Project no. 030776

CASCADOSS

Development of a trans-national cascade training programme on Open Source GIS&RS Software for environmental applications

Instrument: Specific Support Action

Thematic priority: Priority 1.2.4.2.2: Identification of new methods of promoting and encouraging transnational technology transfer

Final activity report

Period covered: from 01-05-2007 to 30-04-2009

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Project coordinator organisation name: KULeuven

1. Project execution: objectives and major achievements during the reporting period

Main topic of CASCADOSS

The Open Source Software (OSS) phenomenon is not a new one. Recently, Open Source has also received a lot of attention within the geospatial community, as it offers a growing number of interesting possibilities in the field of GIS and Remote Sensing. By geospatial open source software we mean open source software that stores and/or processes geospatial data (data about the location and geometry of geographic features and their spatial relations). Specifically the following types of software are examined:

- spatial databases (e.g. postgresql/postgis, mysql spatial)
- software libraries for the development of GIS/RS software applications (e.g. the Java Topology Suite (JTS)).
- GIS and RS server applications (e.g. UMN Mapserver).
- GIS and RS desktop applications (e.g. GRASS, OSSIM).

By environmental applications we mean applications developed specifically to perform spatial analysis, modelling or decision-support in the domain of environmental studies.

The most significant benefit of geospatial OSS is that its source code is freely available to the public, or “open”. The OSS can be altered and redistributed by anyone as long as they redistribute it under the same terms. The power of Open Source is not just using existing software, it is that software developers from multiple countries can easily collaborate on the software pieces, enhance or modify the software towards the end-user requirements and, as such, develop customized innovative geospatial applications (read: environmental applications).

Open Source offers developers a freely available framework and/or application core that they can extend with their own specific functionality or algorithm.

Principal target groups for trans-national **casca**de training programme on **O**pen **S**ource GIS&RS **S**oftware for environmental applications are geospatial end-users from Central and Eastern Member States. The adoption of geospatial OSS in those countries is a topic of particular interest while this will reduce licensing costs and will promote indigenous technological development. This means that money can go exclusively towards developing skills instead of paying license fees that tie customers to a single vendor. This also allows more culturally sensitive solutions as they are developed by people in the country, attuned to their real needs.

Project objectives

The ultimate goal of CASCADOSS is to educate the geospatial community, especially the users related to the use of GMES services, about the role geospatial Open Source projects can have within their working methods and decision-making processes, and to make them clear what the chances of participation in these activities are. As such, CASCADOSS aims at building up a critical mass of Open Source users within the GMES society, which could support each other in finding open source solutions for environmental related problems.

CASCADOSS is a “trans-national cascade training programme on Open Source GIS & Remote Sensing software for environmental applications”. This cascade training program consists of.

An **extensive study** was conducted on issues related to Open Source GIS & Remote Sensing technology:

1. a wide range of Open Source GIS & RS software projects are reviewed and evaluated. The best Open Source GIS & RS projects is identified and documented
2. a wide range of environmental applications build on top of Open Source GIS&RS Software is reviewed and evaluated. The best Open Source-based environmental applications are identified and documented
3. the different types of business models / added value services that can be built on top of the Open Source GIS & RS technology are explored and documented

4. the complex Open Source licensing policy is screened and translated into a comprehensive guide on Open Source legal issues.

The reports ***Inventory and analysis of OSS business models and Guide on Open Source legal issues*** can be downloaded from the **web-based geospatial OSS portal** www.CASCADOSS.eu. The inventories and evaluations are available on-line on the same in the same website, under the 'EVALUATION' menu.

On June 16-19, 2008 a one-day **international symposium**, combined with a **3-day information workshop** were organized in Warsaw. The symposium brought together both professional developers and (potential) customers of Open Source technology and will, as such, stimulate research & innovation and networking in this field. The international information workshop targeted GIS-experts with a high level of expertise in GIS and/or programming, such as software service providers and IT/GIS-SMEs (= high end geospatial user). The workshop participants received a detailed overview of the best Open Source GIS & Remote Sensing Software projects, the best Open Source GIS&RS-based environmental applications and an explanation on Open Source licensing issues. The workshop also introduced the high-end trainees to the various business models / added value services that can be implemented on OSS. As such, the project aims at stimulating IT/GIS-SMEs and software service providers to develop new service platforms incorporating Open Source GIS & RS technology and consequently stimulate regional innovation GIS&RS strategies.

