

Transplanting the 'Swiss Model'

A successful initiative in vocational education and a conduit for technology transfer, SITECO has effectively transplanted the 'Swiss Dual Vocational Education' system in Indonesia, yielding rich dividends. Marco Mathis traces its successful progress since implementation.



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The **Association for Swiss International Technical Connection (SITECO)** is a private Swiss development initiative founded in 2008 by a group of promoters around **Dr. Anton E. Schraflft, former Member of Senior Management, Holcim Group**. The Association aims to achieve the promotion of dual vocational education in technical professions (such as polymechanics, mechatronics, industrial design and others), in developing and emerging countries.

Based on in-depth market surveys and field studies, SITECO has evaluated Indonesia as an appropriate country in which to start a pilot-project. The size and growth of Indonesia's economy and industry were determining factors for the choice of the location, but also the local presence of important Swiss and other multinational companies, the industry's increasing demand for skilled technical professionals and, last but not least, a well-established economic and political exchange between Switzerland and Indonesia, with promising prospects for the near future¹.

As an interim result, the Mechatronic

School in Cikarang, Jakarta, was inaugurated in December 2012, and the first classes of students (male and female) are since being dually educated in mechatronics, similar to apprentices in Switzerland or Germany, whereby 60% of the time is spent in practical training and 40% in the acquirement of theoretical knowledge.

How did the project get to this point?
What were and are its success factors?
How is its sustainability ensured?

The Mechatronic School

The school building was planned and constructed in accordance with



1. Ongoing free-trade negotiations between EFTA and Indonesia, bilateral agreements and negotiations between Switzerland and Indonesia, and an ever increasing economic exchange between the two countries.

innovative ecological principles. It contains class and administrative rooms, machine laboratories, workshops and other appropriate equipment and machinery.

With the support of Future Cities Laboratory ETHZ, the building has been designed to resist the challenging climate conditions in Jakarta, with its high temperatures and humidity. Working rooms are located in the center of the building, whereas corridors and stairways cover the outer parts. Green plant-curtains protect the construction from heat and solar irradiation, and a permanent circulation of cooled water in construction-integrated pipes provides for agreeable temperatures in the building, even in summertime. No conventional, energy-intensive air conditioning systems are needed. A photovoltaic plant on the roof produces the energy required to cool the circulated water which is collected by the two-wing roof in the building's own tanks.

The project volume for the planning, erecting and equipping of the Mechatronic School came to CHF 4,5 Mio., including land and machine laboratory equipment. The financing was exclusively based on contributions and pre-financing by private organizations, Foundations and companies.

To provide for an excellent school infrastructure, however, constitutes only one side of the coin. The quality of school operation, on the other, was needed to make dual vocational education a success.

Akademi Teknik Mesin Industri

With respect to school operation,

SITECO did not have to “re-invent the wheel”. When evaluating the country and location of the pilot project, it was additionally a decisive factor and condition that a locally well established and experienced organization was found and which could operate a mechatronic school according to Swiss quality standards of dual vocational education. With ATMI (Akademi Teknik Mesin Industri), SITECO is proud to have found a partner organization which perfectly meets all these requirements².

For more than 40 years, ATMI has been successfully running a technical education center in Solo City (Central Java). The organization is led by the Jesuits of Indonesia, highly respected by the industry as well as Governments as one of, if not the best technical education Center in Indonesia. Coincidentally, the foundation of ATMI Solo goes back to a Swiss initiative, as well, when the Swiss Jesuit Pater Johann Casutt emigrated to Indonesia in 1968 and started the ATMI school in Solo City.

ATMI had decided and already started to expand its activities to Cikarang, Jakarta. This perfectly met SITECO's plan to set up its pilot project in the capital of Indonesia. Thus, SITECO and ATMI have agreed to bring about the campus project on a long-term partnership basis.

School operation

Cikarang belongs to the industrial area of Jakarta (40 km east of the city center). On the large campus area which presently houses 3 existing industrial halls and the new mechatronic building, several classes of students in polymechnics and mechatronics are now in education.

One third of the students are recruited from the poorer population, and a quota of 20% female students is aimed at. Apart from advanced technical skills



Polymechnic training workshop, Dec. 2012



Pneumatic laboratory, Dec. 2012

comparable to those of Swiss or German apprentices in polymechnics or mechatronics, concentration lies on the teaching of work ethic and morale, such as punctuality, exactness, honesty, cleanliness, discipline etc. ATMI graduates are highly in demand as industry employees thanks to all those qualities.

Duality of vocational education

One specific problem when applying dual vocational education in developing or emerging countries' needs to be addressed:

In these countries, companies generally do not employ apprentices and pay for their school costs (not even big ones)³. Such investments are considered “non return”, as skilled technical professionals are difficult to be tied to the employer, they are highly in demand

2. www.atmi.ac.id and www.atmicikarang.ac.id

3. There exist certain “enterprise based” education models, where the employer company itself provides for advanced education.

in the labor market of the industry. How then to realize the 60% of practical training as imperatively required by the dual education model?

As long as vocational education is not carried industry-wide by social partners, the solution is: "Bring the factory to the school!" This is exactly what Johann Casutt "invented" in ATMI Solo some 40 years ago, and the success proves him right. ATMI Solo as well as the Cikarang Center today have their own production facilities as machine factories, where customary commercial industry work is processed. This has a twofold positive effect:

- The students can be integrated in the industrial production process as required by the dual education model.
- The industrial production generates the necessary income for the school to cover its operational costs.

As a consequence, the campus project does not depend on ongoing financial support from donors or Government funds once its basic infrastructure is financed. The school operates "sustainably", i.e. on a self-supporting basis.

SITECO is now in the process of organizing the next expansion step in Cikarang, consisting of two student dormitories plus further machinery equipment. ■

www.siteco-edu.org

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