

Vocational Education

SECONDARY

International Experience



V **SECONDARY** **Vocational Education**

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Final Report | April 2015



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List of Abbreviations

BIBB	Bundesinstitut für Berufsbildung (Federal Institute for Vocational Education and Training)
BIS	Business, Innovation and Skills
BMBF	Bundesministerium für Bildung und Forschung (Federal Ministry of Education and Research)
BMWi	Bundesminister für Wirtschaft und Energie (Federal Ministry of Economics and Technology)
BTEC	Business and Technology Education Council
CEDEFOP	European Centre for the Development of Vocational Training
CPD	Continuing Professional Development
CTVET	Council for Technical and Vocational Education
DfE	Department of Education
DQR	Deutscher Qualifikationsrahmen (German National Qualifications Framework for Lifelong Learning)
ECVET	European Credit System for Vocational Education and Training
EFA	Education Funding Agency
EQF	European Qualifications Framework
EU	European Union
FE	Further Education
FUNDEB	Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação (Fund for Basic Education Development and for Enhancing the Value of the Teaching Profession)
FUNDEF	Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério (Fund for Primary Education Development and for Enhancing the Value of the Teaching Profession)
GoI	Government of India
GCSE	General Certificate of Secondary Education
GNP	Gross National Product
GDP	Gross Domestic Product
GTCS	General Teaching Council for Scotland
HE	Higher Education
IADB	Inter-American Development Bank
ICT	Information and communications technology
IT	Information Technology
ITeS	Information Technology Enabled Services
ITI	Industrial Training Institute
ITVET	Institutes for Technical and Vocational Education and Training
KMK	Kultusministerkonferenz (conference of ministers of education)
KV	Kolej Vokasional (vocational college)
LA	Local Authority
LDB	Lei de Diretrizes e Bases Educação Nacional (National Education Guidelines and Framework Law)

LSC	Learning and Skills Council
MoE	Ministry of Education
MoU	Memorandum of Understanding
MEC	Ministério da Educação (Ministry of Education)
MIS	Management Information Systems
MOHRSS	Ministry of Human Resources and Social Security
MNE	Ministry of National Education
MQA	Malaysian Qualifications Agency
NCCT	National Center for School Curriculum and Textbook Development
NKEA	National Key Economic Areas
NQF	National Qualifications Framework
NSQF	National Skill Qualification Framework
NVEQF	National Vocational Education Qualifications Framework
Ofqual	Office of the Qualifications and Examinations Regulator
QAA	Quality Assurance Agency
OECD	Organisation for Economic Co-operation and Development
QCF	Qualifications and Credit Framework
Rs	Rupees
RM	Malaysian Ringgit
RMSA	Rashtriya Madhyamik Shiksha Abhiyan
SCQF	Scottish Credit and Qualifications Framework
SEPTec	Secretaria de Educação Profissional e Tecnológica (Secretariat of Technical and Vocational Education)
SKM	Sijil Kemahiran Malaysia (Malaysian Skills Certificate)
SMV	Sree Moola Vilasom (vocational upper secondary schools)
SPMV	Sijil Pelajaran Malaysia Vokasional (Malaysian Vocational Certificate)
SSC	Sector Skills Council
SQA	Scottish Qualifications Authority
SQC	Scottish Qualifications Certificate
ToR	Terms of Reference
TVET	Technical & Vocational Education & Training
US	United States
UT	Union Territory
UTC	University Technical College
UTHM	Universiti Tun Hussein Onn Malaysia
UK	United Kingdom
UKCES	UK Commission for Employment and Skills
VCE	Vocational Certificate of Education
VET	Vocational Education and Training



Executive Summary

The extension of RMSA (Rashtriya Madhyamik Shiksha Abhiyan) in 2013 to include the centrally-sponsored scheme 'Vocationalisation of Secondary Education' ensures that this major reform of education will address the weaknesses in secondary vocational education which were identified through a number of evaluation studies. These weaknesses ranged across issues related to the integration of vocational education and general education, the introduction of vocational education in lower secondary schools, teacher training and the convergence of the secondary and tertiary infrastructure. As a result, 4 revised objectives have been created, against which the analysis of this paper has been conducted in Section 4, leading to the Key Questions in Section 5.

Prior to that, in Section 3, this paper considers the current state and progress of reforms in 7 administrations with contrasting histories and traditions of education: 4 in Europe, 2 in Asia and 1 in South America. In each country, policy-makers and practitioners strive to create a vocational education system which delivers young people with the knowledge and skills required for entry into tertiary education or the labour force. In its approach to vocational education each administration is responding to the main objective it is trying to achieve, whether it be to provide training which will create a smoother transition to the workplace, or to provide pre-vocational education as a way of increasing job awareness. The goals of economic and

social development vary in emphasis in each of the 7 administrations and are reflected in the extent to which the system is student-centred and students retain some element of choice in their studies and their pathway. In the European countries reforms are influenced by the common labour market and the need for qualifications to be referenced against the European Qualifications Framework (EQF).

In **England**, although there is a trend towards increasingly distinct vocational and academic routes in secondary schools, the majority of pupils still complete their secondary education in institutions which accommodate both academic and vocational options and at which students choose the combination of subjects they will pursue. Vocational qualifications are contained within the National Qualifications Framework and are composed of credits which students can accumulate over time. It is the intention that the Framework will in time also accommodate academic qualifications.

Vocational education is introduced in lower secondary school at the end of which students may sit for an 'Applied GCSE'. The number, quality and currency of these has been criticised and reforms are underway for their improvement. Post-16, students have a choice of institution and programme which includes the option of an apprenticeship. Concerns about the 'crowding out' of vocational subjects persist, which is attributed to vocational education links being stronger with schools

than with the labour market. There is also criticism that the continuity of vocational subjects between lower and senior secondary schooling, is weak.

In **Germany** also, students are introduced to the world of work in lower secondary but initial vocational education does not really become available until age 16, at which time students must choose whether to continue their academic education or transfer to a vocational school. Vocational schools continue to offer general education subjects alongside vocational ones and include practical training. It is also at age 16 when students may choose to begin an apprenticeship, which includes part-time schooling. This does not prevent them from progressing to tertiary education in the future. Germany's apprenticeship system (the 'dual system') is under pressure to provide enough places to meet the demand, largely it seems because of the demise of the manufacturing industry and the rise of the service sector, which has not embraced the dual system tradition to the same extent.

The German National Qualifications Framework (DQR) is being developed and will extend to non-formal and informal learning. Students are expected to be supported in their pathway through the framework by careers guidance services but these have found to be variable in quality, being the responsibility of the Länder.

Poland has experienced a significant increase in interest in vocational education in recent years and is working on developing a national qualifications framework. As in Germany, students have a choice at age 16 of whether to continue in general upper secondary school or transfer to technical school or vocational school. The curricula in the latter two options include a significant proportion of vocational subjects and practical training. Students may alternatively, at this point, choose to begin an apprenticeship.

The Polish Government is working towards allowing more flexibility in integrating general and vocational subjects, adopting an outcome-based approach to the curriculum, engaging employers more in curriculum development and assessment and attracting highly-qualified specialists to work in vocational schools. These reforms may, at least in part, address concerns over rising drop-out rates of students on 4-year technical secondary school programmes, caused it is believed by

weak links with the labour market and the unnecessarily lengthy duration.

A major reform of the school education system has recently been completed in **Scotland**, where breadth of education is favoured over specialisation. Students may attend the same comprehensive secondary school from age 12 to 18, choosing from a range of academic and vocational subjects. There is a strong lobby against any form of vocational/academic streaming. Students also have the option, at age 16, of leaving school and transferring either to an FE college, where both vocational and academic programmes are offered, or into an apprenticeship. All qualifications are contained within the Scottish Credit and Qualifications Framework (SCQF) which is one of the longest-established and is therefore less influenced than others in its design by the introduction of the EQF.

The Scottish system puts a heavy emphasis on supporting students through the transition from pre-16 to post-16 education and local authorities are being encouraged to develop more comprehensive standards for careers guidance, with the involvement of employers. Standards and guidelines to ensure quality of work placements are also proposed.

In **China**, streaming for vocational studies may start as young as 12 years old in the small number of vocational junior secondary schools which remain and continue through various types of secondary vocational schools. The insurmountable obstacle which this creates for these students to progress to tertiary education is now being addressed through the reform of national college entrance examinations. This may help to counteract the strong preference which Chinese students have been displaying since the late 1990s for general rather than vocational schooling. General education does continue to a limited extent within vocational schools.

There is no national qualification framework and responsibility for education lies largely with the Provincial and District governments. However the national government, in its attempts to attract more students into vocational education, has introduced subsidies and in the case of agricultural programmes has waived fees completely. The Chinese public have a particularly negative perception of vocational education,



which is caused or exacerbated by out-of-date curricula, poor teaching, and irrelevant and unregulated work placements. This perception is a major impediment to the increase in numbers of vocational students which the Government wishes to achieve.

Malaysia is undergoing a comprehensive review of its education system. Like China, it is a country in which vocational/academic streaming begins in lower secondary school and continues through to senior secondary school, where students may spend as much as 2 days per week working in industry. Malaysia's qualifications framework focuses mainly on post-secondary education, although some of its skills certificates are available to school students.

The reforms, which it is hoped will lead to significant increases in enrolments for vocational education, bring additional challenges related to the number and quality of vocational teachers and the availability of sufficient work placements to fulfil the requirements of the new training programmes. A distinct characteristic of Malaysia is its plan to put in place 'offtake' agreements with private providers to increase the capacity of vocational education beyond that which the state can provide. Several initiatives have also been introduced to encourage employers to participate in vocational education. These have included reimbursement of training-related expenditure and agreements in the form of MoUs.

Vocational education in **Brazil** begins for some at the age of 14 when students have the choice between the vocational and academic streams. Brazil's vocational education provision is heavily dominated by private institutions, which account for more than 50% of enrolments. There are no plans to introduce a national qualifications framework. The content of vocational secondary school programmes is closely regulated with designated numbers of hours for the vocational/general content and for practical training. In an effort to increase the number of students enrolled for vocational education, the government is taking steps to modernise and expand the technical programmes, including making it a requirement for all teachers to have a university qualification.

The academic content of vocational education is seen as a hindrance in Brazil by those who consider that

it is severely restricting the time available to teach vocational subjects. The vocational education curriculum is also criticised for being irrelevant as a preparation to enter the labour market. With only 9% of high school students taking regular technical courses and the majority aspiring to enter university, the government still has some way to go before its targets for vocational education enrolments will be achieved. Amongst the countries studied, Brazil was the only one promoting distance learning technical education at secondary level.

The studies of the 7 administrations highlighted issues directly relevant to the 4 objectives of the Government of India's (GoI) Vocationalising of Secondary and Higher Secondary programme. The most striking of these were the diverging policies on streaming, the stage at which vocational education was introduced into the school curriculum, the extent to which general education was continued in the vocational education curriculum, the level of personal choice available to students, the management and content of work placements, articulation with post-school vocational education, access to higher education through a vocational pathway, careers guidance for students at transition points and the role of private institutions to supplement state provision.

