

When foresters have a higher calling

An ITTO project is assisting a forestry school to provide an education program to foresters wishing to strengthen their skills in sustainable forest management planning and practice

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BOLIVIA presently leads the world in its area of certified natural tropical forests. Of the 7 million hectares of natural forest currently under management plans in forest concessions, local social group areas and native community lands, 1.1 million hectares are certified.

This situation is the result of an inter-institutional effort, undertaken with the invaluable participation and support of the country's forest professionals. Nevertheless, both the area of certified forest and that under management plans are just a fraction of what could be achieved in Bolivia: the country has a total of 53 million hectares of natural tropical forests and a continuing need for greater capacity at all levels, including the professional level.

The decision to pursue sustainable forest management as a development strategy in Bolivia began to materialise in 1996 through the promulgation of a new forest law. That same year, an ITTO technical mission to Bolivia highlighted the need for qualified forest professionals under the new forest regime. Its report stated: "The new Forest Law requires that forest management plans should be developed for each concession; forest concessions should be harvested under sustainable yield regimes; and vulnerable areas within forest concessions should be protected. In order to meet these requirements, it is essential to ensure the availability of trained personnel at all levels". The Mission estimated that 1240 forest engineers and 1760 senior forest technicians would be required in Bolivia by 2005. However, in 2003 we have only a fraction of these: about 190 forest engineers and 400 senior forest technicians.

The School of Forest Sciences (ESFOR) at the San Simón University (UMSS) has for many years provided education and training for students wishing to become senior forest technicians and forest engineers. Until recently, however, it did not offer a similar service to enable these foresters to qualify as forest specialists; *Figure 1* shows where 'specialists' sit in the hierarchy of forestry education in Bolivia and which professionals could apply to be trained as specialists. Given the ITTO Mission's report, ESFOR recognised this gap and decided to strengthen its capacity to provide training



Students walking along one of the dendrology tracks in the Sacta Valley

to tropical forest management specialists. To this end, it submitted a project proposal to ITTO (PD 63/97 REV. 3 (F): 'Specialisation program for forest technicians in sustainable tropical forest management in Bolivia'), which, having been approved and financed by the International Tropical Timber Council, is now under implementation by ESFOR in collaboration with the Vice-Ministry for the Environment and Natural Resources in Bolivia.

Topics covered by the specialisation program

In planning the program, ESFOR conducted a series of consultations with the country's main forest stakeholders—government agencies, non-government organisations, forest industry, foresters, etc—about their human resource training needs. The current curriculum for the specialisation program (shown in the table) is based on their suggestions and modified after later feedback.

The course's Module 1 introduces currently available technical tools (ie GIS, GPS, remote sensing). These are applied in Module 2, particularly in relation to data-gathering in the preparation of the forest management instruments (eg forest management plans) required under Bolivian law. Module 3 includes important aspects related to the operationalisation of the plans and the subsequent sale of the products obtained from forest management activities; these include reduced impact logging, forest marketing and the evaluation of forest operations. To date, three training cycles

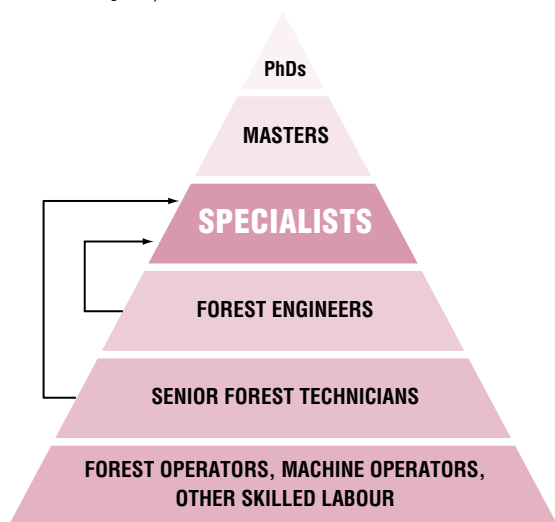
Modular learning

Specialisation program modules on sustainable tropical forest management in Bolivia

Module I (virtual)	<i>Geographic information systems (1 month)</i> <ul style="list-style-type: none"> • Statistics and mapping • Geographic information systems (GIS) and global positioning systems (GPS) • Remote sensing and photo-interpretation
Module II (virtual)	<i>Forest management planning (1 month)</i> <ul style="list-style-type: none"> • Forest inventories • Management plans • Forest surveys and annual forest operational plans
Module III (virtual)	<i>Sustainable forest management administration (1 month)</i> <ul style="list-style-type: none"> • Forest harvesting • Marketing and commercialisation • ITTO guidelines, forest audits and forest certification
Classroom education	1 month – reaffirming concepts learned in the virtual modules
Guided work	3 months – practical work in an area of interest to the student

Academic mountain

Figure 1: Academic degrees recognised by the Bolivian university system (the arrows indicate the professionals that can be accepted as students for ESFOR's Specialisation Program)



have been undertaken, commencing in September 2001, September 2002 and August 2003 respectively; the program for each new cycle has been revised based on feedback from students, staff and other key stakeholders.

