final report of task 3.1 (Nov '17, KIT)

#### Methods to achieve objectives:

- Exploration of biodiversity and functional traits databases and their link with ES/NC maps (T 3.1.1).
- Use process-based modelling frameworks to quantify ecosystem responses to changes in the environment on regional and global scales and translate these into ES/NC metrics (T 3.1.2).
- Design and implementation of simulation sensitivity studies to explore temporal and spatial effects on ES/NC quantification (T 3.1.3).
- Explore how published methods for assessment of uncertainty could be translated into metrics for trade-off analysis and decision making (T 3.1.4).

#### Partner contributions:

- CNRS/IMBE: Alberte Bondeau, Wolfgang Cramer  
Combine mechanistic ecosystem modelling and socio-economic indicators to assess the ecosystem services provided by Mediterranean terrestrial ecosystems and derive simple metrics relating their typologies to multiple societal benefits (T 3.1.2). Simulate

the ensemble of spatio-temporal trajectories of ecosystem dynamics associated with impacts of climate, CO<sub>2</sub> and land use change, based on long-term sustainable ecosystem functioning (including soil maintenance). Evaluate the feasibility of the ES/NC concept in order to quantify options for sustainable management of the Mediterranean ecosystems (T 3.1.3).

- CNRS/LECA: Sandra Lavorel  
Improve existing ES modelling by incorporating better representations of the contributions of biodiversity. Exploit biodiversity and functional traits databases to address how patterns align with those of ES/NC. Results are used to explore the role of functional diversity for the resilience of ecosystem services and for adaptation to climate and other environmental change (T 3.1.1).  
Also input to T 3.1.4
- KIT: Almut Arneth, Anita Bayer  
Process-based modelling frameworks are utilized to assess a suite of Ecosystem Services based on simulated ecosystem function responses (e.g. carbon and water cycling, net primary productivity, crop yields) to changes in the environment such as climate, atmospheric CO<sub>2</sub> levels and land use. Services addressed may include climate regulation, food production, water supply, transpiration, energy plants and timber (T 3.1.2). Evaluate ES provision on a range of time (historical and future) and space (regional to global) scales (T 3.1.3). Simulation results are transferred into metrics usable in ES/NC instruments, i.e. existing published approaches are explored and further developed as needed (T 3.1.4).
- VU-IVM: Astrid van Teeffelen, Peter Verburg, Nynke Schulp, Willem Verhagen  
Methods and metrics to assess uncertainty in ES/NC quantification (T 3.1.4). A comparison of alternative quantification models and metrics for a number of selected ecosystem services where alternative models are available. The analysis will quantify the range of outcomes and use, wherever available, measured and observation data to validate the range of predictions with the observations. Regions of larger uncertainty and regions where different approaches yield robust results will be identified. The analysis will be applied to the Europe Exemplar and/or the Scotland Exemplar, depending on data availability.  
Possible contributions to T3.1.1.-T3.1.3
  - Provide ES/NC maps at European scale (e.g. from EU FP7 VOLANTE, ERA-NET CONNECT and especially in relation to the European Exemplar, services addressed can include flood regulation, wild food provisioning, pollination and landscape aesthetics) for comparison with spatial distribution of functional traits and biodiversity (T3.1.1). Contribute to comparison of process based projections (e.g. LPJ) of ES and ES projections based on land use projections in combination with simple ES proxy models (T3.1.2, also input to 3.1.4). Provide land use/land cover projections and associated ES/NC over time under several socio-economic

- scenarios to quantify and map the dynamics of ES provision over time, especially linked to the European level exemplar (T3.1.3).
- Quantify the relevance of landscape heterogeneity and landscape composition/configuration for ecosystem service provision.
- UFZ: Ralf Seppelt, Martin Volk; Stefan Schmidt; UBO: Sven Lautenbach, Heera Lee; ALU: Carsten Dormann, Anne-Christine Mupepele  
T 3.1.1, T 3.1.3: Design database for capturing case studies on ecosystem service projects and studies, including indicators for ES/NC, methods used as well as characteristics on uncertainty, evidence and efficiency; Develop draft for blueprint on ecosystem service assessments
  - CSIC: Nuria Marba, Carlos M. Duarte, Inés Mazarrasa, Stefan Gelcich, Ana Ruiz  
T 3.1.1, T 3.1.2 Explore available datasets on seagrass structure and functional traits to address patterns for ES/NC provision. Multiple ecosystem function responses to (present and projected) changes in the environment will be assessed using modeling frameworks.

**Exemplars potentially addressed:**

1. Scotland (KIT, VU-IVM)
2. Central French Alps (CNRS/LECA)
3. Mediterranean (CNRS/IMBE)
4. Europe (VU-IVM)
5. Global (KIT, VU-IVM)
6. Balearic Islands (CSIC)
7. Swiss Alps (ETH)

**Link to WP Instruments:**

Account for needs in exemplars

Deliver practical recommendations for use in WP2 and WP4

Cooperation with WP4 regarding tools overview database

**Results for resource hub:**

(Jointly with Task 3.5): Results from 3.1.2 and 3.1.3 will be summarized and examples provided on present-day and future (range of scenarios) climate regulation services (C, H<sub>2</sub>O), especially how response to climate change/land use change affects these over a time period of years-decade vs. decade-century. Product to be provided: Sums, tables, maps; Domain: Europe; possibly globe; resolution: at least 0.5 degree, if higher resolution climate/land use change driver is available, then higher.

T3.1.4 will provide examples of how uncertainty in ES/NC quantification can be measured and visualized for the domain of Scotland and/or Europe at 1 km<sup>2</sup>.

## Task 3.2: Social and cultural values of ES/NC

Lead: Marcus Collier, Craig Bullock

### Overall task objective:

1. To develop new methods to measure social and cultural values attached to ES especially in cases where existing economic valuation methods are less effective. To demonstrate the relationship with economic and individual values/motivations.
2. To integrate values with ES function quantification and economic valuation to support the development of new instruments.

### Link to deliverable / milestone

#### D3.5: Strategies and methods for social valuation of ES/NC (Nov '15, UCD)

MS3.4: Discussion paper on establishing definitions for social and cultural values (re D3.2)

MS3.10: Coordinated plan for the application of social valuation in selected exemplars (re D3.2)

MS3.21: Paper on application of novel social valuation methods (Nov '17, UCD)

### Methods to achieve objectives:

- Review literature in relation to social and cultural values and their expression in resource management, including contributions from sociology, psychology, human geography and economics.
- Apply methods such as deliberative participatory approaches and scenario analysis to examine stakeholder/public perceptions of ES and NC.
- Develop and test within selected exemplars new methods for social and cultural valuation, maximizing consistency and transferability of approach and outcome where possible.
- Examine temporal and spatial dimensions of values of ES and NC, their implications for existing and potential management and sustainability, and realization of benefits by different stakeholders.

### Partner contributions:

- VU-IVM: Samantha Scholte, Astrid van Teeffelen, Peter Verburg.  
Review of determinants of socio-cultural values and methods for socio-cultural valuation; Quantifying perception and socio-cultural values of wetland-related ES for different user groups (Danube exemplar); Inferring the role of information on ES in valuing ES (Scottish exemplar); Inferring the role of spatial landscape configuration in socio-cultural valuation in ES (Scottish exemplar); improving socio-cultural valuation methods through ES visualization.

