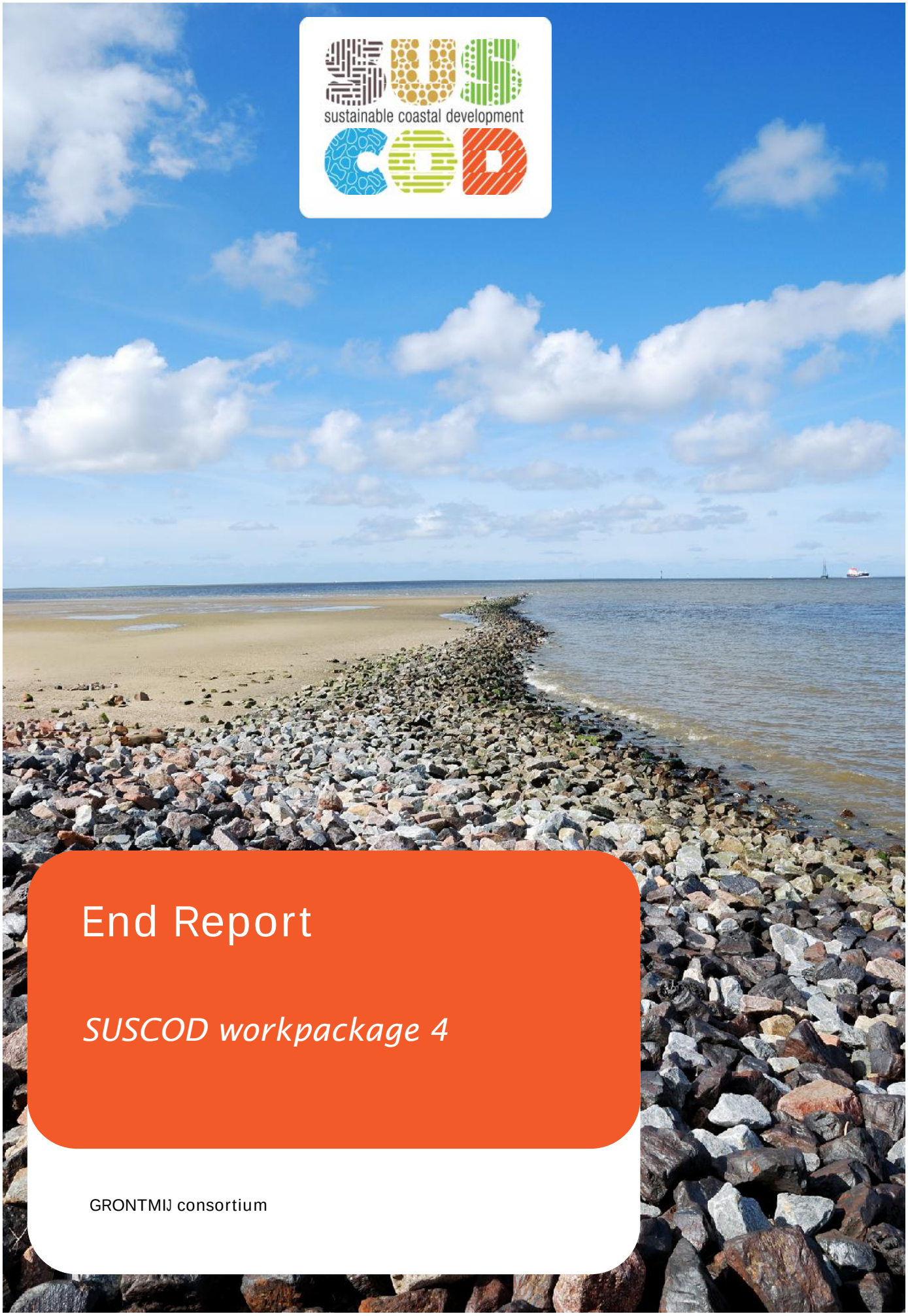

End Report

SUSCOD workpackage 4

GRONTMIJ consortium

The Interreg IVB North Sea Region Programme

European Union The European Regional Development Fund

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1. INTRODUCTION

1.1 The Interreg IVB Suscod project

The SUStainable COastal Development project (SUSCOD) is part of the European Union's Interreg IVB North Sea Region Programme. SUSCOD unites people that pursue a climate resistant, vital North Sea coastline where economics, environment and safety go together. Organisations from Belgium, Denmark, the United Kingdom, Sweden and the Netherlands joined forces to pursue this.
The aim of the project is bringing the 8 ICZM principles, adopted by the EU in 2002, into practice. The partners applied the principles to their pilot projects, discussed them, learned from the experiences and shared our knowledge in 4 conferences and in the ICZM Assistant, the web based SUSCOD tool. We successfully worked with inhabitants, authorities, coastal professionals, project leaders and policy officers, to fully utilize the opportunities for coastal development.