On the web-based geospatial OSS portal www.CASCADOSS.eu, under the EVALUATION menu, there is a list of good examples based on FOSS4G. There is also a **best practice information form**. The idea of that form is to collect information on good examples of application of FOSS4G solutions in public administration, environmental analyses and management. If you know an examples of such practices where the FOSS4G software were used please feel free to share you experiences with other FOSS4G users by filling the form. Comment on already posted selected project can also be submitted.

The **Live DVD** provides software and learning materials (including data). It can be downloaded at http://cascadoss.competterra.com/. rr directly through the Internet browser:
ftp://publicftp@competterra.com:liveDVD20@ftp.competterra.com/livedvd_2.0.iso;type=i
Using FTP manager:
FTP server: ftp.competterra.com
user: publicftp@competterra.com
password: liveDVD20

The consortium participants further transferred the acquired knowledge by organizing **national or regional information workshops** in their own country. The target audience are people related to the use of GMES services, with low (or high) level of expertise in GIS and/or programming, such as public administrators, scientists, students (= low end geospatial user). This course offers the trainees a detailed overview of the best Open Source GIS & Remote Sensing Software projects, the best Open Source-based environmental applications and an explanation on Open Source licensing issues. As such, the project aims at stimulating GMES end users to incorporate Open Source GIS&RS technology into their working methods and decision-making processes.

- **KULeuven SADL**
  - 5-6 February 2009, Leuven, BELGIUM
- **GISAT**
  - 20-21 November 2008, Košice, SLOVAKIA
  - 5 February 2009, Bratislava, SLOVAKIA
  - 16–17 February, Prague, CZECH REPUBLIC
- **Compet-Terra**

a. 27-28 January 2009, GRASS course in Szeged, HUNGARY

b. 29-30 of January 2009, Regional Workshop in Szeged, HUNGARY

c. 27 February 2009, Summary about the GRASS course and Regional Workshop in Budapest, HUNGARY

d. 28 April 2009, Workshop at the university of Pécs, HNGARY complete)

- **UNEP/GRID**

  - 12-13 February, 2009, Warsaw, POLAND

The feedback from the symposium and workshop where used to improve the evaluations and documentation of GIS & RS software projects and environmental applications, and to produce new versions of the live DVD. Additional training materials where developed in English and in different local languages. The information in local languages is available on:

www.cascadoss.eu/pl

www.cascadoss.eu/cz

www.cascadoss.eu/hu

www.cascadoss.eu/be

2. Dissemination and use

CASCADOSS OSS portal on GIS & RS

The website www.cascadoss.eu contains the information and training materials from the International Symposium and International Information Workshop on "Free and Open Source Software for Geospatial (FOSS4G) for Environmental Applications".

The main purpose of the International Symposium was to present outcomes of the CASCADOSS assessment of available FOSS4G tools and solutions, and to demonstrate the most promising and useful applications.

We also strived to address the following questions:

- In what way open-source software can foster use of GI technologies (particularly in reference to the GMES Programme) in the public sector?
- How the existing GI standards contribute to the development of open-source applications? What are the current trends in this area?
- How can FOSS4G services benefit from open-source solutions and stimulate the development of business-related GIS&RS applications?

The website www.cascadoss.eu also contains the information and training materials from 9 regional events organised in Belgium, Poland, Hungary, Czech Republic and Slovakia. These were organised in French, Flemish, Polish, Hungarian, Czech, and Slovak languages.

The information in local languages is available on:

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The project website provides room for feedback with use of form for submitting comments (wiki).

Bootable live DVD

A bootable live DVD was created with a selection of GIS/RS software and tutorial data pre-installed. The live DVD was widely distributed through the regional workshops and can be downloaded at http://cascadoss.competterra.com/. or http://www.CASCADOSS.eu.

