The Seventh Helper: the Vertical Dimension

Feedback from a training exercise in Vietnam

▶ **By GIACOMO RAMBALDI and LE VAN LANH**

In response to a request made by the Vietnam National Environment Agency (NEA), the Vietnam National Parks and Protected Areas Association (VNPPA), the Social Forestry and Nature Conservation of Nghe An Project (SFNC) and the ASEAN Regional Centre for Biodiversity Conservation (ARCBC) organised a participatory 3-D modelling exercise in Pu Mat National Park, Con Cuong, Nghe An Province, Vietnam. The main purposes of the event included training participants in the use of the technique, acquiring data on the application of the method in the local socio-economic and environmental context while providing local stakeholders with a communication means that would enable joint learning and dialogue between ethnic minority groups living within or close to the park, government officials and project staff.

The exercise was made in the context of a Ministry of Agriculture & Rural Development - European Commission - funded intervention, the Social Forestry and Nature Conservation Project (1997-2004), which aims at conserving biodiversity within the park through people's participation.

The hands-on training took place on November 16-26, 2001, but preparations started well ahead in August.

The training, which followed an orientation seminar held in Hanoi on October 29, 2001 (see ASEAN Biodiversity Vol. 1 No. 4), had a broad outreach, involving a number of agencies, projects and NGOs (**Box 1**) operating in the sectors of biodiversity conservation and natural resource management in Vietnam.

Key to the success of the exercise has been the active participation of 76 villagers inhabiting the park and its buffer zone, 30 students and teachers residing in the area, a number of park staff, 24 trainees, facilitators and translators.

Data depicted on the model manufactured by the students and the trainees at the park headquarters in Con Cuong have to be credited mainly to the key informants, all belonging to Thai, Dan Lai and Kinh Peoples (ethnic minorities) from the villages of Khe Bong, Co Phat, Con, Thai Son, Xieng, Lang Yen, Bac Son, Cua Rao, Lang Cang, Nam Son, Tann Son, Khe Lo and Thai Hoa, all located in the Commune of Monson.

The core area and the buffer zone of Pu Mat National Park cover 91,000 and 86,000 hectares (ha) respectively and are inhabited by a number of minority groups, including Tay Phoong, Man Thanh, Dan Lai, Kho Mu, H'Mong, Thai and Kinh. The population of approximately 10,000 resides in 16 communes and 110 villages.

The 1:10:000-scale model, measuring 2.8-m x 2.4-m, covers a total area of 70,000 ha including portions of core area and buffer zones located southeast of the park. A 1:7,500-vertical scale was used to enhance the perception of slope.

The exercise went through a series of phases including orientation, focus group discussions and hands-on activities, all of which served as a learning ground for participating members from the local community, project and park staff, trainees and facilitators. To complete the model, exercises were done to extract data and export these to a Geographic Information Systems (GIS) environment. Different methodologies were practiced including data extraction by the use of digital photography coupled with direct on-screen digitizing

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Box 1. Training in Participatory 3-D Modelling and Visualizing Local Knowledge for Application in Protected Area Management

Participating Bodies

- **Government Agencies**
  - Forest Protection Department (FPD)
  - National Environment Agency (NEA)
  - Protected Areas and Wildlife Bureau (PAWB), Philippines
- **National Parks**
  - Bach Ma National Park
  - Ba Be National Park
  - Cuc Phuong National Park
  - Tam Dao National Park
  - Pu Mat National Park
- **Non-Government Organizations (NGOs)**
  - Vietnam National Protected Areas Association (VNPPA)
  - Conservation Education Network (CEN)
  - Center for Environment, Tourism and Development (CETD)
  - Foundation for the Philippine Environment (FPE), Philippines

- **Projects**
  - GTZ-funded Song Da Social Forestry Project
  - GEF/UNDP-funded Protected Areas Resources Conservation (PARC) Project
  - EU-funded SFNC project
- **Academe**
  - Hanoi University of Sciences, Faculty of Biology
  - Hanoi University of Sciences, Faculty of Geography
  - National Centre for Natural Science and Technology (NCNST), Geographic Institute
  - Hanoi National Economic University, Faculty of Economy and Municipal Environmental Management
  - Center for Resources and Environmental Studies (CRES)
  - Institute of Water Resource Planning
  - Human Geography Research Center

Figure 1. Inverted map exercise

Figure 2. Key informants locating themselves vis-à-vis the relief model

Group dynamics

Careful attention was paid to group dynamics during the entire exercise. The trainees, coming from different institutions, easily became familiar with one another and generally worked as a team. The diverse educational background of the group (including cartographers, GIS technicians, biologists, socials scientists and park management staff) positively contributed to the outcome. In fact, any P3DM exercise is meant to be facilitated by a multi-disciplinary group including at least three disciplines: cartography/GIS, community work and environment.

The management of the Pu Mat National Park sent 10 staff to attend the training. Interestingly – before starting the actual exercise - most of them expressed some doubts about the capacity of the villagers to fruitfully relate to the 3-D model and to compose its landscape based simply on cognitive maps.

