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7

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Expanding TVET at the Secondary Education Level

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Expanding TVET at the Secondary Education Level

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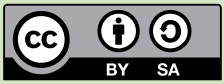

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Preface to the Series

The Asia-Pacific Education System Review Series is published by the Education Policy and Reform Unit of the UNESCO Asia and Pacific Regional Bureau for Education (UNESCO Bangkok). The series aims to summarise what is known, based on research, about selected contemporary policy issues relating to the national education systems of countries in the Asia-Pacific region.

The series provides practice-oriented guidance for those engaged in the review of education policy and systems as well as in the implementation of reforms related to the specific topics that the booklets address.

The booklets are designed to serve as rapid and credible reference material for education policy makers, planners and managers, offering busy readers: (a) an overview and quick analysis of pertinent education issues; (b) a choice of approaches and options to address these issues, based on experiences of countries in the region; and (c) a set of recommendations or guiding questions to consider when preparing a sector or sub-sector review and reform.

Contents

List of Boxes, Figures and Tables

List of Abbreviations

AL	Academic Lyceum
AVC	Area Vocational Centre, Thailand
CTE	Career-Technical Education, United States of America
EFA	Education for All
GMR	Global Monitoring Report
IE	Industrial Education, Kenya
JVE	Junior Vocational Education, Malaysia
LIC	Low Income Countries
LM	Labour Market
MDG	Millennium Development Goals
OECD	Organisation for Economic Co-operation and Development
PC	Professional College, Republic of Uzbekistan
SAS	Secondary Academic Schools, Malaysia
SSPE	Secondary Specialized Professional Education, Republic of Uzbekistan
TSS	Technical Secondary Schools, Malaysia
TVET	Technical and Vocational Education and Training
UIS	UNESCO Institute for Statistics
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNEVOC	UNESCO International Centre for Technical and Vocational Education and Training
USA	United States of America
USE	Upper Secondary Education
VC	Vocational College, Malaysia

Acknowledgements

This booklet is the result of UNESCO Bangkok's project in cooperation with UNESCO-UNEVOC Bonn to document various approaches in providing TVET in secondary schools and to support evidence-based decision making in the expansion of skills development at the secondary education level in the Asia-Pacific region.

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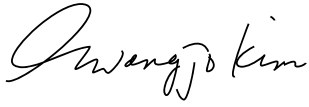
Foreword

The focus of the seventh booklet of the Asia-Pacific Education System Review Series is on making TVET accessible to more young people in the Asia and the Pacific. Sustainable economic development in the region depends heavily on addressing skills mismatches resulting from a weak link between school outcomes and the labour market. Technical and vocational education and training (TVET) can play an important role in addressing these mismatches. Therefore, there is urgent need to improve the quality and relevance of TVET, as well as expand its provision to allow greater numbers of youth to profit from its benefits.

Undeniably, the road to comprehensive TVET provision is filled with obstacles. One way of expanding it beyond traditional vocational and technical schools is by introducing TVET into the general secondary stream. This booklet gives an overview of vocationalisation as a concept and introduces ways of integrating TVET at secondary level. Given the diversity of the region, there is a range of ways in which vocationalisation is taking place in practice. Drawing on pertinent examples, the booklet paints a picture of vocationalisation strategies within the region and, by discussing them critically, provides valuable policy advice.

The main purpose of this booklet is to be a useful resource document for policymakers and practitioners, enabling them to make informed decisions on policies which could allow their countries to benefit from TVET at secondary level, and thereby permit young people to develop their full potential and lead productive and fulfilled lives.



Gwang-Jo Kim
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Section 1:
Introduction

As countries in the Asia- Pacific are striving for further economic development, the importance of technical and vocational education and training (TVET) is increasingly gaining prominence on education agendas. Governments in the region have long underscored that a skilled labour force is a key for advancing the economic aspirations of their populations at large. Young people are faced with competitive labour markets which favour technically-skilled workers who in addition can successfully deal with a range of non-technical challenges in their daily working lives.

To equip young people with these skills, TVET has to be strengthened and further developed in many countries of Asia and the Pacific. There is evidence suggesting that secondary education has been expanding and TVET might have been playing a role in it. However, TVET still suffers from a 'second-class education' image and therefore fails to attract talented pupils who may instead opt for general education. Even if some young people, and their parents, see the benefit of TVET for their future lives, they are often restrained by limited access. Especially in remote areas, TVET provision is often too costly to implement.

So how to make TVET more accessible? Unfortunately, there is no magic formula that can solve this question. The Asia-Pacific region is full of contrasts which prevent the development and implementation of a one-size-fits-all model. Instead, what is increasingly being discussed among education practitioners is how to find cost-effective ways of providing practical skills to pupils and to make them remain in schools.

Introducing skills training at general secondary level might be one option. Vocationalisation of secondary education has been coined to describe the overarching goal of improving the vocational relevance of education. Traditionally, it has been understood as vocationalising general secondary school curricula whereby students in general secondary education are exposed to vocational or practical subjects. Increasingly, however, other approaches are being included under the 'vocationalisation umbrella'. For instance, rural secondary schools that provide general and TVET courses on the same school premises are contributing to expanding skills training at secondary level. This study gives further examples of vocationalisation strategies from the region.

The study also considers the question of whether vocationalisation of secondary education is a valid policy option at all. There are voices arguing that teaching vocational skills in general secondary schools falls prey to similar challenges as faced in formal TVET institutions. Lack of adequate financial resources, deficiency of professional vocational teacher training and assessment methods can all lead to vocational courses reduced to teaching theory instead of practice.

