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TVET for a Skilled Workforce in the Wastewater Sector

A pilot cooperative training programme for Sewage Engineering Technicians

March 2018

TVET for a Skilled Workforce in the Wastewater Sector

Overview

Implementing Institution(s):	Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH on behalf of the German Federal Ministry for Economic Cooperation and Development (BMZ)
Region(s) of Implementation:	Vietnam
Timeline/ Years:	12/2013-now (ongoing)
Beneficiaries:	Graduates of secondary schools, workers in companies, unemployed and underemployed persons
Total cost incurred/ resources required:	3.2 Mio Euro
Website:	www.tvet-vietnam.org

Context of Vietnam Development

In the past two decades, Vietnamese economy has developed rapidly; witnessing an annual growth rate of around 7% since 1988. The extensive economic development results in an increasing consumption of energy and natural resources, higher emissions, waste and wastewater; thus endangering the ecological sustainability in the region.

With rapid large-scale urbanisation, it is reported in 2017 that the country has 283 industrial parks discharging over 550,000 cubic metres of wastewater and nearly 790 urban areas across the nation disposing 3 million cubic metres of sewage every day. Most of these are untreated and flows directly into free water.

The fact is the country has only 37 central wastewater treatment plants with a total capacity of 890,000m3/day; and only 60% of urban households are connected to public sewerage systems with only 10% of the collected wastewater treated.

Challenge of Urbanisation

With concern for ecological sustainability in the region, in compliance with one of the strategic task of Vietnam Green Growth Strategy (2012), the Vietnamese Government has committed to develop and implement master plans, technical infrastructure and solutions to ultimately improve the living quality of the people.

The goal is to increase the share of urban households connected to the sewerage system to 80%, and the share of treated wastewater to 60% of total urban sewage by 2020.

According to the Vietnamese Ministry of Construction, to accomplish these objectives, Vietnam requires 36,000 km of sewerage network, 116 municipal wastewater treatment plants as well as 150 industrial and pre-treatment wastewater treatment plants.

Correspondingly, more than 8,000 skilled workers are estimated for the operation and maintenance of these plants and sewerage systems. For a period of ten years, about 800 skilled workers need to be trained and qualified for the sector per annum.

Objective of Implementation

Despite the constantly growing demand for technical workers, the existing initial and further training system in the wastewater sector is inadequate.

The Vietnamese Government, with the technical and financial support of Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and Federal Ministry for Economic Cooperation and Development (BMZ) piloted a demand-oriented approach of cooperative training in the wastewater sector.

The objective of the cooperative training approach under the field of activity “TVET for Skilled Workforce in the Wastewater Sector” is to create labour market oriented and practical vocational training, so that graduates are meeting the requirements of the companies and can get a job with a stable income.

Solution for TVET Skilled Workers in the Wastewater Sector

In order to ensure that graduates of technical and vocational education and training (TVET) programmes possess the exact skills that employers require, the active participation of the business sector in TVET is crucial.

‘TVET for Skilled Workers in the Wastewater Sector’ supports the Vietnamese Government in developing and piloting demand-driven and practice-oriented TVET programmes for the wastewater sector and thus ensuring the employability of the graduates.

The cooperative training programme for ‘Sewage Engineering Technicians’ is one of the very first examples of a close cooperation of a vocational college, Vietnamese companies and a sector association in the development and implementation of a training programme.

Companies are actively involved in every decisive step in training; from developing the occupational standard, deriving the respective training programme, as well as delivering the training and conducting examinations.

Borrowing the success factors of TVET in Germany, trainees are being equipped with theoretical knowledge at a vocational college and the practical experiences through on-the-job in-company training phases at a company.

Implementation Strategy

Due to the complexity of the actors' landscape, a functioning interaction between the actors is crucial. Therefore, all relevant stakeholders signed a cooperation agreement, which includes the role and tasks of the respective stakeholders, the regulation of their interaction as well as their communication structure in the development and implementation of the first cooperative training course.

As the foundation of the completely new training programme in Vietnam, the occupational standard

‘Sewage Engineering Technicians’ was successfully developed jointly by the Viet Nam Water Supply and Sewerage Association (VWSA) and its member companies, the Ministry of Construction, and the Ministry of Labour, Invalids and Social Affairs, with support of the German project partners.

The occupational standard defines the scope of duties and typical tasks of a qualified technical worker, necessary tools and equipment, as well as the general knowledge and behaviour that a sewage engineering technician should have to fulfil his tasks. This occupational standard was built oriented to the German standard with adaptation to Vietnamese specifications, thus being widely accepted by the water sector. VWSA, as an active lead partner, has significantly contributed to this success.

For the first time, based on various needs and requirements of the member companies, a sector association succeeded in building a common interest in the qualification of skilled workers and addressing them to other actors in the state and the vocational education sector.

In the near future, the developed occupational standard will become the standard for final examinations, which will also be jointly conducted by the TVET institute, VWSA and the partner companies.

The three-year training programme, including 30 theoretical and practical training modules, was derived from the developed occupational standard. Similar to the German dual training approach, the piloted cooperative training programme in Viet Nam is conducted in two locations.

