

# Appropriate Technology



**Innovation breakthrough for  
vision-screening development**

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**Front Cover:** USee glasses are ready to go. *Credit: USee (see pages 18 & 19)*

# Vocational Training in Road Maintenance in Liberia

Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), through its Capacity Development in the Transport Sector Project, is supporting Liberia in the setting up and development of a competence-based vocational training system, providing training for road maintenance technicians in collaboration with the private sector.



Credit: GIZ/Yana Tumakova

The project is designed to provide Liberia with qualified technical personnel in road maintenance, with work on the development of vocational training for road maintenance starting in 2015.

## Why do vocational training in road maintenance?

Regular maintenance ensures road usability and reduces costs over the entire road life cycle.

Global climate change leads to an extension of Liberia's already heavy rainy season – from the beginning of May to the end of October. Large parts of the country are therefore difficult to access for ever increasing periods of time.

Maintenance measures may also deliver high employment benefits, especially if labour-intensive methods are used.

## Why develop a new curriculum and just not take one based on a standard job profile?

- Developing a new curriculum creates an opportunity to adapt to local needs and to integrate local

low-cost measures which can be applied by small and medium-sized contractors to labour-intensive work.

- Adopting a dual approach means the needs-based training will include practical phases within companies. This results in a close fit between demand from the private sector and the supply of trainees by the training institutions.
- In effect, this contributes to a higher likelihood of market absorption of the trained road maintenance workers.

## Why are you promoting local small and medium businesses?

- Above all, small and medium-sized companies contribute to the country's sustainable national economic growth and the stability in the economy, as well as providing jobs for young people. Improving market access for local companies is also one of the objectives of the project.

## Method:

- Demand-driven competency-based training in modules.

## How?

### Pilot training & evaluation

First, from February-May 2016 a pilot vocational training programme in road construction was carried out. As a result, 140 trainees (including 30 females) successfully completed the three-month course. This was standard "out of box" training.

However, this approach proved unsustainable and also wasn't effective, according to subsequent survey results which showed that most of the trainees were not working in the road sector one year later. It was therefore decided that a different approach was needed!

### Status-quo analysis:

- Existing vocational training institutions and vocational trainers in the country were evaluated. The project came to the conclusion that there was neither a curriculum, training institutions, nor trainers that were addressing road maintenance.



### Focus on Demand:

- So, how can vocational training in road maintenance function properly? The answer is to focus on real demands. It's the private sector that has the demand for qualified personnel. It's also the private sector that knows what qualifications and how many road workers are needed.
- Thus, involvement by the private sector in the development of training and the necessary modules is essential for the success of vocational training.
- On this basis, the project was set up as a multi-stakeholder dialogue, geared to develop a competence-based modular curriculum for road maintenance and construction workers.

### Why arrange competence-based training in modules?

- They are performance based. The learner is either able to perform the required task or not.
- They address a real capacity gap. In our case, the gap is the need for competent road maintenance workers at a Technical and Vocational Education and Training (TVET) level in Liberia.
- This gap was created when the RMTC closed due to the Liberian

civil war in 1990.

- They are self-directed. The learner determines his or her own pace of learning with the goal of achieving the required performance capacity.

### What does competence-based mean in terms of vocational training?

- It's the ability to apply knowledge and skills in real life. Skills are developed through regular repeating in a real environment.

### What are the components needed to develop competence?

1. Theoretical knowledge
2. Practical skills
3. Attitudes to convey values and behaviour

Competence creates the ability to achieve results. At the end of a road work programme (or any other kind of work) it's the result that counts. Thus, to deliver good results within a given time, becomes possible with certain attitudes. This makes attitudes a crucial part of achieving competence.

### Why use a modular approach?

- The curriculum is broken down into modules or skill sets.
- Modules make sure there is a chance to increase the qualification for any

entrance qualification levels, including illiterate trainees.