This is why, vocationalisation as a research area needs further attention. This booklet contributes to the debate by drawing on the experiences from five countries in the Asia-Pacific (China, Malaysia, Republic of Korea, Thailand, Republic of Uzbekistan). However, research and critical discussions need to continue to allow mutual learning resulting in policy discourse relevant to the region. In addition, the focus on disadvantaged young people, who can greatly benefit from skills training, should be paramount while exploring new ways of making TVET available, accessible and relevant.

Section 2:
Vocationalisation – Concepts and Issues

The Recent Evolution of TVET in the Region

The Third International Congress on TVET held in May 2012 in Shanghai emphasized the importance of technical and vocational education and training (TVET) in the process of achieving the Education for All (EFA) commitments:

"TVET is expected to contribute actively to the achievement of the Education for All (EFA) goals and Millennium Development Goals (MDGs) as the target date of 2015 approaches, and that its importance is increasingly recognized [. . .] in the international discussions on the post-2015 international education and development agenda."

(The Shanghai Consensus, Third International Congress on TVET, May 2012)

Based on this assertion, concrete recommendations, based on challenges identified during the Congress, were given to Member States and TVET stakeholders in these countries. A summary can be found in Box 1.

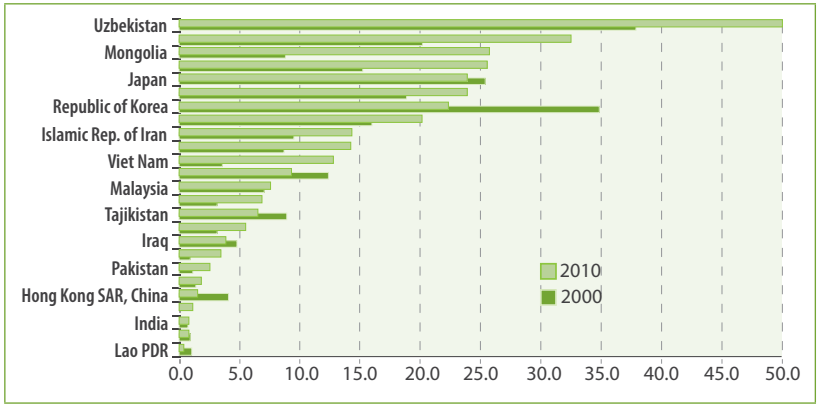
Box 1: Shanghai Consensus: Major Recommendations of the Third International Congress on TVET

1. Enhancing relevance
2. Expanding access and improving quality and equity
3. Adapting qualifications and developing pathways
4. Improving the evidence base
5. Strengthening governance and expanding partnerships
6. Increasing investment and diversifying financing
7. Increasing advocacy

Source: Transforming TVET: Building skills for work and life, 2012.

Reflecting its increased importance, TVET has expanded over the last ten years, as shown in Figure 1. Except for a few developed countries at their post-industrialization stage, the enrolment rate in TVET at the upper secondary level has increased in most middle-income and developing countries in the Asia-Pacific region since 2000.

Figure 1: TVET Enrolment Rate at Upper Secondary Level in 2000 and 2010

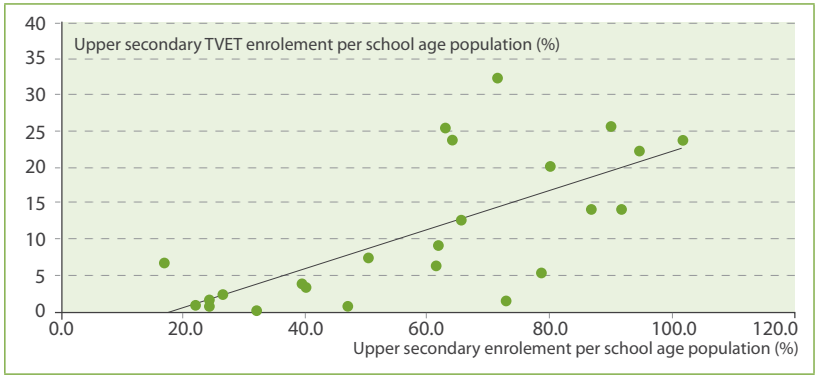


Note: Enrolment rate = share of upper secondary TVET students among school age population at the upper secondary level. For countries without data in 2000 and 2010, the data of the closest year are used.

Source: UNESCO-UIS database.

What is particularly interesting is the existence of a positive relationship between the enrolment rate in upper secondary TVET, and the total enrolment rate in upper secondary education. Figure 2 shows that countries with higher TVET enrolment rates also experience higher upper secondary enrolment and vice versa.

Figure 2: Relationship between Enrolment Rates at Total Upper Secondary Level and Upper Secondary TVET



Source: UIS Database, 23 Asia-Pacific countries, 2010.

A more rigorous examination of the relationship between expanding TVET and overall secondary education has also been carried out. Table 1 below shows the results of regression analysis using data on changes of enrolment rate in upper secondary education and TVET at the upper secondary level in 23 Asia-Pacific countries. Model 1 is the simplest one only with increment of enrolment rate and upper secondary enrolment (USE) enrolment rate as independent variables, while Model 4 with additional independent variables such as constant term and square of increment of TVET enrolment rate in order to allow nonlinear relationship between the expansion of TVET and USE. The results, despite changes of model specification, show that all increment estimates of the TVET enrolment rate are positive and statistically significant. It implies that, while admitting the existence of some variation among countries, on average, the expansion of TVET has contributed to the expansion of upper secondary education over the last ten years.

Table 1: Regression Analysis - the Effect of TVET Expansion to USE Enrolment Rate

	Model 1	Model 2	Model 3	Model 4
Increment of TVET enrolment rate	1.985*** (0.422)	1.520*** (0.394)	1.464*** (0.495)	0.908** (0.428)
Square of increment of TVET enrolment rate			0.078* (0.044)	0.088** (0.035)
Level of USE enrolment rate in 2000	0.067 (0.048)	-0.144* (0.082)	0.025 (0.051)	-0.203** (0.077)
Constant term		14.198*** (4.752)		15.025*** (4.259)
Adj. R-squared	0.523	0.472	0.567	0.578
Prob>F	0.000	0.001	0.000	0.000

Note: 1) Dependent variable: Increment of USE enrolment ratio.
2) * p-value<0.1, ** p-value<0.05, *** p-value<0.01. t-value of estimates are in parenthesis.