Finally, the report ends by posing 9 questions for the Government of India to consider when planning the introduction of vocational education to secondary schools:

- ▶ What is the place of school-based vocational education within India's National Skills Qualification Framework?
- ▶ How much choice should be left to school students to decide on the balance of general and vocational education in their learning programme?
- ▶ What proportion of the vocational education curriculum should be devoted to general education?
- ▶ How can sufficient numbers of teachers of good quality be found to teach growing number of vocational students?
- ▶ How beneficial is objective careers guidance for school pupils?

- ▶ What is the role or purpose of work experience for school pupils?
- ▶ What contribution to vocational education can be expected from employers if the labour market is largely informal with a small manufacturing sector?
- ▶ What form should assessment take, how would it be carried out and is there a relationship between it and general education?
- ▶ How can responsibility for vocational secondary education be allocated within a federal system of government?



CHAPTER 1 Introduction

According to UNESCO,¹ roughly 120 countries provide some form of technical or vocational secondary education, as distinct from a purely generalist curriculum. In 2010 11% of the world's secondary school students attended such institutions – a figure that has remained static over a decade. However, in south and west Asia the figure is 2%.

The importance of vocational education in schools has long been recognised as a bridge between education and employment and for providing a better match for the aptitudes and interests of some pupils.² Studies have shown that vocational education increases school engagement and reduces the risk of pupils leaving the education system with no qualifications.³ Vocational education may also be cost-effective if it is relevant to the labour market and thereby avoids the need for policy interventions further down the line which may be more expensive once individuals have left compulsory schooling.⁴

Given the above, it is logical that any major reform of secondary school provision should give serious consideration to vocational education and its place in the curriculum. What that place is, and how it will be configured, depends on broader government policy

on the timing and the extent of choice it wishes to grant to students, the level of influence of employers on the curriculum and the degree of articulation which is sought with post-secondary education and training. It will also depend on the need for compatibility with the broader educational infrastructure and prevailing economic conditions and societal aspirations. That being the case, issues such as the existence of a qualifications framework, share of educational financing, levels of youth unemployment and the demand for skilled workers, all require consideration.

Introducing vocational education into the school curriculum is a major investment and its purpose needs to be clear from the outset: is the focus to be on allowing a smoother transition to the workplace or is it to be on pre-vocational education as a way of increasing job awareness? If that question is answered then all other related policies can be arranged accordingly.⁵ “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

1 Pearson, 2014

2 OECD, 2010b

3 Steedman et al, 2004

4 Cook, 2013

5 UNESCO, 2013a

vocational education at secondary level.” In the countries studied in this report, those which stream students are more focused on the first of these goals i.e. preparation for direct entry into the labour market immediately after graduation; while those countries which do not stream regard it as awareness-raising, aiding career choice and preparing students for intensified vocational education at a later stage. Decisions on curriculum design, teacher profile, employer engagement etc. are then all made according to which of these goals is compatible with government policy.

If the main goal is successful school-to-work transition, then both the labour market situation and the level of skill required through vocational education need to be taken into account. ‘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.’⁶

If, on the other hand, pre-vocational education is the goal, then close attention needs to be paid to restructuring the connection between secondary and higher education – if vocational subjects are included as electives, then they need to be acceptable for entry into advanced technical or higher education. This can mean including higher education institutions in the design of secondary school vocational curricula.

Introducing vocational education is not without its challenges and these are particularly pertinent where secondary schools are preparing students for direct entry into the labour market. Vocational education requires far greater investment than general education due to the necessity of specialised facilities, equipment and materials for practical training. This can make it unviable in rural areas where the density of the population is insufficient to support a specialised vocational school.⁷

Regardless of which of the two goals predominates in a country, the value of work experience is very high. In a survey conducted on behalf of City & Guilds in September/October 2013,⁸ responses from over 1,000 employers across a diverse range of industry sectors, found that

78% of them considered relevant work experience to be essential to ensuring young people are ready for work. More than two-thirds said that they would be more likely to hire a young person with work experience and more than half had made work experience central to their recruitment strategy – often giving a full-time job to someone they have taken on for work experience. Almost 60% believed that the ‘right work attitude’ comes from work experience.

A further key component to vocational education is the acquisition of cognitive skills and attributes such as team working, emotional maturity, empathy and other interpersonal skills. In a report⁹ prepared by an independent Advisory Group of senior figures from higher education and industry to identify the skills and knowledge required by 18-year olds to support successful transition to the next stage in their lives and address the ‘skills gap’ identified by the Confederation of British Industry, these cognitive skills were considered to be ‘as important as proficiency in English and Mathematics in ensuring young people’s employment prospects’.

However, the low levels of numeracy and literacy possessed by many students in India will be an obstacle to them benefitting from vocational education. To address this, having a vocational subject specialist who is also a specialist in literacy and numeracy is the ideal but rarely possible. Some argue for these skills to be ‘embedded’ in authentic contexts and therefore taught by vocational teachers. Others suggest they are better learned from specialists.¹⁰

In a study on basic skills improvements for adults,¹¹ embedding was associated with higher retention and success rates, both on vocational courses and in higher levels of attainment of basic skills qualifications. Embedding also encouraged learners to value basic skills and increased motivation. It was found to be particularly valuable for learners with previous negative experiences of education because it helped to differentiate the learning experience from mathematics and English lessons in school. Embedding was also seen to normalise basic skills learning and avoid any stigma associated with more targeted approaches. These findings mirror those

6 UNESCO, 2013a

7 Ibid

8 City & Guilds, 2013

9 Pearson, 2014

10 Lucas et al, 2012

11 NIACE, 2008

WHAT IS EMBEDDED LEARNING?

Embedded learning combines the development of basic skills with vocational or other skills, by integrating basic skills within another learning programme. This is achieved by teaching those specific elements of literacy and numeracy that directly support the development of vocational skills at the most appropriate time to deliver the maximum benefit. Embedded programmes have dual learning goals: in both basic skills and in the 'host subject'. Embedding should be distinguished from contextualised approaches. The latter uses the context directly relevant to the interests and needs of learners as vehicles to teach literacy, language and numeracy..... the primary learning in contextualised learning is improving basic skills. Embedded provision should not be seen as basic skills learning 'by stealth'.

Source: National Institute for Adult Continuing Education.

of an Irish study which concluded that the integration of literacy into FET courses can improve outcomes for learners provided there is a whole provider approach to the literacy integration process and teachers are upskilled appropriately.¹²

Studies on the relative cost of providing secondary vocational education and general education are scarce, can be contradictory and often focus on Africa.¹³ In one of the few studies¹⁴ which provides unit costs, the conclusion is that 'compared to general or academic education, the costs of VET are substantial, in particular for those occupations that require heavy equipment and sophisticated infrastructure. In Germany, the dual VET system overall costs €10,800 per year per person (excluding apprentices' salaries), much more than the €4,500 per student in tertiary VET (*Fachhochschulen*) and the €5,500 in tertiary academic education.'

The above supports the findings in an earlier study¹⁵ in which secondary vocational/technical education was found to be more costly than secondary academic education although both were considered to have comparable economic benefits. Furthermore, it reported that pre-employment vocational training was more expensive than in-service training. This study goes on to report that the limited evidence on cost functions in some countries suggests that, at the margin, the average cost of vocational and technical education will decline as it is expanded, although it raises doubts about the economic rationale for the vocationalisation of secondary education. It points to several major determinants of the cost of vocational training, which make international

comparisons difficult to conduct. These determinants are:

- ▶ the technology of training, including class size and the method of instruction (the use of labour or capital techniques);
- ▶ teacher costs and their determinants (such as salary schedule and labour market conditions);
- ▶ the length of the training programme;
- ▶ the extent of wastage or drop-out;
- ▶ the extent of underutilisation of training inputs;
- ▶ the scale of operation.

Rather than considering unit costs, perhaps because of the difficulty of comparison across countries in which the above determinants are very different, some studies choose to consider the relative rates of return on vocational and general education. It has been found¹⁶ that workers who have undergone vocational education have higher earnings at the beginning of their career than those who have gone through general education. With increasing work experience however, the generally-educated catch up in terms of productivity and earnings due to informal and formal on-the-job training. The report hypothesises that this may be due to general education's greater emphasis on general knowledge and problem-solving skills, which could lead to higher learning abilities throughout working life.

The specificity of a country's financial costs and returns depends heavily on its institutional structure of schooling and work-based training, as concluded from an analysis of microdata for 18 countries from the International

12 NALA-IVEA, 2009

13 Walther, 2012

14 Hoeckel, 2008

15 Tsang, 1999

16 Cörvers et al, 2011

Adult Literacy Survey (IALS).¹⁷ While the declining age-employment pattern for those with vocational education relative to those with general education was found in all vocational education countries (i.e. those countries whose vocational share is at least 40% in IALS data), it was found to be most acute in the three countries in the survey's sample whose share in combined school and work-based programmes (e.g. apprenticeships) exceeded 40% – Germany, Switzerland and Denmark. The report highlights the fact that while 'vocational education

has been promoted largely as a way of improving the transition from schooling to work, it also appears to have an impact on the adaptability of workers to technological and structural change in the economy. As a result, the advantages of vocational training in smoothing entry into the labour market have to be set against the disadvantages later in life.' Elsewhere¹⁸ it is confirmed these same countries do have systems which assist with the successful integration of young people into the labour market.

17 Hanushek et al, 2011

18 Gangl, 2003



CHAPTER 2 Background

Rashtriya Madhyamik Shiksha Abhiyan (RMSA) was launched by the Government of India (GoI) in March 2009 and implementation began in academic year 2009/10. Its objective is to enhance access to secondary education and to improve its quality. In addition, it aims to make all secondary schools conform to prescribed norms, remove gender, socio-economic and disability barriers, provide universal access to secondary level education by 2017 and achieve universal retention by 2020.¹⁹

With effect from April 2013, the Government of India (GoI) revised some aspects of RMSA. These revisions widened the scope of RMSA to subsume other centrally-sponsored schemes of education, including 'Vocationalisation of Secondary Education' which had been launched in 1988. Up until 2012, 10,000 schools participated in that scheme with an intake capacity of about 1 million students. However, various evaluation studies across a number of States/UTs (Union Territories) identified a range of obstacles to its successful implementation. These included: a lack or absence of regular teachers and their training/re-training; insufficient financial allocation; high financial implications on the part of the States; inflexible duration and delivery of courses which at times were not need-based; no change in recruitment rules; poor links with industry; poor vertical mobility; an absence of separate management structures; an absence

of a long-term commitment from Central Government; and inadequate monitoring.²⁰

As a result, and in light of India's critical need for skilled manpower, the scheme was revised in September 2011 and then revised again in February 2014²¹ to allow it firstly to continue for the remainder of the 11th Five-year Plan and, secondly, to proceed into the 12th Five-year Plan. Besides introducing vocational education into schools, the revised scheme was tasked with capacity building of vocational education teachers/skill trainers; development of competency-based curricula and teaching materials; development of MIS for monitoring and tracking students; and funding of innovative practices.

