

**Thailand: Thai-German Institute**

**Ex-post evaluation**

<b>OECD sector</b>	11330 – Vocational training	
<b>BMZ project ID</b>	1994 66 277	
<b>Project-executing agency</b>	Thai-German Institute (TGI)	
<b>Consultant</b>	GTZ (procurement)	
<b>Year of ex-post evaluation</b>	2005	
	<b>Project appraisal (planned)</b>	<b>Ex-post evaluation (actual)</b>
<b>Start of implementation</b>	Q1 1995	Q3 1995
<b>Period of implementation</b>	39 months	55 months
<b>Total cost</b>	EUR 24.1 million	EUR 23.3 million
<b>Counterpart contribution</b>	EUR 9.8 million	EUR 6.9 million
<b>Financing, of which Financial Cooperation (FC) funds</b>	EUR 5.1 million	EUR 5.1 million
<b>Cost for GTZ</b>	EUR 9.2 million	EUR 11.3 million
<b>Performance rating</b>	3 (sufficient degree of developmental effectiveness)	
• <b>Effectiveness</b>	3	
• <b>Significance / relevance</b>	3	
• <b>Efficiency</b>	3	

**Brief Description, Overall Objective and Project Objectives with Indicators**

The Financial Cooperation (FC)/Technical Cooperation (TC) project comprised the buildup of a practice-oriented basic and advanced training institute (the Thai-German Institute/TGI) with a special focus on technical experts and mid-level executives as well as on newcomers to high-tech industry. The target group comprised small and medium-sized enterprises (SMEs).<sup>1</sup>

The project objectives defined during the project appraisal (project appraisal report from November 14, 1994) are application of newly acquired qualification by the course participants in an appropriate working environment and the performance-enhancing utilization of the services of the TGI by businesses. The overall objective is to contribute to an accelerated technology transfer in the fields of computer-based precision production, highly developed manufacture of tools and molds as well as related control processes.

During the project appraisal a measurable and attributable gain in productivity at individual work stations to be verified via case studies was defined as one indicator of achievement of the project objectives. The second indicator involved a comparison of the salary development of individual students with salaries in the sector in which they received training. Achievement of the overall objective was also to be measured against attainment of a higher level of

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<sup>1</sup> According to the Thai definition: with up to 1,000 employees

technological know-how by TGI students via case studies conducted under Technical Cooperation (TC). Owing to the expense and to the methodological difficulty in generating representative results through case studies, an auxiliary indicator was defined during the project appraisal, namely the degree to which the capacities of the TGI are utilized. The idea was that companies will only send staff for training and bear the related costs if their economic benefit of better qualification and enhanced performance prevails in the medium term. The utilization of capacity was accepted during the final follow-up as an indicator that was already available at no additional cost (final follow-up report dated December 21, 1999) to be applied to both the project objectives and the overall objective. The reason given was that the courses offered by the TGI primarily target high-tech production technology, and utilization of these offers inevitably contributes to an accelerated technology transfer. During the project appraisal utilization of 80% of the institute's capacity in the fifth year of its operation was considered adequate.

### **Project Design / Major Deviations from the original Project Planning and their main Causes**

Initially the project was based on the assumption that Thailand's vocational training system is poorly focused on vocational practice and demand, as a result of which industry usually cannot adequately train its technical management, leading to inefficient use of modern technologies and to untapped production potential. The project rationale was to support the technology transfer required due to growing global competitive pressure and increasingly shorter innovation cycles by creating sufficient basic and advanced training capacities in modern production processes. The TGI's training offers were to comprise practice-oriented short-term, medium-term and long-term courses that can be adjusted flexibly to demand by private enterprises. In addition, the course fees were to fully cover the costs of an autonomous institute. The TGI was to be assigned to the Ministry of Industry and headed by a mixed management (two co-directors, one German and one Thai, who report to a steering committee).