The work breakdown structure of the Suscod project is shown in figure 1-1.

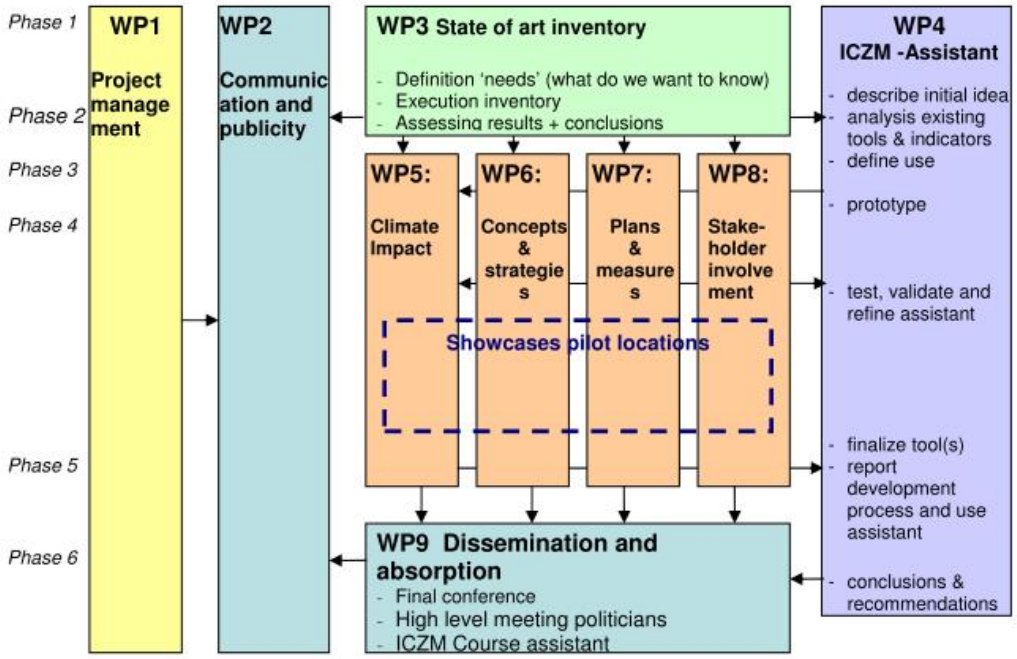

Figure 0-1: work breakdown structure of the Suscod project

1.2 Aim of this report

This report is the end report of work package 4 of the Suscod Project, aimed at development of the ICZM Assistant. The SUSCOD Assistant is a practical and inspiring web-based tool that aims at supporting policy makers and coastal practitioners in implementing the 8 ICZM principles. The Assistant provides them with access to practical tools, documents, case studies and allows them to assess the implementation of the ICZM principles in their project.

The aim of this report is to describe the development of the ICZM Assistant, including the lessons learned. Besides, it describes the possible future of the ICZM Assistant, including the maintenance of the ICZM Assistant. The ICZM Assistant is accessible through www.iczmassistant.eu.

1.3 Suscod Assistant in brief

1.3.1 Introduction

One of the SUSCOD goals was creating a practical tool for implementing integrated and sustainable development strategies following the 8 ICZM principles. This goal was converted into the most visible result of the SUSCOD project: www.iczmassistant.eu. Within the easily accessible and user-friendly ICZM Assistant you can share and acquire knowledge and experiences from other (similar) coastal projects around Europe.