- Each module is based on a single skill which should be mastered before the student/ learner can proceed to the next, higher level of module.
- Each skill may be mastered by individual students within a different time period, depending on his or her own learning style and pace.
- If a trainee has not completed one of the modules, the module can be repeated. Modules can also be taken with some periods of interruption, depending on the individual availability of each trainee
- By completing a number of modules, the trainee reaches a certain level of competency. Thus, the composition of the training in modules gives a clear overview for the trainee, the future qualified road technician and the industry.

### The outcomes of training seek to:

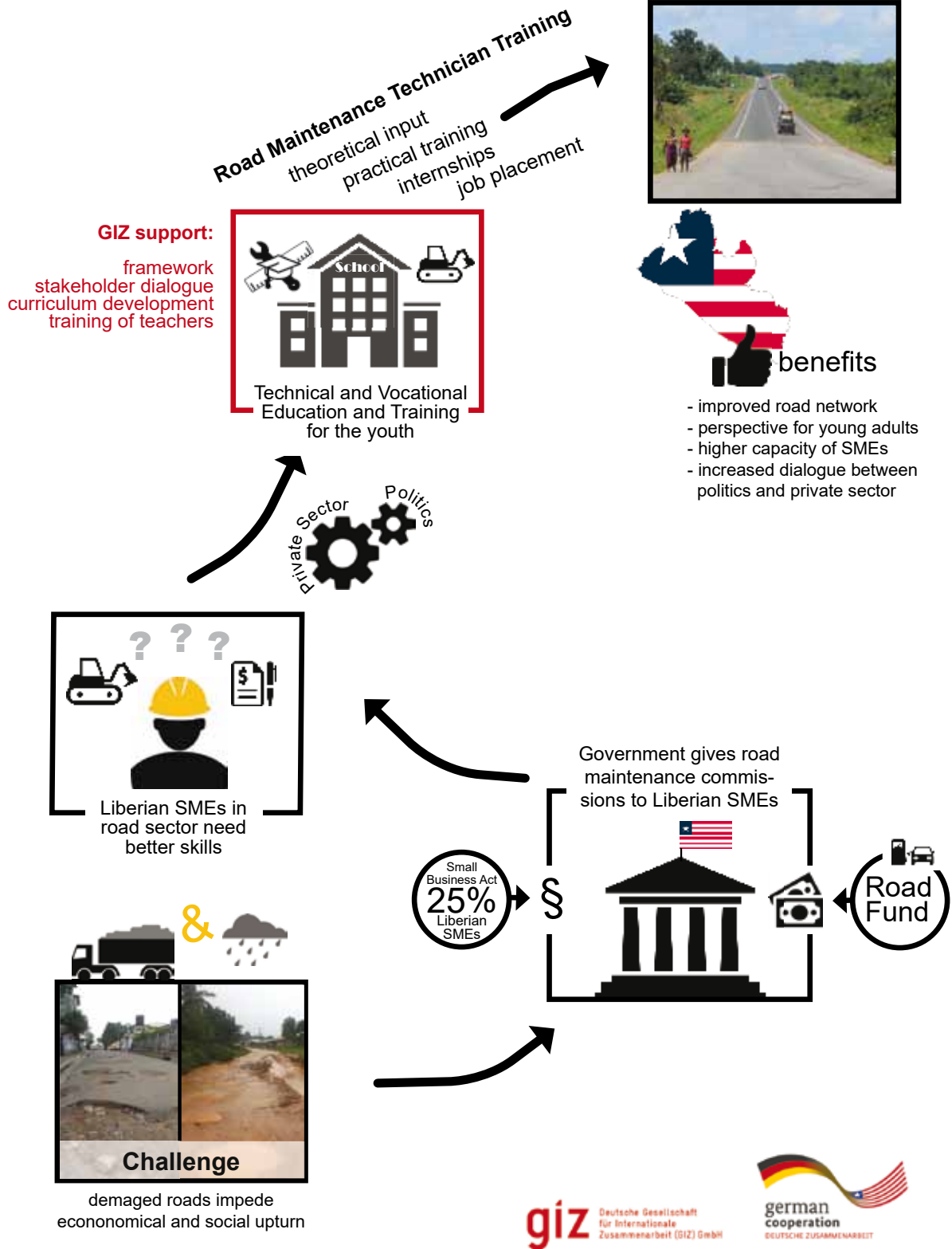
- develop technical and vocational knowledge and practical skills for work;
- respond to labour market demand,
- develop occupational competencies, industry competencies and employability competencies.



