

The impact of regional GIS training

Summary

Since its inception, ESSP has been engaged in diverse capacity building programs with various government organizations. Particularly, ESSP worked closely with the Central Statistical Agency (CSA) and Bureau of Finance and Economic Development (BoFED) to provide training in Geographic Information Systems (GIS), spatial data analysis and spatial database management. Through this relationship, and in collaboration with the regional universities to host the training and to share materials, the services provided by ESSP has productively built capacity in spatial data handling, manipulation and dissemination.

For a better understanding and measurable medium-term impact of the regional GIS training program, ESSP conducted a survey more than 6 months after the training to assess knowledge transfer amongst the training participants. Over half of the respondents noted an impact on their performance using GIS, and importantly, the impact on the organization. Some issues were encountered largely relating to access to reliable technology. Nevertheless, the on-going use of the training materials and development of independent courses affirms the ease of use and practical nature of the materials, and which has undoubtedly facilitated the extension of GIS skills and capacity in academia and government agencies. This work has uncovered a requirement for further GIS training in the other regions.

Training objectives

- To improve dissemination of data related to rural facilities and the services database
- To enhance GIS technical skills in spatial mapping and analysis, spatial database management and data collection using GPS
- To increase collaboration among branch and bureau offices in spatial data collection and sharing

Participants

Within 6 different regions, a total of 226 participants undertook a 3-day training course between November 2011 and September 2012. They included:

- Regional branch analysts from CSA
- BoFED analysts from woreda, zone and regional levels
- Students and professors from host universities across different regions

Sampling

Of the 226 participants, the survey focused on the 3 groups shown above. Survey participants from government offices were randomly selected by region and organization. However, information was collected from all university staff and students who undertook the training. In total, 55 questionnaires were collected from target respondents as shown in Table 1.

Table 1: Sample size and constitution

Organizations	Planned interviewees	Male respondents	Female respondents
CSA	22	13	2
BoFED	20	20	0
Universities	20	17	3
TOTAL	62	50	5

The questionnaire focused on 3 areas:

1. Relevance and quality of training
2. Individual and organizational impact
3. Ongoing application and knowledge sharing

Survey results

1. Relevance and quality of training

The table below shows the questions included in the questionnaire. For each question, participants were asked to rank (**Strongly disagree** to **Strongly agree**) each aspect of the training delivery, which included the training materials.

Table 2: Relevance and quality of training (%)

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Relevance of the topic covered	4	4	8	30	55
Adequacy of the material provided	2	2	12	40	45
Knowledge of the trainers	6	0	2	24	69
I received the necessary assistance	4	2	4	40	50
Easiness of the manual to follow	2	10	12	41	35

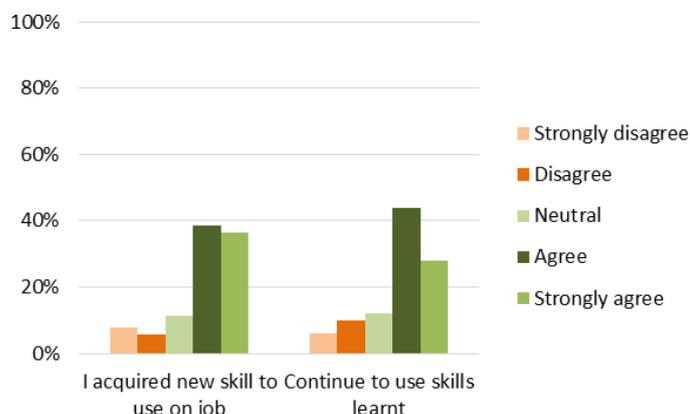
The survey paid particular attention to feedback on the training materials which sustained an important reference for ongoing work. As the results show, 76% agreed that the manual was easy to follow after the course.

2. Individual and organizational impact

This aspect was difficult to disentangle because an organization uses skills, knowledge and collaboration networks in different ways and to different degrees. Nevertheless, this survey sought to recognize the training impact on participants in the midst of the opportunities and constraints (i.e. Lack of computer, GPS units and/or GIS software) within the work environment.

Of the 55 respondents, 69% stated that the training had had an impact. In this regard, 75% agreed that new skills were acquired and applied in their current job (Figure 1).