The specific objectives of the scheme, now known as 'Vocationalisation of Secondary and Higher Secondary Education', are therefore (i) to enhance the employability of youth through demand-driven, competency-based modular vocational courses; (ii) to maintain their competitiveness through provisions of multi-entry, multi-exit, learning opportunities and vertical mobility/interchangeability in qualifications; (iii) to fill the gap between educated and employable; and (iv) to reduce the dropout rate at the secondary level.

19 Government of India Ministry of Human Resource Development, 2014b

20 Government of India, Ministry of Human Resource Development, 2014c

21 Government of India Press Information Bureau, 2014

The above objectives are expected to be achieved through the various scheme components, which include: introduction of vocational education in government schools from Class IX; capacity building of existing vocational education teachers through in-service training and induction training for new vocational education teachers; development of competency-based modules for each individual vocational course; performance-linked incentives for government-aided schools and for recognised, unaided private schools. The modifications to the scheme have included allocation of funds and the establishment of a shared pattern of funding between central government and state governments, being 75:25 generally but 90:10 in the North Eastern states, including Sikkim.

The total allocation approved by the Planning Commission for the scheme in the 12th Five Year Plan is Rs. 5 billion per annum.²² To date under the revised scheme, 2,035 schools have been approved across 24 States (see B for details) and Rs. 3.2 billion have been allocated, of which approximately half has been utilised.²³ As at February 2014, competency-based curricula and courseware had been developed in 7 trades.

India is in the process of developing and implementing a National Skills Qualification Framework, along the lines of those developed in Europe and elsewhere and with the expectation that it can be referenced against the European Qualifications Framework (EQF) (see Appendix C). The EQF is translation device that links qualifications of different European countries together, thereby acting

as an aid to qualification recognition and labour mobility. Of the administrations which make up this study, 5 have either already developed, or are in the process of developing, a qualifications framework, while the remaining two (China and Brazil) have no plans to do so. Research on the topic²⁴ “suggests that what is key, particularly for developing countries is the need for serious consideration of policy priorities as well as the sequencing of policies. NQFs are not ‘magic bullets’ as instruments of reform. Countries that have been most successful in implementing them have been those which have treated the development of frameworks as complementary to improving institutional capability rather than as a substitute for it or as a way of re-shaping institutions. In other words it seems that NQFs are more likely to be successful if training outcomes and inputs are seen as related to each other, and policy attention is focused on both.”

However, the analysis of frameworks that have been in place for some time suggests that it takes some time after implementation for objectives to be met.²⁵ “Even for the more modest objectives of describing systems and introducing transparency, it is likely to take time before the wider group of stakeholders – not only those directly concerned with their design, such as employers, education and training providers and guidance staff, but also citizens – will be able to use the framework and credit systems to navigate the inherent complexity of qualifications systems. This is likely to take even longer if the frameworks and their policy objectives are ambitious.”

22 Government of India Press Information Bureau, 2014

23 Government of India Ministry of Human Resource Development, 2014b

24 Allais, 2010

25 CEDEFOP, 2010



CHAPTER 3 International Comparisons

As a means of informing the reforms to vocational secondary education now taking place under the umbrella of RMSA, 7 administrations have been chosen across 3 continents. They have been chosen to demonstrate different responses to similar challenges and aspirations. Something which all have in common is that their responses have developed from each administration's existing traditions of vocational education and the reforms are part of that continuum. Therefore, while the GoI may learn from these comparisons, they are not offered as a 'solution' to India's challenges but rather to prompt debate and aid decision-making.

An overview of each administration's secondary vocational education provision is given below under sub-headings suggested by the Terms of Reference (ToR) for this study. The information was gathered through a review of available literature. This varied from administration to administration both in terms of its coverage and of its quality. As a result, the information on each administration is somewhat diverse. This is particularly the case for objective evaluations of administrations' systems. For example, the systems of UK and Germany are generally well-documented and have been subject to critical analysis – often by academics or other independent agencies. On the other hand, the Brazilian system and, to some extent, those of China and Malaysia are less well-documented with in-depth, critical assessment more difficult to source.

ENGLAND

Context

England is the most populous of the 4 administrations which make up the United Kingdom. With 53.9m inhabitants it accounts for 84% of the UK's population and, if it were to be regarded as an individual state, would be in the top 25% of the most populous countries in the world.²⁶

Labour market environment

The rise in unemployment in the UK during the recent economic recession, whilst smaller than expected, was still substantial and hit hardest upon those at the margins, including those with low skills, and young people.²⁷ Youth unemployment, at almost 22%, was four times that for people aged 24-64, although the decline in youth employment predates the recession. The nature of employment has changed however, with a sustained growth in self-employment, accounting for 83% of the net gains in employment since 2007.²⁸ However, there has

26 England Forever, 2014

27 UKCES, 2014

28 Ashworth et al, 2014

also been an increase in 'precarious' forms of employment, including casual, very short-term arrangements or those with 'zero hours' guaranteed.

Evidence through the recession showed that those with higher skills and qualifications are more likely to stay employed and have substantially higher earnings prospects. In some sectors of the economy the UK has succeeded in moving up the value chain, offering high-skilled, high-wage work, where its competitive position is strong, including pharmaceuticals, advanced manufacturing, and digital and creative sectors.²⁹ However, administrative and secretarial employment (traditional middle level jobs) is facing a long-term decline across many industries as certain functions become automated or off-shored, resulting in an increasingly polarised labour market.³⁰

The skills base of the UK (as proxied by qualifications held) has steadily improved: in 2011, of 33 OECD countries, the UK ranked 19th for low skills, 24th for intermediate skills and 11th for high skills. Future projections suggest that in 2020 the UK will rank 22nd for low skills, 28th on intermediate skills and 7th on high skills (UKCES forthcoming). This picture is positive for high skills but suggests that progress on low and intermediate skills is not keeping pace with international competitors. The projected occupational polarisation of the labour market and the relatively low proportion of people with intermediate level skills have implications for the progression of individuals, with a large gap to 'jump' between entry-level and higher skilled roles.³¹

The labour market into which English school leavers are entering is one which is characterised by persistent pockets of skills deficiency, with employers reporting direct and damaging impacts of skills gaps and hard-to-fill vacancies caused by skills shortages. This suggests that the demand and supply of skills is not fully aligned.³² Skills shortage vacancies make up 2.5% of the total volume of jobs in the UK and account for a greater share of hard-to-fill vacancies, having risen from 16% in 2009 to 22% in 2011.³³ The most common types of skills shortages

across all occupations are technical, practical, or job-specific skills – those which can often only be gained in the workplace.

Occupational research has been undertaken to assist young people in making their career choices. Forty jobs in 10 key sectors have been spotlighted which analysis of the UK job market suggests will be crucial over the next decade.³⁴ The jobs identified are largely in keeping with the UK as a knowledge intensive economy. The economic recession has provided further evidence of a shift in the shape of the labour market as globalisation and advances in technology transform markets, businesses and ways of working. This has fuelled growth in high skills jobs and new higher skilled technical roles - prospects are good for those at the top with high level skills, but there is greater competition for those at the bottom and bigger steps are needed to get on and move up. The career ladder is becoming harder to climb.³⁵

This work by UKCES exemplifies the partnerships which it fosters with both employers and educational institutions. UKCES is a publicly-funded, but industry-led, organisation whose commissioners are a social partnership made up of CEOs from large and small businesses, employment advisers and trade union representatives from across the UK. It informs and implements government policy on employment and skills, through undertaking research so that all stakeholders can make evidence-based decisions, providing advice and distributing government funds for specific initiatives.³⁶

Educational Environment

The period of full-time, compulsory education is divided into four key stages; a) key stage 1 for pupils aged 5 to 7 years; b) key stage 2 for pupils aged 7 to 11; c) key stage 3 for those aged 11 to 14; and d) key stage 4 for pupils aged 14 to 16 years.³⁷ Primary education covers stages 1 and 2; lower secondary education covers stages 3 and 4.³⁸ At the end of this period, pupils can take the General Certificate

29 HM Treasury, 2011

30 UKCES, 2014c

31 Ibid

32 Ibid

33 UKCES 2013

34 UKCES, 2014a

35 UKCES, 2014a

36 www.ukces.org.uk

37 Eurydice, 2010b

38 Ibid

of Secondary Education (GCSE) exams³⁹ in their chosen subjects⁴⁰ including Applied (i.e. vocational) GCSEs.

In 2008, the Education and Skills Act 2008 was introduced as a result of which all young people are required to participate in education or training until their 18th birthday through full-time education or training; work-based learning; or part-time education or training.⁴¹ This is in line with a general ethos which considers that the longer young people can be kept in education or training the better and also that the system has the capacity to absorb the additional numbers of 17 and 18-year-olds. It is appropriate for a knowledge economy which aspires to increasing its proportion of highly-skilled workers. The change is being made in two stages; the minimum age at which young people can leave learning was increased to 17 in 2013, and will be increased to 18 from 2015.⁴²

Estimates based on 2010 data⁴³ found that the majority of students in lower secondary school were taking a combination of vocational and academic qualifications, with less than one-third solely taking GCSEs.⁴⁴ Based on this information, it is estimated that the number of pupils taking vocational courses aged 14–16 in English schools in 2009–2010 was between 630,000 to 800,000.⁴⁵ However the system in England is notable for the extent to which the vocational and academic routes are not distinct.

After full-time compulsory education, at the age of 16, students can continue either to the Advanced level of general education or to Further Education (FE).⁴⁶ Further education includes both vocational education and combined forms of general and vocational education.⁴⁷ In addition to academic qualifications (A levels etc.) admission to higher education can be gained on the basis of vocational education qualification such as BTEC Level 3 Diploma or the BTEC Level 3 National Extended Diploma.⁴⁸ As Appendix A shows, it is possible for students to move between the general education track and vocational

education track. Student choice is regarded as important to retain and the availability of both sets of options gives students the opportunity to ‘vocationalise’ their education programme to the extent that each individual wishes.

In 2010 the National Qualifications Framework (NQF) was replaced by the Qualifications and Credit Framework (QCF) (see Appendix E) which breaks down qualifications into smaller units to allow individuals to learn and accumulate credits over time.⁴⁹ The level of difficulty in the QCF is organised from Entry level at the bottom to Level 8 at the top.⁵⁰ Most of the qualifications currently included are vocational⁵¹ but it is expected that general qualifications will be included in the future and that the framework will be the organising structure for all publicly-funded qualifications available in schools and colleges.⁵²

Legislation, Governance and Finance

Legislation

There is no single piece of policy that governs Vocational Education and Training (VET) in England. Instead, VET, including vocational education at secondary level is regulated by a series of laws.⁵³ Key policy changes are discussed in this case study. The table at Appendix D provides a summary of the policy changes related to VET in the past 15 years.

