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Vocational Training Reform in Vietnam

Vocational & Further Training for the Wastewater Sector in Vietnam

- First Experiences -



Norbert Lucke, Dresden Wastewater Utility











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Current Situation in Vietnam

- The average annual economic growth rate in Vietnam amounts for about 7 %.
- This results in serious ecological problems (pollution of air, water and soil).
- Therefore the Vietnamese government presented the Green Increase Strategy in 2012.
 - focus: clean production, self-sustaining use of resources, reduction of emissions

Thereby the wastewater sector ranks as a new green branch with a large backlog demand:

- Only 60 % of the urban households are connected to a sewer system.
- Only 10 % of that wastewater is cleaned in a sewage treatment plant (STP).
- In contrast to more than 800 urban regions, there are only 37 central municipal STPs with a total capacity of 890,000 population equivalents (Dec. 2016).
- Designated target 2020: 80 % connection rate | cleaning of 60 % of urban wastewater
 - 116 municipal STPs and 150 industrial STPs
 - 8,000 skilled workers for operation & maintenance, needed within the next 10 years









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Vocational Training for the Wastewater Sector in Vietnam

GIZ – German Association of International Cooperation subsidizes a project to implement the qualified job **Skilled Employee for Wastewater Technology** in Vietnam.

- The education has to meet the same standard and technical level like in Germany.
- Details of qualification have been adapted to the specific conditions in Vietnam.

Main focus of qualification:

- Operation and maintenance of sewer systems,
- Operation and maintenance of municipal and industrial wastewater treatment plants,
- Expert knowledge regarding all processes of wastewater and sludge treatment,
- Management and documentation of plant operation and maintenance processes,
- Industrial safety, health protection and hygiene in wastewater plants,
- Basics of metalworking , electrical works and construction works.

The projects started in 2014 with the training of future Vietnamese instructors/teachers (in total 23 college teachers from HVCT & engineers from urban wastewater companies).








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Cooperative Education – Pilot Class in South Vietnam




first time in Vietnam:
inclusion of wastewater companies and VWSA in the development of a vocational training program

common development:
professional standard & training program according to the needs of the Vietnamese enterprises and to German experience

implementation of a cooperative education
Skilled Employee for Wastewater Technology
oriented to German standards & certified by MoLISA/GDVT

defined division of work & responsibility between college and enterprises:
in-firm training in wastewater companies

education & further training, oriented to German standards:
2014-08: training of instructors / teachers
2015-11: first class of apprentices

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Further Training – Results of an Interview Action in 2006

42 wastewater enterprises in Vietnam took part in an interview action concerning the need of qualification measures for their technical staff:

- 39 of the questioned enterprises (93 %) operate a sewerage system.
- 20 of the questioned enterprises (48 %) operate wastewater treatment plants.
- 3 enterprises will operate a wastewater treatment plant in near future.
- 90 % of the enterprises see education and further training as a strategic task.
- 90 % are willing to support and to finance a demand-meeting education and training.
- 62 % are willing to dispatche their employees to education and training measures.
- 75 % have sufficient means to finance education & further trainings.
- 66 % have the financial base to pay more salary to qualified staff.
- 95 % have a strategic plan concerning human resources development.
- 97 % of the enterprises agree that VWSA should be the central counterpart regarding direction and certification of education programs and training courses.








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Present and Necessary Skills

Experience and knowledge regarding operation and maintenance of machines and plants are principally present.


- Instruction and briefing in new machines and equipment is normally done by the producer or constructor.


Many companies have already got experience concerning operation and maintenance of sewer networks, incl. Pumping stations and septic.


- But there is also a demand for further education in this field.

