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**Computer Assisted Education for Environment
Protection**

NaturNet Plus

**Handbook of requirements on learning
environment**

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Abstract

The document defines the methodology for organising end user workshops for user needs identification. These workshops are organised in four steps:

1. Building initial scenarios for stimulating demands based on previous projects of partners
2. Vision building workshop
3. Testing of initial scenario
4. User requirements collection

The scenarios stimulating the demands are focused on three different aspects:

1. Using video lecturing tools
2. Using on line resources
3. Using metadata for sharing of educational context

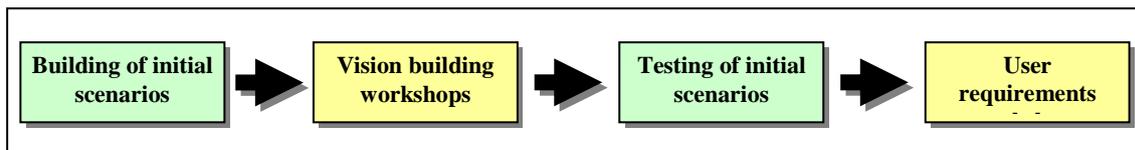
For user requirements workshops the standardised methodology is prepared based on use case formalised description.

Document history

Version	Status	Date	Author

Introduction

The aim of the present document is to provide handbook for the process that will be employed in order to attract a core group of users, build an initial contact with them and gain feedback on the user requirements surveys and the overall thinking of the project. In order to achieve maximum impact from our initial interaction and consultations with the users, we propose the following four-step process:



- **Building of initial scenarios:** to stimulate demand of users for new methods of using on line context and sharing data in on line repositories there will be prepared scenarios, which will be later demonstrate on vision building workshops and will be tested in testing phase before second workshop. This will give to users better overview about new possible tools and it will stimulate new requirements.
- **Vision building workshops:** during these workshops the users are given an introduction to use of interactive tools and educational portals. A series of examples will be presented and then the available tools. After this will be demonstrated metadata tools; for example repository of Naturnet Redime Uniform Resource Management repository. The aim is to build a community of interested users that we can leverage later on the project. During these workshops, a very simple but engaging educational scenario will be presented to the users (possibly employing some existing online resource). Furthermore, the users are asked to fill in the draft survey and possibly provide feedback on its structure.
- **Testing of initial scenarios:** the users, with the support of the partnership, implement simple scenarios
- **User requirements collection:** after the implementation, the users are re-united in user requirements questionnaire.



Building the initial scenarios

To be able to demonstrate the advantage of using the online resources to groups of users, there is necessary to define some initial training scenarios, which could be demonstrated to groups of users. In this phase there is necessary strong cooperation of technological partners and end user groups organizing workshops, to agree exact content of workshop. As initial scenarios, which will be available for workshop are:

NaturNet Plus potential topics for education

1. Political consequences of sustainable development principles on local and regional level (in relation to regional and local development activities / the training will be focused on local and regional decision makers to inform their about requirements coming from principles of sustainable development for local and regional level. What will be necessary to do on local level, how has to be implementation organised on local.
2. NaturNet Redime outputs for local and regional development, the use of NaturNet Redime results
3. Sustainable tourism as tool of development in natural sensitive areas. Experiences from previous European projects like EMIRES, REGEO, NaturNet Redime project. How to organise tourism, how promote regions, collaboration of tourist providers, the tools for promoting, the tools for collaboration
4. Precision farming as method for sustainable and environmental friendly agriculture. Future Farm vision of agriculture in 2030
5. Metaschool results for environmental education. Metaschool principles, Metaschool framework, education for sustainable development
6. Collaborative Sustainable and Environment Impacts Assessment methodology from NaturNet Redime Matrix. How could be managed and publish related information for SEIA and EIA. What is the reason, why is important citizens and stakeholders involvement in this processes. Relation to other activities as planning and territorial decision
7. Using spatial information for tourist support, planning, EIA, SEIA. What is current status of working with spatial information based on INSPIRE directive, what are now available tools, how data could be used, collected, published shared
8. Social networking, for sustainable development, how citizens, students, pupils could be invited into monitoring data collection and how they could response to important challenges of Sustainable development. NaturNet Redime experience, tools methods and possibility. Mobile future for Social networking for sustainable development.
9. Collaborative gaming as tool for promoting of environment and cultural heritage.
10. OpenStreet network based model for building of global information system supporting tourism in rural and natural regions
11. Intellectual Protection Rights and education and awareness
12. Monitoring obligation – what is INSPIRE monitoring. What are obligation for data holders. How it could be realised
13. Tools focus training. There is potential list of tools, which could be part of education