The course provides a broad theoretical base, but the practical component is an essential part of the curriculum. Each thematic component is complemented by knowledge-reinforcement activities, both at the office and field levels, in the different areas under management. For example, the forest certification course given in the first training cycle included an activity for the application of the Bolivian Standards for Forest Certification in a forest belonging to the Chiquitan Indigenous communities of Santa Monica in the Department of Santa Cruz; in this way the community was given practical suggestions for an actual certification process in accordance with the certification body's standards. Similarly, the practicum that each specialisation program student must undertake applies practical aspects of a given thematic component for the resolution of specific problems encountered by forest companies, rural communities or indigenous forest communities throughout the country.

Development of modalities

A first specialisation program was implemented in September 2001 under a 'classroom education' model, which required students to attend classes on a full-time basis for 44 weeks. A total of 29 professionals (mainly senior forest technicians and forest engineers from different parts of Bolivia) participated in the course. In order to maintain the recognised excellent educational standards of ESFOR, the project secured, through various agreements, the participation of more than 30 instructors from the best forest institutions in Bolivia. Cooperating institutions included, among others, the USAID-funded BOLFOR project and the Bolivian Forest Superintendence (Superintendencia Forestal).

An in-depth study implemented by the project on the requirements for post-graduate training in tropical forest management indicated clearly that many professionals

were very interested in doing the course but were unable to do so if they were required to take leave from their jobs. Most expressed a preference for a 'semi-classroom-based' training model, whereby most of the course would be conducted remotely and students would be able to continue to work as they pursued their studies. *Figure 2* shows the preferences expressed by respondents to the study.

In order to satisfy this demand, the project organised a second course cycle using a semi-classroom-based training model, still with a duration of 44 weeks but with students able to spend most of their time at their place of work; students were only required to be present on campus or in field camps for five days every month. At those times, the students travelled to Cochabamba (ESFOR's location), to the ESFOR/UMSS teaching forest in the Sacta Valley, and to other tropical forest areas of the country, where they were able to reinforce their knowledge through field practices, problem-solving exercises, evaluations and a series of supplementary academic exercises; in the remaining time they were able to apply what they were learning to their own work environments. This cycle began in September 2002 with almost double the number of students (*Figure 3* shows the participation of students in the first and second cycles of the specialisation program). In addition to the printed and interactive computer-based materials that were prepared for the training modules in this cycle, the course generated an ongoing interaction between the students and the program's teaching staff through the use of email, fax and telephone communication.

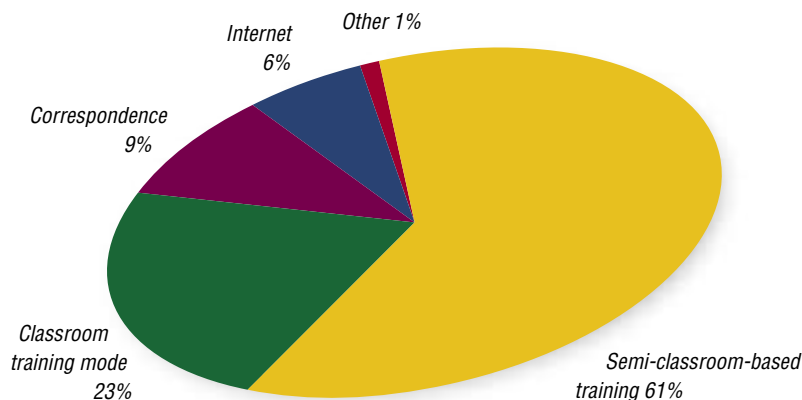
In order to benefit a larger number of forest professionals in Bolivia and in the region, the program is now running a third, 'virtual' training cycle which requires students to participate for the equivalent of seven months full-time over the course of a full year, but with the greatest proportion of this time invested in a teaching-learning modality using the internet in their home locations; most classes are accessible online at any time with the use of a password. Another variant being introduced in this training cycle is the consolidation of the field practicum component into a single, continuous, face-to-face training stage of 30 days of fieldwork (which would reduce the total time commitment needed).

New challenges?