Governance Structure

Responsibility for education policy lies with two departments: the Department of Education (DfE) and the Department of Business, Innovation and Skills (BIS).⁵⁴ While DfE is responsible for planning and monitoring the education service in schools and bringing together policy relating to children and young people, BIS’s responsibility includes science and innovation, skills, further, adult and higher education and enterprise.⁵⁵ In addition, the UK Commission for Employment and Skills (UKCES) expresses

39 Nuffic, 2014

40 Ibid

41 Eurydice, 2010b

42 Ibid

43 Jin et al, 2011

44 Cook, 2013

45 Ibid

46 Nuffic, 2014

47 Ibid

48 Ibid

49 Hoeckel et al, 2009

50 UKCES, 2013

51 CEDEFOP, 2013

52 Eurydice, 2010b

53 Cuddy & Leney, 2005

54 EURYPEDIA, 2014b

55 Ibid

employers' views on VET to policy makers.⁵⁶ It is one of very few bodies involved in VET UK-wide⁵⁷ and is intended to strengthen the voice of employers in reforms which affect the VET system. Sector Skills Councils (SSCs) provide employers with an opportunity to influence the skills system including the development of qualifications and training programmes.⁵⁸ The sustainability of SSCs without government funding is however questionable – a challenge which India will also face.

Funding of vocational education

The Education Funding Agency (EFA) was established in 2012 as an executive agency of the DfE⁵⁹ and is responsible for funding of education and training in schools and colleges for students up to 19 years old.⁶⁰ It passes funding to Local Authorities (LAs) for maintained schools⁶¹ and directly funds academies, free schools, University Technical Colleges and Studio Schools.⁶² LAs supplement the funds received from the EFA, through local taxation.⁶³ In financial year 2012-13, the funding from government to LAs was J28.1 billion and schools generated further income of £1.7 billion.⁶⁴

In England, publicly funded schools enjoy a high level of autonomy and are responsible for their own budgets.⁶⁵ Strategic and financial planning at school level is shared between the school governing body and headteacher, and the day-to-day management of schools is the responsibility of the headteacher.⁶⁶ Such autonomy is only possible in a country with a highly professionalised teaching sector and a system of checks and balances to monitor performance.

Overall, state and individual investment in education and skills (below HE level) is high in the UK relative to competitor countries. However, overall levels of investment by employers in training, while substantial,

has been falling over time with a drop of £2.4b from 2011-13; as has the average duration of training. While this could mean that employers are training 'smarter', the evidence is mixed.

Institutions

Vocational education is available at secondary schools, sixth form colleges (for 16-18 year olds), FE and colleges.⁶⁷ Following reviews of the secondary curriculum, schools are now offering some vocational (applied) and work-related courses to 14 to 16 year olds.⁶⁸ School sixth forms and sixth form colleges traditionally focused on general education. However they are also now offering a narrow range of vocational courses often in partnership with local FE colleges.⁶⁹ FE colleges represent the largest group of vocational education providers for students 16 years and above (and also have a large number of adult learners). Students may attend FE colleges on a full-time or part-time basis and combine the study with an apprenticeship.⁷⁰

In addition, there is an increasing number of University Technical Colleges (UTCs) in England, which combine general education subjects with technical qualifications for 14-19-year olds.⁷¹ These are formed through partnerships between universities, colleges and businesses to match national curriculum requirements to local needs. UTCs are not academically selective, and specialise in subjects where there is a shortage of skills such as engineering, manufacturing, health sciences, product design, digital technologies and the built environment. They include work placements. There are currently 30 UTCs in operation and by 2016 a further 20 are expected to open.⁷²

A new type of vocational education institution called Studio Schools has also recently been introduced. In addition to vocational subjects they offer GCSEs in English, maths and science as well as A-levels.⁷³ Study is combined with work placements with local and national employers who are involved in the school⁷⁴.

56 Hoeckel et al, 2009

57 CEDEFOP, 2013

58 Hoeckel et al, 2009

59 CEDEFOP, 2013

60 EURYPEDIA, 2014b

61 Ibid

62 CEDEFOP, 2013

63 Eurydice, 2013b

64 Department for Education, 2013

65 EURYPEDIA, 2014b

66 Ibid

67 CEDEFOP, 2013

68 Eurydice, 2010b

69 Hoeckel et al, 2009

70 CEDEFOP, 2013

71 Ibid

72 University Technical Colleges, 2014

73 BBC News, 2013

74 Department for Education, 2014

Out of 339 colleges in England, 218 are FE colleges, 93 are sixth form colleges and 28 are other types of colleges.

Students are able to choose institutions and courses of study, although these are shaped by the broader performance assessment of institutions. Schools with high application rates may choose not to accept students with lower grades at GCSE, or may direct them to particular programmes of study. Wolf (2011) points out that how the government oversees and reports on performance can influence students' decisions on which (type of) school to attend.⁷⁵ Cook (2013) argues that reform of the accountability system may contribute to lowering the quality of vocational education.⁷⁶ This is because the performance measure of secondary schools in England is the percentage of pupils passing 5 GCSEs graded A*–C and it is uncertain whether achievement in vocational qualifications will be included in the school performance measures after 2015. If not, it may send the message that vocational qualifications have no value, which in turn could discourage more able pupils from taking vocational qualifications due to their association with lower ability.

Curriculum and Related Matters

Curriculum

Pupils aged 11–16 in maintained schools follow the National Curriculum and other statutory subjects as part of the schools' wider curriculum.⁷⁷ A range of vocational or 'applied' subject options may be available for pupils aged 14–16 years to follow alongside the National Curriculum.⁷⁸ 'Applied GCSEs', originally called 'GCSEs in vocational subjects' were first introduced in 2002 and they are currently available in the following subject areas; art and design; business; ICT; science; engineering; health and social care; leisure and tourism and manufacturing. Applied GCSEs are equivalent to two general academic GCSEs in terms of size and demand and are mainly assessed by coursework. Some subjects are closely related to the National Curriculum at key stage 4.⁷⁹ For pupils

who are not judged ready for GCSE, there are also 'Entry Level' qualifications in general and vocational subjects, which are equivalent to the first level of the national qualifications and credit framework (QCF).⁸⁰

Vocational subjects are also available at upper secondary level. Students completing this level receive a Vocational Certificate of Education (VCE) at Advanced level, which is a work-related qualification combining a broad area of study with a focus on a specific industry sector.⁸¹

In a national review of vocational education, Wolf (2011) judged that there are too many vocational qualifications at lower secondary level in England which are considered to be equivalent to GCSE subjects but in which it is easier to obtain good grades and which may be less well-recognised in the labour market.⁸² Reforms of 14–19 vocational qualifications in England mean that students aged 14–16 are expected to follow a broad-based curriculum with vocational specialisation normally comprising no more than 20% of the timetable.⁸³

Education and training programmes are designed by independent awarding bodies, which are also responsible for organising external moderation and awarding certificates.⁸⁴ These awarding bodies, of which City & Guilds and Edexcel are amongst the best known, can be registered charities, chartered institutes, employers who have established their own awarding body, or commercial businesses, and may be sector-specific or multi-sectoral. Regardless of their size or how they are constituted, the objective of awarding bodies is to:

- ▶ develop high-quality qualifications that meet the needs of employers and learners – this is generally done in partnership with employers;
- ▶ approve training institutions and work with them to ensure high-quality delivery of qualifications;
- ▶ quality assure the qualifications awarded;
- ▶ develop innovative products and services to support their approved institutions and learners.

75 Wolf, 2011

76 Cook, 2013

77 EURYPEDIA, 2014c

78 Ibid

79 Eurydice, 2010b

80 Ibid

81 CEDEFOP, 2013

82 Wolf, 2011

83 CEDEFOP, 2013

84 Ibid

Over 160 awarding bodies are recognised, and regulated, by England's Office of Qualifications and Examinations Regulation (Ofqual), which is responsible for maintaining standards, improving confidence and distributing information about qualifications and examinations. To be registered with Ofqual, awarding bodies must meet, and continue to meet, its criteria and conditions of recognition. The Federation of Awarding Bodies is a trade association which represents the interests of awarding bodies by liaising with key stakeholders including the regulators, government departments and funding agencies.

Responsibility for determining teaching methods and materials is devolved to schools and teachers.⁸⁵ To ensure that the curricula are competency-based, employers are encouraged to be involved in reviewing not only vocational subjects but also core subjects such as maths and English. On 19 November 2014, the UKCES welcomed the announcement that the Education and Training Foundation is to undertake a review of maths and English qualifications.⁸⁶

School/Industry partnerships

The main aspects of education business links include work experience for pupils and teacher placements in industry.⁸⁷ Pupils in key stage 4 (ages 14–16) are eligible for work experience. Work placements take place on the employer's premises and pupils carry out a range of tasks or duties similar to employees, but with the emphasis on the learning aspects of the experience. These activities are intended to motivate young people and improve their core skills as well as to enhance teachers' understanding of business, leading to a more relevant curriculum and better-informed pupils.

In addition, anyone in England can apply for an apprenticeship if they are a) 16 or over, b) eligible to work in England and c) not in full-time education.⁸⁸ Apprenticeships take between 1 and 4 years to complete depending on their level and can combine practical training in a job with study.⁸⁹ There were a total of 521,000 apprenticeships in England in the 2011/12 academic year.

85 Eurydice, 2011

86 GOV.UK, 2014

87 Eurydice, 2010b

88 Department of Education, 2014

89 Ibid

Although the number of employers taking on apprentices has risen in recent years, costs of administration, apprentices' time away from the workplace and employees' time spent training apprentices are given as reasons for not participating, particularly by smaller employers.⁹⁰

In a recent report⁹¹ 'Earning & Learning' was described as the gold standard for vocational education, of which apprenticeships are the most common form. This is particularly pertinent in countries where investment in full-time training has the twin disadvantages of the cost to the household of one member not working and the absence of practical experience. The report recognises that in England there is still a long way to go before vocational education is seen as a desirable option by many: in 2012/13, 3,000 young people started a higher apprenticeship in England, compared to 270,000 starting a degree course. Similarly, for 17-year olds, there were 272,900 studying AS and A-levels compared to 11,100 participating in the equivalent level of apprenticeship. Only 10% of UK employers employ apprentices – far lower than in Austria, Germany, Switzerland and Australia where there are three to four times as many. It is the view of UKCES that employers should be encouraged to develop quality 'earn while you learn' routes that work best for their industries.

The same report goes on to identify the need for better connectivity between education and the world of work in order to tackle the deficit of mid- and higher-level technical skills. In England this deficit is especially acute in manufacturing and engineering – in the former, 30% of all vacancies are reported as hard-to-fill due to a lack of skills, qualifications or experience (the national average is 22%). 'For specific roles this can be even more pronounced – for example 69% of mechanical engineering vacancies are hard-to-fill. According to the OECD, this arises because of a lack of higher level technical provision below degree level, compared to international competitors.' Whilst this is not strictly related to secondary vocational education, it is whilst young people are still at school that their career pathways are planned and subject choices are made. Steps to address this skills deficit have to be taken in collaboration with secondary schools and with the support of good-quality careers advice.

90 CEDEFOP, 2013

91 UKCES, 2014a

Vocational Teachers

In England, teachers are employed either by the LAs or by the individual institutions and are not civil servants.⁹² Teachers of vocational subjects are required to hold the same level of qualifications as their counterparts teaching general education.

