

**Background Paper:
Work-Process Oriented TVET**

**Background Paper for the TVET Conference
Supporting AEC- Integration through Inclusive and Labour
Market Oriented TVET
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Background Paper on Work-Process Oriented TVET

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1. Introduction

1.1 ASEAN and the Upcoming AEC

In 1987, the leaders of five Asian countries convened in Bangkok with a shared goal: the establishment of an association with the purpose of cooperation in the economic and social fields, and the promotion of regional peace and stability. With the signing of a document outlining these objectives, the Association of Southeast Asian Nations (ASEAN) was born. By 1999, ASEAN consisted of 10 members, namely Indonesia, Malaysia, the Philippines, Singapore, Thailand, Brunei Darussalam, Viet Nam, Lao PDR, Myanmar and Cambodia. Today, ASEAN is hailed as the 'most successful inter-governmental organization in the developing world' (ASEAN Secretariat, 2014), covering 3% of the total land area of the world, ASEAN has a combined population of 625 million, accounting for 8.6% of the total world population, a number that is expected to increase to 694 million by 2025 (ILO- ADB, 2014). As a single entity, ASEAN would be ranked as the seventh largest economy in the world, with a combined GDP of USD 2.4 trillion in 2013, with its ranking expected to rise to fourth by 2050 (HV, Thompson, & Tonby, 2014). In 2007, ASEAN leaders signed the Cebu Declaration on the Acceleration of the Establishment of an ASEAN Community by 2015. The ASEAN Community is composed of three pillars, each with its own Blueprint: the ASEAN Political-Security Community, ASEAN Socio-Cultural Community and ASEAN Economic Community.

One of these pillars, the ASEAN Economic Community (AEC), is the end goal of economic integration by 2015. The AEC envisages the following key characteristics: (a) a single market and production base, (b) a highly competitive economic region, (c) a region of equitable economic development, and (d) a region fully integrated into the global economy. With the upcoming realisation of the AEC by end of this year, the region is expected to enjoy a free flow of goods, services, investment, capital and labour. There will be an increased demand for skilled workers following the freer movement of labour in the region. Currently there are an estimated six million ASEAN citizens residing in other ASEAN countries. Capannelli (as stated in Huelser & Heal, 2014) classified Cambodia, Lao Democratic People's Republic, Myanmar, Indonesia, Viet Nam and the Philippines as net senders of labour, and Singapore, Thailand, Malaysia and Brunei Darussalam as net receivers.

Another key component of the AEC is its aim to enhance the competitiveness and growth of small and medium enterprises through flagship projects under the 2010 Strategic Action Plan for ASEAN SME Development. These SMEs are expected to create an influx of additional jobs. A report by ILO and ADB suggests that 14 million additional jobs could be generated by the AEC, accompanied by the expansion and decline of various sectors in the region (2014). However, these businesses will have to comply with applicable international standards, once again generating the need for a highly qualified labour force.

ASEAN region has a growing young population. It is estimated that between 2013 and 2018, the labour force will expand by 1.7% annually, adding 28 million new workers (The Economist, 2013). One of the most best ways to elevate the standards for this growing labour force is by strengthening the Technical and Vocational Education and Training (TVET) in these countries. ASEAN countries are now paying close attention to their current TVET systems and reforming them to adapt to the changes resulting from this integration.

2 TVET Landscape in ASEAN Countries from a Business Perspective

2.1 TVET Overview: A Business Perspective

TVET systems have to adapt to the upcoming changes brought about by the AEC. Each country must be responsive to the market's quantitative and qualitative needs, which are imposed by the higher competition and international standards that businesses will face. The common denominator for successful TVET systems is that they all have elements of balanced public-private-partnerships. However, each country has varying sets of frameworks for work process oriented training and business engagement. The various degrees of business participation in TVET can include its occupational standard development, policy formation, quality assurance, assessment and monitoring, funding and training. Merle (2015) illustrated various elements of business involvement in TVET from policy formation to education/training qualification frameworks, TVET legislation and regulatory bodies.



Elements of employer involvement in TVET (from Merle, 2015).

The elements of business participation in the TVET systems of each ASEAN country vary, but most countries are now shifting towards a more private-integrated, demand-driven training system. The systems can be assessed based on the presence of a dual VET system or elements of business participation such as policy formation, quality assurance, assessment and monitoring, funding and delivery of training.

The table below shows a few selected elements of business participation in TVET and evidence of their presence in ASEAN countries. It provides an initial overview, but is, of course, limited in its explanatory power. While there seems to be a presence of business participation in various areas in some countries, the table gives no indication of the quality or intensity of this participation. Furthermore, it must be emphasised that ASEAN states are at different levels of economic development and therefore at varying levels of development in terms of TVET business participation. Each country has its own merits and good practices, and the table does not represent their systems as a whole.