Figure 1: Skills acquired and used in current job

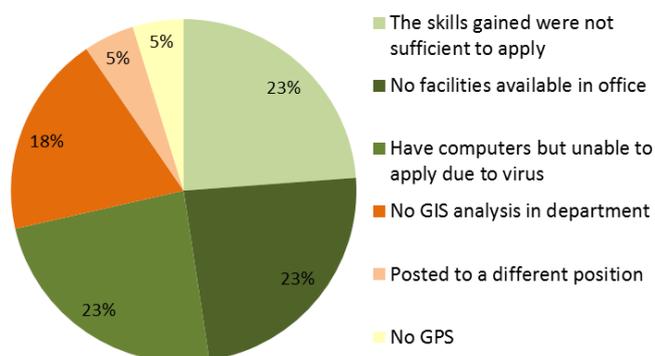


56% reported that their work situation had improved after the training; 33% received an award or bonus from their bosses due to increased skills; and 22% responded that they either moved to a better position within their organization, or sought to receive work from another organization. Importantly, 55% of respondents felt that their department/unit had changed for the better due to the training.

Constraints

Despite the successes recorded above, 23% responded that they did not apply the skills/knowledge that they gained from training. Of these, 46% explained that they lacked facilities, such as computers and software. Approximately 23% believed that the skills gained were not sufficient to apply GIS in their work; and 18% reported that GIS analysis is not a core component in their department (Figure 2).

Figure 2: Reason for not applying skills learned in the GIS course

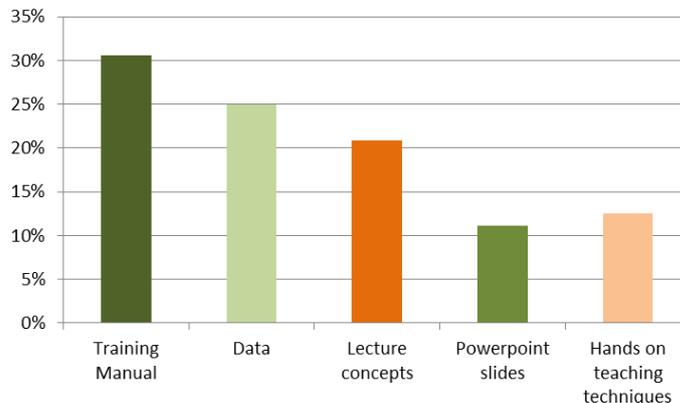


3. Ongoing application and knowledge sharing

The full effect of training can be seen through the on-going use of aspects of the training materials and their adoption in other courses within university departments or organizations (Figure 3). For this reason, information was gathered from both professors and students.

The results suggest that approximately 50% of respondents confirmed that specific aspects of the training materials have been shared in order to train others.

Figure 3: Training materials used in other courses



Within universities alone, the survey responses from participating university staff indicated that 185 students were taught using the materials (Table 3), suggesting that each person directly trained by ESSP impacted approximately 8 people indirectly in this academic environment.

Table 3: University students trained using the adopted ESSP materials

University	University staff who participated in ESSP training	Number of students taught using adopted ESSP materials
Mekelle	3	50
Bahir Dar	4	50
Adama	3	25
Hawassa	3	20
Dire Dawa	5	40
Jimma	4	0
TOTAL	22	185

Further training was also organized and delivered by specific universities. Outside of academia, materials were adapted to deliver independent follow-up courses at BoFED, thus imparting skills and knowledge to a further 118 people.

Conclusion

These survey results support performance changes in the use of GIS and spatial information in the participating organizations as a direct consequence of ESSP’s training. Furthermore, the survey suggests that the training: i) targeted the appropriate participants ii) increased capacity for GIS analysis amongst most participants iii) materials presented and disseminated were relevant, understandable and easy to use.

The ease of adoption of the training materials and hands-on teaching methods by institutions and organizations, facilitated skills transfer and knowledge. Through close partnerships with universities, and the incorporation of this GIS training into universities curricula, it is likely that GIS capability will extend beyond just those described in this current assessment.

Overall, the survey results demonstrate a positive impact of ESSP’s training on technical competence and the manipulation of spatial data. Aside from this, it has identified a training gap to conduct further knowledge transfer outside Addis Ababa.

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