- a. NaturNet Matrix
- b. GeoHra/GEoGAME
- c. Map tools
 - i. Metadata catalogue Micka
 - ii. HSlayers – tool for visualisation
 - iii. Geohosting
 - iv. Metadata extractor – tools how integrate spatial and non spatial data
 - v. GeoPortal
 - vi. Analytical tools
 - vii. Janitor free desktop tool
- d. Mobile solution for data collection and social networking Fildcheck, Bliin, others

For education will be used methods combining:

- class room training,
- virtual training using IMCS video lecture tools,
- self studying
- interactive training tools developed in NaturNet Redime project.

The list is not fixed and can be modified for every workshop on the basis of local conditions. Additional scenarios could be added for workshops. It is not necessary to demonstrate all the tools during the workshop, but it is recommended to use minimally one of two first scenarios, which will demonstrate advanced on line tools. It is recommended to use one of the third or fourths scenarios, or replace these scenarios by some others representing using repositories for sharing of educational context.

Vision building workshops

These workshops will be an excellent opportunity to attract a core group of interested users and involve them in the project from the very beginning. A typical agenda for such an event would be:

NaturNet plus generic program for workshops

- Invitation by local partners 10 minutes
- SDI EDU explanation 10 minutes
- Political consequences of sustainable development principles on local and regional level 20 minutes
- NaturNet Redime outputs for local and regional development, the use of NaturNet Redime results 20 minutes
- Sustainable tourism EMIRES, REGEO, NaturNet Redime tools 20 minutes
- Precision farming as method for sustainable and environmental friendly agriculture. 20 minutes
- Metaschool results for environmental education. 10 minutes
- Collaborative Sustainable and Environment Impacts Assessment methodology from NaturNet Redime Matrix. 20 minutes



- Using spatial information for tourist support, planning, EIA, SEIA. 20 minutes
- GeoGame 15 minutes
- OpenStreet network based model for building of global information system supporting tourism in rural and natural regions 20 minutes
- Intellectual Protection Rights and education and awareness 10 minutes
- IMCS video lecture tools 20 minutes
- Discussion till 30 minutes

A list of common presentations common for all the workshops were prepared. Partners translated part of this presentations into their languages. The example of presentations:

REGEO project
IST-2001-32336

Multimedia Geoinformation for e-Communities in Rural Areas with Eco-Tourism

Didactic design

4 Analysis and Assessment

Data Visualisation
Data Exploring

Data Analysis / Processing
Information Extraction
Assessment of Results

5 Impact rating with the Conflict Matrix

Environmental parameter	Importance	Score 1-5	Impact rating
Environment	Score 1-5	High	High
Air quality (Residential)	1	100	100
Water quality (Residential)	1	100	100
Water quality (Industry)	1	100	100
Soil quality (Residential)	1	100	100
Soil quality (Industry)	1	100	100
Land use	1	100	100
Noise and Vibration	1	100	100
Visual Environment	1	100	100
Landscape and Visibility	1	100	100

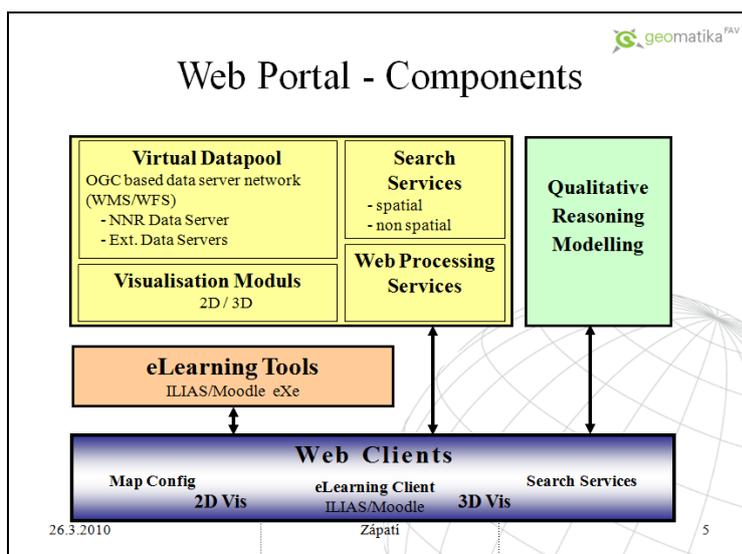
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Impact rating