Overview of business participation in TVET systems in ASEAN according to evidence found via desk research (no comprehensive overview)

Country	Dual VET system	Business Participation				
		Policy Formation	Quality Assurance	Assessment & Monitoring	Funding	Delivery of Training
Philippines						
Malaysia						
Singapore						
Indonesia						
Thailand						
Viet Nam						
Myanmar						
Brunei						
Lao PDR						
Cambodia						

 Evidence of private sector participation found in desk research
  No evidence of private sector participation found in desk research

2.2 Philippines

According to a 2014 report from ILO, it is expected that an additional 3.1 million jobs will be added to the Philippines labour market when it becomes a member of the AEC. (ILO- ADB, 2014) However, the country needs to boost the quality and relevance of TVET, or risk increasing levels of poverty (ILO- ADB, 2014). The Technical Education and Skills Development Authority (TESDA) is responsible for managing technical education and skills development in the Philippines. The TESDA Board includes representatives from the government (8), business and investment (2), labour (6), and education and training (2) sectors. TVET is part of the 8-Level Philippine Qualifications Framework, institutionalised through Executive Order No. 83, S. 2012. Vocational qualifications extend from the National Certificate Level I (PQF L1) to Diploma (PQF Level 5).

Aside from school-based VET, there are centre-based, community-based and enterprise-based VET systems in the Philippines (UNESCO-UNEVOC, 2014). Enterprise-based systems include apprenticeships, learning programmes and the Dual Training System (DTS). The formal apprenticeship system is quite small, and only included 1,000 apprentices in 2009 (Sweet, 2013). However, it is well-established and has an existing legal framework. Employers must obtain accreditation and the curriculum is based on National Competency Standards developed with the employers (Sweet, 2013). Meanwhile, Dual Training is conducted in both a vocational school and the workplace, as regulated by the Dual Training Systems Act of 1994 (UNESCO-UNEVOC, 2014). The DTS is based on programmes accredited by TESDA and delivered through collaboration between training institutions and private companies.

A UNEVOC study (2004) outlines a few challenges faced by DTS in the country, for instance that only a few enterprises are willing to accept trainees. This is due to the fact that enterprises have limited interest in investing in vocational training since it only pays off over the medium term and is therefore just an additional expense. The On-the-Job Training (OJT) system is also seen as a more favourable system since it does not oblige employees to provide monetary allowances, nor does it have binding contracts between enterprises and the school (UNEVOC-UNESCO, 2004).

With the recent educational reform, Technical Vocational Education has been introduced to the basic and secondary education curriculum through the Enhance Basic Education Act of 2013 – RA 10533. In the newly introduced grades 11 and 12 of senior high school, students will have the option of taking a 'Technical Vocational Track' starting from June 2016 (Oxford Business Group, 2015). Graduates from grade 12 should acquire vocational certifications at NC II level in line with labour market needs. The current challenge during the transformation phase will be to ensure sufficient private sector participation in the implementation of the new system in order for graduates to acquire competencies that match industry demands.

There is also an ongoing three-year project to promote the dual system of vocational education in the country by German partners. It aims to promote close cooperation between enterprises, model schools and vocational training centres in selected sectors using a dual training approach (Sequa, 2013),

2.3 Malaysia

In line with its Vision 2020 goal, Malaysia has recognised the need to transform TVET from being a government-driven measure to one that enables industry-led programmes and interventions. During the Tenth Malaysia Plan, efforts to improve the quality of TVET resulted in an increased intake of 164,000 in 2013, up from 113,000 in 2010 (Eleventh Malaysia Plan 2016-2020: Anchoring Growth on People, 2015). However, some issues related to TVET governance led to enterprises facing certain challenges. Multiple ministries and TVET certification systems could create confusion among employers. The lack of a single standard could also lead to a poor perception of TVET among the public (Rasul, Ashari, Azman, & Abdul Rauf, 2015). There is a need to rebrand the country's TVET and to implement a demand-driven curriculum (Rasul, Ashari, Azman, & Abdul Rauf, 2015).