In the TVET institute, the trainees learn the theory and a part of the practical skills, which the company cannot cover by itself due to capacity reasons. In the company, the trainees acquire practical skills. Since the partner wastewater companies use different technologies of wastewater treatment, in-company training phases are organised by all companies on a rotation basis, according to the mutual agreement between the companies, to ensure that the trainees have the chance to get to know different types of technologies and operational methods.

In parallel to the development of the conceptual foundations, TVET teaching staff and in-company trainers of the participating TVET institute and the partner companies have received further training by German experts in professional theory and practice since June 2014. The further training focuses on improving the theoretical, practical and occupation-specific pedagogical and didactical competencies as well as the examination competence of the TVET teaching staff and in-company trainers.

The aim is to expand the group of qualified TVET teaching staff and in-company trainers in the future. The training programme, therefore, will continue to be implemented by these Vietnamese teaching staff and trainers. This is the basis for achieving a multiplication of the approach and a broad impact the training programme.

Besides the initial training, the project also focuses on sector-specific short-term further training for technical workers, who are working in sewage companies but have not been professionally qualified in sewage engineering. The need for this type of further training has considerably increased in recent years.

The sector association VWSA, as agreed by its member companies, is the central institution, which should provide high quality short-term training programmes based on the actual needs of companies.

In order to enhance the capacity and ensure the quality of the short-term training programmes, VWSA recognised 11 new in-company trainers as its trainers. The training contents of short-term courses are built based on the modules of the 3-year cooperative vocational training programme for 'Sewage Engineering Technicians' and are tailor-made or adjusted to match the specific requirements of the companies.

Impact of Implementation

Since November 2015, the first pilot class for 22 trainees is being jointly implemented by the Ho Chi Minh Vocational College of Technology II (HVCT) and five sewage companies.

A close cooperation between the partners, the TVET institute HVCT, companies in Ho Chi Minh City, Binh Duong, Khanh Hoa, Can Tho and Ba Ria - Vung Tau, the sector association Viet Nam Water and Sewerage Association (VWSA) and relevant ministries has been established.

From the piloting experiences valuable recommendations are derived and as part of the system advisory contribute to the reform of the TVET system.

The first three in-company training phases were completed successfully. Right from the beginning of the training the trainees acquire practical knowledge and skills as well as to experience their future work-

ing environment with its positive and negative aspects.

The partner companies expressed satisfaction with the progress of the trainees and their contributions to the productivity of the company. This is reflected, for example, in the financial support that companies have provided the trainees to cover transportation and accommodation costs during in-company training phases. Strongly increased motivation and passion for the future profession among trainees has been observed.

Since 2016, the GIZ Programme Reform of TVET in Viet Nam has been supporting VWSA in piloting a number of short-term training sessions for technical workers of wastewater companies. Following this pilot phase, VWSA is now independently conducting further training sessions.

Due to further training sessions, the management staff of the TVET institute is capable of planning, implementing and coordinating training phases in the TVET institute and in the companies.

Based on the experiences gained so far from the establishment of the cooperative training programme 'Sewage Engineering Technicians', it can be concluded that piloting of a holistic approach, which takes into account all important aspects of the training of a particular industrial sector, is promising.

Lessons Learnt

The following are lessons learnt and recommendations as derived from the pilot cooperative training:

1) Pilot the cooperative training programme by focusing on a specific industry;
2) Joint development of occupational standard taking into account the needs of the business sector;
3) Proactive leading role of the Vietnam Water Supply and Sewerage Association (VWSA) in coordinating and working together with sewage companies;
4) Comprehensive capacity development approach: intensive practice-oriented further training for teachers and in-company trainers, advisory on occupational standard development, training programme implementation, assessment and certification;
5) Organisation of regular exchange among stakeholders at all levels, formalisation of procedures to take joint decisions;
6) Commitment, capacities and resources by all stakeholders needed, especially the flexibility of the TVET institute in developing and adapting the training plan to bring it in line with the production plans of companies;
7) Involvement of all relevant stakeholders from the business sector and government bodies in order to upscale experiences nationwide.

These serve as valuable input for the system advisory of the Programme Reform of TVET to the Directorate of Vocational Education and Training (DVET) of the Ministry of Labour, Invalids and Social Affairs (MoLISA) as well as other relevant state agencies and thus contribute to the quality reform of the TVET system.

Conclusion

In developing this pilot cooperative training for sewage engineering technicians, it is crucial that the business sector plays a decisive role in developing the occupational standard and the training programme as well as in conducting examination and certification in order to ensure that the actual needs of the labour market are the basis for the training.

This would contribute to acceptance of the training programme and the recognition of the certification among future employers, while simultaneously provide for improved employment opportunities of qualified technicians.

It is also important that all relevant actors: the TVET institute, state authorities and the sector association as well as the companies are able to establish a functioning cooperative mechanism, thereby making the most important decisions together as well as jointly shaping and implementing the essential processes.

Further information

Information on the project can be found here: http://www.tvet-vietnam.org/en/topic/21.components.html

A brochure on the pilot training programme can be downloaded here: http://www.tvet-vietnam.org/en/article/1217.cooperative-training-sewage-engineering-tecns.html

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"Good Practices" are chosen according to selection criteria that have been created by a working group. They aim to serve as benchmarks for transformation towards quality TVET. However, they reflect on the individual circumstances of the submitting country and may only be adopted with context specific modifications.

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