Source: UNESCO-UIS Database, 23 Asia-Pacific countries, 2000–2010.

Increments of each variable are the difference between the value of 2010 and 2000. If there is no data in 2000 or in 2010, the closest year was used.

This result coincides with previous studies on the contributions of TVET towards the expansion of secondary education. For instance, Bishop (2005) describes that, using the analysis of OECD enrolment data, a 10 percentage point increase in the share of upper secondary students in vocational and pre-vocational programmes is associated with a 2.6 percentage point increase in the high school graduation rate. Regarding the mechanism of such a positive relationship, he explained that the introduction of vocational education options at the secondary level induced students to stay longer in school and, in turn, increased the flow of occupationally trained graduates into the labour force and generated employer support for further expansion of secondary education. That is why, almost all governments in developing countries are trying to expand the provision of TVET at secondary level, along with making efforts to increase secondary education enrolment as a whole.

Challenges for Expansion of TVET

Despite these attempts to expand TVET, the results have not always been successful. Since in many countries, TVET is still regarded as second-class education and as being reserved only for those students who are less academically competent, there has at times been a failure to attract students to secondary level TVET programmes. It can even lead to decreased TVET enrolments at the secondary level, such as is the case in Lao PDR (UNESCO Bangkok, 2011, Regional Background Paper on TVET: Asia and the Pacific Region). Such perceptions may be partially rooted in the traditional or cultural bias towards academic education in the Asia-Pacific countries. However, it should also be acknowledged that such negative views are to some extent reflecting the reality, such as limited opportunities facing TVET graduates in accessing decent jobs. Therefore, overcoming such negative perceptions is not merely a matter of changing the public image of TVET, but also substantially improving job opportunities for TVET students.

In addition, issues related to provision of TVET can also be seen as obstacles in expanding TVET enrolment. Clearly, TVET requires far greater investment than general education due to the necessity of

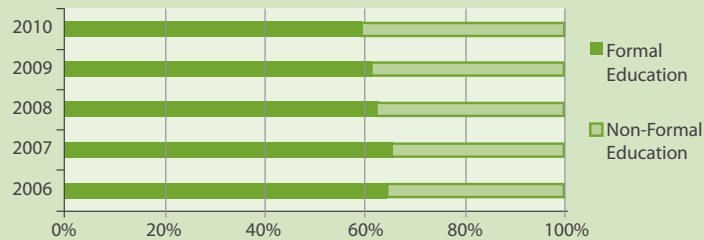
specialized facilities, equipment and materials for practical training.[1] Due to high unit cost of introducing and running TVET courses, TVET institutions tend to be concentrated in places where expected enrolment can be met. This situation tends to result in limited accessibility to TVET for people living in remote or scattered areas or who face difficulty accessing transportation. In such areas, the priority of governments is usually to build primary schools (and lower secondary schools, if resources are available) in order to expand basic education to as many pupils as possible. This implies that the establishment of professionalised TVET schools in these areas tends to be restricted, and provision of TVET usually falls short of the potentially large demand of youth in these areas, who are expected to enter the labour market instead of continuing education.

Many countries are already implementing several measures to provide TVET in these remote or scattered areas. An example is the expansion of non-formal skills training centres for uneducated adults and out-of-school youth in these areas, which usually run short-term, basic-level training courses in occupations in which these groups can easily find income-generating jobs.

Box 2: The Case of Thailand: Expansion of Non-Formal Education

According to statistics from the Ministry of Education, there has been an increase in the number of students who acquire upper secondary education qualifications through the non-formal education system.

Percentage of upper secondary schooling in formal and non-formal education by year



These ratios imply that many students, who complete lower secondary education, enter the labour market and later continue education to the upper secondary level through non-formal education and skills training.

Source: Choomnoom, S. Office of Vocational Education Commission (OVEC), Thailand

1 "The total unit cost of the technical (vocational) program was […] more than three times the unit cost of general education arts program." (Lauglo, 2005)

However, instead of running such short-term courses for unskilled youth after their school leaving, another strategy may be to offer opportunities for acquiring practical skills while they are in schools. Education covering vocational subjects may be effective for keeping in school those students who may feel that learning general subjects will not help them find jobs. Doubtlessly, the provision of TVET requires professional teachers and a specialized learning environment to ensure its quality. However, if there is continued difficulty in providing such quality vocational education, a second-best option can be considered as a way of equipping students with basic skills for their lives. In that regard, policy makers have been struggling to find alternative ways of providing education in vocational subjects through non-dedicated and non-professionalized institutions, for example, general secondary schools. This can be seen as a major reason for increasing interest in the vocationalisation of secondary education in developing countries.

Concepts and Purposes of Vocationalisation

Regarding the concept of vocationalisation, a traditional approach is to implement it through a reformed curriculum containing both general and vocational education components. For instance, Lauglo (2005) defines vocationalised secondary education as "a curriculum which remains overwhelmingly general or 'academic' in nature, but which includes vocational or practical subjects as a minor portion of the students' timetable during the secondary school course. Closely related terms are 'diversified curriculum', 'work orientation', 'practical subjects' in secondary schools and 'pre-vocational education'. The purpose of this approach is to expose more students to vocational education (Laglo, 2005, p. 3)."