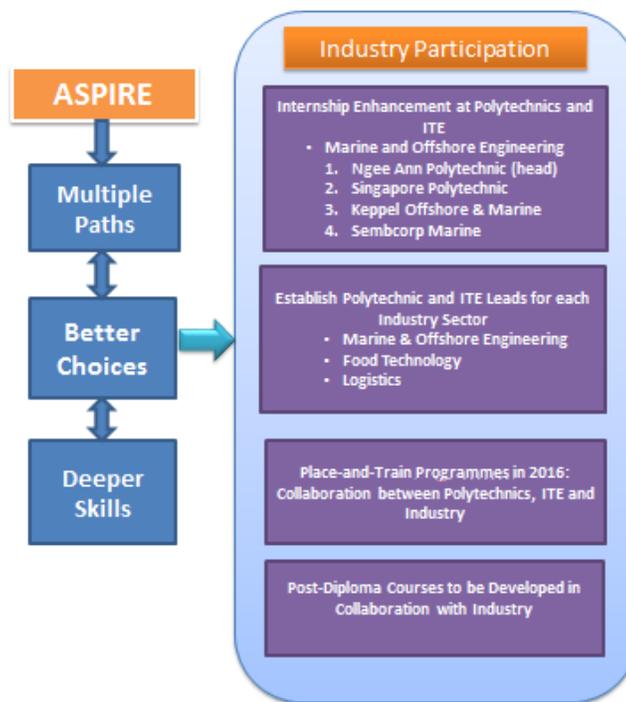
Some key issues related to the quality of TVET education in the country are addressed in the Eleventh Malaysia Plan, 2016-2020. The plan focuses on four areas: improving the efficiency of the labour market to accelerate economic growth, transforming TVET to meet industry demand, strengthening lifelong learning for skills enhancement, and improving the quality of the education system for better student outcomes and institutional excellence (Eleventh Malaysia Plan 2016-2020: Anchoring Growth on People, 2015). The agenda is expected to create 1.5 million jobs by 2020, 60% of which are expected to require TVET-related skills. The Eleventh Malaysia Plan has outlined three strategies for these different outcomes. The first intended outcome is to strengthen the governance of TVET by harmonising various rating systems and establishing a single system across TVET institutions. The second intended outcome is to enhance the quality and delivery of TVET programmes by enabling industries to play a greater role, from student recruitment through to curriculum design, delivery and job placement, in order to ensure that the supply of workers is in line with industry needs (Eleventh Malaysia Plan 2016-2020: Anchoring Growth on People, 2015).

The National Dual Training System (NDTS) was established in 2005 based on the European dual VET system. In this system 70-80% of the time is spent training within an enterprise and the remainder spent at a training centre. It aims to establish a demand-driven workforce through the development of occupational competencies relevant to industry needs. According to Wan Seman (as cited in Deros, Zohdi, & Mohamad, 2011), the main problems in the implementation of NDTS include a lack of participation by enterprises and limited numbers of curricula and training institutions. According to a study conducted by Deros, Zohdi, & Mohamad (2011), employers believe in providing their staff with appropriate training as a means to improve their product quality and productivity. They also perceive training as a factor for developing highly skilled employees who meet customer needs and requirements. However, the same study also revealed that the majority of industrial employers reported insufficient

information and a lack of resources as reasons for not participating in the NDTs (Deros, Zohdi, & Mohamad, 2011).

2.4 Singapore

The current TVET system in Singapore is considered world-class due to the quality of its programmes and its ability to adapt to a fast-changing economy. Singapore's ITE and polytechnic institutions have strived to remain closely connected with the rapidly growing and changing economy of Singapore. Students have received both theoretical and practice-based learning strategies, which have resulted in world-class graduates. An NCEE report (2015) states that in 2014, 87% of ITE graduates were hired within their fields within six months of graduation. Polytechnics, on the other hand, now offer around 150 diploma programmes and around 40% of the graduates pursue a university degree (NCEE, 2015). In 2013, Prime Minister Lee Hsien Loong appointed an ASPIRE Committee to be in charge of reviewing the ITE system and recommending changes to align the course offerings to meet rapidly evolving industry needs. After accepting the recommendations of the ASPIRE Committee in 2014, Prime Minister Lee Hsien Loong introduced these with an emphasis on better choices, deeper skills and multiple paths for Singaporeans (Ministry of Education, 2014).



In order to help students make better education and career choices, more sources of guidance will be provided at schools, polytechnic institutes and ITE. Deeper skills will be developed by strengthening education and training in TVET institutions. The business community will be more involved in this regard by cooperating with the respective TVET institutions to enhance the quality of education and the sector-relevance of graduates.

2.5 Indonesia

Indonesia's TVET system has two parts, which are managed by different government bodies: the Vocational Education System and the National Training System for Work. The country developed a National Qualification Framework in 2011, but it has not yet been enacted. However, Indonesia has clearly defined educational standards that shape its curricula, assessment standards and trainer qualifications, among others.

Indonesia has an estimated 40 different study programmes, some of which include a number of different majors. The TVET curriculum is based on National Competence Standards for work, which were developed in collaboration with industry. The National Training System essentially covers training programmes that take place in the workplace or at a training centre. This can include apprenticeships organised through a dual form of cooperation between enterprises and training centres. Apprenticeships are defined in the labour law and are based on a contract between the enterprise, the apprentice and the local administration. However, the system is relatively new and there is limited information about its success (UNEVOC, 2014).