Evaluation

Vocational education has grown substantially over the last decade, in part due to the inclusion of vocational qualifications in school league tables as GCSE equivalents. This has had benefits, as vocational education has been identified as improving labour market outcomes, school engagement and attainment in English and maths. However it has also been recognised that such growth allowed for the development of some qualifications that were of poor quality and had little value, either in the labour market or as a means of progression to further study.⁹³

In addition to concerns about the quality of the qualifications, in England, as in some other countries where vocational education is weakly linked to labour market institutions and more closely linked to schools, vocational qualifications are continually under threat of being crowded out by academic education.⁹⁴

A comprehensive review of vocational education in England⁹⁵ undertaken for the UK Government put forward 27 recommendations for improvement – some wide-ranging and some highly specific. The review, which has received serious attention, was tasked with considering ‘how we can improve vocational education for 14-19 year olds and thereby promote successful progression into the labour market and into higher level education and training routes.’ The recommendations were developed with the aim of achieving 4 core ideals:

- ▶ Provide all young people with a high-quality core education which equips them to progress, whether immediately or later, to a very wide range of further study, training and employment. The

report stresses that ‘we have no business, as a society, placing 16 year-olds, let alone 14-year olds, in tracks which they cannot leave.’ (This is in sharp contrast to those countries where vocational streaming in rigid training programmes is common for school-age learners.)

- ▶ Enable and encourage variety, innovation and flexibility, including different opportunities for specialisation: limited pre-16, much greater thereafter. ‘That means moving away from highly-detailed prescription of the content and format of qualifications, which inevitably creates delays and rigidities, and does little for the quality of provision.’
- ▶ Recreate and strengthen genuine links between vocational education and the labour market and, especially in the case of young people, the local labour market. ‘Employers are the only really reliable source of quality assurance in vocational areas and, in spite of lip service, have been progressively frozen out of the way vocational education operates.’
- ▶ Do far more, far more actively, to help young people to enter the labour market and obtain genuine employment experience.

Beyond school, England compares unfavourably in terms of continuing vocational education after the age of 16.⁹⁶ This has been linked to a lack of continuity between vocational education for 14-16 year-olds while still in compulsory education and their options post-16. This is a weakness that increasing the age for compulsory education and training in England is (in part) intended to help address.

In England the labour market offers very high returns to university degrees compared to most other European countries and offers very low returns to low-level vocational qualifications i.e. levels 1 and 2. However, workers with vocational qualifications at level 4 are less likely to be unemployed than university graduates and can expect similar returns on lifetime earnings.⁹⁷

92 Eurydice, 2011

93 Cook, 2013

94 Ibid

95 Wolf, 2011

96 Cook, 2013

97 Wolf, 2011

Context

Germany is a federal state of 81m people, 10.6% of whom are in the 15-24 age group. It is made up of 16 Länder which have primary responsibility for education and cultural legislation.

Labour Market Environment

Germany has the fourth-largest national economy and industrial base in the world. Far more than 90% of all German companies are small and medium-sized enterprises, which account for two-thirds of all jobs and more than half of Germany's economic output.⁹⁸ The increase in unemployment in Germany during the past recession was the lowest among OECD countries, amounting to 0.2 percentage points between 2008 and 2009. This compares with an OECD average of 2.2 percentage points. This mild unemployment response to the recession is generally seen as being largely a result of the labour market reforms which were undertaken immediately prior to the recession, which profoundly changed the institutional environment.

Employment rates tend to be higher for the better educated and it is expected that technological progress will increase the need for high-skilled workers.⁹⁹

The labour market which German school-leavers are entering is one in which the share of workers with a fixed-term contract has risen substantially: in 2010 they accounted for just below 15% of all workers, compared to an OECD average of 12.4%. This gap has significantly widened since the mid-2000s and particularly concerns younger workers. Among those aged 15-24, 57% have a fixed-term contract, more than twice the OECD average. While fixed-term contracts can be a stepping-stone into permanent employment, they can also have an effect on long-term employability because firms are less likely to invest in the training of those employees.¹⁰⁰ They also contribute to higher income inequality as fixed-term workers tend to earn less than permanent ones.¹⁰¹ To lower

the risk of dualisation in the labour market, the OECD recommended moving towards a unified job contract with the degree of protection rising with tenure.¹⁰²

Income disparity according to type of education is also prevalent and has grown substantially since 2000, when workers with a tertiary degree earned around 45% more than their peers who did not have this level of education. In 2012, they earned 74% more (the OECD average being 59%). Germany's Chancellor has warned that the country must take care that there are still enough young people opting for vocational education. 'The Chamber of Trade & Industry warned that there were more than 80,000 vacancies for apprenticeships, whereas universities were bursting at the seams.'¹⁰³

Educational Environment

Germany's education system is shown at Appendix A. Compulsory schooling starts at the age of 6 and covers 9 years of full-time schooling (10 years in Berlin, Brandenburg and Bremen).¹⁰⁴ At lower secondary, vocational education is offered both at *Hauptschule* (open to all students) and *Realschule* (selective). In both, an introduction to the world of work is compulsory.¹⁰⁵

At upper secondary level, students may enter the initial VET system which starts at upper-secondary level and is offered either at full-time vocational schools or within the dual system. Full-time vocational schools include the *Berufsfachschulen* which introduce their pupils to one of several recognised occupations requiring formal training.¹⁰⁶ The duration of training varies from 1 to 3 years, depending on the specialisation.

An alternative to full-time vocational schooling is the dual apprenticeship system in which the social partners (employers and trade unions) play a central role.¹⁰⁷ This route last for 2-3 years depending on the occupation chosen and is heavily dependent on a long social and legal tradition of highly-structured employer participation in TVET which few countries can replicate. The training is

98 EURES, 2014

99 Hüfner et al, 2012

100 OECD, 2004

101 Koske et al, 2012

102 OECD, 2010a

103 University World News, 2014

104 Eurydice, 2013b

105 UNESCO-UNEVOC, 2014c

106 Eurydice, 2013b

107 UNESCO-UNEVOC, 2014c

carried out both at the workplace (3-4 days per week) and in vocational schools (1-2 days per week). The completion certificate of full-time compulsory education is the only pre-requisite.¹⁰⁸ Choosing the dual system does not preclude young people from progressing to academic education later on.¹⁰⁹ At upper secondary level the majority of students choose vocational education rather than general education. This is mainly due to the importance of the dual system.¹¹⁰

The process of developing a National Qualifications Framework for Lifelong Learning (*Deutscher Qualifikationsrahmen; DQR*) (see Appendix J) started in 2006 in response to the need to reference against the European Qualifications Framework (EQF). The *DQR* comprises 8 levels of professional and personal competence which cover all qualifications.¹¹¹ Currently, work is underway to include informal and non-formal learning as well.¹¹²

Legislation, Governance and Finance

Legislation

The Vocational Education and Training Act (*Berufsbildungsgesetz*), was passed in 1969¹¹³ and revised in 2005.¹¹⁴

Governance Structure

Federal level:

Within the Federal government, the Federal Ministry of Education and Research (BMBF) has the main responsibility for policy, coordination and legislation. The Federal Ministry of Economics and Technology (BMWi) and the Federal Institute for Vocational Education and Training (BIBB) also share responsibilities. BMWi recognises training occupations and issues training regulations for those occupations and BIBB provides consultancy.¹¹⁵

Provincial level:

The German Constitution (*Grundgesetz*) places responsibility for school education at the provincial level with the Länder Ministries of Education and Cultural Affairs. These Ministries co-operate in a Standing Conference (KMK) to ensure a degree of policy uniformity and comparability. Each Länder has a committee for vocational training, with equal representation of employers, employees and the Länder officials which advise the Länder governments on vocational training issues in schools.¹¹⁶

Supporting the implementation of VET at regional level are, what is called Competent Bodies (*Zuständige Stellen*). This is an umbrella term and includes the chambers and professional associations. These bodies enjoy strong para-public and quasi-legal rights and responsibilities. Each of these bodies also has a vocational training committee with tripartite representation from employers, trade unions and teachers. The responsibilities of a competent body are:

- ▶ registration of apprenticeship contracts of trainees in the directory of training contracts (apprenticeship role).
- ▶ taking decisions about shortening or lengthening of vocational training and answering legal questions.
- ▶ administering vocational exams and certification for the dual apprenticeship system.
- ▶ monitoring of training delivery.

Funding of Vocational Education

The education budget in 2009 was €164.4 billion, which corresponds to 6.9% of GDP.¹¹⁷ Taking previous years as an indication, it is likely that around 6% of that total would be spent on vocational education, and slightly over 7% on the dual system.¹¹⁸ Dual vocational training is financed by the *Länder* and local authority public funds, whereas training in full-time vocational schools is supported only by *Länder*.¹¹⁹ In-company training within the dual

108 Eurydice, 2013b

109 UNESCO-UNEVOC, 2014c

110 CEDEFOP, 2012

111 DQR, 2011

112 UNESCO-UNEVOC, 2014c

113 UNESCO-IBE, 2007

114 CEDEFOP, 2011a

115 UNESCO-UNEVOC, 2014c

116 Cambridge Education, 2014

117 Eurydice, 2013b

118 Authoring Group Educational Reporting, 2010

119 UNESCO-UNEVOC, 2014c

TABLE 3.1: NUMBER OF VET INSTITUTIONS, STUDENTS AND TEACHERS AT SECONDARY LEVEL IN GERMANY (2010)

Type of school	No. of institutions	No. of students	No. of Teachers	Students per teacher
Lower secondary level				
Hauptschulen	3,730	703,525	58,325	12.1
Schools offering both Hauptschule and Realschule courses	1,485	370,852	31,441	11.8
Realschulen	2,440	1,166,509	66,263	17.6
Upper secondary level				
Berufsschulen (part-time)	1,627	1,626,406	44,133	36.9
Berufsschulen (full-time)		71,462	7,098	
Berufsfachschulen	2,508	478,396	34,746	13.8

Source: EURYDICE (2013) The Education System in the Federal Republic of Germany 2011/12.

system is mainly financed by companies, whose net costs were estimated at about €7.9 billion in 2009.¹²⁰ It is the common goal of the Federal Government and the Länder to increase the share of expenditure on education and research to 10% of GDP by 2015.¹²¹

Institutions

The number of VET institutions, students and teachers in 2010 at lower and upper secondary level are shown in the table above.