- UP: Ariane Walz  
Landscape management, green infrastructure, modelling spatial representation of social and cultural values derived from deliberative approaches. Exemplar 2+ (below)
- WWF Bulgaria: Maya Todorova  
Integration of social and cultural values into relevant economic and policy tools. Exemplar 3+.
- ULUND: Lennart Olson  
Institutional context, user and property rights, relationship with social, cultural and economic value of ES and their sustainable management, role of security in ES values.

In addition, close coordination with Mark Koetse and colleagues via D3.2 (economic values).

**Exemplars addressed:**

1. **Urban-rural fringe of Greater Dublin: (UCD)**  
Characteristics and relationships between urban and rural ES including the role of green infrastructure. Issues related to pressures on ES and use ES of such as fragmentation, waste water, recreation, environmental quality. Perceptions of ES in a changing and more urbanized environment.
2. **Transboundary river and wetland management in Lower Danube (VU & WWF Bulgaria)**  
Capacity to realize social, cultural and economic value of ES and NC in maintaining agricultural, fisheries and cultural goods together with identification of appropriate participatory methods and policy. Restoration of functioning ecosystems.
3. **Cultural landscapes in Montado Portugal (UL)**  
Realization of provisioning and cultural services provided by traditional cork woods, their appreciation by local community, and their capture within existing and potential market values and agri-environmental policy.
4. **Implementation of environmental policy in Scotland (VU)**  
Assessing the willingness to offset urban development in EastLothian through the restoration of woodland and shelterbelts. Testing the role of ecosystem services provided and the alternative spatial configurations of restored habitat for residents' willingness to accept compensation for additional housing development. Choice experiment among ~300 inhabitants.
5. **Environmental change and planning in urban-rural fringe of Edinburgh (UP)**  
Use of socio-cultural valuation methods to assess trade-offs between landscape and environmental environmental and housing development in the urban fringe.
6. **Protection of seagrass in the Balearic Islands**  
Interviews with policy, tourism and fishing stakeholders values on socio-cultural and economic values associated with seagrass and the ecosystem services it provides.
7. **Estuarine and coastal restoration in the Firth of Forth Scotland (UEDIN)**  
Application of socio-cultural valuation to perceptions of restoration of coastal environment in response to sea level rise and flood risk due to climate change



**Link to WP Instruments:**

To contribute to the development of tools that take account of social and cultural values and which integrate where possible with economic valuation and accounting to provide meaningful incentives for sustainable management of NC, and maximize public acceptance of relevant policies.

**Results for resource hub:**

- Definition and description of social and cultural values,
- Methods for quantification or valuation
- Methods for integration with economic valuation approaches.

## Task 3.3: Market and non-market valuation of ES and NC

Lead: Mark Koetse

**Overall task objective:**

We use state-of -the-art valuation methods to improve estimates and transferability of economic values for environmental services. This will be achieved by (1) providing a review of the state-of-the-art of environmental valuation techniques (Sub task 3.3.1), (2) expanding existing and/or creating new meta-analysis databases with socio-economic and biophysical data, and testing and validating the improved environmental value functions in several of the exemplars (Sub task 3.3.2), (3) providing a critical review of existing accounting techniques and ways to integrate economic ES values in accounting frameworks (Sub task 3.3.3), and (4) using ES value estimates in cost-benefit analyses or other instruments (preferably in exemplars) and assessing the potential effectiveness and efficiency of mixing different policy instruments (Sub task 3.3.4).

**Link to deliverable / milestone (number and title)**

**D3.2: Monetary and social valuation: State-of-the-art** (May '15, VU-IVM)

**D3.4: Recommendations for integration of ES/NC in existing accounting and reporting formats** (Nov '15, IEEP)

MS3.3: Discussion note on the design of a conceptual framework for incorporating spatial complexity in value transfer functions (Sep '14, VU-IVM)

MS3.9: Coordinated plan for the application of monetary valuation in selected exemplars ( Apr '15, VU-IVM)

MS3.11: Update of economic valuation in various exemplars, based on meetings between WP3.3 and exemplars. Milestone discusses the application of value transfer in exemplars, based on spatially explicit ES value functions resulting from the meta-analyses (M3.17 and M3.22). It also discusses the application of economic valuation methods to exemplar-specific ES (Dec'15, VU-IVM)

MS3.12: Draft guidelines with best practice recommendations for resource hub of the use of economic valuation methods (Feb' 15, VU-IVM)

MS3.17: Expanded meta-analysis database made available to Resource Hub, under restricted access (March '16, VU-IVM)

MS3.22: Paper submitted on the meta-analytic database (July '17, VU-IVM)

### **Methods to achieve objectives**

Various methods will be used in this task. First, a critical review of the literature will be part of most of the research efforts. Second, a critical review of the literature will be part of most of the research efforts. Second, GIS and GIS databases will be used to expand existing and/or new meta-analysis databases with spatial data. Meta-analysis models will be estimated to improve existing environmental value functions. Our aim is to test and validate the improved value functions both in-sample, using so-called jackknifing, and out-of-sample, possibly using one or more of the exemplars. Third, state-of-the-art economic and socio-cultural valuation techniques will be used simultaneously in one or more exemplars. Aim is to improve insights in and estimates of specific ES values, and assess the value added of using both socio-cultural and economic valuation methods for obtaining value estimates. Fourth, existing value functions and models will be used in one or more exemplars to obtain value estimates for various ecosystem services.

### **Partner contributions**

- IVM: Mark Koetse
- Involvement in D3.2, D3.4, MS 3.3, MS 3.9, MS 3.11, MS 3.12, MS 3.17, MS 3.22
- UEA: Ian Bateman
- Involvement in D3.2, D3.4
- IEEP: Patrick ten Brink
- Involvement in D3.2, D3.4
- UCD: Craig Bullock, Marcus Collier, Deirdre Joyce
- Involvement in D3.2, D3.4

### **Exemplars potentially addressed**

Many exemplars have indicated to be interested, so the exemplars to be addressed will be the result of ongoing research developments in this task as well as in the exemplars. At the moment, the following exemplars appear to be interested in either meta-analysis value transfer and/or application of an economic valuation study:

1. Cultural landscapes in Portugal
2. Multi-scale implementation of environmental policy in Scotland.
3. Inner Forth in Scotland
4. Pan-European regulatory Directives.
5. Mechanisms for Climate Protection and Habitat Conservation at the global scale.

## 6. Alps

**Link to WP Instruments:**

Outputs of this task are especially relevant for cost-benefit analysis and environmental accounting as decision making instruments or tools. Other instruments that make use of monetary estimates of (changes in) ecosystem services, e.g., MCA, TESSA, are potentially interesting and interested as well.