However, other approaches can also be regarded as cases of vocationalisation, such as when the purpose of vocationalisation is to enhance the vocational relevance of the whole education system through extended student exposure to vocational education. In this case, for instance, comprehensive schools providing general and vocational programmes on the same school premises can also be seen as vocationalising secondary education, even when they use separated curricula for each stream. That is, those students living in areas with few TVET institutions available and thus limited opportunities of accessing TVET can be exposed to vocational education through these

kinds of schools. Therefore, in this report, the term 'vocationalisation of secondary education' is used to describe various ways of providing vocational education to those students with restricted access to TVET, including the traditional definition of a mixed curriculum of vocational and general education.

As for the purpose of vocationalisation, the most important one would be the enhanced 'economic relevance' of education (Lauglo, 2005, pp. 7-8). That is, by teaching vocational skills students can more easily find work after leaving school, and then become more trainable and eventually more productive after entering the labour force. In this regard, vocationalised education can be seen as a part of vocational education which presupposes the transition of students to the labour market right after graduation. On the other hand, such incorporation of vocational subjects into general curricula can be seen as providing a large number of secondary students with a chance of getting a basic understanding of job and career development. Thus, even though not all students of vocationalised education enter the labour market, vocationalised education is regarded as beneficial in raising labour market awareness of most students. Consequently, vocationalised education can be seen as pre-vocational education which does not presuppose direct transition to the labour market but which rather aims to prepare students for intensified vocational education at a later stage.

Box 3: Vocationalised Curriculum in Malaysia before the TVET Reform

Before the TVET reform initiated in 2011, vocational education was provided through two education programmes in Malaysia: one comprised of elective subjects in Secondary Academic Schools (SAS), and the other taking place at Technical Secondary Schools (TSS) at the upper secondary level. Apart from vocational education through dedicated TSS, a student of SAS followed a course structure that covered several core subjects, including languages, mathematics and sciences. In addition to the core subjects, the student was required to study several additional subjects from a choice of several elective groups. Among the several elective groups was a vocational and technology group which offered a choice of technical subjects covering engineering studies, commerce, home economics and agriculture science. Subjects in this vocational and technology elective group aimed at exposing students to technical studies, and were pre-vocational in nature.

Source: Razzaly, W., Kaprawi, N., Ibrahim, B. Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia and Jab, T. A. Technical and Vocational Division, Ministry of Education Malaysia, Malaysia

Debates over Suitability of Vocationalisation

While policy makers in developing countries show great interest in vocationalisation, it should be noted that there are serious debates over the validity of such an approach. Sometimes, these debates are related to the fundamental issue of whether vocational education itself is a proper policy option for developing countries. For example, according to Laglo (2005), Psacharopoulos and Loxley (1985) found that in terms of internal rate of return to investment, there are lower returns to the vocational tracks than to the academic ones, and in terms of employment, there is no advantage of the vocationalised courses over academic ones in obtaining employment. Thus, taking into account the urgency of the universalisation of general education, the expansion of vocational education should not be regarded as a concern of top priority in countries with low participation in education. Clearly, such an assertion may be regarded as excessively negative vis-a-vis TVET, considering that there are several regional examples where TVET has positively contributed to economic development.

Beyond this fundamental objection, there exist legitimate concerns about the suitability of vocationalisation based on evaluations of previous attempts. For example, by analysing tracer studies undertaken in developing countries of sub-Saharan Africa dealing with vocationalised education, Lauglo (2005) emphasized that the inclusion of a small proportion of vocational subjects in the total curriculum (e.g. 10-20% of curriculum time) failed to show any meaningful improvement in job opportunities of participating students. According to the tracer study on Kenyan Industrial Education (IE)[2], only 5% of participating students had secured further training for which IE subjects were broadly relevant, while 40% continued on with academic education and another 40% were unemployed after one year of completing IE. Similar results can be found in other studies, also those conducted in economically more developed countries. For example, by analysing panel data of upper secondary graduates who attended career-technical education (CTE) in USA, Bishop (2005) reported no significant effects of introductory vocational courses (general business, agriculture, distributive education and health occupations) on employment, unemployment, wage rates and earnings of either 1993–94 or 2000 graduates.

2 In Kenyan Industrial Education, little time was allocated for vocational education in lower secondary schools, i.e. three to five classes per week. (Lauglo, 2005).

However, these arguments do not necessarily mean that the vocationalisation approach is doomed to fail in any given situation. Quite contrary to the results of introductory courses, Bishop (2005) found "each additional non-computer CTE course led to higher earnings than mean earnings of 1993 and 2000, 4.6% and 1.4% respectively"[3] and therefore, "benefit–cost ratios and internal rates of return are remarkably high. Benefit–cost ratios exceeded 6.0% and real internal rates of return all exceeded 18% (Bishop, 2005, p. 350)." Also, Billetoft and AUSTRAL Consultoria (2005) showed that students from technical schools in Mozambique were almost fully employed when traced three years after their graduation. Such contrasting results between Kenya and Mozambique may have stemmed from the differences in the percentage of vocational education to total education, e.g. 10-20% of vocational education in Kenya ('light dosage') and 30-40% in Mozambique ('heavy dosage'); and from differences in labour market conditions where a depressed labour market straggled the former and a 'buoyant' demand for skilled workers characterized the latter. These results, nonetheless, can be seen as supporting the idea of vocationalising secondary education. In that regard, Lauglo (2005) points out that "there is no international iron law which dooms vocational courses taught in a mainly 'general' school" (Laglo, 2005, p. 41).