For the most part, the FC measures were realized according to the plans drawn up during the project appraisal. The results cover the construction of a high-tech training center that accommodates 189 students in the fields of computer-based production, manufacture of precision tools and molds as well as the related control techniques and the creation of capacity to provide 48 students with basic training in metals. The building complex built for the TGI totals 17,700 m<sup>2</sup> and offers generous facilities that are however, basically still tied to a set purpose. Compared to the initial planning the completion of the TGI building was delayed by 16 months. Therefore, training could not begin until January 1998.

The first two phases of the TC project (1993-1998) concentrated on the planning, buildup and start of operation of the TGI. The third phase (1998-2002) particularly focused on supporting the utilization of the institute's capacity and enhancing its profitability. The final phase (2002-2004) focused on strengthening ties to other institutions and on direct cooperation with companies as well as training for multipliers (mid-level technical executives and vocational teachers). Altogether, 308 expert-months were needed for counterpart training, 104 expert-months for short-term experts and 329 for long-term experts (for more details see respective GTZ reports).

Today the TGI has over 101 staff members, 53 of whom are trainers and 48 of whom are assistant staff. Another 40 people have limited work contracts. At the time of the final follow-up in 1999 the total staff number of TGI was 79, and the increase to 101 staff members plus those with limited contracts became necessary once the utilization of the institute's capacity began rising. In 2002/2003 the TGI's revenues reached approx. EUR 4.7 million (approx. THB 238 million) and amounted to some EUR 3.4 million in 2003/2004 (approx. THB 172 million). Its profit in 2002/2003 was approx. KEUR 560 (approx. THB 28.5 million) and its losses in 2003/2004 added up to some KEUR 12 (approx. THB 600,000). The losses were reportedly due to a cash flow bottleneck in a large-scale educational support programme of the government and did not have structural causes.

The total project cost was around EUR 23.3 million and thus remained slightly below the figure of EUR 24.1 million that had been estimated at the time of the project appraisal. The FC contribution amounted to EUR 5.1 million - as planned during the appraisal – and the TC costs reached EUR 11.3 million. Thailand's counterpart contribution decreased from EUR 9.8 million to EUR 6.9 million, due primarily to the fact that the Thai business association provided the land free of charge (see final follow-up report). In addition, through 2002 the state directly subsidized the operating costs of the TGI to the tune of some EUR 10.4 million. On the whole, the implementation concept proved to be adequate.

### **Key Results of the Impact Analysis and Performance Rating**

As planned during the project appraisal, the courses offered by the TGI mainly target SMEs in the producing sector (about 90% of the TGI's activities; production of consumer and capital goods) to train their technical experts and mid-level executives. The courses also target people starting their career who seek basic technical training in high-tech fields. Companies with international operations and trainers in the formal vocational training system are also TGI customers.

In addition, apart from focusing on basic and advanced training for experts, the TGI makes an effort to offer an extensive range of courses in the fields of technology consulting, guidance and implementation of industrial projects, order processing, support for marketing activities by SMEs, start-up services etc. These courses are supplemented by training and further training modules that offer customers a package of services as complete as possible. Yet, in the past these consulting activities accounted for only a small share of the TGI's activities, since the institute has neither the necessary competences nor capacities to meet company demand. There are plans to expand these activities in the future, yet the focus will remain on advanced technical training.

The courses currently offered by the TGI are short-term, medium-term and long-term courses ranging from a few days to no more than 10 months. They include not only modular standard courses for groups of up to 15 students but also tailor-made training courses and train-the-trainer courses that target multipliers (e.g. vocational experts). During the project appraisal the targeted number of students p.a. had not yet been determined. The number of modules carried out in 2004 was approx. 400 short-term courses, some 200 medium-term courses and around 380 long-term courses, approx. 270 tailor-made courses and some 70 technical seminars. The average number of course graduates and seminar participants is currently around 4,000 p.a.

The organizational assignment of the institute to the Ministry of Industry (MoI) remains in effect. The combination of one Thai and one German director (co-directors) was changed in December 2004 on the request of the MoI when the final phase of German support came to a close. The institute now has only one Thai director. The TGI's steering committee no longer exists in its previous form, i.e. its form before the German support came to an end. Since a reorganization of all vocational training institutes is planned, for the time being the future composition of the steering committee remains unclear.