**Results for resource hub:**

- Meta-analysis database(s) on monetary ecosystem service values
- Spatially explicit ES value functions
- Guidelines on economic and socio-cultural valuation
- Policy brief on reducing hypothetical bias in environmental value functions
- State of the art monetary and social valuation
- Guidelines and state-of-the-art on natural capital accounting

## Task 3.4: Institutional structure and governance systems

Lead: Lennart Olsson

**Overall task objective:**

The task will provide insights into how ecosystem services and natural capitals can and should be governed. This will be done by first providing a theoretically informed typology of governance modes of ES/NC based on the nature of the services (subtask 3.4.1); second to make a more detailed investigation of the role of property rights in relation to selected ES/NC in the context of the exemplars (subtask 3.4.2); third to study existing and potential policy integration examples in EU (subtask 3.4.3); and fourth to analyze cross-scale and cross-jurisdiction aspects of selected ES/NC governance (subtask 3.4.4).

**Link to deliverable / milestone**

**D3.3: Report on the existing and potential governance modes for various ES/NC (Nov '14, IEEP).**

MS3.7: Identification of knowledge and policy gaps in the context of exemplars and instruments (this MS will be a progress report towards D3.3, building on D4.1, May '14, IEEP, Marianne Kettunen, Patrick ten Brink).

**D3.6: A portfolio of ideal types of (public and private) governance modes for selected ES/NC. (Nov '16, ULUND: Lennart Olsson, Torsten Krause, ETH: Christian Hirschi).**

MS3.6: list of questions sent to selected exemplars regarding salient characteristics of ES/NC and stakeholders. (Sep '13, ULUND, ETH).

MS3.25: Identification of policy integration needs, cross jurisdiction issues, PR arrangements. Progress report towards D3.6, Apr '14, ULUND: Lennart Olsson, Torsten Krause)

MS3.14, First test of the portfolio of ideal types in some exemplars in conjunction with T3.2.2 and T4.1 (Dec '15, ULUND).

MS3.18: Provide knowledge on the governance typology with guidelines to the resource hub. (Dez '16, ULUND).

MS3.19: Joint publication on use of the governance typology to assess existing EU or other policies for harnessing ES. (Sep '17 ULUND).

### **Methods to achieve objectives:**

The point of departure will be the exemplars and instruments. Ecosystem services to cover in this task will be selected from the exemplars and/or instruments reflecting the exemplars. A set of questions will be compiled and sent to WP2 in order to ensure that the exemplars will be adequately described from a governance point of view. The exemplar (i.e. practise) based analysis will be complemented by an assessment of the current and potential integration to operationalise ES/NC into existing policies and their governance at general level. The subtasks of 3.4 will make use of the exemplars in order to create a typology of ideal types, to investigate property rights, to analyse policy integration and to understand the cross-scale and cross-jurisdiction issues. Methods will be qualitative and empirically grounded in the exemplars, reflecting also the selection of instruments under WP4.

### **Partner contributions:**

- ULUND: Lennart Olsson, Torsten Krause

ULUND will coordinate the work in Task 3.4 and be responsible for three sub-tasks: 3.4.1, 3.4.2. and 3.4.4. The work will mainly be based on linking the real-world cases of the selected exemplars to a theoretical understanding of how various ES/NC might best be governed. Understanding of ecosystem functions of ES/NC and corresponding socio-economic conditions will be essential to take into consideration. Property (and user) rights have been selected as the most salient institution, hence a special sub-task on this. The work in sub-task 3.4.4 will address the overall research question of how scale and jurisdiction issues (including place specific policy styles) affect the successful implementation of ES policies. Theoretically, the research will assess and synthesize the current ES literature from an angle of multi-level governance and will draw on the typology of governance modes developed in sub-task 3.4.1. Empirically, the work will be based mainly on case analyses from the Mallorca Exemplar as well as broader findings on the integration of the ES/NC concept in current policies (sub-task 3.4.3). The results will allow the formulation of policy recommendations to foster adequate governance structures that allow a better implementation of place and level specific ES/NC policies (WP4, in part. sub-task 4.5.3).

- IEEP: Patrick ten Brink and Marianne Kettunen

IEEP will be responsible for sub-task 3.4.3. The work will focus on assessing the current level of integration of ES / NC into policies and governance, with focus on identifying gaps in integration, synergies and trade-offs between different policies and their governance. In addition to the literature-based analysis of existing policy and governance frameworks, the work will draw from / reflect the insights from the exemplars under WP2. Furthermore, the analysis will be closely linked to support the work on instruments under WP4, especially the assessment of gaps and needs assessment for integration of EC/NC concepts under Task 4.1.1.

**Exemplars potentially addressed:**

- We have had discussions with most exemplars. In order to analyze the institutional and governance aspects of ES we need to have access to comprehensive data on the social context of the exemplar.
- So far, for Task 3.4 (3.4.2. & 3.4.4.) we plan to work with the Mallorca Exemplar, the French Alps Exemplar, and the Scotland Inner Forth Exemplar, which are best suited for these studies. In due course, we may be able to include more exemplars, potentially the Pentland hills, Scotland.

**Link to WP Instruments:**

- There is a close link to several of the tasks in WP4 – Instruments. Particularly task 4.1 ‘Demand for ES/NC instruments’ and the assessment of gaps and needs assessment for integration of EC/NC concepts under Task 4.1.1 has been identified to support WP4. Another specific link to WP4 is identified with task 4.4.3 ‘Implementation of market-based approaches’ and 4.5.3 ‘Recommendations and good practice guidelines’.

**Results for resource hub:**

- The typology of governance modes from task 3.4.1 will be summarized.
- A synthesis on our work on the role of property rights in the exemplars we selected is going to be provided for further use and information for other exemplars.
- A description of the cross-scale and cross-jurisdiction aspects in ES/NC governance.

## Task 3.5: Trade-offs and synergies in ES/NC and alternative valuation perspectives

Lead: Astrid van Teeffelen

**Overall task objective:**

1. Coordination of knowledge transfer across WP3 and to/from WP2 and WP4 (Task 3.5.1).
2. Assess and enhance the operational potential of methods for assessing trade-offs and synergies in ES/NC quantification (T3.5.2).
3. Develop novel assessment methods that integrate various ES valuation methods (T3.5.3)
4. Analyze patterns of synergies/trade-offs across exemplars (T3.5.4)

**Link to deliverable / milestone**

**D3.7: Synthesis, documentation and user guidance for new methods and decision trees (Nov. '16, VU-IVM)**

MS3.5: Discussion paper on a full methodological/conceptual framework for WP3 and a plan for application in the Scotland exemplar. (Nov '15, VU-IVM)

MS3.8: Summary table exemplars needs from WP3 (Oct '14, UP)

MS3.15: Discussion paper reporting on the trade-off analysis performed for at least 3 different exemplars (input for MS3.16) (Jul '16, CNRS-Grenoble)

MS3.16: Synthesis framework for WP3 for documentation and user guidance for new methods and the decision trees (Mar. '16, KIT)

MS3.23: Synthesis paper on task 3.5 results submitted (Nov '17, VU-IVM)

**Methods to achieve objectives:**

- Methods for assessing trade-offs and synergies, existing methods (that follow from T2.1 meta-analysis) will be tested and enhanced and developed, tailored towards operational instruments (T3.5.2)
- Development of assessment methods reconciling the functional, monetary and social values of ES/NC (T3.5.3).
- Decision tree (and associated arguments) for applicability of the different perspectives (T3.5.3)
- Simulation experiments / management option evaluation (T3.5.4)
- Optimization of ES/NC management (T3.5.4) seeking trade-offs and synergies between different objectives (ecological, economic, social).