1.3.2 Five bulb model

The design of the ICZM Assistant is based on a simple conceptual model, with five bulbs (1) why use ICZM (2) where is ICZM applied (3) who applies ICZM (4) what is ICZM and (5) how to apply ICZM. These bulbs compose the five main elements of the Assistant (1) an explanation of the story of ICZM principles (2) a map with case studies (3) a community with experts (4) a knowledge database and (5) an assessment tool. The five bulb model is shown in figure 1-2

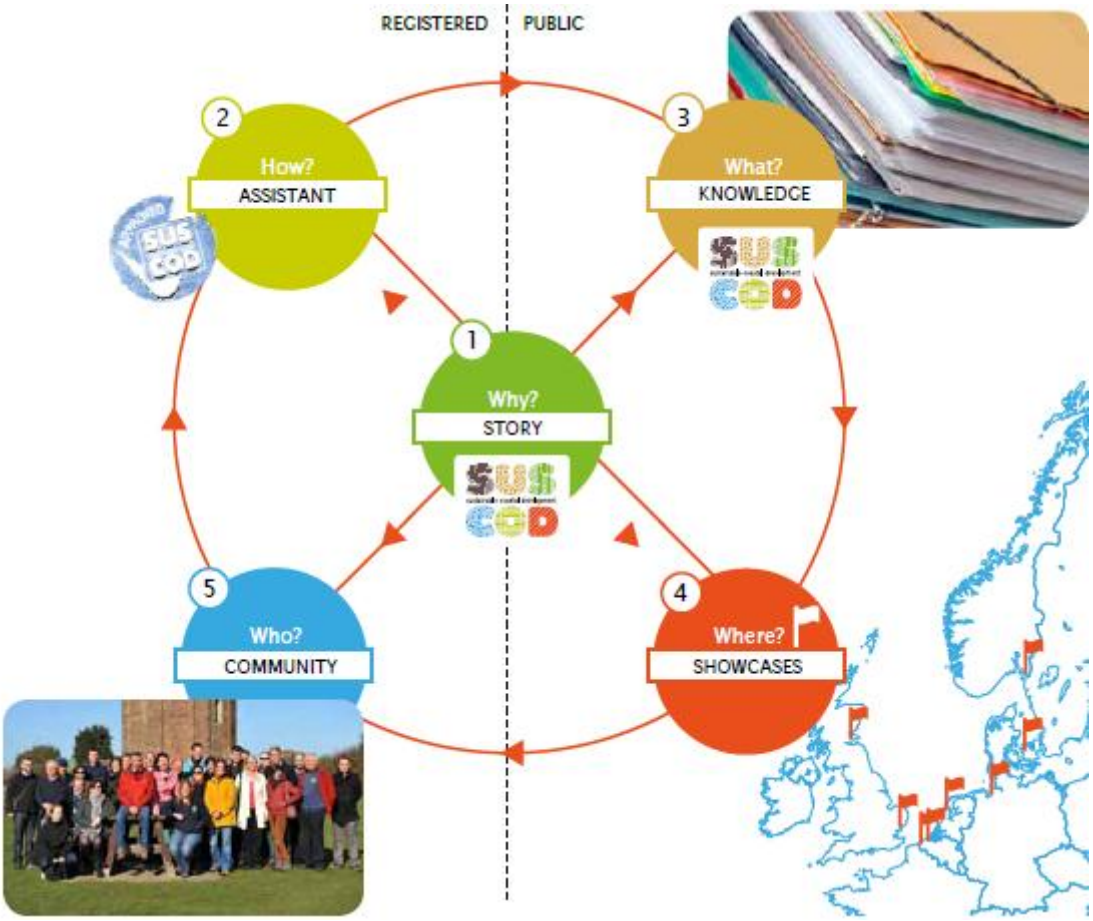

Figure 0-2: Five bulb model

1.3.3 ICZM Assistant, for whom?

The ICZM Assistant aims especially at (supporting) project leaders, policy makers and water professionals to integrate the ICZM principles in developing projects and plans, and therefore to achieve practical solutions that ensure integrated and sustainable social, economic and environmental development. Using the ICZM Assistant is also recommended to NGO's, engineering or consulting companies and interested citizens.

1.3.4 Knowledge exchange

The website www.iczmassistant.eu offers a database filled with information about vital coasts and an online community with relevant 'colleagues'. A registered member of the Assistant has access to all functionalities, which links them to relevant information, documents, project examples and relevant people. Besides that, every member can upload documents, websites and case studies from their own practice into the Assistant too. In this way we can learn from each other.