The Indonesian Work Competence Standards were developed with industry participation to ensure a demand-driven workforce. There are also Coordination Agencies for Professional Certification (Badan Koordinasi Sertifikasi Profesi – BKSP), which are managed by the government, employers and employee organisations. However, only a few of these are functional (UNEVOC, 2014).

Despite Indonesia's comprehensive TVET framework, it still faces a number of challenges. Many regions in the country still need trained personnel in order to ensure sustainable growth. At the same time, there is a high rate of youth unemployment in the region (21.2% in 2013 (ILO, 2015)). One challenge is to provide quality jobs in the country, and occupational standards must be developed to meet employer demands (GIZ, 2015). Collaboration between the employer and TVET institutions must therefore be strengthened. In line with the upcoming AEC, the Indonesian Government has been committed to addressing the challenges of TVET. The ministry has set a goal of shifting the ratio of students enrolled in general senior secondary education to those in vocational senior education school to 40:60 this year.

2.6 Thailand

The Office of the Vocational Education Commission (OVEC) is the agency responsible for formulating policies, standards, monitoring and evaluation of TVET in Thailand. Currently, a shortage of skilled manpower is contributing to the low attendance of secondary education Thai graduates in TVET programmes (Majumdar, 2011). TVET graduates prefer to continue to higher education rather than enter the labour force (Majumdar, 2011). Thus, there is a need to rebrand TVET in the country in order to make it an attractive choice for graduates. Several agencies from both the public and private sector are involved in TVET.

The Vocational Education Act of 2008 states that TVET can be organised into formal, non-formal and dual programmes. The dual programme, which is modelled after the European Dual VET Programme, remains the priority. There are nine TVET specialisations, which are: trade and industry, arts and crafts, home economics, commerce and business administration, tourism industry, agriculture, fishery, textile industrial and ICT. In 2013, the German-Thai Dual Excellence Education programme (GTDEE) was launched by the German-Thai Chamber of Commerce (GTCC) and Deutsche Gesellschaft für internationale Zusammenarbeit (GIZ), in cooperation with B. Grimm, BMW and Robert Bosch. In GTDEE, students work and study at the same time. This is based on the German Dual VET system, which has

been adopted in many countries. The two-year programme includes courses in mechatronics, mechanics, automotives, power electronics and electric fields. GTDEE is supported by the Ministry of Education of Thailand and the Embassy of the Federal Republic of Germany in Thailand. Its goal is to produce high quality, skilled workers with flexible qualifications who are capable of working in their respective fields (AHK, 2015).

2.7 Viet Nam

Viet Nam has recognised the growing demand for skilled workers as it aims to be competitive both regionally and globally. In 2011, there was a total of 136 vocational colleges, 308 secondary vocational training schools, 849 vocational training centres and more than 1,000 other facilities related to vocational training, of which 35.4% were private institutions (General Department of Vocational Training, 2012). The business community is an active participant in various TVET activities in the country. Employers directly participate in developing a list of training occupations, standards and framework curricula, and evaluating national occupational skills. They assign experts to engage in all stages of the development of training programmes, from task analysis to designing training modules. Enterprises are also invited to come to TVET institutions during the training activities in order to guide the trainees and evaluate their results. A survey by GDVT reveals that around 40% of in-demand enterprises have created linkages with TVET institutions (General Department of Vocational Training, 2012). In addition to policy and training activities, the business community supports the funding of TVET-related operations. Around 56% of TVET funds come from groups and corporations (General Department of Vocational Training, 2012).

Viet Nam has collaborated with Germany on developing training programmes in cooperation with the business community. In 2011, research was conducted by NIVT, with the support from GIZ, on training opportunities for enterprises that aim to meet the demand for specific skills for various professional positions by increasing the qualifications of their workers. GIZ and EBG collaborated on training instructors for metal cutting, and eventually they were able to implement practice-oriented training at their respective TVET institutes (General Department of Vocational Training, 2012). In February 2015, 14 individuals graduated from a cooperative training programme in Mechatronics carried out by the German enterprises B. Braun Vietnam Co. Ltd., Messer Haiphong Industrial Gases Co., Ltd., the University of Technology and Education (UTE) Hung Yen, and GIZ. (Yen, 2015)

2.8 Myanmar

A skilled workforce plays a key role in economic development and poverty reduction. The Government of the Republic of the Union of Myanmar has therefore launched various initiatives to upgrade its Technical and Vocational Education and Training (TVET) system. These important tasks are being supported by Germany, which is known for its successful and company-based vocational training system. It combines education for the acquisition of theoretical knowledge with practical training at companies. A flexible TVET system that caters to the demands of companies and the market skills they require is an indispensable condition for facilitating Myanmar's accelerating socio-economic transformation. The current TVET system poses many challenges in terms of its quality, labour market orientation, management and financing. Huge regional and socio-economic disparities must also be overcome. The project aims to support Myanmar's efforts to establish a TVET system that meets the needs of a growing labour market and gives people the opportunity to develop their knowledge and skills towards securing gainful employment. To achieve this, the project is facilitating much stronger coordination and cooperation between TVET institutions and companies. The project focuses on four mutually reinforcing areas:

Improving the regulatory framework and capacity of policy-makers in TVET

Activities focus on enhancing cooperation with TVET line ministries to establish a demand-oriented TVET system. Advisory services focused on policy-making are provided, and coordination between the government and development partners is promoted. The skills of Myanmar's TVET personnel are being improved through study tours, regular dialogue sessions and training programmes.

Enhancing institutional capacities for skills development, assessment and certification

Activities focus on supporting the National Skills Standards Authority (NSSA) of the Ministry of Labour, Employment and Social Security (MoLES). Organisational development, capacity building and advisory services provided to NSSA are making it better equipped to fulfil its mandate as the regulatory body for occupational standards and skills certification in Myanmar.

Strengthening vocational training institutes and introducing needs-based trainings

Activities focus on upgrading Number One Industrial Training Center (ITC) in Sinda under the Ministry of Industry (MoI) to make it a centre of excellence with modern equipment and updated curricula, teaching and management methods. In close collaboration with the Kreditanstalt für Wiederaufbau (KfW), capacity development measures are being piloted there and expanded to other vocational training schools in Myanmar, including five more ITCs under the Ministry of Industry as well as TVET institutes under the Ministry of Education.

Promotion of private sector and civil society involvement in TVET

Activities include the introduction of in-company-training in Myanmar. In cooperation with the Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCI), business associations, and local and foreign companies, the project is promoting and fostering their enhanced engagement in a modern TVET system.

2.9 Brunei

In Brunei, the previous TVET system under the Department of Technical Education is already outdated and unlikely to have the capacity to meet the needs of a competitive society (Sabli, 2015). In 2013, Brunei Darussalam's Ministry of Education began to implement various TVET reforms that will highlight the strengthened cooperation between TVET agencies and employers. The Institute of Brunei Technical Education (IBTE) is one of the three pillars of SPN 21, or the newly-proposed National Educational System for the 21st Century of Brunei. IBTE offers two levels of programmes: the National Technical Education Certificate and the Higher National Technical Education Certificate. There is also an Industrial Skills Qualification programme, which is conducted in collaboration with industry. It is oriented towards the needs and requirements of the market, and is expected to produce graduates ready for the workplace (SEAMEO Voctech Regional Centre, 2015). IBTE will oversee TVET and emphasise the ICT, multimedia and knowledge-based industries. Two campuses, BTE Central and BTE Satellite, will be established and are expected to train 12,000 students.

In line with the AEC, Brunei supports knowledge sharing, the alignment of educational systems through negotiation of mutual recognition arrangements and a more open labour market (Sabli, 2015). Brunei has been committed to assisting fellow ASEAN countries in the area of TVET. In 1990, it established SEAMEO Voctech, and the country allocates more than USD 1 million annually to cover the expenses of its activities. IBTE addresses the issue of skills gaps and job-skills mismatch. There is significant participation by the business sector in the development of apprenticeship programmes and integration of on-the-job industry training for TVET students. IBTE collaborates with relevant agencies to conduct demand forecasts and identify labour supply-demand gaps in order to have a better sense of employment trends and opportunities (Sabli, 2015). Some courses have been planned in collaboration

with industry. Some IBTE initiatives for collaborating with industry include the appointment of industry leaders to be part of the institution's board of governors and involving the business community in creating performance standards and competency assessments for students.

2.10 Lao PDR

Many of the employers in Lao PDR are small and medium-sized businesses, which rely on unskilled workers. Existing challenges include the use of a theoretical curriculum in public vocational schools and insufficient training for teachers and instructors (GIZ, 2015). But there is evidence of TVET employer participation in the form of policy-making and implementation through the National Training Council (NTC) and Trades Working Groups (TWGs). There is also a supply of TVET offered by private providers. The Chair of the Chamber of Commerce and Industry is designated as the vice-chair of NTC. Employers lead the TWGs for furniture and printing industries. In January 2011, three new TWGs were established for priority skill areas including the hotel and restaurant, construction, and mining industries. TWGs have also been recently established for the energy, mining, hydropower and telecommunication sectors. Dual Cooperative Training (DCT) has been implemented in close cooperation with leading companies like Phoubia Mining, Toyota Motor Company/ Lao PDR, RMA Lao PDR as well as the Lao National Institute of Tourism and Hospitality (LANITH). Up to 1,000 apprentices are involved in such workplace-based training programmes in Lao PDR every year. However, despite efforts to engage employers in the policy-making process, they still have minimal engagement with TVET reforms. There is a very weak interest by employers in skills development (UNESCO, 2013).

