

Personal to Global Capacity-Building via Free-Libre Open-Source Software

David Hastings
UN ESCAP

Abstract

VISION: “You don’t have to live in Silicon Valley or work for a proprietary software company to succeed as a programmer. You can live in Katmandu or Dili. You don’t have to migrate to pursue your dreams. Or you can relocate to your personal nirvana and work on a successful team of software developers. Telecommute to a large firm or form your own small software business. Learn and make money while living where you want. The free-libre open-source software (FLOSS) initiative can help bring mini Silicon Valleys to Asia and the Pacific, with their attendant national benefits in capacity-building. Not only that, but the global software community will be more robust from a greater diversity of developers.”

SOFTWARE DEVELOPMENT, THE BRAIN DRAIN, AND THE DIGITAL DIVIDE: Traditionally, one learned how to develop and use software in school or at work. The school might be a local technical institute, private college, or university. In many cases, advanced studies meant a desire (or the reality) to study overseas. A high portion of senior programmers and computer-related engineers in some developed countries is made up of Asians who came for advanced study, then stayed to gain job experience, then just stayed.

Such specialists often become accustomed to working with dynamic teams of colleagues. Combined with a healthy income, this work environment is often enough to counteract desires for being home. They may be homesick, but may remain overseas for a perceived better work environment.

One of the greatest culture shocks in moving from “developed” to “developing” country in many areas of technology is a sense of isolation. Separation from daily conversations, publications, and other sources of rumours and accomplishments in your field can be demoralizing. However, the Internet has done wonders for reducing such sense of isolation. Indeed, a growing number of technologists in many fields are moving away from centers of activity like Silicon Valley for more peaceful environments like mountain or seashore villages in Colorado or the Caribbean. Why not go farther, to mountain or seashore villages in Asia or the Pacific?

CAPACITY-BUILDING THROUGH OPEN-SOURCE SOFTWARE: The FLOSS initiative has become increasingly dynamic in recent years. It protects intellectual property through copyright, yet also fosters sharing of distributed design, development, bug-fixing, training, other support, development of add-on products, etc. Beyond the claims that some others have for it, some visionary people see FLOSS as a potential major contributor to capacity-building in Asian countries.

Benefiting Geomatics Education: Until recently, relatively few educational institutions could combine teaching geomatics with actually working on developing or supporting a full-featured GIS. Clark University, USA (with Idrisi) and the

International Institute for Geo-Information Science and Earth Observation, The Netherlands (with ILWIS) are possible exceptions. Outside of such institutions, one could work on applications or add-ons, but not often on the design, development, or support of a full package. However, the FLOSS status of GRASS, MapServer, and other software encourages anyone to pursue geomatics software design, development, documentation and support. Universities and technical institutes could do well by participating in development, use, and applications of such software.

Open-source taken for commercial success: ERDAS, started as a small company (SME) and now a major geomatics package, largely originated with ELAS, a U.S. government public domain package. ENVI evolved from PC-based U. S. Geological Survey image processing tools. When ESRI, Inc. hired its first specialist in raster GIS, it immediately sent that person to a GRASS Users' meeting, and began the development of its raster capabilities. At least unofficially, several staff members of commercial geomatics software manufacturers have credited GRASS and other free software for helping the development of many capabilities in such software. Mosaic, developed as free software by the National Center for Supercomputing Applications at the University of Illinois, was the first modern Web browser. Netscape Communications' Navigator and Microsoft's Internet Explorer are derived from Mosaic.

Benefits to the Region: Governments might benefit by considering policies to actively support FLOSS development. Those policies could consider using FLOSS geomatics for education and training, but also making sure that operational geomatics in government and elsewhere also uses open-source. Money saved from commercial licensing and support costs could be redirected to customizing the open-source applications for national needs. Improved regional cooperation can increase the effectiveness and financial benefits of such approaches.

There are numerous pockets of software innovation in Asia and the Pacific. Many of these involve entrepreneurial scientists and technologists creating and sharing software. FLOSS offers improved communication with peers, connecting innovators to the global community. Individuals, small enterprises, or larger firms (witness Red Hat Linux), can thrive by working with such efforts.