Credit: GIZ/Yana Tumakova

# Why SME Training and Technical Vocational Education & Training?

## Where can GIZ support?



## Overview of Curriculum.

The curriculum consists of nine modules:

1. Implement Health, Safety, Environment and Quality Requirements on a Road Construction Site;
2. Apply and maintain Hand and Power Tools According to Manufacturers;
3. Operate and Maintain Small Plant and Equipment According to Manufacturers;
4. Execute Fundamentals for Roadworks and Maintenance to Company and National Standards;
5. Construct Secondary and Feeder Gravel Roads;
6. Erect Road Furniture, Signage and Markings according to Drawings and Specifications;
7. Construct Road Concrete Elements according to Drawings and Specification;
8. Perform Road Maintenance according to Company Policy, Specifications and Contract Requirements;
9. Work Readiness.

## Facts/Results

1. Election & Preparation of Training Institution
  2. Training of Trainers
  3. Training of Young People
- Since September 2017, GIZ has worked on a curriculum for competency-based training for road maintenance technicians, together with governmental institutions( ) as well as industry an private sector(2).
  - A training institute for the implementation of the road construction and maintenance programme was selected: A Memorandum of Understanding (MOU) between the Booker Washington Institute in Kakata and GIZ was signed in July 2018.
  - A training programme for Training of Trainers (TOT) was developed based on the competency-based curriculum. Handbooks for teachers and trainees were developed and are available.
  - Candidates for teacher training for the implementation of the Road



Credit: GIZ/Yana Tumakova

Construction and Maintenance Programme were selected in July 2018 and the TOT conducted for four months (April-July 2019).

- In July, the project finalised the four-month training programme “Training of Trainers for Road Construction and Maintenance” at the Booker Washington Institute, with a handover of certificates to trainer candidates. At the closing ceremony, high ranking support for this TVET Programme was shown, with the presence of government officials, including the City Mayor, public sector and media representatives.
- 50 youth trainees, selected by private companies and local authorities, started a one-year training for Road Construction and Maintenance programme in September 2019. The trainees come from the South Eastern counties, that suffer most from the lack of road access.

The support of the German Cooperation to the Booker Washington Institute, located approx. one hour drive away from the capital Monrovia, included the renovation of the training premises and two houses to lodge the teachers, plus managerial support.

The Swedish-Liberian Feeder Roads Project supported the provision of financial incentives for trainer candidates; the procurement of materials, tools and the printing of handouts for the training; the recruiting of trainees through residence engineers and local authorities, all in cooperation with ALCC county coordinators.

The project “Capacity Development in the Transport Sector” has been implemented by GIZ since 2008, working on behalf of the Ministry of Economic Cooperation and Development of Germany (BMZ). In this context, the project has supported the Liberian Government in the development of the Road Fund Act and its operation; implementing a data-based, transparent and sustainable processes for prioritising activities in road maintenance; providing road safety management, awareness and enforcement. GIZ supports the institutional development of the Association of Liberian Construction Contractors (ALCC)\* and advises local construction companies on how to become more competitive in public tendering. A competence-based training programme for road construction and maintenance craftsmen was developed by the industry and the Ministry of Education.

*\*Ministry of Education, Ministry of Public Works, Ministry of Youth and Sports Association of Liberian Construction Contractors (ALCC), Engineering Society of Liberia (ESOL), Liberian Institute of Architects (LIA)*

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