**Partner contributions:**

- VU-IVM: Astrid van Teeffelen, Peter Verburg, Samantha Scholte, Willem Verhagen, Nynke Schulp  
Coordination of Task3.5 and Deliverable 3.7  
Develop a methodological /conceptual framework for WP3 and plan for application in the Scotland exemplar (MS3.5).  
Key contact person for the European exemplar.  
Partner in developing and testing the assessment methods



Coordinate a synthesis paper on the results of task 3.5 (MS3.23)

- KIT: Almut Arneth, Anita Bayer
  - Co-coordination of Task 3.5 and Deliverable 3.7
  - Partner in developing and testing the assessment methods, i.e. process-based modeling frameworks, to derive metrics useable in the operational ES/NC domain. Analysis of ES trade-offs on a global scale. Evaluate the suitability of the ES/NC concept to highlight options for sustainable management.
  - Organise the synthesis process for documentation and user guidance for new methods and the decision trees, in concordance with WP2/WP5 activities regarding decision trees and OPPLA (MS 3.16)
- CNRS-Grenoble: Sandra Lavorel,
  - Partner in developing and testing the assessment methods, and in developing guidelines for selecting and tailoring different quantitative methods to case study objectives
  - Trade-off analysis performed for at least 3 different exemplars, report via MS3.15. Key contact for the Alps exemplar
- VU-IVM: Mark Koetse in collaboration with UEA and IEEP
  - Feed results and methods from the Task on economic valuation to T3.5
- UP: Ariane Walz
  - Delivers a summary table with exemplars needs from WP3 (MS3.8).
  - Key contact person for the Global exemplar
- UED: Marc Metzger
  - Key contact person for the Scotland exemplar
- UCD: Craig Bullock, Marcus Collier, Deirdre Joyce, in collaboration with VU-IVM & UP
  - Feed results and methods from the Task on socio-cultural valuation to T3.5
- UFZ: Ralf Seppelt, Martin Volk, Stefan Schmidt
  - Feed outcomes from the Meta-analysis T2.1 into WP3
- UBO: Sven Lautenbach, Heera Lee
  - Feed outcomes from the Meta-analysis T2.1 into WP3. Partner in developing trade-off quantification methods
- ULUND: Lennart Olsson, Torsten Krause
  - Feed outcomes from T3.4 on governance into T3.5

### Exemplars potentially addressed

- Task 3.5.2 test and enhance methods for assessing trade-offs and synergies, for example using the Central French Alps, Scotland, and Mediterranean exemplars.
- Task 3.5.3 will develop novel assessment methods reconciling the functional, monetary and socio-cultural values of ES/NC. These will be tested for applicability ‘alongside exemplars’ (e.g. **Global, European, Scottish and Alps exemplar**).
- Task 3.5.4 will test synergy/trade-off patterns across the **global, European, and e.g. the Scottish and the Alps exemplar**. Two experiments will be conducted:
  - Simulation experiments to investigate the effects of the implementation of different management (← T4.4) on emerging trade-offs and synergies for the functioning of

ecosystems and between socio-cultural, economic and ecological values arising from this; Results → T4.5 to foster the assessment of strengths and weaknesses of the different instruments.

- Optimization of ES/NC management under constraints, for either ecological, socio-cultural, or economic objectives (or combinations).

### Link to WP Instruments

- WP3 has to provide appropriate platforms to incorporate knowledge into instrument development and testing (T3.5.1), for this a number of joint workshops (together with T4.5 and T2.2) to discuss the possibilities for operationalizing new knowledge through instrument development and exemplar testing (T3.5.1).
- Results from 3.5.3 will be used to inform the development of information and decision support instruments (T4.3)
- Results from 3.5.4 will be used to inform the development of information and decision support instruments (T4.2 – T4.3)

### Results for resource hub

- Results from T3.5 will be synthesized in cooperation with T2.3 → adding to the 'lessons learned database'.
- User guidance (decision tree or otherwise) for the applicability of the socio-cultural, monetary and ecosystem-based perspectives will be provided, that fits within social and institutional structures and governance. (T3.5.3)
- Results of simulation experiments across selected exemplars (e.g. global, Europe, Scotland): present-day and future (range of scenarios) climate regulation services (C, H<sub>2</sub>O), trade-off and synergy analysis, assessment of uncertainties (joint output with T3.1, T3.5.4)
- Data and results from “a quantitative review of relationships between ecosystem services” which synthesizes the relationships (trade-off, synergy, no-effect) of pairs of ecosystem services
- SynES: Database for Synthesis of Information on Ecosystem Services
-

## Work package 4: Instruments

### Task 4.1 Demand for ES/NC instruments

Lead: IEEP (Marianne Kettunen)

#### Overall task objective

- 1) Top down analysis: gaps and needs assessment for the integration of ES/NC concepts (T4.1.1)
- 2) Bottom up analysis: demands and needs for ES/NC instruments by key stakeholders (T4.1.2)
- 3) Identifying and assessing emerging issues and the opportunities for ES/NC integration (T4.1.3)
- 4) Analysis of needs for ES/NC in the context of specific policy tools and their implementation (T4.1.4)

#### Link to deliverable / milestone (number and title)

##### **D4.1 Report and Policy brief on existing and emerging policy needs and opportunities, M16**

MS41 (MS4.5.1): Pre-Selection of priority instruments for further development in WP4 (Task 4.5), M9

MS44 (MS4.1.1): Policy gaps and needs assessment survey (MS and EU level) (Task 4.1 with possible links to Task 4.4): M25

##### **D4.2 A report on lessons learned and recommendations for taking account of ES/NC in key policy instruments, M36**

MS47 (MS4.1.2): Partner Feedback (Task 4.1.2 bottom up analysis) on existing and emerging practical needs for integration and uptake of ES/NC concepts for MS4.1.3 workshop, M32

MS48 (MS4.1.3): Emerging needs survey (EU level) (Task 4.1), M36

#### Methods to achieve objectives

- Input Data Requirements: synergies with analysis from WP3 Task3.4.3, reflecting information from relevant examples under WP2
- Building on D4.1, with available insights from WP4 Tasks 4.2 – 4.4

#### Partner contributions

- Active contributions: Biotope, Denkstatt, ALU-OBUE, WWF and EFI
- Oversight / synergies: UNEP-WCMC, ETH-Zurich, University of Lund and University of Potsdam, IODINE

**Sub task 4.1.1** IEEP, UNEP-WCMC, ETH-Zurich, Biotope, ULUND, Denkstatt, EFI

**Sub task 4.1.2** ALU, OBUE, IEEP, Denkstatt, PU, WWF, Biotope

**Sub task 4.1.3** IEEP, Biotope, Denkstatt, EFI

#### **Sub task 4.1.4** IEEP, ALU, OBU, Denkstatt, EFI, WWF

##### **Link to other WPs**

D4.1 is developed in parallel with WP3 Task 3.4.3 “ES / NC current and potential policy integration”; D4.1 provides information on the broader policy and instrument “landscape” to WP4 Tasks 4.2 – 4.4

D4.2 builds on work under D4.1; D4.2 uses available insights from WP4 Tasks 4.2-4.4; D4.2 uses insights from relevant examples under WP2 (e.g. Danube Basin, global and European examples); also to the extent relevant D4.2 reflects knowledge related insights and requirements from WP3

##### **Results for instruments**

D4.1: Report and Policy brief on existing and emerging policy needs and opportunities at EU and MS level (Task 4.1) in a 4-step approach an assessment of policy objectives, of gaps, of emerging needs and opportunities. Mapping of identified key instruments to address the gaps across sectors.