The objective of the third training cycle is to train at least a further 150 specialists in sustainable tropical forest management. Contrary to forecasts, however, only eleven students have registered so far. This is due partly to the fact that in this cycle new enrolments are allowed at three different dates in

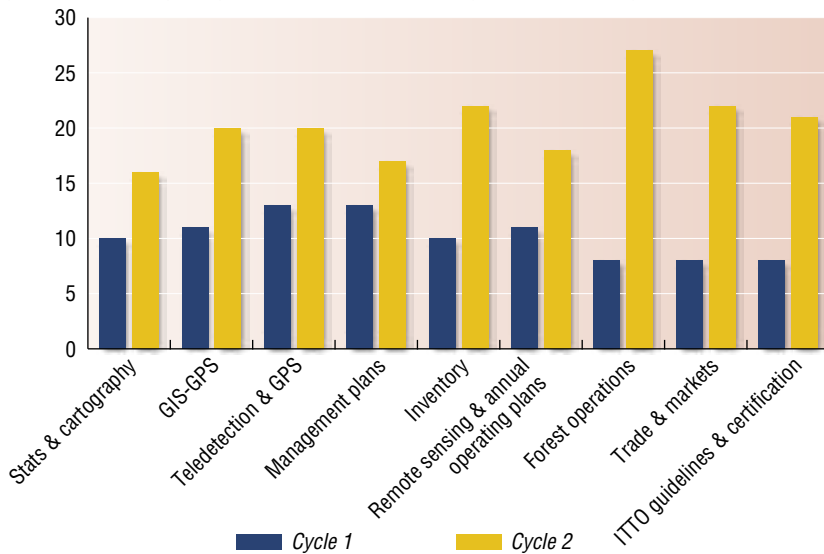
Learning modes

Figure 2: Course participation modes requested by Bolivian professionals for the Specialisation Program on Sustainable Tropical Forest Management



Cyclical interest

Figure 3: Number of participants in the first and second cycles of ESFOR's Specialisation Program



the year and a number of professionals, including from other countries in the region, are expected to sign up in coming months (as of late November 2003, 25 additional students had pre-registered, including five foreign nationals).

Nevertheless, the sudden dip in numbers is worrying and points to one of the hazards of capacity-building in the forest sector: political and economic uncertainty. The greater part of the fall-off can be attributed to a number of factors outside the control of ESFOR: in particular, the current political situation in Bolivia has added uncertainty to the economy and therefore to investments in forest-related activities, reducing the ability and willingness of companies and governmental institutions to invest in further education. Since many potential students in the specialisation program need the support of their employers to undertake the course, this (hopefully temporary) lack of support has had a drastic effect on enrolments. The same applies to independent professionals, those foresters who are self-employed as consultants or in one-person operations: the current uncertainty in the sector makes them reluctant to invest in education.

There may be another reason for the fall-off, too: the forest sector in Bolivia is undergoing a tremendous transformation, with new forest-use scenarios emerging.

Other training

In addition to the post-graduate specialisation program, the project is playing a significant role in training ESFOR's undergraduate students, as well as providing other short courses for the benefit of larger groups of professionals. For example, to date the project has assisted in the training of about 240 students in a range of areas covered by the curricula of ESFOR's undergraduate senior forest technicians and forest engineering programs. Moreover, 550 people have participated in tropical forestry short courses, conferences and other events organised by the project. The most recent major event was a national workshop attended by more than 50 persons to adapt ITTO's *Criteria and indicators for sustainable management of natural tropical forests* to Bolivian conditions at the forest management unit level.



Students involved in photo-interpretation activities in one of the Program settings

The land area granted to forest concessions for timber production has not increased much in the last few years. In contrast, the volume of non-timber products extracted from those concessions is increasing rapidly, to the extent that the value of exports of non-timber products may soon surpass that of timber. Other activities are also gaining ground, including ecotourism, payments for carbon sequestration, biodiversity conservation, community forestry and similar services, indicating that forest specialists need to expand their array of skills, particularly those pertaining to socioeconomic aspects of forests. Those companies not adjusting rapidly to these trends are having difficulties, to the point that some are not paying their concession fees to the government on time. With their existence in doubt, investing in human resource development is perhaps not a priority for such companies. The challenge for ESFOR and the project is to demonstrate to such companies that their adaptation and survival relies precisely in transforming their human resources so as to take advantage of these changes and to emerge as winners rather than as losers.

Concluding remarks

Given the relative success of efforts to achieve sustainable forest management in Bolivia, the recent fall-off in demand for training should be viewed with concern by all those who promote sustainable forest management as an important and viable activity. The country has laid out an ambitious development plan in which sustainable forest management will play a vital role, but if the plan is to be realised then training efforts must grow, not shrink. Largely as a result of the ITTO project, ESFOR is in a strong position to expand its work in training the forest workforces of today and tomorrow, including those charged with managing the Earth's largest and arguably most important ecosystem, the Amazon Basin.

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Translated from the Spanish by Claudia Adan.