What could be the most important factor affecting performance of the vocationalisation approach then? If the main purpose of vocationalisation is successful school-to-work transition, then at least two factors can be mentioned: labour market situation and skill levels acquired through vocationalisation. Without sufficient labour market demand, no kind of vocational education will help students find jobs. Also, students may not find employment if they fail to acquire vocational skills up to the level required by the labour market. While these two factors can be seen in traditional vocational education, another issue can be pointed out with regard to vocationalisation: excessive expectation and/or impatience. While reviewing experiences of African countries, Wilson (2005) noted that sometimes early initiatives to vocationalise secondary education were too ambitious, in that developing countries tried to develop a viable system in too short a time. Therefore, even at the pilot stage some successful attempts failed to reap the intended results

3 Bishop (2005) found no significant effect of introductory career-technical education (CTE) on earnings and job quality, as explained above.

when generalized at a national scale due to the 'thin spread' (Lauglo, 2005) of limited resources to almost every school. This implies that vocationalisation policies need to be implemented through a staged approach and after a careful examination of labour market demand and resources available at every stage.

Section 3:

Summary of Country Cases

Summary of Country Cases

With an aim to assist the evidence-based decision making of governments in the expansion of skills development at the secondary education level, UNESCO Bangkok in collaboration with UNESCO-UNEVOC undertook the present study on the various approaches in providing TVET in secondary schools. The experiences of China, Malaysia, Republic of Korea, Thailand and Republic of Uzbekistan in vocationalising secondary education are the featured case studies in this report. These countries have been chosen because they have dynamic TVET systems at secondary level that could provide interesting perspectives and lessons for other ones.

UNESCO Bangkok, in cooperation with UNESCO-UNEVOC, organised a regional expert meeting inviting the experts involved in the study as well as government representatives from Cambodia, Lao PDR and Myanmar. The objective of the meeting was to discuss the preliminary findings of the case studies, to draw policy options and to examine potential issues that could be further discussed in the regional synthesis report. The meeting took place in December 2012 in Bangkok, Thailand.

The expert meeting included a discussion of regional and international trends in TVET provision at the secondary level, including findings of the 2012 Education for All Global Monitoring Report (GMR), followed by a presentation of the country cases. The meeting allowed for a detailed discussion of the emerging issues and challenges in expanding TVET at the secondary level, including issues of enrolment, financing and curriculum. The sharing of the country cases, as well as the presence of government representatives from additional countries in the Asia-Pacific region, allowed for a critical consideration of the applicability and feasibility of case countries' experiences in other countries as well as recommendations for building on the study.

As discussed in the previous chapter, countries have implemented various measures to expand vocational education beyond education offered through professional vocational education institutions. The following tables summarize the main characteristics of measures taken by the study countries by purpose, educational level, target groups, curricula, types of providers, duration and certificates offered.

Table 2: Summary of Purpose, Educational Level and Target Groups

	Purpose (in order of importance)	Educational level	Target groups (in order of importance)
China	Transition to the labour market (LM)	Upper secondary	Academically less competent students Rural and some urban areas
Malaysia (Before the reform)	Transition to LM Further education at higher level	Upper secondary	Vocationally inclined, among all general stream students
Malaysia (After the reform)	Further education at higher level Transition to LM	Lower secondary	Less academically competent
Republic of Korea	Transition to LM	Upper secondary	Vocationally inclined Rural and some urban areas
Thailand	Transition to LM	Upper secondary	Mainly rural areas
Thailand (Career education)	Further education at higher level Transition to LM	Upper secondary	Career focused, among all general stream students
Republic of Uzbekistan	Transition to LM Further education at higher level	Upper secondary	Every student of professional colleges (Around 90% of total USE students)

Table 3: Summary of Curriculum, Providers, Duration and Certificates

	Curriculum	Providers (in order of importance)	Duration	Certificates
China	Separated	Vocational schools Comprehensive schools General schools	1-2 years 3 years 1 year	Vocational certificates Vocational certificates General certificates
Malaysia (Before the reform)	Integrated in general curriculum (12 periods per week)	General schools	2 years	general certificates
Malaysia (After the reform)	Separated (Basic vocational education)	TVET schools Some general schools	1 year pre-vocational 2 years vocational	Skills certificates
Republic of Korea	Separated	Comprehensive schools Integrated schools	3 years 2 years	Vocational certificates
Thailand	Separated	General schools TVET schools	3 years 3 years	General certificates TVET certificates
Thailand (Career education)	Integrated (45% of total curriculum)	General schools	3 years	General certificates
Republic of Uzbekistan	Integrated (25% specialized subjects, 27.4% practical training)	Professional colleges	3 years	Diploma with professional qualification

Most countries are applying vocationalisation at upper secondary level, except Malaysia after its education reform. This explains the relatively high enrolment rate (more than 90%) in general education at lower secondary level in these countries. Consequently, the focus should be on enrolment at upper secondary level (especially in middle-income countries). This also implies that students participating in vocationalised education are equipped with a relatively high level of basic skills.

Box 4: The Case of Malaysia: Transformation of the Technical and Vocational Education Plan

In 2011, the Malaysian Ministry of Education (MOE) issued a plan on the reform of the TVET system in Malaysia entitled "Transformation of Technical and Vocational Education Plan." The focus of the reform is as follows:

Creation of vocational colleges (VCs): By 2020, 274 VCs (including 182 public VCs under the Ministry of Education) will be created, with a targeted enrolment of 324,300 students, representing 40.54 per cent of total upper secondary students (in 2012, there were 78 vocational schools with an enrolment of 45,620, representing 5.35 per cent of upper secondary enrolment). Current Secondary Technical Schools (STS) under MOE, and vocational institutions under other ministries for upper secondary TVET, will be transformed into vocational colleges which provide two kinds of TVET programmes: (a) certificate programmes at upper secondary level, and (b) diploma programmes at post-secondary level. Students of VCs do not need to take a graduation exam in the last year of upper secondary to get upper secondary certificates and will also be exempted from an entrance exam to enroll in post-secondary programmes. Creation of junior vocational education (JVE): At lower secondary level, five per cent of total enrolments are planned to be in JVE by 2020. This applies to youth leaving the education system only with primary certificates. The enrolment in JVE should offer a chance of acquiring practical life skills. This programme will be provided on the same school premises as for general lower secondary students. At the same time, the current TVET elective subjects in Secondary Academic Schools (SAS) at upper secondary level will be discontinued. This decision reflects the limitation of current elective TVET courses in SAS in providing practical skills to students who are expected to enter the labour market after graduation, and the need to consider early school leavers after they complete primary school.