##### *Outcomes of assessment*

- Instrument / sector / objective “combinations” to be focused on under Task 4.1.4 and also explored under Task 4.1.2
- Assessment of policy objective landscape and current potential / gaps to address it
- Identification of emerging needs and opportunities

D4.2: A report on lessons learned and recommendations for taking account of ES/NC in key policy instruments and their implementation (Task 4.1). This should include insights regarding existing and emerging (practical) needs for integration and uptake of ES/NC for different stakeholders, responding to policy needs and realizing opportunities, including a review of instruments as a basis for WP1-3 (Milestone 4.12).

*Outcomes of assessment:* analysis of requirements, potential efficiency etc. for key ES/NC (implementation) instruments in a specific sectoral and/or policy goal context, supported by insights on stakeholder needs for key policy instruments (in sector and policy objective context).

## **Task 4.2 ES/NC information tools**

Lead: WCMC (Claire Brown)

##### **Overall task objective**

- 1) Enhancement and development of innovative data capture tools (T4.2.1)
- 2) Enhancement of selected indicator-based tools and development of new indicator-based tools (T4.2.2)

3) Enhancement of information tools to support accounting and ratings systems (T4.2.3)

4) Improve data and information storage and presentation including web-based visualization interfaces (T4.2.4)

**Link to deliverable / milestone** (number and title)

**D4.4 New and enhanced existing data capture, indicator based, and information tools including documentation, M48**

MS42-MS4.4.1: Means for enhancing selected ES/NC data tools and accounting and ratings systems identified, M15

MS51-MS4.2.2: Trialling new and enhanced data capture, indicator-based, and information tools within Exemplars, M36

MS50 – MS4.2.3: Updated report on testing of information tools for ES/NC data capture, storage, presentation and use, M38

### **Methods to achieve objectives**

*Links within WP4:*

- To Task 4.1 (for Task 4.2.1)
- To Task 4.3 (for Task 4.2.4)

### **Partner contributions**

- UEDIN, Mark Rounsevell, Marc Metzger (T 4.2.1)
- EFI, Marcus Lindner (T 4.2.1, T 4.2.2, T 4.2.4)
- Biotope, Fabien Quetier (T 4.2.2, T 4.2.4)
- ETH Adrienne GrêtRegamey (T 4.2.2)
- Tiamasg George Cojocararu (T 4.2.2, T 4.2.4)
- Denkstatt Boyan Rashev (T.4.2.3)
- Lund Paul Weaver (T.4.2.3)
- ECM, Karin Viergever (T.4.2.3, T 4.2.4)

Sub task 4.2.1 UEDIN, EFI

Sub task 4.2.2 WCMC, Biotope, EFI, ETH, Tiamasg

Sub task 4.2.3 Denkstatt, WCMC, LUND, ECM

Sub task 4.2.4 Tiamasg, WCMC, ECM, Biotope, EFI

### **Link to other WPs**

- Links to WP2: Exemplars: Information tools will be tested within exemplars

- Links to WP3: Knowledge: Knowledge generated from this work package will feed into the development of the spatially explicit information tools
- Links to WP4: Instruments: Take into consideration the development of tools in Task 4.2
- Links to WP5: Resource Hub: Tools, protocols etc will be made available through the Resource Hub

## Results for instruments

### Task 4.2.1

- Enhancing and developing innovative data capture tools focusing on crowd sourcing methods, based on the current approach in the VOLANTE project
- Testing tools using crowd sourcing methods in exemplars
- Identification of other potential tools for enhancement (link to Task 4.1)
- Link to EU Bon

### Task 4.2.2

- Identify opportunities for strengthening existing indicator based tools using T4.1 output
- Develop protocols indicators and indices that take into consideration the supply and benefits of ES/NC
- Drawing on the methods developed under T3.1, develop a set of spatially explicit indicators
- Indicators and indices tested in the context of Europe and global policy and strategies, private sector reporting and assessment frameworks
- Indicators and indices trialled in exemplars

### Task 4.2.3

- Review and refine criteria for a range of standards, certification and ratings schemes
- Explore the potential to further elaborate existing and develop new LCA based tools to incorporate ES/NC
- Trial the use of LCA for EPD criteria in the wine industry exemplar

### Task 4.2.4

- Draw together and make accessible information developed in task 4.3
- Examine tools developed in Task 4.2 for their usability as DS tools and propose modes of information transfer, including description of data transfer and translation interfaces, development of databases and metadata standards, web-based visualisation interfaces for data access and review
- Information made available through the Resource hub

## Task 4.3 ES/NC Decision Support Tools

Lead: ETH (Adrienne Grêt-Regamey)



**Overall task objective**

- 1) Multi-criteria decision analysis (T4.3.1)
- 2) Cost-Benefit Analyses (T4.3.2)
- 3) Environmental assessments (T4.3.3)
- 4) Scenario and foresight tools (T4.3.4)
- 5) Improving existing and developing innovative user interfaces (T4.3.5)

**Link to deliverable / milestone (number and title)****D4.6 New and improved decision support tools and methods, linked with a user interface, M52**

MS4.5.1: Pre-Selection of priority instruments for further development in WP4 (Task4.5), M9

MS4.4.1: Means for enhancing selected ES/NC data tools and accounting and ratings systems identified, M15

MS4.3.1: Procedures for the integration of the ES/NC into existing decision-support tools, M15

MS4.1.2: Partner Feedback and Background report on existing and emerging practical needs for integration and uptake of ES/NC concepts for MS53 workshop, M24

MS4.2.3MS4.4.3: Updated report on testing of information tools for ES/NC data capture, storage, presentation and use, M36

MS4.2.2: Trialling new and enhanced data capture, indicator-based, and information tools within Exemplars, M36

MS4.4.2: Interim analyses of implementation designs in the three arenas (Task 4.4), M42

**Methods to achieve objectives**

- Link to Task 4.1, Task 4.2.1, Task 4.2.4 (Improve data and information storage and presentation including web-based visualization),
- as a first step, a list of factsheets with available decision support tools and expected development of the tools by the end of June 2013
- Actions/next steps (see Annex for details)

**Partner contributions**

- Co-authors/contributors/ Partners(real names) : Diana Tuomasjukka (EFI), Fabien Quétier (BIOTOPE),  
Further - TBC: Rob Tinch (IODINE), Dariya Hadzhiyska (DENKSTATT) James Paterson/ Marc Metzger (UEDIN), Diana Hanganu/George Cojocar (TIAMASG), Ariane Walz (PU, Carsten Dormann (ALU)

Sub task 4.3.1 EFI, Biotope, ETH, ALU, OBU

Sub task 4.3.2 IODINE, EFI

Sub task 4.3.3 Biotope, ETH, EFI, DENKSTATT

Sub task 4.3.4 UEDIN, ETH

Sub task 4.3.5 ETH, Biotope, TIAMASG, PU

### **Link to WP Instruments**

Output to Task 4.4, Task 5 and exemplars

### **Results for instruments**

Selection of new and improved decision support tools and methods operationalizing ecosystem services. The new and improved decision support tools will be developed and tested in different individual exemplars. The computing architecture of successful tools including their user interfaces will be made available for other exemplars, and the developed tools and methods tested in the different exemplars will be made available through the Resource Hub. The decision support tools and methods will be accompanied by a report and a factsheet describing the tool and method especially with respect to their incorporation of ES/NC information (Task 4.2).