Impact rating in Conflict Matrix

Sustainability parameter Environment	Sensitivity Scale 1-3	Impact rating		
		no	Medium	high
Air quality / Microclimate	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hydrology, Water (Quality & Quantity)	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Geology, Geomorphology, Soils	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biodiversity, flora, fauna	1	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Land use	2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Noise and Vibration	3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Nature Conservation	1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Landscape and Visibility	1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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Testing of the initial scenarios

This phase is a prime chance for the local partners to establish and empower an ongoing relationship with the interested users. We should be proactive in offering all necessary support, documentation, educational and digital resources, advice etc. to the users, building rapport and trust and helping them to realise in practice the advantages of our approach. Furthermore, we can leverage the opportunity of any high profile events that the users might organise.

It is also very important to encourage “peer-to-peer” interactions between the users (possibly creating some forum or mailing list), allowing them to exchange ideas on the implementation of the scenarios and possibly collaborate on a larger scale. Our aim is to leverage this short implementation period to build a “core group” of users that will be very interested and committed to the project and will have a sense of teamwork.



User requirements collection

The last step of the process is to implement the user requirements online questionnaire. These will follow the implementation of the initial scenarios. The aim of these events is to extract the initial set of user requirements based on their experience with the pilot scenario. The questionnaire is described in the deliverable *Web online questionnaire for collection of regional user needs*.

Use case description methodology

The next step towards the development of educational tools is the definition of use case scenarios which describe the potential services that should be provided to their respective users or user groups. For the future work of both content designers and technical developers it is essential to define such scenarios. Clear definitions and a clearly documented step-by-step approach are essential in order to succeed.

Use cases are defined as a set of interactions between the user and the system. A use case describes who (actor) does what (interaction) with a given system, for what purpose (goal), without dealing with system internals. As such a use case is initiated by an actor with a specific goal in mind and completes successfully when that goal is satisfied. In this process the use case includes also variants of interactions, showing alternative ways leading to the same goal.

We recommend the use of the “Standard Use Case Template” after Derek Colemann [¹] - albeit with some modifications by Bredemeyer (2001) [²].

Table 1: Standard Use Case Template

Item	Information required
Use case	<ul style="list-style-type: none">○ Use case identifier and reference number.○ Each use case should have a unique name suggesting its purpose. The name should express what happens when the use case is performed. It is recommended that the name be an active phrase, e.g. “place order”. It is convenient to include a reference number to indicate how it relates to other use cases. The name field should also contain the creation and modification history of the use case preceded by the keyword history.

¹ According to “A Use Case Template” by Coleman (1998)

² see www.bredemeyer.com/pdf_files/**use** **case**_.pdf



Date of Creation	<ul style="list-style-type: none"> ○ Date of creation of the use case
History	<ul style="list-style-type: none"> ○ Modification history number
Issuer	<ul style="list-style-type: none"> ○ Name of the issuer
Company	<ul style="list-style-type: none"> ○ Issuing institution
Description	<ul style="list-style-type: none"> ○ Goal to be achieved by use case and sources for requirements Each use case should have a description that includes the main business goals of the use case. The description should list the sources for the requirement, preceded by the keyword sources.
Actors	<ul style="list-style-type: none"> ○ List of actors involved in the use case
Assumptions	<ul style="list-style-type: none"> ○ Conditions that must be true for use case to terminate successfully Lists all the assumptions necessary for the goal of the use case to be achieved successfully. Each assumption should be stated in a declarative manner, as a statement that evaluates to true or false. If an assumption is false then it is unspecified what the use case will do. The fewer assumptions that a use case has then the more robust it is. Use case extensions can be used to specify behaviour when an assumption is false.
Steps	<ul style="list-style-type: none"> ○ Interactions between actors and system that are necessary to achieve goal
Issues	<ul style="list-style-type: none"> ○ List of issues awaiting resolution. There may also be some notes on possible implementation strategies or impacts on other use cases.