



## Dual Education

The construction trade in most southern countries suffers from a pronounced deficit in qualified workers. Most masons, carpenters and other tradesmen lack theoretical knowledge that would allow them to take more appropriate decisions and using the available materials in better and more efficient ways. On the other hand, professionals often do not master the skills and the practical knowledge of the craftsmen. This knowledge gap transforms into wasteful use of scarce resources and results in high costs at less than optimal quality.

The informal sector dominates popular construction in Latin America. The masons in the villages and neighborhoods are often also the architects and engineers of the construction, they make the budget and take the technical decisions according to their own experiences. There is a danger of combining a lack of knowledge of technological rules with poor calculation and management skills. A majority of the master builders are masons who have learned their trade by copying another "master", without knowing the basics of their art. One reaches the level of "master" after years of making mistakes that customers pay for without knowing it.

## Formal education is needed

Youngsters who for some reason have to quit school seldom become real masters of a trade. This can only be overcome by a consequent combination of practical and theoretical training program. In Central Europe, the "Apprenticeship system" has longstanding tradition. In Switzerland, more than two thirds of all young people opt for this path. Most construction trades are three-year apprenticeships, where the student works four days a week in a registered company (under the guidance of a qualified master) and spends one day per week at the trade school.

## Apprenticeship for masons

Various members of the EcoSur network are implementing different projects in Integrated Education. Sofonias Nicaragua has launched a "classic apprenticeship program" based on German and Swiss experiences in the year 2003. Every year ten youngsters are taken under contract for two years, at a salary comparable to a mason's helper. They have 8<sup>th</sup> grade education, and the main requirements are willingness to learn. Four days a week they work at a construction site closely supervised by an instructor, one day is reserved for schooling at a local VTC (vocational training center). Additional to the "on the job training" they receive an intensive two week course every year, where specific tasks are instructed. A theoretical and practical exam graduates them as masons.



## Integrated education programs

Vocational Training Centers are an appropriate way to achieve those goals, if they are able to provide a real job attachment program where the apprentices learn to work under the pressure and exigencies of a productive unit. However, it is often difficult to find employers who are prepared to comply with the specific conditions needed.







## Integration of theory and practice

In many places there are "capacity building" projects that focus only on "learning by doing" and others that are purely theoretical with a few practices in the workshop or school yard. These efforts usually fall short, as the professional life of a bricklayer, carpenter or mechanic necessarily combines a good level of school education with a labour practice that was acquired under market conditions.

National or local parameters must necessarily be included in the development of the theoretical and practical curricula. It is not the same to train technicians for large companies with modern machinery, materials classified and managed by professionals, or to train them for work as a popular builder.



## Sustainability

The experience after more than ten years of operation is highly positive. Almost all the graduates have found work in their field and some are small entrepreneurs or group leaders. This despite the fact that many of them were young people at social risk when they entered the apprenticeship.



Over the last years EcoSur has started similar projects in El Salvador and Ecuador. Based on experiences in the reconstruction of Haiti, where graduated masons from Nicaragua acted as instructors, EcoSur has teamed up with the Swiss Development Corporation to develop a wide set of comprehensible teaching materials for earthquake resistant buildings in masonry and carpentry. This is the base material to build up the capacity of "empirical" masons and prepare them to improve competence and better serve their clients. In Ecuador as well as in Nicaragua a teaching center has been established offering different types of courses for empirical masons and carpenters who are looking to upgrade their capabilities and acquire a formal certificate.

**ECOSUR SOUTH** has implemented Dual Education programs in Nicaragua, Namibia, Ecuador and Haiti. It provides consultancy in establishing comprehensive know-how transfer including curricula, feasibility studies, scientific knowledge appropriation, technical training and business skills.



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