## **Task 4.4 Implementation and uptake of ES/NC concepts**

Lead: ULUND (Paul Weaver)

### **Overall task objective**

- 1) Design and 'success' criteria in implementing ES/NC concepts (T4.5.1)
- 2) Design of analytical methods and protocols to assess implementation (T4.5.2)
- 3) Implementations of market-based approaches (T4.5.3)
- 4) Implementation of approaches based on spatial planning, permitting, and direct investment, including Green Infrastructure GI) Interventions (T4.5.4)
- 5) Implementations in Green Business and Finance (T4.4.5)

### **Link to deliverable / milestone (number and title)**

#### **D4.7 Management information tools and manuals for concept mainstreaming in three arenas, M52**

MS44 (MS4.1.1): Policy gaps and needs assessment survey (MS and EU level) (Task 4.1 with possible links to Task 4.4): M25

MS4.4.2: Interim analyses of implementation designs in the three arenas (Task 4.4), M42

MS 4.4.3 Documentation of work design of implementation tool approach against criteria, focus on :M25

- Certification and link to Carbon

- Cultural Evaluation and Governance and Spatial planning aspects
- NLL and Offsetting

### Methods to achieve objectives

- Input data of structured descriptions of implementations (operational designs, application contexts, performance), enabling characterisations and analysis of implementations and their effectiveness (data available to task-contributors from literature reviews of theory and practice and from the exemplars of WP2); stakeholder-derived implementation performance criteria (data collected directly from stakeholders in policy-gap and need assessment workshops, Task 4.1, MS4.1.1, augmented by literature reviews).
- Activities in coming months: Immediate focus in months 6-15 is to focus on the building blocks of the task: development of the description and reporting template/framework for implementations and specification of stakeholder- relevant implementation performance and design criteria. (More to follow).
- Actions/next steps (see Annex for details)

### Partner contributions

Co-authors: IODINE (Rob Tinch); IEEP (Marianne Kettunen); Denkstatt (Dariya Hadzhiyska; Linda Klare).

Other active contributors:

VU-IVM (Peter Verburg, Astrid van Teeffelen, Mark Koetse); EFI (Marcus Lindner, Diana Tuomasjukka); WWF-Bulgaria (Maya Todorova); BIOTOPE (Fabien Quetier); CIFOR (Bruno Locatelli); UCD (Marcus Collier); UNEP-WCMC (Claire Brown)

### **Task 4.4 Task lead ULUND (Paul Weaver)**

Sub task 4.4.1 ULUND

Sub task 4.4.2 IODINE, ULUND

Sub task 4.4.3 IEEP; VU-IVM, IODINE; EFI; WWF-Bulgaria; ULUND; BIOTOPE; CIFOR

Sub task 4.4.4 ULUND, VU-IVM, IEEP, UCD

Sub task 4.4.5 DENKSTATT; WCMC; IODINE, WWF- Bulgaria; ULUND; EFI

### Link to other WPs

- WP2: Task 4.4 interacts with exemplars of WP2 (Practice), receiving information about implementations and providing suggestions for new/improved implementations.
- WP3: Task 4.4 interacts with Task 3.4 of WP3 (Knowledge) concerning the role of different governance modes and combinations in implementations. Link within WP4:
- Within WP4, input to Task 4.4 (stakeholder implementation concerns) is received from Task 4.1 (demand for ES/NC instruments).

- Within Task 4.4, subtasks 4.4.1 and 4.4.2 provide (respectively) an implementation framework template and the three other sub-tasks, which provide feedback from all subtasks of Task 4.4.
- Output to Task 4.5 and to WP5. Interactions with WP3 on governance

### Results for instruments

A report/manual providing guidance on concept mainstreaming in different arenas (markets, spatial planning, green business/finance, hybrids of these) under different drivers, principles, and implementation logics. The concerns of the report are: (i) to understand and improve the take up and mainstreaming of ES/NC concepts through schemes of implementation in different arenas and, with that, to secure the take up and use of ES/NC tools and information, including those developed in OPERAs; (ii) to identify drivers of and opportunities for mainstreaming as well as barriers to uptake and ways of overcoming these; (iii) to help ensure implementations and operational designs for those that meet stakeholder-defined performance criteria; and (iv) to help secure synergies between schemes. Policy-relevant questions relating to implementation design, such as the relative merits in different contexts of top-down regulatory approaches versus bottom-up governance-based approaches to verification, monitoring, and enforcement (VME), will be identified and addressed.

## Task 4.5 Demand for ES/NC instruments

Lead: EFI (Marcus Lindner, Diana Tuomasjukka)

### Overall task objective

- 1) Coordinating Instruments Development (T4.1.1)
- 2) Synthesizing operational potentials (T4.1.2)
- 3) Recommendations and good practice guidelines (T4.1.3)

### Link to deliverable / milestone (number and title)

MS41- MS4.5.1: Pre-Selection of priority instruments for further development in WP4 (Task 4.5), M9  
MS 4.5.2: Specification of instruments targeted for O-NEST. M30

### D4.3 Synthesis report documenting the operational potential of ES/NC instruments, M47

MSMS4.2.1: Data capture, indicator-based and information tools selected for enhancement, development and trial, M18

MS4.2.3: Updated report on testing of information tools for ES/NC data capture, storage, presentation and use, M36

MS51 – MS4.2.2: Trialling new and enhanced data capture, indicator-based, and information tools within Exemplars, M38

MS4.4.2: Interim analyses of implementation designs in the three arenas (Task 4.4), M42

### D4.5 Good practice guidelines for instrument choice and tutorials for instrument

**application, M48**

MS4.4.1: Means for enhancing selected ES/NC data tools and identified accounting and ratings systems, M15

MS4.3.1, Procedures for the integration of the ES/NC into existing decision-support tools, M15

MS4.4.1: Data capture, indicator-based and information tools selected for enhancement, development and trial, M18

MS4.1.2: Partner Feedback and Background report on existing and emerging practical needs for integration and uptake of ES/NC concepts for MS53 workshop, M24

MS4.2.3: Updated report on testing of information tools for ES/NC data capture, storage, presentation and use, M38