In short, the current approach is clearly targeting the expansion of dedicated TVET through combined VC programmes at upper and post-secondary level, while abolishing upper secondary pre- or semi-vocational programmes which have not been effective in TVET provision.

Source: Razzaly, W., Kaprawi, N., Ibrahim, B. Faculty of Technical and Vocational Education, University Tun Hussein Onn Malaysia and Jab, T. A. Technical and Vocational Division, Ministry of Education, Malaysia

Regarding specific approaches to vocationalisation, two basic models are currently being implemented, as follows:

1) Mixed curriculum: Secondary Specialized Professional Education (SSPE) in Republic of Uzbekistan and Malaysia (before the educational reform), and career education in Thailand belong to this category. This approach includes vocational subjects in the curriculum of general secondary education, and in principle, enables general stream students to choose vocational subjects as electives in accordance with their

desire or aptitude. Moreover, its purpose is not solely the expansion of vocational education, since students can also choose subjects in science or humanities apart from vocational ones, but rather to help students design their career paths in a broad sense.[4] Students choose vocational subjects, in theory, based on their preference and not based on their academic ability.

Box 5: The Case of China: Comprehensive Schools

In the 1980s, the education system in China was not flexible enough to provide students with opportunities to switch streams after entering general upper secondary school or vocational secondary school. To give students more time to choose an education pathway, comprehensive schools were established.

In Hunan province, some general upper secondary students, who are unable to pass the university entrance examination, continue with vocational education. In that way, these students can obtain a vocational school certificate after studying one to two years. In one city in Jiangsu province, some rural general upper secondary schools were transformed into comprehensive schools where students can follow one of two streams: general or vocational.

Since 1999, vocational schools are facing challenges to enroll students because more students choose general upper secondary schools. Therefore, many provinces have started establishing comprehensive schools.

The Government plays an active role in the development of comprehensive schools. The provincial governments in Shanghai and Jiangsu, for instance, carried out adjustments through unified deployment and management, strengthening of school guidance, and policy support. Not only vocational secondary schools but also general upper secondary schools now offer general classes. Comprehensive schools generally last 3 or 4 years and offer the following courses: (a) general culture and vocational courses simultaneously, or (b) general culture courses in the first and second year, and general culture or vocational courses in third year.

Source: Lin, Y. Central Institute of Vocational and Technical Education (CIVTE), China

2) Joint delivery of general and vocational education: In the Republic of Korea, China and Thailand both general and vocational education are provided in one single type of school (comprehensive schools in Republic of Korea and China, or through the independent

4 Officially, education through professional colleges (PCs) in Republic of Uzbekistan is classified as TVET. Therefore, it may appear misleading to consider the case of Uzbekistan as an example of the mixed curriculum approach, since it is taught in the general stream. However, students attending the academic lyceums (AL) in Uzbekistan account for only 10% of all students, 90% of whom are enrolled in PCs. This suggests that PCs are preparing the majority of adolescents in each cohort, except for those academically gifted, for further education, rather than for transition to the labor market. Thus, it implies that PCs include an aspect of general education despite their official classification as TVET institutions.

model in Thailand). In these cases, general students attend a special vocational education programme (outside of their school) but retain general student status. Students are streamed into the course at the beginning of upper secondary education, or one to two years later, according to their preferences and/or the results of their general exams. The joint approach uses curricula developed for the separate vocational stream, and grants vocational certificates to students (in Thailand, to those students registered at TVET institutions) who successfully complete vocational courses. TVET teachers in these schools earn approximately the same as other teachers, while school facilities and equipment are comparable with those of other schools.

Box 6: Dual Vocational Education in Thailand: Panyapiwat Techno-Business School Mode

Presently, every TVET institution in Thailand is expected to collaborate with related industries to provide dual vocational education. However, not all TVET institutions are able to offer collaborative TVET because of a lack in industry and business participation. An example of a successful implementation of the dual system has been the Panyapiwat Techno-Business School, a private vocational secondary institution run by the CP All Company, which owns 7-Eleven convenience stores in Thailand. At this school, three-year secondary vocational education is offered to those who have completed grade 9 and are willing to work while they study. All students have to complete work placements at 7-Eleven convenience stores, every other semester, and spend the other 50% of their time in school. Most students come from poor backgrounds. Therefore, it would be impossible for them to finish school without working while simultaneously studying. Graduates from the Panyapiwat Techno-Business School are guaranteed employment with the company but they can also choose to further their education at post-secondary level or work in other companies. Since the 7-Eleven chain has been rapidly expanding, an extension system for vocational secondary education via distance learning has been established. There are 22 extension services in the provinces, including a number of learning centers and network schools. Through the extension services and network schools, students receive the same standard of teaching and practical experiences as through work-based learning.

Source: UNESCO field visit to Panyapiwat, December 2012

Achievements and Challenges of Vocationalisation Models

The two aforementioned models have their own advantages and shortcomings. The most important advantage of the mixed curriculum model might be that it offers the opportunity to explore future career paths to more students than the joint delivery model. Even if those students attending vocational subjects do not enter the labour market immediately after secondary school, they are given opportunities to learn basic vocational skills and get an understanding of their potential future careers. Such an approach could be beneficial for youth in planning their careers and entering the labour market afterwards.