In general, experience and knowledge regarding the operation of STPs are not adequate. There is an urgent need, especially with respect to the following skills:


- Comprehension regarding the physical, chemical and biological processes in STPs,
- Technology and process engineering for the elimination of nitrogen and phosphorous,
- Sludge treatment (possibilities for stabilizing and dewatering)








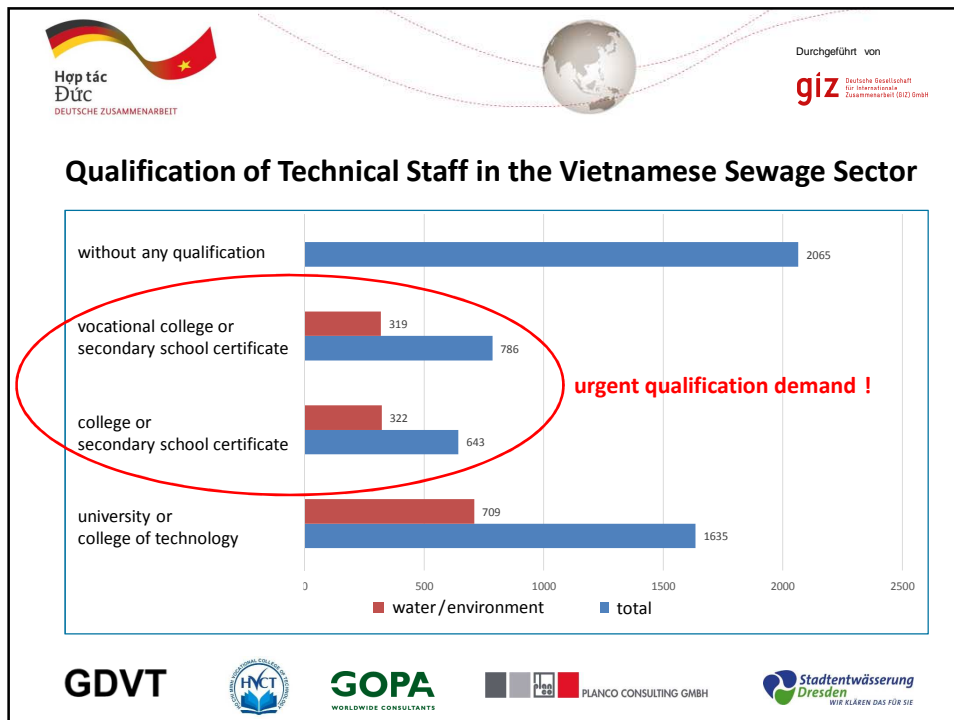
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Short-Term Courses for Further Education of Operating Staff

Objectives & Content, Target Groups in Vietnam:

While the vocational training concerning the profession Skilled Employee for Wastewater Technology is thought mainly as a first education for young people, this offer is for the following target groups:

- Engineers, who work in the wastewater sector (sewer networks and STPs)
- Skilled workers of other technical professions (mechanics, electricians, construction workers etc.), who work in sewer networks or STPs

The imparting of knowledge for the operation of sewer networks and STPs is the goal of this extended vocational training. The focus is on the following topics:

- In-depth knowledge regarding the processes of wastewater- and sludge treatment
- Management of exceptional operating conditions

A corresponding course program of the DWA has proven itself in Germany for years.

GDVT **GOPA** WORLDWIDE CONSULTANTS PLANCO CONSULTING GMBH **Stadtentwässerung Dresden** WIR KLÄREN DAS FÜR SIE




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Training Courses for Operating Staff in Vietnam

The following courses have been or will be implemented by our Vietnamese colleagues (Engineers from wastewater companies) under the direction of VWSA:

Basic courses :

These courses provide the basics in the field of wastewater technology.

- Basic Course for STP Workers (pilot course: June 2017)
- Basic Course for Sewer Workers (pilot course: 2018)

Modular Advanced Course „Certified STP-Expert“

Precondition: Skills according to the Basic Course for STP Workers, practical experience

- Removal of Nitrogen and Phosphorous (pilot course: November 2016)
- Laboratory Course, Monitoring of STPs (self-reliant by experienced Vietnamese staff)
- Operation Management and Malfunctions in STPs (pilot course: March 2017)
- Sludge Treatment, Use of Biogas (momentarily not of interest, no anaerobic digesters)
- Automation & Energy Management in STPs (special engineering task in Vietnam)









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The profession

Skilled Employee for Wastewater Technology

represents a certified professional standard
in Vietnam since April 2017