MS51-MS4.2.2: Trialling new and enhanced data capture, indicator-based and information tools within Exemplars, M36

MS4.4.2: Interim analyses of implementation designs in the three arenas (Task 4.4), M42

**Methods to achieve objectives**

Link within WP4 to Tasks:

- Task 4.1 Demand for ES/NC instruments,
- Task 4.2 ES/NC information tools
- Task 4.3 ES/NC Decision Support Tools

Actions/next steps (see Annex for details):

- MS 41 Pre-selection of priority instruments (due Month 9)
- Setting up tool library (first due date 1st of March 2013) accessible at dropbox (for the moment)
- Prepare factsheets of each tool (2-3 pages)
- Bi-monthly WP4 meetings (next ones: 13.3.2013, 29.5.2013)

Input Data required are

- a list and descriptions of pre-selected / selected instruments
- Factsheets of exemplars and documentation of progress
- experiences from applying/developing these instruments in selected exemplars

**Partner contributions**

Paul Weaver (ULUND), Claire Brown (WCMC), Dariya Hadzhiyska (Denkstatt Bulgaria), Adrienne Gret-Regamey (ETH), Marianne Kettunen (IEEP), Rob Tinch (IODINE)

**Task 4.5 Task lead: EFI (Marcus Lindner, Diana Tuomasjukka)**

Sub task 4.5.1 EFI, ULUND

Sub task 4.5.2 EFI, IEEP, ULUND, WCMC

### **Link to other WPs**

Link to WP3 on Exemplar-Instrument link and development needs

### **Results for instruments**

- Synthesis report documenting the operational potential of ES/NC instruments, including road maps for actions in different policy fields (Task 4.5)
- Overview of different instruments and tools for data capture, information, decision support and implementation which are available within OPERAs. These are critically assessed on their suitability in different application fields, on their operational potential within ES and NC contexts and required development needs within OPERAs.
- In the individual exemplar–instrument cooperation arrangements, the selected and further improved tools and instruments (see D4.3 and D4.4) will be used and tested. Experiences from these applications will be gathered in “Good practice guidelines” for choosing instruments and tutorials for instrument application (Task 4.5)

## Work package 5: Resource Hub

### Task 5.1 Resource Hub development

Lead: Claire Brown

#### Overall task objective

1. Understand user needs across a range of constituencies
2. Design and develop the resource hub in collaboration with OpenNESS to meet user (stakeholder needs)
3. Define a process and strategy for longer-term resourcing and maintenance of the hub
4. Build constituencies of support for ES/NC implementation 'logics', and contribute to capacity development amongst practitioners, academics and other user communities.

#### Link to deliverable/milestone

**D 5.1 Initial Scoping Document for the Common Platform (Month 19- June 2014)**

MS 5.3: Draft wire frames (Month 22- September 2014)

**D 5.2 A demonstration version of the Common Platform (Month 29- April 2015)**

**D 5.3 Second version of the Scoping Document including market analysis for Business Plan and outline of Business Plan (Month 39- February 2016)**

**D 5.4 A prototype Common Platform (Month 46- September 2016)**

**D 5.5 Third version of the Scoping Report (Month 51- February 2017)**

**D 5.6 Business Plan and fully operational Common Platform (Month 54- May 2017)**

#### Methods to achieve objectives

- Form a collaboration with OpenNESS to deliver a Common Platform for both projects
- Review of other hubs currently operating, including functionality and understanding links with key web portals such as BISE and ESP.
- Carry out a variety of different user needs assessment and understand lessons from exemplars (to be carried out in collaboration with OpenNess).
- Design and develop structure and content of the Common Platform (including the web portal)
- User testing of the Common Platform
- Development of a long term business plan for the Common Platform

#### Partner contributions

- ULUND, Paul Weaver (T 5.1.1, T 5.1.2, T 5.1.4)
- UEDIN, Mark Rounsevell, Marc Metzger (T 5.1.1, T 5.1.2, T 5.1.4)
- Prospex, Martin Watson and Katharina Zellmer (T 5.1.1, T 5.1.4)
- UFZ, Ralf Seppelt and Martin Volk (T 5.1.1, T 5.1.4)
- ALU, Carsten Dorman (T 5.1.1, T 5.1.4)
- UBO, Sven Lautenbach (T 5.1.1, T 5.1.4)
- Tiamasg, George Cojocaru (T 5.1.2, T 5.1.3)
- ECM, Karin Biergever (T.5.1.3)
- Denkstatt, Boyan Rashev, Klimentina Rasheva, Nikolay Minkov and Dariya Hadzhiyska (T.5.1.3) CFIOR, Bruno Locatelli (T.5.1.3)
- VU-IVM, Involved researchers: Peter Verbung, Roy Brouwer and Jan Vermaat (T 5.1.4)
- EFI, Involved researchers: Marcus Lindner (T 5.1.4)

### **Links to other work packages**

#### **Links to WP 2: Exemplars**

- Lessons from Exemplars will be made available through the resource hub, but exemplar researchers and stakeholders will also assist in designing the hub

#### **Links to WP4: Instruments**

- Tools developed and other materials made available through the Resource Hub; insights and opportunities for the business plan and resource hub continuity supplied from WP4

#### **Links to WP6 – Outreach**

- The resource hub will play a central role in outreach to disseminate the materials from other work packages, but also communicate material developed within this work package

## **Task 5.2 Stakeholder engagement and facilitation**

Lead: Martin Watson

### **Overall task objective**

1. Develop a stakeholder analysis and engagement plan (T 5.2.1)
2. Set up and manage the OPERAs Userboard (T 5.2.2)
3. Facilitate stakeholder engagement in selected exemplars (T 5.2.3)
4. Monitor and undertake corrective action for stakeholder engagement (T 5.2.4).

### **Link to deliverable / milestone (number and title)**

**D5.7** Comprehensive report on stakeholder workshops and stakeholder engagement monitoring, M56 (July 2017)

M5.1 Userboard Workshop 1, M12 (November 2013) in Brussels

M5.3 Userboard Workshop 2, M24 (November 2014) in Lisbon



M5.5 Userboard Workshop 3, M36 (November 2015) in Edinburgh

M5.6 Userboard Workshop 4, M48 (November 2016)

### Methods to achieve objectives

- Carry out stakeholder identification and analysis to carefully define specifics of the involvement of each stakeholder group (T 5.2.1).
- Selection of User board members through stakeholder analysis, and engage continuously with them through a protected website and direct communication as well as four professionally facilitated workshops (T 5.2.2).
- Provide professional process design and facilitation in four exemplars, including reporting (T 5.2.3).
- Establishment of a monitoring system tracing the use of inputs received from stakeholders, recording and analysing stakeholder assessments, feeding into corrective action in situations stakeholder input has not been adequately addressed (T 5.2.4).