The tremendous influence of the MoI on the TGI will probably increase even further now that German support has ended. As it has the post of chairman of the steering committee, the MoI has great influence on the selection of department heads, whose nomination must be accepted by the steering committee. The remaining personnel is recruited primarily from colleges and universities, the R&D sector and – in exceptional cases – from industry. The strong ministerial influence and the now lacking industrial/practical experience and ties to industry provided by long-term and short-term German experts through the end of 2004, could be one reason why the institute's private-sector orientation is not becoming more intense. Although the institute's business independence is formally given, around 80% of the revenues of the TGI (depending on the area) stem from public-sector education support projects. It is expected that in the medium

term, the institute's revenues from training services will stem to approx. 70% from public-sector projects and to around 30% from industry, and that its revenues from consulting services will be generated in equal shares by public-sector projects and industry.

The concept of cost coverage through direct (course) fees by the target group of SMEs was not realized as the SMEs consider basic and advanced training to be a state task and are therefore seldom willing to finance training courses for their staff. When project implementation began, a market analysis was performed to determine the willingness of SMEs to pay for technological training for their experts and executives. The result of the analysis was positive, which cannot be confirmed in reality, however. In the past the expectations of the SMEs were fueled by the fact that the Mol implemented governmental education programmes via the TGI on a broad scale and thus bore the cost of training the staff of small and medium-sized enterprises for free and/or offered major subsidies to cover the training costs. Currently the capacity of the TGI is being utilized to an adequate degree thanks to orders by the Mol, and there are no indications that this will change in the future.

Efforts to link the high-tech fields in Thailand and Germany have begun. Initial contact networks have also been established in the region. Due to a lack of interest on the part of the Mol in intensifying ongoing industrial cooperation, the independent 'TGI-Innovation Technology Services (ITS)' was founded in July 2005. The ITS is to be headed by a German director and will ensure the further expansion of the institute and, in this way, strengthen the TGI's direct ties to industry. The ITS became an independent subsidiary of the TGI and its activities will mainly be international. The shareholders of ITS are the Asia-Pacific Committee of German Business (BDI-APA) and a support association currently being founded that is to be financed out of funds from German industry and directly from its members. The Mol's 'Foundation for Industrial Development' is minority shareholder. The budget of ITS is separate from that of the TGI, and its economic risk is borne by the German-Thai Chamber of Commerce (GTCC). The purpose of this structure is to ensure the flexibility that is needed to react quickly to prevailing market conditions. The spin-off of ITS to become an independent unit received special support from sponsors in German industry since this makes the use of its financial support funds transparent. As the support of German industry has been slow in coming thus far, sustainable financing for the ITS is not yet assured.

The TGI has established itself in the Thai market as a training and technology transfer institute that has expanded its range of offers in past years by adding technology consulting and more, corresponding services. This gives the TGI recognition, both by public institutions and by Thai industry. Repeated assessments – most recently the external final evaluation conducted by the GTZ at the end of 2004 – have revealed that the methodology, didactics and installed technologies largely meet standard international requirements and are high-level in national comparison.

From today's point of view, the indicator of utilization of capacity that was defined during the final follow-up to measure achievement of both the project objectives and the overall objective can no longer be considered absolutely informative, especially with regard to the project objectives (*application by course participants of their newly acquired qualification in an appropriate working environment and the performance-enhancing utilization of the services of the TGI by businesses*). This indicator was defined based on the assumption that enterprises will only send their staff for training and bear the related expenses if their expected economic benefit exceeds their costs in the medium term. However, the majority of the SMEs only seek the services of the TGI if they are offered free of charge through special governmental programmes or if they are heavily subsidized. Therefore, the utilization of the institute's capacity is not a direct indication of the expected benefit for the SMEs. It needs to be taken into consideration that the limited willingness of the SMEs to pay is a result of many years of governmental subsidies for the training courses. What is more, the granting of company leave for technical experts and executives – which involves opportunity costs for the SMEs – suggests

that the SMEs have corresponding expectations as regards better performance. At a very early stage independent customer surveys already showed that the courses offered by the TGI met or exceeded customer expectations to more than 90%. Since nearly all of the TGI's students currently attending one of the institute's programmes have a job and will go back to their job once the programme comes to an end, in principle it can also be assumed that the students will apply their newly acquired qualifications immediately in their current jobs.