Currently, Lao PDR is developing a Labour Market Information System and a TVET Education Management Information System that will enhance the assessment of demand for skills and strengthen employment services for TVET students and jobseekers (ILO-ADB, 2014). GIZ's TVET Teacher Education Programme also supports the improvement of vocational training through the development of a regulatory framework, adaptation of academic regulations, drafting of new standards, review of curricula and establishment of appropriate monitoring processes. It also promotes partnerships with businesses. As a result of the programme, policy-makers and private sector decision-makers have attended study trips to Germany in order to familiarise themselves with the German TVET system and how enterprises can be involved. A new TVET law has been adopted and standards for vocational teachers have been enacted. New, practice-oriented curricula have been submitted to the Ministry of Education. A set of manuals has also been developed with practical instructions in four priority occupational fields. Teachers and students have received training in the use of these manuals (GIZ, 2015).

The TVET infrastructure has significantly been upgraded by modernization of existing or construction of new school buildings and procurement of suitable equipment and teaching aids. Nine vocational schools plus the Lao-German Technical College in Vientiane have received funding for such upgrading from the German bilateral cooperation (KfW) in the Vocational Training Programs I-IV, two further TVET schools will be modernized and equipped in a new program that started in 2015 (Vocational Education in Laos, VELA-FC). Furthermore, in order to strengthen vocational teacher education, the national teacher training centre VEDI (Vocational Education Development Institute) will be modernized and equipped in the VELA-FC program and scholarships for teacher trainings be provided. This is closely coordinated with GIZ's TVET Teacher Education Programme.

2.11 Cambodia

The majority of Cambodia's economy is comprised of rural economic activities and the informal sector. In spite of this, there is Foreign Direct Investment, which is mainly focused on labour-intensive and

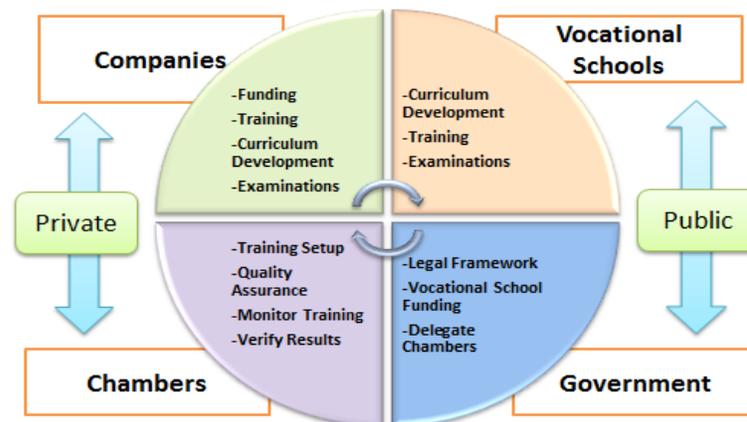
low-paid work, for instance in the garment industry (UNESCO, 2013). In general, there is weak collaboration between TVET institutions and companies in Cambodia. However, there is evidence of growing efforts by the Government to engage the business community in TVET dialogues (UNESCO, 2013). One example is the collaboration between the National Polytechnic Institute of Cambodia and employers on identifying the skills that need to be reviewed by the curriculum department. Aside from this, the Strengthening Technical Vocational Education and Training (STVET) project by ADB aims to support the government's TVET programme through the provisioning of an industry-endorsed TVET system aligned with the skills requirements in three sectors: mechanics, construction, and business services and ICT. Experts from the business sector are part of the Industry Advisory Groups (IAGs) and are involved in the review and validation of competency standards and curricula. Industrial Liaison Units (ILU) have also been established in all Provincial Training Centers to foster interaction with the business community.

3 TVET Experience in Europe

3.1 The Dual VET System

The dual VET education system enjoys an outstanding reputation as an effective type of VET system. Countries using the system have a low unemployment rate, for instance Germany, Switzerland and Austria. In Germany, the dual VET system forms an essential basis for the country's economic growth and entrepreneurial success (BMBF, 2014). The dual system is a combination of two linked systems, conducted in two different venues: enterprises and vocational schools. The curriculum is designed to balance both theoretical and practical training for students. It is a type of formal learning arrangement in which there is a structured collaboration between the employers and an educational institution. Their roles are clearly defined, and both make efforts to manage the system and ensure its quality. The student is formally assessed and the qualification is gained after the successful completion of requirements (Sweet, 2013).