1.3.5 ICZM proof?

The database is also linked to the ICZM Quick scan and the ICZM Assessment. Two different questionnaires, that you can fill out to see where you or your project stand on integrated coastal zone management.

1.3.6 ICZM Quick Scan

The quick scan is a brief questionnaire to get the goals of ICZM across in a way that is fun and easy. After answering ten illustrated questions, the tool shows you what kind of ICZM type you are and what you might need to improve to get even more ICZM experienced.

1.3.7 ICZM Assessment

This extensive test gives you customised information on how to improve your project or policy and how to apply the eight principles of ICZM. With a list of questions, the ICZM Assessment identifies the strengths and weaknesses of your initiative and guides you in showing helpful case studies, documents, web links and people that will help your project become even more ICZM proof.

1.4 Outline

Chapter 2 describes the methodology for definition, building and maintaining the ICZM Assistant, within work package 4 of the SUSCOD project. It describes the lessons learned and possible follow up. Chapter 3 describes the maintenance phase of the ICZM Assistant.

2. METHODOLOGY

2.1 Introduction

The development of the ICZM Assistant has taken place in three phases. The first phase was the definition phase. In this phase an analysis of existing tools was conducted (see Annex 1), and the use of the tool was defined. In the second phase the ICZM assistant was built, followed by a third phase of testing and refining the Assistant.

2.2 Definition phase

Integrated Coastal Zone Management (ICZM) was introduced in European policy from 1996. Firstly through a demonstration programme (until 1999), followed by a European Parliament and Council recommendation (adopted in 2002). Over the years EU has conducted several evaluations on the level of implementation of the ICZM criteria on member state level. The European Environmental Agency (2000) concluded the level of implementation of ICZM varied between EU Member states, and in most member states ICZM was not well established by the beginning of the 21st century.

In 2006 the EU conducted an evaluation amongst the 20 EU coastal member states, which concluded that during 2000-2005 ICZM evolved towards a more integrated planning and management approach, but a mature and well-functioning ICZM involving all relevant levels of governance was still rarely observed. More recent studies, for example in the COREPOINT (2007) and SUSCOD (2010) project indicate that the approach to ICZM is still very sectoral and fragmented. In a step towards more integration, the INTERREG IVb funded SUSCOD project has developed an interactive web-tool, the ICZM Assistant. This chapter describes the key elements of the ICZM Assistant and how it contributes to a change in a more multi-level approach to ICZM.

In order to define the added value of the ICZM Assistant, firstly an analysis has taken place on existing web-based tools for the coastal practitioner. This analysis is attached in annex 1[1]. The conclusion of this analysis was that existing ICZM tools are mainly for ex post purposes and of rather complex scientific character. Specific conclusions about excisting tools on ICZM were:

- There is no online tool that allows you to insert your project's characteristics, assess your project against ICZM criteria and that support you with information and tools to improve your project
- Information is spread over a large number of tools
- There are so many tools that it is difficult to select which one to use
- Information is often too general to be useful for specific users
- Information is sometimes difficult to find and access (not tailor made for coastal zone managers searching for practical information)

These methods are of very limited value for coastal practitioners involved in the actual development and implementation of the ICZM principles into projects and policy. In order to bridge the gap between EU policy and daily practice the ICZM Assistant has been developed.

The ICZM Assistant is an open-source web based tool. The components of the ICZM Assistant are elucidated in section 1.3.2

[1] This analysis was presented to the lead partner on a project meeting on 20-03-2012

The structure on the ICZM Assistant is based on the notion that different levels of interaction between participants are an important element of the decision making process, as for example described by Arnstein (1969)[2]. The ICZM Assistant promotes open information sharing. Surowiecki (2005)[3] illustrates that a combination of knowledge from different stakeholders, can support wiser decision making. In order to support decision making the ICZM Assistant has different levels of interaction; the user can (1) find information (2) view case studies (3) consult experts (4) share knowledge and (5) assess projects or policy. The levels of interaction for different user groups in the ICZM Assistant are shown in table 2-1.

Table 2-1: levels of interaction for different user groups in the ICZM Assistant

	European Public	**ICZM Stakeholders**	**Expert scientists**	**Practicioner**
Awareness	Coast	Internet	Story	Community
Find Information	Internet	Story	Community	Knowledge
Active Involvement	Story	Community	Knowledge	Case Studies
Learning	Community	Knowledge	Case Studies	Assessment

Bandura (1971)[4] describes a social learning system as a system wherein behaviour changes are made by observing the behaviour of others. Effective behavioural changes can be reinforced, through interconnection. Therefore all levels of interaction in the ICZM Assistant are interconnected. For example the assessment results for a project or policy, directly refer to relevant documents, community members and case studies (best practices).