A successful example of this model has been implemented in Republic of Uzbekistan. Uzbekistan carried out a profound educational reform aimed at reinforcing vocational education through the introduction of professional colleges (PC), in tandem with the extension of compulsory education up to the upper secondary level. Vocational education offered at PCs may be applauded as an appropriate measure for increasing the number of secondary students (the percentage of students enrolled in general secondary education, who chose to follow the vocational track, increased from 32% in 1990 to 99% in 2011) who benefit from vocational skills.

Box 7: The Case of Uzbekistan: Academic Lyceums and Professional Colleges

The objective of secondary education specialized in TVET is, not only intensive intellectual development and in-depth study of general subjects, but also preparation of graduates to join the labour market and providing them with professional skills. The diversification of secondary education programmes begins in grade 10 via academic lyceums (general education stream) and professional colleges (TVET stream) as noted below.

Academic lyceums provide general education in compliance with the national education standards. Lyceums are focused on intensive intellectual development, a deep specialized and professionally-oriented education, taking into consideration pupils' interests and abilities. Pupils can choose the direction of studies (humanities, sciences, agriculture and others). Academic lyceums are usually established under higher education establishments in order to involve qualified university teachers, and in some cases use university laboratories, equipment and libraries.

To provide in-depth, specialized education, academic lyceums can involve relevant research institutions, which can act as patrons of an academic lyceum based on an agreement with the Ministry of Higher and Secondary Specialized Education.

Professional colleges are the second type of secondary specialized professional education establishments, which along with general subjects provide professional skills and knowledge for a chosen profession. In compliance with the national education standards, the colleges provide secondary specialized professional education with in-depth development of professional skills—training students in one or several trades of a chosen profession.

Local authorities, industry and other stakeholders can function as trustees to provide support to these professional colleges and some can also have higher education establishments as their patrons.

Implementation of these professional and educational curricula at professional colleges takes place at both the college and in industries, on the basis of the national education standards. The education and curricula of academic lyceums and professional colleges is provided on a 3-year basis. At the end of each year of studies students are tested through exams in order to assess their level of knowledge and skills.

Upon completion, students of secondary specialized professional educational establishments are awarded a diploma of secondary specialized professional education with the following information:

(a) academic lyceums: profile of studies including academic specialization;

(b) professional colleges: relevant professional information.

Since the general curricula of lyceums and colleges are equivalent, all graduates have equal rights to continue their education in higher education institutions or to join the labour market according to their acquired skills and profession.

Source: Umida Islamova, Center for Economic Research (CER), Republic of Uzbekistan

However, a problem with the mixed-curriculum model is, as shown in the case of Malaysia before the educational reform, the limited amount of hours assigned to vocational education. As a result, even after finishing TVET-specialized secondary education, many students are not prepared enough for entering the labour market or continuing with related training at higher level.[5] The same is confirmed by Bishop (2005) and Lauglo (2005) and explained in Part 2.4 (on the ineffectiveness of introductory courses, or the 'thinly-spread' approach in some African countries).

On the other hand, it is difficult to allocate more time to vocational education in order to address the problem of unqualified graduates. This is mainly due to the fact that an increase in the number of hours for vocational subjects would automatically decrease the hours dedicated to general subjects, which may eventually result in a decreased student flexibility and adaptability required in a knowledge-based society. Therefore, there exists a serious challenge in how to divide class hours between general and vocational (or elective) subjects in order to prepare students for the future, rather than only the immediate demand of the labour market.

Also, while the mixed curriculum-model approach is said to allow students to choose elective vocational subjects according to their desire or aptitude, in reality, the scope of available vocational subjects tends to be narrow due to the limited supply capacity of many schools.[6] This means that, contrary to what is believed, students may be limited in their choice and thus may not have much interest in studying the

5 Malaysia has recently set an ambitious target of increasing TVET enrolment from 5% to 40%, while ruling out elective vocational education at the upper secondary level. The underlying reason for such a policy could be the aim to provide more intensive vocational education and to overcome the limitation of elective vocational education.

6 In Botswana, where pre-vocational secondary education has been implemented through 10 practical subjects included in the syllabus at upper secondary school, Weeks (2005) describes that the ability of students to take any practical subjects is constrained by the number of schools that offer the subjects. For example, the home management course requires a demonstration flat (a house for practical lesson on techniques and skills of home management). In 1992, however, out of seven schools where students (only females) took home management not all had proper demonstration flats. In 2002, it was the intention of the Ministry of Education that all 27 senior schools would offer home management, but incomplete facilities and a shortage of teachers was undermining this objective. Such limitations are often preventing students from following vocational courses according to their preferences, which is encountered more often in countries with limited capacity of delivery. (Weeks, S., 2005 "Pre-vocational secondary education in Botswana", in Laglo, J., and Maclean, R.,2005).

limited subjects on offer. In such a case, the policy goal of the mixed curriculum model may not be properly achieved due to the limited motivation of students.

Secondly, the advantage of the joint delivery model is that it provides more professionalised vocational education, than the mixed curriculum model, to students who choose vocational education. As demonstrated through comprehensive schools in the Republic of Korea, the joint model has been particularly effective for students seeking vocational education in rural areas, where it is more difficult to establish and operate separate vocational education institutions. This model has been similarly successful in the Area Vocational Centre (AVC) or Agricultural Colleges in Thailand. Along with the provision of vocational education through comprehensive schools, several cooperative models, between general schools and vocational schools, have been implemented in China and Thailand. This is to offer opportunities to those students who are enrolled in general schools but show preference for vocational education.

However, it seems difficult to find qualified TVET teachers and equip comprehensive schools in remote areas with necessary facilities and equipment. Additionally, in cases where the majority of students and parents favour general over vocational education, the enrolment in vocational courses in comprehensive schools remains low. This may, in turn, aggravate the underinvestment in these vocational courses due to the difficulty of securing an appropriate level of funding for courses only sparsely attended.