Admission to courses at upper secondary level is based on leaving certificates and qualifications obtained at the end of lower secondary level. It is possible to transfer from one type of course of education or school to another.¹²²

The proportion of upper secondary students who go on to university is 10 percentage points lower than the OECD average.¹²³ This is considered to be the result of early selection of pupils at age 10 into different streams, significantly influencing the type of education they will receive (academic or vocational).¹²⁴ In 2009, around 40% of students were in grammar schools, studying for the university entrance certificate. Despite some improvements in recent years, the probability of change

tracks after streaming remains low, although graduates from vocational schools do represent an increasing share of students at university. There is evidence which suggests that in systems with early streaming of students, children are selected to a large extent on the basis of their social backgrounds and not on their ability, thus contributing to reproducing existing social inequalities without improving educational outcomes.¹²⁵

Curriculum and related matters

Curriculum

At lower secondary level, the Ministry of Education and Cultural Affairs of the Länder are principally responsible for developing the curricula. German, mathematics, the first foreign language, natural sciences and social sciences are the core and mandatory subjects for grades 5 to 9 or 10. Music, art, sport and an introduction to the world of work also have to be offered.¹²⁶

At the upper secondary level, more vocationally-oriented subjects are offered. *Berufsfachschulen* are full-time vocational schools which offer training for occupations related to business, foreign languages, crafts, home economics and social work, the arts, and health sector occupations regulated by federal law. Another type of full-time vocational school, *Fachoberschule*, offers courses

¹²⁰ Eurydice, 2013b

¹²¹ Eurydice, 2010a

¹²² Eurydice, 2013b

¹²³ Education at a Glance, 2011

¹²⁴ Hüfner et al, 2012

¹²⁵ OECD, 2008

¹²⁶ OECD, 2008

such as business and administration, technology, health and social work, design, nutrition and home economics, as well as agriculture. Students also learn German, a foreign language, mathematics, natural sciences, economics and society. Practical training is included in the curriculum.¹²⁷

School/Industry Partnerships

In Germany's well-known dual system, students apply directly to employers for apprenticeships. Once recruited, the employers enroll them in a *Berufsschule*. Students, typically between the ages of 16 and 19, spend a few days of the week at work, earning a small stipend, and a few days at school, learning theory. Apprenticeships usually last two to three years and culminate in a certification exam. More than 350 professions are officially recognized as training occupations in Germany.¹²⁸ Whilst in the *Berufsschule* trainees learn theoretical and practical knowledge related to their occupation as well as general subjects such as economic and social studies and foreign languages.¹²⁹ Given ongoing globalisation in industry and of the labour market, the teaching of foreign languages throughout secondary schooling is considered to be very important. In the specialised subject classes of the dual system, the development of language competence relevant to the professional field is stressed.¹³⁰ It is the Chambers who administer the examinations and certificate the trainees.¹³¹

Vocational Teachers

At full-time vocational schools, all the courses are taught by VET teachers who have a vocational background as a skilled worker or a qualified craftsman.¹³² They are either: a) university trained teachers for job-related theory (e.g. metalworking techniques, electrical engineering, home economics, healthcare) and general education subjects such as German, English and mathematics; or b) qualified master craftsmen, or technicians with a number of years of vocational experience, who teach practical skills.¹³³

In-service training is provided for further development, maintenance and updating of teachers' vocational competence.¹³⁴

In Germany, the term 'trainers' relates to those who provide in-company training for apprentices. These are skilled workers in enterprises who provide apprentices and other types of trainee with the knowledge and practical skills required for an occupation.¹³⁵ It is normally the responsibility of the Chambers to ensure trainers' suitability. In general, they must have a qualification in a subject area appropriate to the training occupation. Although there is no obligation for trainers to receive on-going professional development, large companies often offer staff development opportunities.

Evaluation

Much has been written about the vocational education system in Germany,¹³⁶ mostly in relation to the dual system of apprenticeships. Although the German VET system has a good reputation, some challenges do exist. Research shows¹³⁷ that the dual system is quite demanding in institutional terms and is highly embedded in the occupation structure. Occupational skills are rewarded by employers and considered in collective bargaining processes. The same research concludes that 'the dual system offers an attractive pathway into skilled labour for a much higher share of young adults not eligible for tertiary education than the general education systems in other countries.' However, it goes on to point out that 'it excludes low-achieving youth who are not able to eventually enter fully-qualifying VET programs. This exclusion starts early in the life course and is more pronounced and visible than in many other countries.' It advises that it is not easy for other countries to copy the dual system.

Evidence suggests¹³⁸ that the dual system has come under considerable pressure in the last decade, from the 'Europeanization' of VET and the dynamics of the labour market, but that the authorities in charge have taken a clear stand in favour of this system as well

127 Ibid

128 Young Germany, 2013

129 CEDEFOP, 2012

130 Eurydice, 2013b

131 CEDEFOP, 2012

132 UNESCO-UNEVOC, 2014c

133 CEDEFOP, 2011a and CEDEFOP, 2012

134 CEDEFOP 2011a

135 CEDEFOP, 2011a and CEDEFOP, 2012

136 Linten et al, 2014

137 Solga et al, 2014

138 Spöttl et al, 2013

as of occupational professionalism. Some academics have called for a complete structural change within the educational system and for an orientation towards more school instruction, while politicians aim to enforce the dual system. Innovations have been introduced which have led to training being more closely co-ordinated between vocational schools and companies but the full potential for reform has not been achieved.

In addition to the concerns described above, as each Land in this federal system of government is responsible for the VET system in their catchment area, this can result in career guidance being highly variable across the Länder with no single agency responsible for assuring delivery of quality information to all students. Also, the Chamber exam, which evaluates dual system students at the end of their apprenticeship, does not take account of their school performance. As a result there are concerns that students may not take their schooling seriously and thereby limit their ability to participate successfully in some form of tertiary education in the future.¹³⁹

Thelen¹⁴⁰ states that the prime concern for the dual system is whether employers are able to produce sufficient opportunities for in-company training to sustain the model in its traditional form. She points out that over the previous 15 years there has been a decline in the number of apprenticeships and a subsequent shortage of training opportunities for young people. She attributes this principally to a decline in the manufacturing industry and the growing importance of the service sector, but also to the changing skills needs of German employers, which has led to an increase in the costs of training. The service sector (the only real source of growth in Germany) has failed to embrace the traditional dual system of training on anywhere near the same scale as manufacturing did. The sectoral profile of a country's economy is therefore a factor in the possible balance between on- and off-the-job training.

In 2012, 38.2% of the total number of applicants for an apprenticeship were unplaced, which means that they had neither a training place nor an alternative. At the same time, companies were finding it difficult to fill the training places they did have on offer. (In 2013,

more than 450,000 trainee positions were available in the dual system.) This indicates a growing mis-match in the training market and increasing difficulties in adapting companies' demand for trainees and workers with the availability of suitable applicants. The Federal government acknowledges that this is currently the main challenge for the dual system.¹⁴¹

The 2010 OECD survey¹⁴² points to an increasing demand for highly-skilled workers in the manufacturing industry who are adaptable to changing economic conditions and calls on the German Government to do more to address the growing shortage of highly-qualified personnel brought about by ongoing technological changes and population ageing.

POLAND

Context

In 1999, a 3-tier decentralised system of territorial administration was introduced, under which Poland was divided into 2,478 municipalities, 379 districts and 16 regions. With over 38m inhabitants, it is the 6th most populous country in Europe and 32nd in the world. In 2009, people in the 0-24 age group accounted for around 30% of the population. It is expected that demographic changes will lead to increased demand for vocational skills due to the need for an up-to-date and qualified workforce.¹⁴³ In line with a falling birth rate, the numbers of students in upper secondary education has declined from 1.6m in 2005/6 to 1.3m in 2009/10.¹⁴⁴

Labour Market Environment

Poland's overall economic performance has been impressive over the last decade, allowing living standards to converge steadily towards the EU average. Yet the economy slowed abruptly in 2012/13.¹⁴⁵ This left its mark on the labour market: the unemployment rate rose to a high of 10.6% in 2013 Q1, up from a record low of 6.8% in 2008 Q4. Employment remains one of Poland's major

139 OECD, 2010b

140 Thelen, K., 2007

141 Federal Ministry of Education and Research, 2013

142 Hoeckel, K. & Schwartz, R., 2010

143 CEDEFOP, 2011b

144 Ibid

145 OECD, 2014b

structural weaknesses, impeding firms competitiveness and the nation's potential output. The labour market is heavily segmented in a rather complex way. Levels of both temporary and self-employment are among the OECD's highest, although for the latter this is mainly due to the size of the agriculture sector.¹⁴⁶ Although only two consecutive contracts with the same firm are allowed, there is no cap on their duration.¹⁴⁷

Poland is one of the OECD countries where informal employment poses the most serious challenges.¹⁴⁸ Simplifying and better enforcing tax regulation would reduce its incidence and scope, as would phasing-out the various advantages granted to the self-employed. This profound dualism may induce in-work poverty, limit investment in skills development, lengthen the transition from school to stable work, and make some specific groups, in particular the young and the low-skilled, bear a disproportionate share of the costs of adjustment to economic shocks.¹⁴⁹

Polish school-leavers enter a difficult labour market. The country's poor labour market performance is concentrated at both ends of the age spectrum.¹⁵⁰ For young people the shortfall in employment rates is predominantly in the 20-24 age group and can be largely attributable to their greater enrolment in education, which rose sharply up to 2005, and to the limited opportunities for combining work and study. The rise in educational attainment among young people over the last 20 years is a major achievement, but the demand for skills has grown even faster. Less-educated youth in particular tend to go through an arduous transition involving temporary contracts, which are often used as a screening device.¹⁵¹ Precarious employment is therefore pervasive amongst young people.

Educational Environment

In February 2010, the Ministry of National Education (MNE) announced that it intended to increase the number of vocational education graduates in the population from 12% to 15% by 2013.

146 OECD Labour Force Statistics, 2013

147 OECD, 2014b

148 OECD, 2008

149 Lepage-Saucier et al, 2013

150 OECD Labour Force Statistics, 2013

151 Baranowska et al, 2011

Until recently, general education has always been more popular than vocational education. However, since 2006/7 a significant increase in interest in VET has occurred. This may be due to changes in the labour market connected with Poland's accession to the EU and the opening of the European labour market to Polish workers. Employment abroad is often contingent on having official certification in skills related to particular occupations.

Work on the Polish Qualification Framework (PQF) (see Appendix G) began in 2006. The PQF, like the European Qualifications Framework (EQF) consists of 8 levels and will be compatible with other European initiatives, such as the European Credit System for Vocational Education and Training (ECVET). Work is being carried out by the Institute of Educational Research.¹⁵² One of the key features of the PQF that makes it quite distinctive is the use of generic descriptors, called 'universal descriptors', which are described in terms of knowledge, skills and competence, but also second stage descriptors which relate these to general, vocational or higher education. It is also the intention to have some sector specific descriptors.¹⁵³

Legislation, Governance and Finance

Legislation

The basic legislative act which regulates the functioning of the education system, including vocational education and continuing education, for youths and adults is the Education System Act of 7th September 1991, amended in 1995, 1998, 2001 and 2002, 2003, 2004 and 2009. The 1998 amendments to the Act introduced changes to the education system, consisting of the establishment of new types of schools and the modification of the duration of education at particular levels of the system. The passing of the School Education Act of August 2011 and the subsequent Regulation by the Minister of National Education on the classification of occupations for vocational education led to a number of significant changes¹⁵⁴ (see Curriculum section below)

152 Chlon-Dominczak, 2012

153 Educational Research Institute, 2013

154 Polish EURYDICE Unit, 2012

Governance Structure

The Ministry of National Education cooperates with the Ministries of Agriculture, Culture & National Heritage and Environment in the supervision of vocational schools. In addition, the Ministry of Education oversees the National Centre for Supporting Vocational and Continuing Education, which provides professional development services for teachers.