2.3 Building the ICZM Assistant

The building of the ICZM Assistant has taken place based on two methodologies: systems engineering and scrum. These methods have been combined, in order to facilitate an effective, but flexible methodology for building a practical web-based tool.

For a structured and retraceable development process, the principles of systems engineering have been applied in the development process.

Systems Engineering is a design method, aimed at structured and traceable recording of the decision making process. The development process based on Systems Engineering has the following steps:

1. Define project objective and boundary conditions (definition phase, see section 2.2)
2. Collect user requirements
3. Make a requirement breakdown structure
4. Make trade-off based on objective and boundary conditions (MoSCoW)
5. Conceptual design (prototype)
6. User gives feedback on prototype (verification, validation)

The boundary conditions of the tool design are the project objectives, as stated within the project application form and appendix[5]. Besides the ICZM Assistant had to be developed within the budget and time frame of the SUSCOD project. Altogether this composes the scope of work package 4.

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[2] Arnstein, S. R. 1996 A ladder of citizen participation. Journal of the American institute of planners, 35 (4): 215 - 224

[3] Surowiecki, J. 2004, The Wisdom of the Crowds, ISBN 0-316-8617301, Brown, Little.

[4] Bandura, A. 1971 Social Learning Theory. General Learning Press, London

[5] The Interreg IVB project application of the Province of North-Holland and partners, 2008

With this starting point the user requirements were collected. These user requirements were collected in several interactive stakeholder sessions (St. Andrews, 10-10-2011, Copenhagen, 08-12-2011, Brussels, 26-01-2012, Essex, 26-03-2012, Strömstad, 1-10-2012) with involvement of the partners of the SUSCOD project. All collected requirements were listed in a requirements breakdown structure, attached in Annex 2.

Not all requirements fitted within the scope of the SUSCOD project. Therefore a trade-off of the requirements had to be made. In order to prioritize the requirements a MoSCoW analysis has been applied. MoSCoW is a methodology in software development in order to reach a common understanding among stakeholders about the priority of each of their requirements. MoSCoW categories are as follows:

- **M**ust have: This requirement has to be fulfilled to reach the objectives of the software development.
- **S**hould have: is a requirement that is important in meeting the objective of the software development.
- **C**ould have: Is a requirement that is desirable but not necessary to meet the objectives
- **W**on't have: stakeholders have agreed that this is a requirement that will not be implemented within the software development.

The trade-off with the MoSCoW principles was conducted in an interactive session, wherein all partners have participated.

During the process, the decision making sometimes proved to be difficult, because the partners were unable to overview the consequences of their prioritization of requirements. In to help the project partners in decision making, the tool of scenario building has been introduced.

Four scenarios for development of the ICZM Assistant were introduced at the Schiphol Project Management Group meeting on 29th of May 2013 (see annex 3):

- The coastal search engine: an advanced knowledge database for coastal professionals
- The coastal assessment: the coastal practitioner can asses his/her project
- The coastal spotlight: case studies are highly visible
- Live community: Interaction between coastal professionals

Based on the scenario building a Steering Group decision for the focus of the ICZM Assistant on the coastal assessment scenario has been made. This was the basis for further development of the Assistant.

Co-decision of the partners through scenario building and MoSCoW analysis has led to commitment of the partners, and a significant amount of ownership for the ICZM Assistant.

Based on the user requirements and the trade-off of the stakeholders the website development of the ICZM assistant has taken place. The website development has been done on the basis of the Scrum methodology. Scrum is a method for software development, where software components are developed in multi-disciplinary teams, in short sprints of 1 to 4 weeks.

In our Scrum method, the development of the ICZM Assistant was broken down in the development of components of the website. For each component a conceptual and functional design of the user interface was made (without programming), and the users (project partners) were enabled to give feedback. After development of the component it was made available for testing in an internal testing

environment. On the basis of internal feedback improvements were made. After approving of the component the component was made available for external testing on a test website. The feedback of the user was used to improve the ICZM Assistant.