### Partner contributions

- UEDIN: Mark Rounsevell, Marc Metzger (T 5.2.1, T 5.2.2) Identification of stakeholders in general and for the User board in particular, Support the management of the User board
- IEEP: Patrick ten Brink, Marianne Kettunen (T 5.2.1) Identification of European level stakeholders
- ULUND: Kim Nicholas (T 5.2.1, T 5.2.3) Identification of exemplar stakeholders for the User Board in coordination with exemplar leaders, Coordination of facilitation of stakeholder engagement in selected exemplars
- UP: Ariane Walz (T 5.2.1, T 5.2.3) Identification of exemplar stakeholders for the User board, Coordination of facilitation of stakeholder engagement in selected exemplars
- VU-IVM: Astrid van Teeffelen (T 5.2.2) Coordination of activities in WP3 with activities of the UserBoard
- KIT: Anita Bayer (T 5.2.2) Coordination of activities in WP3 with activities of the UserBoard
- EFI: Diana Tuomasjukka (T 5.2.2) Coordination of activities in WP4 with activities of the UserBoard
- 

### Links to other work packages

#### Link to WP 2: Exemplars potentially addressed:

- one stakeholder per exemplar in the User board (T 5.2.2)
- at least 4 in the professional facilitation of stakeholder engagement (T 5.2.3), a.o.
  - i. Europe (VU-IVM, ...)
  - ii. Scotland (UEDIN)
  - iii. French Alps (CNRS)
  - iv. Dublin (UCL)

### D1.3: Research Implementation Plan

- discussion and show-casing of practical applications during UserBoard workshops and online engagement activities

#### **Link to WP 3 Knowledge**

- discussion of knowledge during UserBoard workshops and online engagement activities

#### **Link to WP 4 Instruments**

- stakeholder mapping basis for sub-task 4.1.2 (Demands and needs for ES/NC instruments by key stakeholders)

## Work package 6: Outreach and dissemination

### Task 6.1: Constituency building, outreach and project dissemination

Lead: Marc Metzger

#### Overall task objective

1. Project Dissemination to maximise impacts in science, policy and practice (T6.1.1)
2. Outreach and constituency building to guarantee successful adoption of the Resource Hub by OPERAs stakeholders (T6.1.2)
3. OPERAs Summer School (T6.1.3)
4. OPERAs peer-to-peer exchange conference to present OPERAs exemplars along with key project results including the Resource Hub (T6.1.4)

#### Link to deliverable/milestone

M6.1 Website launched (Month 3)

M6.2 OPERAs logo and branding (Month 6)

M6.3 First project flyer (Month 9)

#### **D6.1 Dissemination strategy and plan (Month 12)**

M6.4 Decision on topics for first films (M12)

#### **D6.2 Short films describing issues (Month 18)**

#### **D6.3 Policy Brief Resource Hub (Month 32)**

M6.5 Decision on topics and contracting short films RH (Month 44)

#### **D6.4 Short films describing Resource Hub and instruments (Month 50)**

M6.6 First plan for summer school (Month 38)

M6.7 Date set and venue secured (Month 42)

#### **D6.5 Summer School for post graduate researchers (Month 54)**

M6.8 First plan for conference (Month 38)

M6.9 Dates set and venue secured (Month 46)

#### **D6.6 Peer-to-peer exchange conference (Month 58)**

#### Partner contributions:

- UEDIN: Mark Rounsevell, Marc Metzger, Rachel Chisholm, Archie Crofton
- ULUND: Paul Weaver
- WCMC: Claire Brown
- TIAMASG: George Cojocar
- CNRS: Wolfgang Cramer
- ETH: Adrienne Gret Regamey

- WWF Bulgaria: Maya Todorova
- WWF Romania: Orieta Huela

### Links to other work packages

Project dissemination and outreach will have strong links with all WPs, specific linkages include:

WP5: there will be strong collaboration with the resource hub (especially for D6.3, D6.4) and the user board to ensure effective and targeted outreach

#### D1.1 Management of project dissemination (Month 3)

### Appendix 1: Quality Assurance (QA)

The Research Implementation Plan (RIP) is central to the project's QA strategy, and is the main tool for WP leaders and the coordinator to ensure that we achieve the desired result efficiently. The QA strategy consists of two components:

QA objective 1: To ensure that OPERAs delivers ecosystem services tools and instruments that are fit for purpose.

To achieve this:

- a user board will be set up that will guide the entire project (sub-task 5.2.2).
  - policy needs and opportunities will be identified (D4.1)
  - market analysis and scoping for the resource hub (D5.3) will start long before the project's end
  - feedback from the advisory council will be incorporated
- QA objective 2: To prevent failure or outputs that are of insufficient standard. To achieve this:
- the RIP will be used to monitor progress and clarify roles and expectations
  - an outline of each deliverable (structure, context, plan) will be discussed with the WP lead (or a replacement if the WP lead is the author) no less than 3 months before submission date. The outline will then be sent to the DMT.
  - the DMT will review the deliverable no less than 2 weeks before submission, checking for omissions and major inconsistencies.

### Appendix 2. OPERAs management structure

This section is not meant to repeat the management agreement in the DoW or the Consortium Agreement, but to provide a summary of roles and expectations for OPERAs researchers.

#### *The Project Management Team (PMT)*

The PMT is the main management and decision-making body of the project, which is chaired by the Project Coordinator with assistance from the Deputy Coordinator and comprises the WP co-leads. The PMT is responsible for decisions about project progress, staff exchanges, political connections and collaboration with other projects or programmes. The PMT will meet at each project meeting and have additional meetings using Internet conferencing facilities as issues arise

that require action and coordination. The PMT prepares the documents and agenda for the Consortium Assembly and is in charge of keeping the RIP up to date.

#### *The Consortium Assembly (CA)*

The CA is a gathering of representatives of all 27 partners. The Assembly meets once a year at the general project meeting to discuss progress and to advise on project strategy and other outstanding issues. By consent, the CA is the final decision body of the project in matters of major strategy revision and in the eventuality that partners are declared redundant.

#### *The Daily Management Team (DMT)*

The DMT is responsible for monitoring and coordinating the project on a daily basis, preparing progress reports, and for dealing with legal, financial and secretarial matters. It implements management tasks delegated by the PMT. The Project Coordinator (Mark Rounsevell) leads the DMT, supported by the project manager (Rachel Chisholm), the deputy coordinator (Marc Metzger) and other Edinburgh University support staff for legal and financial issues, and public relations and communication.

#### *The WP leaders and Task leaders*

The WP leaders are responsible for ensuring the RIP is up to date, and for the efficient and effective implementation of the planned research in the RIP, taking into account the timeliness and quality of the deliverables, and the efficiency of the relationships between the participating partners. Each WP is led by two co-leaders. WPs consist of several tasks, which have been assigned a Task leader, with specific responsibilities outlined below.

The WP leaders are responsible for:

Design of WP work plans;

- Communication within the WP, including organisation of project meetings;
- Proper interrelationships and information flows between the Tasks;
- Organization of the information flow between WPs;
- Overall progress and quality assurance within the WP;
- Communication with the participants on items discussed in and decisions of the PMT.

Task leaders are responsible for:

- Regularly informing the WP leaders and the Project Coordinator about actions if needed;
- Task assignment for subtasks;
- Progress monitoring of milestones and expected outcomes of the task;
- Delivering input to the WP lead and Coordinator for the preparation of periodic reports;
- Organisation of workshops or project meeting (if included in the WP).