Most public schools and other educational institutions are administered and financed by local government with a subsidy from the Ministry of National Education. Schools offering vocational education are set up and administered by district governments. The respective responsibilities of national, regional, local and institutional level are shown in Appendix F.

Funding of Vocational Education

The school education subvention from the State budget is the main source of funding for all school education in Poland.¹⁵⁵ Local government units decide on the use of funds received as part of the general subvention. This means that local government units decide on the amount of the total expenditure of school education – both general and vocational.

Institutions

Full-time, compulsory education lasts for 10 years and comprises the last year of pre-school, 6 years of primary school and 3 years of lower secondary school.¹⁵⁶ (See Appendix F) At lower secondary level, 15% of the curriculum is devoted to vocational education. In post-compulsory, upper-secondary, school students have a choice of which type of institution to attend although this choice may be constrained by their exam results. The proportions between general and vocational education in each of these types of school are specified by the Ministry:

- ▶ general upper secondary school (*Liceum profilowane*) offers a 3-year course combining academic education and general vocational training. Graduates may progress to a post-

secondary institute or, if they pass the school-leaving certificate (*Matura*), to university.

- ▶ 4-year technical upper secondary school (technikum), which offers courses leading to both the Matura and to a vocational qualification at technician level. Up to 36% of the curriculum is devoted to vocational subjects including 20-25% on practical training.
- ▶ basic vocational school (*zasadmicza szkola zawodowa*) which offers 2-3 year courses leading to a certificate as a skilled worker, but does not prepare pupils for the Matura. Up to 65% of the curriculum is devoted to vocational subjects including 50% on practical training.¹⁵⁷ Graduates may progress to a Complementary Secondary Technical School (*Technikum usupelniajace*), introduced in September 2004, which offers a 3-year programme leading to a professional qualification and the Matura.¹⁵⁸ These schools offer day, evening and distance education.

Students who do not wish to continue in formal education may choose to do an apprenticeship organised by the Chamber of Crafts,¹⁵⁹ provided they have completed lower secondary school and are at least 16 years old.

Extrapolating from the Central Statistical Office reports of 2010/11, of those students who progress to upper secondary, around 54% were in lyceums, while the remainder were pursuing technical and vocational education.

Curriculum and Related Issues

Curriculum

All types of upper secondary schools (general, specialized and technical) follow the compulsory core curricula defined for the basic level of teaching by the Ministry of National Education. According to the Ministry, the main incentives for undertaking a reform programme which would result in organizational and substantive changes in TVET were: globalisation and the increasing significance of international trade, geographic and

155 Polish EURYDICE Unit, 2012

156 Eurypedia, 2014a

157 CEDEFOP, 2009

158 Ibid

159 Ibid

vocational mobility, economic changes, new techniques and technologies (especially in the fields of information and communication), changes in the organisation of work, and increased expectations of employers regarding the level of competence of employees.¹⁶⁰

The 2011 reforms therefore set out to improve the effectiveness and relevance of the VET system and adjust it to better meet the needs of employers and the labour market. To achieve this goal¹⁶¹ a new core curriculum for training for particular occupations was designed and introduced, and the system of exams was restructured. In addition, all basic vocational schools now offer a three-year training programme, vocational schools and continuing education centres can be consolidated to offer more diversity and increase opportunities for co-operation with employers, and new out-of-school forms of vocational education were introduced. The reforms mean that students in technical upper secondary schools, through continuing their general education, now have greater opportunity for transfer to general upper secondary schools, should they wish to do so. This may result in increased pressure on general upper secondary schools and, subsequently on tertiary education institutions and the success of the reforms is therefore resource-dependent to an extent.

The intended results of the reform programme include:

- ▶ provide transparency of qualifications and competences available on the national and European labour market, which facilitates making comparisons between educational achievements gained locally and abroad;
- ▶ arrange more hours of practical training with employers;
- ▶ conduct practical vocational education in the workplace and gain the participation of employers in the teaching and assessment process.

In order to attract more students to vocational training and to provide incentives for employers who have, so far, been reluctant to participate, the MoNE has entered into agreements with social partners which aim to establish a network of companies which will offer practical training

for students and teachers and will support the schools' technical base.

School/Industry Partnerships

In vocational education, practical training takes place both at the school and through work placements. Separately, employers will organise training for their apprentices. Apprenticeships last between 2-3 years and include theoretical education, which usually takes place in basic vocational schools.¹⁶²

Vocational Teachers

No distinction is made between teachers, academic teachers, practical vocational training instructors and trainer-specialists working in Initial TVET (ITVET) and Continuing TVET (CTVET) in terms of entering and developing a career in teaching. The general requirements are subject/occupational and pedagogical qualifications.¹⁶³ A specific occupational qualification and a pedagogical qualification are necessary to become a practical vocational training instructor. Trainers-specialists are required by law to have an occupational qualification that is appropriate for the type of training provided.

Evaluation

A SWOT analysis of the Polish vocational education system¹⁶⁴ acknowledges its strength in areas such as good teaching of soft skills and entrepreneurship and equipping most students well with basic theoretical knowledge in maths and science. The analysis also noted growing, though still insufficient, collaboration between schools and entrepreneurs, which has assisted graduates in finding jobs. However, weaknesses were found to be numerous and included: a mismatch between the education on offer and the needs of the labour market; education for trades is too theoretical and insufficiently practical and suffers from an under investment in modern machinery and equipment; teachers are generally 'well-educated theoreticians' but lack knowledge of new technologies; industrialists are not involved in curriculum development; educational and vocational mobility of students is constrained due

160 UNESCO-UNEVOC 2013

161 Polish EURYDICE Unit, 2012

162 SQA, undated

163 UNESCO-UNEVOC, 2014d

164 Pilz, 2012

to large differences in school curricula; careers guidance is weak; the status of vocational education is low; and the teaching of foreign languages, particularly English, is insufficient.

Recent developments in vocational education, arising from the priorities set out in the *Strategy for the development of lifelong learning until 2010* and the *Education development strategy for 2007-13*, will address many of the above issues. For example it is the government's intention to:

- ▶ grant schools more flexibility for integrating general and vocational subjects;
- ▶ extend vocational schools to include courses for adults;
- ▶ engage employers in curriculum development and assessment;
- ▶ enhance general education in the basic vocational schools curricula;
- ▶ set the minimum number of hours for practical training for particular types of vocational schools;
- ▶ base the curricula for all types of qualifications on learning outcomes;
- ▶ make exams lead to uniform vocational qualifications;
- ▶ attract highly qualified specialists to work in vocational schools.

Of these, the enhancement of general education in technical and vocational schools is expected to have a strong impact. Figure F.2 and F.3 show the general education content of vocational curricula:

The impact of a significant general education content for (mainly) 16-20 year-olds adds substantially to the length of their training programmes and may be at odds with industry-based learning outcomes. CEDEFOP points out that the risk of students dis-continuing their courses increases when the link between the programme content and the needs of the labour market is weak and that, in Poland, the rate of dis-continuation from secondary schools has increased from 9.8% in 2005 to 10.7% in 2010. This can be exacerbated by lengthy programmes of 3-4 years, which are less responsive to changes in

the demand for skills. It suggests a need for focussed, relatively short training programmes developed through strong co-operation between schools and employers.¹⁶⁵

The OECD considers¹⁶⁶ that youth employment prospects could be improved in Poland by further enhancing work-based learning in vocational education and training programmes, by boosting social partners' involvement and by raising the quality of teaching. In line with past OECD recommendations,¹⁶⁷ a clearer distinction between vocational and academic higher education institutions is being introduced. Because employers have little incentive to hire apprentices,¹⁶⁸ subsidies to cover employers' training costs of VET students should be expanded.

SCOTLAND

Context

Scotland has a population of 5.3m, 17% of whom are under the age of 16. As a result of extensive devolution from the UK Government, the Scottish education system is significantly different in many ways to that of the rest of the UK.¹⁶⁹ The Scottish Parliament and Scottish Executive (the civil service) have wide powers for social policies, including education and training.¹⁷⁰

Labour Market Environment

Scotland's labour market shares many characteristics with the rest of the UK, and therefore the data given in the section on England, specifically where it is derived from UKCES publications, can also be applied to Scotland. In particular, the message of a lack of progression opportunities for lower paid workers is confirmed in research on the Scottish labour market.¹⁷¹ However, the overall employment rate is consistently more favourable in Scotland than elsewhere and unemployment amongst young people was lower.¹⁷² Amongst 16-24 year olds,

165 CEDEFOP, 2014

166 OECD, 2014b

167 OECD, 2007

168 European Commission, 2013

169 CEDEFOP, 2013

170 CEDEFOP, 2005

171 The David Hume Institute, 2012

172 The Scottish Government, 2014b

44% are in full-time education.¹⁷³ The number of new start-up businesses has, however, for a long time been a concern in Scotland, being used as an indicator for a lack of entrepreneurial activity.¹⁷⁴ A survey undertaken by Carnegie UK¹⁷⁵ highlighted the important role of vocational education in encouraging students to consider starting a business or becoming self-employed.

Entering the labour market, Scottish school-leavers with vocational education will find that many 'mid-tier' posts have been filled by university graduates, even although these jobs do not necessarily require a degree. This can constrain the opportunities, for those starting at lower levels of responsibility and pay, to develop and advance to the levels their potential should permit. Research shows¹⁷⁶ that the Scottish system is good at providing people with the skills that they need to perform more highly-skilled jobs – the type which require degrees, apprenticeships or technical qualifications, but is less successful at preparing people to undertake the plentiful jobs that require lower levels of skills and more limited qualifications. Scottish employers are also less good at making the most of those at lower skill levels, both in terms of their productivity in a job initially and in their development over time. People in lower skilled and lower paid jobs receive less training in advance of deployment and limited training and development *in situ*. As was noted for the rest of the UK, the scope for upwards progression appears less marked than in some other comparator countries.

Educational Environment

Traditionally, at secondary school level, the Scottish system has emphasised breadth across a range of subjects, while the rest of the UK has emphasised greater depth of education over a smaller range of subjects.¹⁷⁷ The education system comprises a compulsory 7 years of primary schooling and 4 years of lower secondary schooling, plus 2 optional years of upper secondary schooling. Secondary schools offer a general education with vocational options from age 14 onwards.¹⁷⁸ At the age of 16 students who wish to continue in education but

not at school, may enrol at an FE college to follow either a general education or a vocational education programme.

Students are assessed at age 16 and, if successful, are awarded a Scottish Qualifications Certificate (SQC) at Standard Grade, or equivalent National Qualification level.¹⁷⁹ Further examinations are taken at age 17 and age 18. Qualifications at the secondary school and FE levels are provided by the Scottish Qualifications Authority (SQA), which is the national awarding and accrediting body in Scotland. VET is mostly offered in FE colleges, but also in secondary schools and HE institutions.¹⁸⁰

The Scottish Credit and Qualifications Framework (SCQF) brings together all mainstream Scottish qualifications from Access to Doctorate levels. It includes both academic and vocational qualifications provided in schools, FE, HE and the workplace.^{181,182} Its development is conducted as a partnership of the Scottish Executive, SQA, The Quality Assurance Agency for Higher Education (QAA) (Scottish Office), and Universities Scotland.

