

# **Where does OSGeo and Rural Development Intersect? Education and Mentorship**

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## **Abstract**

This talk looks at the state of Open Source Software and Geographic Information Science (GIS) in East Africa. Open Source software is becoming the approach many governments are moving towards and GIS is a tool that enhances rural development at all stages of planning, monitoring and evaluation. This presentation evaluates these opportunities using a year-long case study in Ethiopia that documents the effective roll out of these technologies. The talk concludes with the description of a project called Mapping Across Borders that allows for the rapid scaling up of Open Source GIS education through online open access education materials and mentorships between Canadian students and East African NGOs

## **Background and Relevance**

Open source software is evolving quickly. Governments in the global north and south are applying new technologies and reducing their dependencies on foreign, expensive and closed source software. Governments such as Germany, France, Australia and South Africa are committed to free and open source software and as a result Open Source Geographic Information Systems (OSGeo) is gaining ground on closed source software options (Mutula & Kalaote, 2010). However, while some governments are utilizing OSGeo to their benefit, neither governments or civil society institutions (CSOs) are utilizing the software in East Africa, especially Ethiopia where this presentation focuses.

Due to pricing, availability of trained staff and budgets, the only non-governmental organizations in Ethiopia that are using GIS are international CSOs. Counter to this trend, this paper argues that it is the domestic CSOs that could benefit most from using GIS, as they are often the implementers at the field level. It was therefore recognized that using OSGeo software combined with training could have a significant impact on the way that projects are designed and implemented by domestic CSOs in Ethiopia.

## **Methods and Data**

From September 2009 to August 2010 an OSGeo based training and mentorship project was conducted by the author. Using Quantum GIS (QGIS.org), which is able to harness the power of GRASS GIS (<http://grass.fbk.eu/>) in a much more accessible and familiar interface, GIS education programmes were developed and delivered to over sixty students from more than a ten organizations. This project developed, utilized and evaluated training materials (manual, slides, glossary and step-by-step guide), national census data from the Ethiopian Mapping Agency and OSGeo software installation file. While the training was being conducted the students participated in focus group

discussions and at the completion of the sessions students completed surveys on the effectiveness of the course and associated materials.



**Figure 1: OSGeo training seminar in Addis Ababa, Ethiopia**

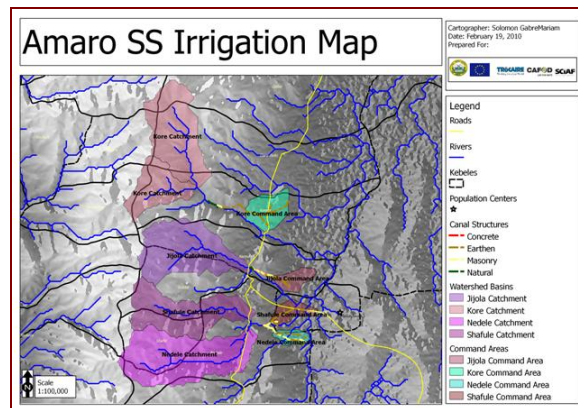
Following the OSGeo training programmes, trainees returned to their rural workplaces and implemented what they had learned. To fill in knowledge gaps, a backstopping program was undertaken at the field level with students. These field visits included data collection exercises using GPS units, data analysis and cartography. During the field process, students were interviewed to identify elements of the training programme that needed more attention.

The maps that students made using the training were an integral output from the training and demonstrated the learning outcomes that the backstopping work facilitated. While the first maps that students made were often based on GPS coordinates of the interventions they had been working on, their second efforts however were often much more complex and involved much of the more sophisticated methods in the training seminars such as terrain modeling and watershed delineation (Fig 2).

## **Results**

Results from this empirical research identified that the training program was a success in that it was able to facilitate a knowledge transfer and encourage the use of OSGeo in Ethiopia. However, the methods used in this case study are not sustainable over the long course of development. The training program relied on an expert to be present in Ethiopia to facilitate training seminars and follow up visits in the field i.e. it was predicated on the skills of one key person and the program ends when that person is no longer available. Further, this program only works with the knowledge of one expert,

which precludes the ability to leverage multiple viewpoints and experience for students. However with the advent of high quality OSGeo software like Quantum GIS and the ability of Web 2.0 collaboration a unique opportunity exists to rapidly scale up the training and mentorships fostered in Ethiopia.



**Figure 2: Irrigation Canals in Southern Ethiopia**

## Conclusions

The success of the OSGeo training and mentorship program led the author to understand that there was opportunity to be successful applying this model on a wider scale. To meet this challenge a new project named Mapping Across Borders has begun. Mapping Across Borders (MAB) is a project that links students and young professionals in Canada who are long on expertise with CSOs can provide that much needed experience with real projects and benefit from OSGeo training. MAB will allow students and mentors to work together without needing costly travel, both in terms of financial and environmental impact by employing Wiki style community editing of training programs, submission and marking of assignments online and providing a project space where partnerships between mentors and students in the global north and south, respectively. This project is the key component of the authors ongoing Masters thesis at the University of British Columbia. Ongoing progress is documented at [www.mappingacrossborders.org](http://www.mappingacrossborders.org)

## References

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