Another challenge might be the stigmatisation of vocational students in comprehensive schools. It might occur if the selection criteria for vocational courses is based on academic ability measured at the end of lower secondary or during upper secondary school. In that case, vocational courses would continue to be considered as inferior to general courses or perceived as education for 'failed students'.

Finally, even though the comprehensive approach may be more effective than the mixed one in providing vocational education, there might also be a timing problem. If streaming into vocational courses takes place in the second or third year of upper secondary education, students will not have enough time to learn specialized skills and may face difficulty in finding employment, even after completing a vocational course.

Section 4:

Key Issues of Vocationalisation Policy

Many developing countries are facing common challenges in securing competent teachers, facilities, equipment and materials in the process of expanding vocational education provision.[7] Such common challenges cannot be overcome in a short period of time, as they are mainly related to the overall financial constraints of these countries. It should be noted that several suggestions have already been put forward regarding the ways of overcoming these difficulties. Therefore, instead of reiterating those suggestions, this report concentrates on selected key issues which seem more or less directly related to vocationalisation. These issues can be regarded as generic considering that each vocationalisation approach has its own advantages and shortcomings, and that such features may be exaggerated or diminished according to specific conditions of a country. Thus, rather than suggesting a certain approach as a common policy option, the following are general policy suggestions which need to be taken into account when considering the vocationalisation of secondary education.

Vocationalisation Linked to the Reform of the Overall Education System

In order to be delivered coherently, the planning and implementation of a vocationalisation policy should be closely linked to the overall reform of the whole education system. This suggestion seems more pertinent for the mixed curriculum model, since it requires an overall reform of the secondary education curriculum and the implementation in a wide range of schools. Also, close attention should be paid to restructuring the connection between secondary and higher education. That is, if vocational subjects are included as elective subjects, they need to be considered of same value as other electives when secondary graduates

7 Wilson (2005) summarised the common challenges of secondary level vocational education as follows: "The reasons for the failure of vocational secondary education in LIDCs appear to have more to do with parental and student attitudes, failure of governments to provide adequate financial and material resources, laxity in curriculum modernisation, not keeping curricular relevant to the needs of business and industry, the decline of professional vocational teacher training, deferral of facility and equipment maintenance, the decline of effective school inspection and failure to provide trained professional vocational subject inspectors. Changes in multi-lateral and bi-lateral donor policies have also significantly affected the vocationalisation of secondary education in LIDCs." Almost all developing countries in the region seem to have these points in common.

apply for higher education. Additionally, some institutional changes promoting cooperation between vocational and general schools need to be implemented, if the model of cooperative delivery of vocational education is to succeed.

Clarifying the Goal of Vocationalisation Policy

Considering the sizable investment related to vocational education, the goal of vocationalisation should be clearly defined from the very beginning, i.e. whether the focus should be on vocational education as a way of allowing for smoother transitions to the labour market, or rather on pre-vocational education as a way of increasing job awareness. If this point is defined, all other related policies can be arranged accordingly. For instance, if the goal is direct entry into the labour market, more intensive vocational education should be provided to a relatively small number of students, after a thorough analysis of labour market needs. If the goal is raising job awareness through pre-vocational education, then less importance may be given to vocational education focused on specific professions. Instead greater emphasis should be placed on the 'thinly-spread' approach, whereby a relatively large number of students are given access to vocational education at secondary level.

Enhanced Role of Local Education Authorities

As already mentioned, if entry into the labour market is the most important goal, TVET has to be based on a thorough analysis of real needs of the local labour market. In this case, the role of local education authorities should be carefully considered, since they need to have a strategic role in designing and running actual vocationalised programmes. Often local authorities have a deeper insight into the local labour market and better relation to local employers, than the central government. In that case, local authorities should have an active role in assessing the local labour market situation, setting up vocational education programmes for every school and, if necessary, taking the lead in running the actual vocationalised education programmes. Of course, some local authorities who lack such information and/or connections may require systematic support from the central government to enhance their capacity of dealing with local needs for vocationalised education.

Enhanced Career Guidance and Counseling Services for Students

If the purpose of vocationalisation policies is to expand vocational education, it is important to provide proper career counselling and advisory services to students, in parallel to expanding various vocational education programmes. Such services should be offered at the beginning of upper secondary level, i.e. at least in the last year of lower secondary education, in order to facilitate informed decision making of students in transition from lower to upper secondary school. Also, in the first or second year of upper secondary school, these services need to be provided to help students choose an appropriate stream according to their abilities and desires. This approach would confirm that vocational education is not solely aimed at academically challenged students. In addition, such enhanced counselling services can contribute to improving, not only the effectiveness of vocational education, but also the relevance of the whole education system.

Active Use of Links between General Schools and TVET Institutions

Since vocational education requires a lot of investment, many developing countries cannot afford to increase TVET funding according to the demand from the labour market. The same applies to vocationalisation. Therefore, to extend vocational education to students in general education, active cooperation between general schools and TVET institutions needs to be promoted. To this end, close dialogue between government departments or ministries responsible for each stream in particular is required. This includes discussions on ways of sharing teachers, programmes and facilities, as well as the institutional arrangements for awarding relevant certificates to those students who successfully complete vocationalised programmes. Such extended networking may also contribute to expanding the provision of general education to vocational stream/school students.

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Expanding TVET at the Secondary Education Level

This booklet was prepared in the framework of a regional thematic study conducted by UNESCO Bangkok in collaboration with UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training.

The booklet focuses on expanding technical and vocational education and training (TVET) at the secondary education level as a way of addressing skills mismatches and increasing employability of young people in Asia-Pacific. It is based on five country cases (China, Malaysia, Republic of Korea, Thailand and Uzbekistan) that present different approaches to vocationalisation of secondary education. It introduces vocationalisation concepts and gives general policy recommendations that need to be considered before expanding TVET at secondary level.

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