Training and workshops

Hungary

In Hungary, government bodies and universities are supportive to Open Source development. A new regulation is being set up to promote the use of OSS in administrations. HUNAGI supported CASCADOSS and will carry out more actions in the future. The Universities have been adopting CASCADOSS deliverables to improve their education e.g. Business models at the University of Pécs, software documentation and evaluation at the University of Szeged.

Poland

The main interest in Poland is in OSS desktop applications and environmental applications (first of all DTM processing and hydrological processing). UNEP/GRID Warsaw intends to organise other workshops on data visualisation and Internet applications. Workshop participation costs are a main issue for many interested end users. Therefore, UNEP/GRID Warsaw is looking for additional financing opportunities in the frame of supporting funds from Ministry of Science. Follow-up activities are also taken into consideration in the form of complex new projects for Polish Cascadoss target groups in the frame of structural funds.

The eGIS+ Project is a Leonardo da Vinci-funded project running from late 2007 until late 2009. UNEP/GRID-Warsaw used the CASCADOSS live DVD and training material. This will continue until October 2009.

UNEP/GRID-Warsaw will contact the curriculum committee of the OSGeo to submit the CASCADOSS training material on wiki.osgeo.org/wiki/core_curriculum_project.

A new Project co-financed by Norwegian Mechanism started in October 2008. It is a training programme for the staff of communes in Poland aiming to foster skills and knowledge of clerks in the field of GI techniques and their application in current tasks, with focus on spatial planning. The project title is Geoinformation in practice – The INSPIRE Academy and it is planned to promote FOSS4G solutions among public administration especially in the context of data publishing in Internet.

Czech Republic and Slovakia

The success of the CASCADOSS regional workshops shows that there is great interest in OSS training. The focus is to further diversify and try to reach other target groups, such as IT-ers and environmental end users. There are no specific further proposals for CASCADOSS related events at national and/or regional scale. Most opportunities for proposals are seen with the CASCADOSS members in programmes such as SEIS.

For the future, lost interest is in e-learning developments for OSS. The live DVD will be further used for learning material. It is important to provide participants with a certificate.

Belgium

CASCADOSS results will serve as material for a training initiative organised at SADL, KULeuven, July 27-August 8 2009. The Flemish Interuniversity Council finances this course, as a short training initiative targeted at people from developing countries; 21 participants receive a scholarship.

Also related is the VESTA GIS project (2007-2010). The overall aim is to pool knowledge in the GIS domain (technology, applications), to share experience and foster innovation (new approaches) in vocational training by bringing together experts, organisations and users of GI and its application domains, as well as to identify the trends and skills requirements in this area and to improve the anticipated benefit of vocational training initiatives.

The following main activities are foreseen: Network Building and sharing knowledge, Analysis of training course offer and demand, Implementation of the Network training framework and of an e-learning platform hosting the partners' contributions, Training course catalogue building, Promotion of people mobility (students, new graduates and working people), Exploitation and dissemination actions, including workshop organisation and validation and certification. The network is developed in the framework of the new European Directives for environment and territory, which are dealing with problems that have reached a new European dimension such as the INSPIRE Directive. The network is developed with particular emphasis on the involvement of the GI users. In this perspective the network addresses not only the GI technologies, including the cutting edge technologies (interoperability, web-gis, standards, etc.) but the application domains as well, starting initially with: Water Resource Management, Natural Environment Protection, Coastal Management and Landscape.

FOSS4G evaluation methodology.

An evaluation methodology to assess the quality and functionality of OSS GIS/RS software projects and environmental applications. Possible market application include mainly consulting services. Downloadable from: www.CASCADOSS.eu.

FOSS4G evaluation results

Set of scores for evaluated FOSS4G software projects. Possible market applications include IT consulting, business consulting and marketing. The results will be published under public license. Downloadable from: www.CASCADOSS.eu

Guide to Opens Source Software Legal Issues

Guidelines of Open Source Software Legal Issues. The publication may be used in IT consulting and design. Downloadable from: www.CASCADOSS.eu

FOSS4G Business Models

An extensive study on business models related to FOSS4G. The publication may be used in IT design and consulting. Downloadable from: www.CASCADOSS.eu