The conceptual and functional design is attached in annex 4. The technical specifications of the ICZM Assistant are attached in annex 5.

2.4 Testing

The testing of the ICZM Assistant was conducted though a user acceptance test, on the basis of a test form. This test was conducted by the project partners, on the basis of a test form.

Testing was conducted on the basis of the following test criteria.

- Content
- Structure
- Comprehensibility
- Accessibility
- Design and styling

All Test results were listed in a Q and A list, where the test results were listed, and the developer reacted on suggestions for improvement. This Q and A list is attached in Annex 6.

2.5 Content

The ICZM Assistant is an interactive web tool that relies on user content. This user content (knowledge and case studies) was delivered by the project partners and the developing consultant.

2.6 Training

For training in using the ICZM Assistant a train-the-trainer course was developed within work package 9. As part of this course an instruction video was developed, that explains how the assistant works. This video is accessible through this link[6].

[6] http://www.iczmassistant.eu/Pages/Suscod/HowItWorks.aspx

3. LESSONS LEARNED

This chapter describes the lessons learned within work package 4 of the SUSCOD project. The most important lessons learned are:

- Many existing tools have a highly scientific character. The ICZM Assistant is fun and easy to use. The ICZM Quick Scan is an example of an assessment tool that engages an omnifarious audience, due to its visual and interactive appearance. The ICZM Assistant is appreciated as a visualization tool. Visualization, such as cartoons is a powerful tool to reach a wide audience. The ICZM Quick Scan has been used in several stakeholder workshops, to engage stakeholders in Integrated Coastal Zone Management.
- Language and terminology was an issue within the design phase, because the differences between the users within the Member States in the North Sea region. Cultural differences between regions exist and scientists from different regions perceive concepts and search criteria differently. There is not necessarily a single “best” Integrated Coastal Zone Management strategy. The perception of issues varies in space and changes in time with changes in understanding and also the societal, administrative and policy contexts in which Integrated Coastal Zone Management takes place. Workshops and discussions play an important role in defining a common language, and moreover reaching a common understanding. Search criteria and key words provide a common European framework, but because users generate the content, the ICZM Assistant is able to deliver customized content, for users with different nationalities and from different cultural background.
- The conceptual model played an important role in the development of the tool. The conceptual framework constituted the basis of the structure of the ICZM Assistant, and each of its components. The conceptual framework played an important role in the breakdown of the development of the tool into tasks and milestones for the planning. The development of the ICZM Assistant became leading for the planning of the project, wherein all the other work packages contributed.
- An important selling point of the ICZM Assistant is that the different components are aimed at different target groups. The knowledge database and the ICZM Assessment are aimed at experts and designed to deliver specific information. Other parts of the website, such as the ICZM Quick Scan are aimed at more general public and contain more general information. Engaging a large target audience contributes to the dissemination objective of the SUSCOD project and the European Union in general.
- Valorization of the ICZM Assistant was an important part of the development. By engaging authorities as well as consultancies and experts, the ICZM Assistant became a valuable tool for day to day practice in coastal zone management.

The most important success factor in the development of the ICZM Assistant was active engagement of coastal zone managers, which deal with European Coastal zones in their day to day work, to develop the tool within a simple conceptual framework. Herewith, the ICZM Assistant became a practical, visual tool that engages a wide audience.

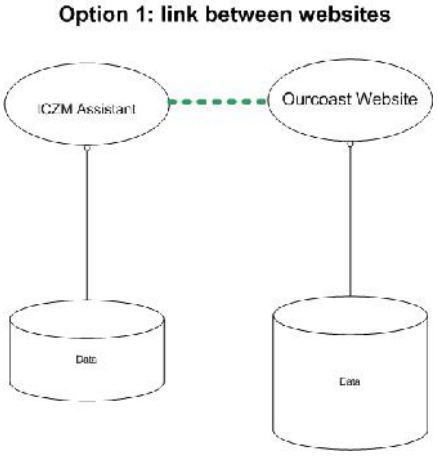
4. MAINTENANCE

4.1 Scope

On the SUSCOD end conference on November 6th, 2013, the ICZM Assistant, being the main result of the SUSCOD (Sustainable Coastal Development) project, was adopted by the Ourcoast website. The Ourcoast website has a weblink to the ICZM Assistant. The ICZM Assistant will remain online until the end of 2015. During this period corrective maintenance will take place, the website will not be further developed, but user content can be uploaded by its community. The ICZM Assistant allows coastal zone managers to become member of the ICZM Assistant and to contribute to the contents on the website.