As regards achievement of the overall objective (*contribution to an accelerated technology transfer in the fields of computer-based precision production, highly developed manufacture of tools and molds and related control processes*), from today's perspective the indicator defined to measure utilization of capacity can, in principle, still be considered informative since the courses offered by the TGI primarily target state-of-the-art production technologies and the utilization of these offers contribute to accelerating the transfer of technology. Owing to the some 12,000 training days p.a. and the number of graduates p.a. (approx. 4,000), depending on the scope and thus on the intensity of the courses it can be assumed that a technology transfer to the course participants is taking place insofar as the TGI succeeds in maintaining the attained technological level.

Since the year 2000 all of the TGI's costs (including depreciation) were covered by fees. On this basis the TGI has in principle been able to achieve full cost coverage since 2003, although this was only possible due to extensive orders from the Mol. This does not include Germany's contributions through the end of 2004, which especially boosted private-sector revenues and fully covered the training expenses of TGI engineers. In the past four years German support amounted to approx. EUR 1 million p.a. The extent to which the institute will succeed in boosting private-sector revenues and in providing the necessary training for its engineers on its own in the future is extremely difficult to predict. It can be presumed, however, that barring German support the scope of these measures will tend to decline overall.

The TGI's offers primarily target SMEs in the producing industry. With its training offers the TGI is contributing to building up necessary technological competences and also to maintaining and/or improving the enterprises' competitiveness. This safeguards and creates jobs at the SMEs and in upstream and downstream production processes, thus boosting the region's economic growth.

As regards the development-policy categories defined at the time of the project appraisal, at the time of the final evaluation the situation was as follows:

- The TGI is also offering a limited number of training programmes that help unemployed experts to find work. Overall, however, the project did not have any specific impacts on poverty.
- At the time of the project appraisal there were plans for creating incentives for employers to send women to the TGI under TC operational planning, and to exhaust all possibilities to increase the number of female students. However, this gender aspect was no longer pursued in the further project planning. In view of the very low percentage of women working in technological areas in the production industry, the project could not have had much of an impact on gender equality.
- The project did not pursue any environmental goals. The environmental impacts arising during operation of the TGI – particularly on water and air - will in all likelihood be upheld in the future through corresponding treatment and disposal measures.
- The project neither attempted to contribute directly to improving participation/good governance, nor did it have an impact in this regard.

Currently the risks to the project's sustainable effectiveness are as follows:

- Due to the institute's heavy dependence on the Mol, political considerations could cause the orders from the public sector to decline, which would jeopardize the institute's existence. Private-sector revenues are currently only around 20%. Measures aiming to concentrate more on private-sector customers are scarcely supported by the Mol. From

today's point of view it cannot be expected that the private-sector revenues will increase to more than 30% of the TGI's total revenues.

- Even if the large volume of public orders were to continue, there is a risk that the TGI will not undertake investments in technical equipment nor in corresponding training for its engineers to the extent required in order to remain on the cutting edge of technology, which would guarantee the transfer of technology to SMEs.
- The degree to which the independent subsidiary ITS which was founded in June 2005 for the purpose of intensifying the desired cooperation with industry will be able to resolve the deficits of the TGI in this area will depend heavily on whether industry is interested in this specific kind of cooperation. With the exception of a few large firms, only tentative interest has been shown thus far.