In Germany's dual system, there is no prerequisite for becoming an apprentice for enterprises, except for compulsory full-time education (Hummelsheim & Baur, 2014). The social partners, associations of chambers and the Federal and *Länder* governments are extensively involved in the implementation of VET, while a major part of the system is organised and funded by the business community. The system not only enables students to learn practical skills, but also ensures high rates of integration into the job market. At the end of 2013, Germany had the lowest youth unemployment rate in Europe at below 8% (BMBF, 2014). 55.7% of the population enters dual VET as it offers a high degree of job security (BIBB, 2014). Students in a dual VET system spend three to four days a week as an apprentice in their company of choice, and one day a week taking classroom lessons at a vocational school. Vocational training courses last from two to three and a half years. There are over 1.4 million trainees in 329 occupations in the country (BIBB, 2014).



Students start VET training after lower secondary education in Switzerland. The Swiss dual VET system trains two-thirds of the country's youth. There is multi-business collaboration in order to broaden the apprenticeship market. This also allows highly-specialised companies to collaborate with other companies in the training of apprentices, thus splitting the costs and time investment. Meanwhile, Austria offers incentives to companies with apprenticeship programmes. For some companies, they consider this a contribution to a well-functioning labour market (Learning Exchange on 'Apprenticeship Schemes', 2013). Apprentices receive a low level of remuneration compared with full-time workers. Employers also receive a yearly basic subsidy for employing apprentices.

Aside from the dual VET system, it is also worth noting that the European Commission recommends the establishment of a Youth Guarantee on European member states to ensure that all young people up to the age of 25 receive high-quality employment opportunities, continued education, and an apprenticeship or traineeship within four months of becoming unemployed or leaving the formal education system (European Commission, 2014). The Quality Framework for Traineeships supports better working conditions and enhances the learning content of traineeships (European Commission, 2014). The main element of the Quality Framework for Traineeships is the written traineeship agreement that indicates the education objectives, adequate working conditions, rights and obligations, and a reasonable duration for traineeships (European Commission, 2014).

3.2 Application in Asia

Since the dual VET system is viewed as a success in Europe, it is now generally considered to serve as a model for Asia. However, it must be noted that there is no easy way for a country to adopt a vocational training system or even its individual aspects. The VET system in Europe is specifically designed for that region, and any transfer to Asia can only be achieved through the selection of elements that fit Asia's goals, structure and culture. In Asia's case, the prerequisites for enterprise involvement in the region should first be considered.

In systems like Asia's, which are dominated by school-based education, it has become a challenge to recognise the workplace as a learning environment. Aside from the various factors that contribute to successful TVET, including good governance, efficient mechanisms and a quality pool of trainers, the core element of dual VET is that companies are willing to actively take part in the system, e.g. as trainers (Bliem, Schmid, & Petanovitsch, 2014), but also in regards to financing, planning, or curriculum

development. As a general rule, however, in order for companies to engage in VET, the benefits to businesses must first be assessed. The primary benefit that businesses can receive is the generation of quality workers through training strategies that are aligned with their needs (Bliem, Schmid, & Petanovitsch, 2014). In addition, training expenses covered by companies are offset by the work performed during the training period.

3.2a Potentials

The dual VET System has been an attractive choice abroad. In partnership with the German Government, most ASEAN countries have started implementing various projects to adapt the dual model into their current systems. GIZ has been a key provider of projects and services related to sustainability. As of 2014, it had implemented projects in 23 Asian countries; 14 of these projects were related to VET and were carried out in 10 Asian countries. (Hummelsheim & Baur, 2014)

Recently, there have been projects implemented by the Deutsche Gesellschaft für internationale Zusammenarbeit in the ASEAN region to strengthen its demand-oriented TVET. These projects promote the cooperation of the business community, TVET personnel, and work-based learning, among other things. For example, the Philippines has partnered with the German Government to develop a dual training approach in the country. In 2013, Thailand implemented a dual system through the German-Thai Dual Excellence Education programme, in cooperation with five leading car brands. There have also been efforts to promote a dual system approach in Indonesia, Viet Nam and Myanmar. Viet Nam collaborated with the Deutsche Gesellschaft für internationale Zusammenarbeit to develop training offers for the business community. The Indonesian Government has cooperated with GIZ to increase business participation by involving them in drafting courses that are in line with market needs.

Another case of the application of the German Dual System in Asia is the Sino-German Automotive Vocational Education Project (SGAVE), a project based on collaboration between the German Development Cooperation, five German automotive brands and the Chinese Government. The project's aim was to produce qualified car mechatronics in the country through the improvement of vocational education (Horch, 2013). The project ran from 2011 to 2014, and has produced 25 SGAVE pilot colleges as well as approximately 200 certified teachers (Horch, 2013). As of November 2013, it was running model courses in 25 schools for 1,350 students. It has also established a Center of Competence (CoC) for teacher training (Horch, 2013).