On Tuesday the 15th of October a meeting has taken place between the Province of North-Holland, and representatives of DG Environment of the European Union. Subject of this meeting was the linking of the ICZM Assistant and the Ourcoast website.

Grontmij, the consultant of the Province of North-Holland, has presented three different options for linking the ICZM Assistant and Ourcoast website. Key strength of the ICZM Assistant is a practical, user friendly visualization tool that creates access to a database of case studies and documents.

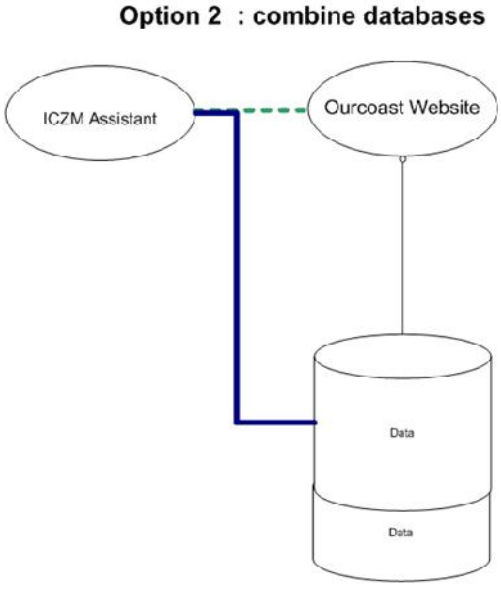


4.2 Possible future of the ICZM Assistant

4.2.1 Introduction

Three options of linking the ICZM Assistant and the Ourcoast database were explored.

- Option 1: put a weblink on the Ourcoast website
- Option 2: Merging the databases
- Option 3: Embedding the ICZM Assistant within the Ourcoast website



4.2.2 Option 1: the basic option

In this option the two websites remain online separately. A weblink to the ICZM Assistant is placed on the front page of the Ourcoast website. This option has been implemented, awaiting decision making on the future of Ourcoast.

- Advantages: limited work load, easy to implement
- Disadvantages: the ICZM Assistant and Ourcoast website do not use each other's strengths.

4.2.3 Option 2: Merging the databases

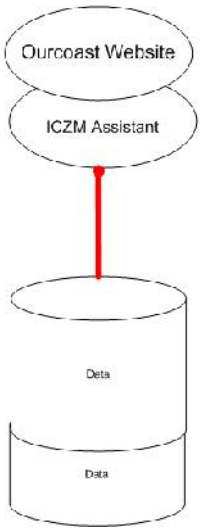
In this option the ICZM Assistant and Ourcoast website remain online separately. In this option the ICZM Assistant functions as a portal for the Ourcoast website. The documents and cases studies in de Ourcoast database can be accessed through the search functions within the ICZM Assistant.

This option requires the following preparatory work to be done:

- The labeling (search criteria) of the case studies and documents has to be uniformed
- The relevant labels have to be linked to documents/case studies within the Ourcoast database
- The documents/case studies in the Ourcoast database have to be linked to the ICZM Assistant.

The advantages of this option are limited programming and the Ourcoast database remains accessible for at least two years though the user interface of the ICZM Assistant. When the ICZM Assistant and the OURCOAST website remain two separate portals, it is unclear to the user where information can be accessed.

Option 3: combine user interfaces and databases



4.2.4 Option 3: Embedding the ICZM Assistant in the Ourcoast website

In this option the best elements of both websites will be combined into a new website. The website has a user interface based on the ICZM Assistant, and a database system based on the Ourcoast website. This is a long term solution. A disadvantage is that this option requires a substantial amount of programming, and will costs more than the other options.

ANNEX 1: ANALYSIS OF EXISTING TOOLS

ANNEX 2: REQUIREMENTS BREAKDOWN STRUCTURE

ANNEX 3: PRESENTATION OF THE SCENARIOS

ANNEX 4: CONCEPTUAL AND FUNCTIONAL DESIGN

ANNEX 5: TECHNICAL SPECIFICATIONS

ANNEX 6: TEST RESULTS, Q&A LIST