We judge the developmental effectiveness of the project to be sufficient overall (rating 3). This rating is justified below based on the key criteria of effectiveness, significance/relevance and efficiency:

- The full utilization of the institute's capacity – although it is mainly the result of special governmental programmes - and the fact that the majority of course graduates return to their old jobs indicate that the graduates (up to 4,000 p.a.) are applying their newly acquired qualifications in an appropriate working environment and that enterprises are taking advantage of the performance-enhancing offers of the TGI. Long-lasting achievement of the goal is at risk, however, since now that German support has ended the TGI will tend to be obliged to reduce both the scope of its staff training and its investments in ultra-modern technical equipment, which would have a negative impact on improved performance at the SMEs. Therefore, we judge the project's effectiveness to only be sufficient (rating 3).
- From today's point of view, the relevance of the project rationale, i.e. to contribute to enhancing the technological competence of the SMEs and thus to efficiently exhaust production potential in order to increase competitiveness, can be confirmed. In light of the fact that the TGI is acknowledged to be a qualified basic and advanced training and technology transfer institute in the Thai market, that it helps to close the gap between industry and the vocational training system in Thailand and that the satisfaction of the target group with its course offers has been repeatedly confirmed, it can be assumed that in principle, the institute contributes to accelerating the technology transfer in Thailand's production industry. It needs to be taken into consideration, however, that additional services that are in demand by SMEs in connection with the technology transfer (e.g. technology consulting, guidance and implementation of industrial projects etc.) are offered by the TGI to only a limited extent. The intended cooperation with industry, which also targets the transfer of technology, is still in its starting phase. Thus we judge the significance/relevance of the project to be sufficient overall (rating 3).
- Although the completion of the FC component was delayed by 16 months, it was carried out largely as planned. Full cost coverage has been achieved since 2003, yet once German support ends this will probably be maintained only in exchange for lower technological standards. The issue of transferring the institute to an industrial cooperation programme did not arise until a very late stage. Therefore, it could not be sufficiently prepared prior to the end of German support. Overall, the project's efficiency is sufficient (rating 3).

### Lessons Learnt

When designing and planning a training project at the interface between private industry and the state, it is vital to consider, to introduce and to encourage the necessary cooperation with industry at an early stage. To ensure project acceptance and to guarantee course offers that are flexible and meet training needs, industry ought to be involved in the governance structures of the project-executing agency, if possible, and the project-executing agency should have a minimal degree of autonomy.

If assumptions that are defined during the project appraisal and serve as a basis for defining target indicators are revealed to be false, during the course of project implementation the target/indicator system should be adjusted to the new parameters.

## Legend

Developmentally successful: Ratings 1 to 3	
Rating 1	Very high or high degree of developmental effectiveness
Rating 2	Satisfactory developmental effectiveness
Rating 3	Overall sufficient degree of developmental effectiveness
Developmental failures: Ratings 4 to 6	
Rating 4	Overall slightly insufficient degree of developmental effectiveness
Rating 5	Clearly insufficient degree of developmental effectiveness
Rating 6	The project is a total failure

## Criteria for the Evaluation of Project Success

The evaluation of the "developmental effectiveness" of a project and its classification during the ex-post evaluation into one of the various levels of success described in more detail above concentrate on the following fundamental questions:

- Are the project objectives reached to a sufficient degree (aspect of project **effectiveness**)?
- Does the project generate sufficient significant developmental effects (project **relevance** and **significance** measured by the achievement of the overall development-policy objective defined beforehand and its effects in political, institutional, socio-economic and socio-cultural as well as ecological terms)?
- Are the funds/expenses that were and are being employed/incurred to reach the objectives appropriate and how can the project's microeconomic and macroeconomic impact be measured (aspect of **efficiency** of the project concept)?
- To the extent that undesired (side) effects occur, are these tolerable?

We do not treat **sustainability**, a key aspect to consider for project evaluation, as a separate category of evaluation but instead as a cross-cutting element of all four fundamental questions on project success. A project is sustainable if the project-executing agency and/or the target group are able to continue to use the project facilities that have been built for a period of time that is, overall, adequate in economic terms, or to carry on with the project activities on their own and generate positive results after the financial, organizational and/or technical support has come to an end.