Questions like "*how can we correct their errors*" surfaced during two focus group discussions, organised in anticipation of the arrival of the key informants. The meetings helped prepare the park staff to accept different perspectives and the fact that there is more than one *locus* of knowledge.

"Do's and Don'ts" of facilitation were discussed to enhance the importance of "broadening the perspective" or "developing analytical skills" of key informants, rather than "correcting their mistakes". The "Inverted Map" exercise (**Figure 1**) was done to encourage the acceptance of existing diverse frames of mind, and the necessity of "thinking outside the box".

After being oriented on the mechanics of the 3-D modelling exercise and on the use of the coding means, key informants quickly familiarized themselves with the topography of the model, and pinpointed the location of their houses and other landmarks (**Figure 2**). In learning by doing and through concrete sensorial experiences, they rapidly internalized the area represented by the model.
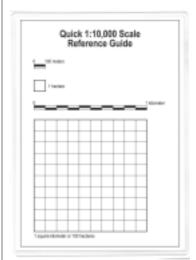

Figure 3. Quick Reference Guide

The use of the Quick Reference Scale (**Figure 3**) proved to be extremely useful in the process.

By sharing this discovery learning process, the park staff rapidly appreciated how familiar and spatially conscious community members were. The villagers took the lead in generating data and the park staff acted with increasing skills as facilitator.

It is worth recalling that the park management drafted the initial map key (legend) and that at the beginning of the activity key informants were invited to review it and suggest changes or integrations and improved definitions. By the end of the exercise the initial legend had expanded to a total of 55 features (lines, polygons and points), a number of which were added by the villagers themselves. Some of the items listed on the draft legend were removed. Most importantly the villagers improved the definitions of the various features to assure better understanding by all those participating.

Interpersonal dynamics, final workshop assessments and the closing remarks made by the trainees, all clearly indicate that the park and SFNC project staffs have finally valued collective community knowledge as a valid and substantial asset to be considered as a key component for the management of the park

Figure 4. Villager introducing a second group of key informants to the dynamics of the exercise

Photo by Giacomo Rambaldi

Figure 5. Parallel Camera Movement shooting to capture digital high resolution images of the landscape

and its buffer zones.

In addition, the exercise was the first occasion for most key informants to visit the Protected Area Office Compound, which is located at a considerable distance from the park. Some participants had to travel for two days to reach the venue. They were first time "actors on the scene", playing the role of resource persons (**Figure 4**).

All these human interaction dynamics are stepping-stones for improved relationships and mutual trust between park/project staff and communities residing within the core area and buffer zone.

As Mr. Andrew Weir (EU Co-director, SFNC) spelled out in his closing remarks, "Participatory 3-D Modelling has proven to be – among others - an efficient means for bringing people together".

The exercise led to the manufacture of a relief model covering only a portion of the area of interest. The SFNC Project manifested the intention of replicating the activity to include the entire project area. So far

Note: Details on the exercise, lessons learned including the cost analysis of conducting P3DM in Vietnam are found in the proceedings, which may be downloaded from ARCBC's web site at the following address: http://www.arcbc.org.ph/pdf/02_0003a.zip

the model has been used for collating information, learning and discussing boundaries and zoning issues. Other activities will follow.

Innovative techniques

New techniques have been successfully tested including the use of a "Quick Reference Guide", which helped key informants to scale data in terms of size, thus reducing one error (scaling of areas) common in depicting mental maps, and the export of data from the model to a GIS environment with the use of a high-resolution digital camera (**Figure 5**) followed by direct on-screen digitizing.

Conclusions

The exercise was based on experience gained essentially in the Philippines among Indigenous People living within or around protected areas. The applied process, which included a long preparatory phase of community mobilizing, has proven to be successful in diverse cultural settings.

The use of the third dimension appears to offer additional cues to

memory, thus enhancing the capacity of individuals to recompose their cognitive maps in a quite accurate, geo-referenced and scaled manner. The fact that 3-D models facilitate scaling, allows also for a large number of features to be depicted on a given area. This is not the case in sketch mapping which has been the most common manner of representing spatial knowledge in the context of Participatory Rural Appraisal (PRA). The difference between a blank contour map and the corresponding relief model is the physical vertical dimension.

In promoting discovery learning, facilitators are frequently advised to stimulate discussion by the use of open-ended questions to allow respondents to better articulate their replies. This is generally achieved by the use of the so-called six helpers - who, what, where, when, why and how? Experience has shown that the 3rd dimension definitely helps when it comes to depicting mental maps. We wonder whether "3-D hints" could be added to the list.■

Giacomo Rambaldi has been practicing community mapping for the past 12 years. He is a technical advisor at the ASEAN Regional Centre for Biodiversity Conservation tasked with the development and dissemination of the P3DM method in Southeast Asia. **Le Van Lanh** *is the Secretary General of the Vietnam National Parks and Protected Areas Association and has been instrumental in organising the training in Vietnam.*