The educational concept is composed of a theoretical portion carried out in school, and a practical portion carried out at a dealership. SGAVE incorporates the German dual elements through the School-Dealer cooperation, in which both parties collaborate and exchange ideas for the project (Horch, 2013). As of 2011, 36 dealers had accepted SGAVE students for internships in that year (Horch, 2013). SGAVE highlights the benefits the dealer can obtain from active participation with the project: a qualified pool of personnel, faster integration into the work system and a lower turnover rate (Horch, 2013). The project also ensures the quality of trainers through a set of standards for certifying teachers, including rigorous examinations and continuous training (Horch, 2013).

A particular good example for active cooperation between various stakeholders in promoting dual VET is the Sino-German (Xinjiang) Vocational Education Training Base Project of Xinjiang Vocational University, Urumqi, which is also one of the SGAVE pilot colleges. With a 20 Million EUR promotional loan, KfW Development Bank supports the vocational education training program of Xinjiang Vocational University by introducing advanced vocational education principles and practices, as well as providing new training facilities and equipment. The project is based on intensive cooperation with German car manufacturer Volkswagen, who opened a factory in Urumqi in 2013. Further cooperation partners

include the National Development and Reform Commission, Ministry of Finance, Ministry of Education and Development and Reform Commission, Department of Finance and Department of Education of Xinjiang Government, GIZ as well as other international agencies and enterprises.

3.2b Challenges

Despite efforts by Germany, its dual vocational training system remains highly praised abroad but seldom copied, with use limited to just a few countries in Central Europe (Euler, 2013). A number of elements in these countries' VET systems are specific to Germany. Therefore, the approach of the German cooperation organisations is not to transfer the system, but to select the elements that can be used by these countries to develop their own. Germany relies on five success factors from its own VET when cooperating with international partners: the cooperation between the two sides of industry, industrial organisations and the state; acceptance of national standards; qualified training staff; institutionalised vocational training research and counselling, and lastly, work-based training (BMBF, n.d).

It is important to highlight the challenges before attempting to replicate any part of the dual VET. It must be noted that unlike in Germany, Austria and Switzerland, TVET is often perceived by students and future employees as a second-best option after a university education. It is therefore important to 're-brand' TVET as an attractive career option in the future (Hummelsheim & Baur, 2014). It is also worth noting that employers in Germany see apprenticeship as a cost factor (Boehm, 1996). Estimated costs for one trainee run around EUR 15,300 annually, with a return on investment of around EUR 11,700 (Carroll, 2013). This issue will be considered in a similar way in Asia should one choose to accept apprenticeships. Small enterprises, in particular, might see apprenticeships as a cost rather than a benefit.

4. Conclusions/Thesis

- ASEAN member states face similar challenges when it comes to promoting demand-driven TVET, especially in face of the pressure from the upcoming AEC. Some of these challenges include the current absence of a concrete unified qualification framework, the frequently irrelevant curricula with regards to the business community, the lack of quality personnel, as well as structural underfunding of national TVET systems. Enhanced **public-private cooperation can be seen as a key element** in the reduction of these challenges. There has been a recent rapid increase in the participation of enterprises in occupational standard development, policy formation, quality assurance, assessment and monitoring, funding as well as training. This path should continue to be pursued and reinforced by both the public and private sector.
- There is a large degree of untapped potential in the region from which TVET players can benefit. The constant changes in the workplace driven by technology and ICT make conventional TVET programmes obsolete. The rapid changes brought about by globalisation highlight the need for future **TVET to become more agile and more modular** so that it can create new programmes as needed by industry. This will also require new flexible mechanisms and frameworks to involve the private sector. In parallel to this shift, there is already the ASEAN Qualifications Reference Framework (AQRF), which will act as the regional common reference framework for the AEC.
- Due to a high success rate of dual VET in countries such as Germany, Austria and Switzerland, the system is considered as a model for seeking greater industry involvement in Asia. ASEAN countries

can indeed profit from the experiences of business involvement in the Dual VET system. In addition to Germany's dual VET system, it is also worth taking other perspectives into account, for instance, the European Youth Employment Strategy, given the similarities in the youth unemployment crisis and skills mismatch in both regions. However, ASEAN member states should **refrain from simply copying the European Dual TVET model**. Instead, they should carefully consider which elements can be realistically integrated and adapted into their current systems, with consideration to their social, cultural and economic structures.

- There are many isolated pockets of best practices in implementing elements of Dual VET in ASEAN. However, as promising as these may be, **scalability on a systemic level is a considerable challenge**. Any given industry is only interested in implementing best practices for people they immediately need. The industry partnerships which look beyond immediate job placement within the companies and aim to develop a well-trained workforce could be encouraged through public incentives and potentially mandatory requirements imposed on industry.

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