Scotland is often considered to have one of the most mature frameworks in Europe and to be an example for other national frameworks in many respects. It is considered a good case to demonstrate that national frameworks cannot be created from a blueprint, but that their development takes time and is tightly related to overall educational reforms.¹⁸³ Its success may in part be due to Scotland being small and the ease of collaboration which that allows between the various stakeholders to the framework. Appendix H provides an overview of the SCQF. Unlike the EQF, against which it is referenced, the SCQF uses 12 levels of qualifications.

Legislation, Governance and Finance

Legislation

The Education (Scotland) Act 2000 makes provision for the five National Priorities for Education: Achievement and Attainment; Framework for Learning; Inclusion and Equity; Values and Citizenship; and Learning for Life.

173 The Scottish Government, 2014c

174 The David Hume Institute, 2012

175 Metcalfe, 2012

176 The David Hume Institute, 2012

177 The General Teaching Council for Scotland, 2014

178 Eurydice, 2005

179 Ibid

180 CEFEDOP, 2013

181 Ibid

182 Ibid

183 GTZ, 2009

In 2002, the Scottish Government consulted widely on the state of school education through the National Debate on Education. Following the consultation process, a Review Group was established in 2003 to identify the purposes of education 3-18 and the principles for the design of the curriculum. The result of this work is *Curriculum for Excellence*,¹⁸⁴ which was formally launched in 2009 and introduced into schools in academic year 2010/11. The Scottish Government has described it as ‘the biggest reform of its education system in a generation’.¹⁸⁵ Amongst other reforms, it includes more skills-for-work options for young people and a greater emphasis on entrepreneurship.¹⁸⁶

Compatible with *Curriculum for Excellence* is the Scottish Government’s *Building the Curriculum 3* which introduced the concept of learner entitlements through which all young people in Scotland can expect to experience a broad general education, followed by a senior phase from (broadly) 15-18. As part of the senior phase entitlement all young people will be supported to progress from school to further learning, training or employment. Integral to the planning and delivery of the senior phase, *16+ Learning Choices* was introduced in 2008 as the national post-16 transition planning model with the aim of supporting young people to progress within and beyond the senior phase. It is a universal model which focuses particular attention on those who are likely to struggle to make successful transitions at this stage.¹⁸⁷ As in the rest of the UK these reforms are all compatible with an aspiration to be a knowledge economy providing jobs for highly-skilled workers.

Supporting the reforms in secondary school, the Scottish Government commissioned a Review of Post-16 Education and Vocational Training in Scotland, which was published in 2011.

Governance Structure

Education is a devolved responsibility of the Scottish Government. The Scottish Executive Education Department oversees school education, while the Enterprise, Transport and Lifelong Learning Department has responsibility for further and higher education. Education Scotland is an

184 Scottish Executive, 2004a

185 The Scottish Government, 2009b

186 The Scottish Government, 2009c

187 Education Scotland, 2012

Executive Agency of the Scottish Government tasked with inspecting schools and further education colleges to improve the quality of the education system.

Funding of Vocational Education

Schools are largely funded by local authorities, although the Scottish Government provides support for specific initiatives.

The Scottish Further and Higher Education Funding Council, commonly known as the Scottish Funding Council, is the strategic body for the funding of teaching, learning, research and other activities across all levels of tertiary education in Scotland. The Council funds FE colleges based on a system of Outcome Agreements. These Agreements take into account the colleges’ performance against student performance criteria such as: learner retention; articulation; and progression into further and higher education and employment.¹⁸⁸

Institutions

All Scottish state schools are ‘comprehensive’. That is, there is no selection of students – each school accommodates all levels of ability and offers a range of subjects. There is no division between academic and vocational education and students choose the mix of subjects which best meets their individual interests and aspirations. The range of vocational subjects and programmes is more limited in secondary schools than it is at FE colleges. Some schools may seek to widen the range by delivering programmes in partnership with a local college or by enabling students to enrol at a college for part of their studies.

Curriculum and Related Matters

The review of Scottish education 3-18, referred to above, was informed by the following priorities identified in the National Debate:

- ▶ Reduce overcrowding in the curriculum.
- ▶ Make learning more enjoyable.
- ▶ Make better connections between the stages in the curriculum from 3 to 18.

188 CEFEDOP, 2013

- ▶ Achieve a better balance between ‘academic’ and ‘vocational’ subjects.
- ▶ Broaden the range of learning experiences for young people.
- ▶ Equip young people with the skills they need now and in future employment.
- ▶ Make sure that approaches to assessment and certification support learning.
- ▶ Offer more choice to meet the needs of individual young people.¹⁸⁹

The *Curriculum for Excellence* which resulted has 8 curriculum areas of which ‘technologies’ is one. Vocational education is regarded as part of that.¹⁹⁰ Young people choose their course of study depending on their interests and aptitudes, without any regulation on the balance of academic and vocational subjects.

Scottish secondary teachers must hold a first degree and a post-graduate teaching qualification. They must all, regardless of subject area, have both English and Maths school-leaving qualifications. They are required to register with the General Teaching Council for Scotland (GTCS). On the other hand, it is not obligatory for lecturers in FE colleges to register with the GTCS or to hold a teaching qualification, although it is considered desirable.¹⁹¹

Evaluation

The Commission for Developing Scotland’s Young Workforce was established by the Scottish Government in January 2013. Chaired by a leading industrialist and composed of representatives from the worlds of employment and education, it was tasked with proposing a range of recommendations to improve young people’s transition into employment. The Commission’s final report was published in June 2014.¹⁹²

Whilst acknowledging the benefits which *Curriculum for Excellence* is bringing, the Commission’s report proposes that the vocational content on offer to school pupils could be significantly enhanced **without splitting young**

people off into separate streams at school age. The Commission strongly emphasised that it did not favour separate academic and vocational streams. The report’s recommendations which relate specifically to schools are:

- ▶ Pathways should start in the senior phase, which lead to the delivery of industry-recognised vocational qualifications alongside academic qualifications. These pathways should be developed and delivered in partnership with colleges and, where necessary, other training providers. Their delivery should be explicitly measured and published alongside other school performance indicators. Within senior secondary, students should have the option to undertake training and education which prepares them for, and contributes towards, an apprenticeship, through completing the non-workplace content.
- ▶ A focus on preparing all young people for employment should form a core element of the implementation of *Curriculum for Excellence* with appropriate resource dedicated to achieving this. In particular, local authorities and other relevant agencies, should work together to develop a more comprehensive standard for careers guidance, which would reflect the involvement of employers and their role and input. This would include: by age 15 all young people would have a demonstrable understanding of the process of finding, applying for and successfully getting and sustaining a job; initial teacher training and continuous professional development should help teachers to deliver a broader understanding of employment and enterprise; and schools should have a dedicated senior resource focused on developing partnership activities with business and industry aimed at providing meaningful work experience opportunities and careers advice. The Commission felt that there was a strong case for providing careers advice and knowledge of the world of work significantly earlier than at age 16, as is done at present.
- ▶ A standard should be established for the acceptable content of work experience and guidelines should be made available to employers. This would enable students to have a richer experience of the workplace.

189 University of Glasgow, 2008

190 The Scottish Government, 2009a

191 CEFEDOP, 2013

192 The Scottish Government, 2014a

These recommendations, while still challenging in Scotland, are possible because of the services and structures which already exist. They would be considerably more challenging in a country with no record, or a poor record, of careers advice, education/ employer collaboration or recognition of alternative pathways.

CHINA

Context

The population of China is estimated at 1.354 billion people,¹⁹³ 14.7% of whom are in the age range 15-24.¹⁹⁴

Labour Market Environment

Unemployment, particularly youth unemployment, is a particular concern of China's leaders, although the country's current unemployment rate officially stood at a low 4.05% in 2013.¹⁹⁵ However, doubts exist to the accuracy of this figure, which is unchanged since 2010, and a belief that it may represent an aspiration rather than reality.¹⁹⁶ China's National Bureau of Statistics and the statistics department of the Ministry of Human Resources & Social Security (MOHRSS) stopped publishing youth unemployment data in the 1990s, although it was estimated to stand at 9% in 2005.¹⁹⁷ As China's new leadership has made economic rebalancing top of its agenda, this has led to a significant slowing in growth. However, after the meeting of the National People's Congress in March 2014, Chinese Premier Li Keqiang said that people's livelihoods were the Government's key priority and economic growth is important for its impact on employment. It is generally felt that the government's concern relates to the fear that mass unemployment would threaten social stability.¹⁹⁸ These worries deepened when the HSBC Manufacturing Purchasing Managers' Index (PMI) for China throughout Q1 of 2014 showed signs of contraction. The manufacturing sector still employs the majority of China's labour force in

relatively unskilled jobs. However, China's Ministry of Human Resources quarterly reports state that the ratio of job vacancies to job applicants is 111 vacancies for every 100 applicants.

Taking Guangdong Province as an example, the Provincial Government reported a labour shortage of 500,000 after Chinese New Year 2014 and a Standard Chartered survey in March 2014 of 375 manufacturing companies suggests a strong expectation to increase wages to retain workers. In a survey of migrant workers during the previous month, 80% had indicated no difficulty in landing a job. Employers, particularly those in the manufacturing sector, continue to see retention as their top challenge.

This tight labour market, coupled with rising wage rates, are partly explained by demographic and economic changes in China. The Chinese workforce has already begun to shrink and the demographic dividend which existed up until the 1990s is now past its peak. Youth, as a percentage of the total working population will flatten out at around 15% by 2025.¹⁹⁹ At the same time the economic rebalancing is expanding the more employment-intensive service sector. The growing demand for manpower will help to address the inequality issue which concerns policymakers. Rising wage costs also encourage employers to care more for employee well-being and rights. In the Standard Chartered survey, 24% of employers said that they had had formal wage negotiations with labour union or workers' representatives in the previous 6 months, up from 19% in 2013 and 9% in 2012.²⁰⁰

An informal labour market does exist in China and has become a source of 'alternative employment', mainly used for temporary work by those seeking permanent employment. It is characterised by a lack of skills, low productivity and easily-infringed labour rights.²⁰¹

Despite the positive employment figures and the high demand for workers described above, young people often face a job reality far different from their own

193 World Population Statistics, 2013

194 Index Mundi, 2014a

195 MOHRSS, 2014

196 Schucher, 2014

197 Ibid

198 UK Government, 2014

199 UN, 2010

200 UK Government, 2014

201 ILO, undated

expectations and those of their families.^{202,203} This is particularly true for those who took advantage of the expansion of higher education in 1999 to participate in the newly created opportunities for upward social mobility and whose aspirations have been dampened by the state's failure to increase in tandem the number of elite positions available. The absence of an unemployment problem does not mean that the problem of inadequate employment does not exist. New, educated, entrants to the labour market face a skills/employment mismatch, inadequate jobs or even unemployment.²⁰⁴ But fewer young people should mean fewer labour surpluses in rural areas and fewer migrants coming to the cities to find work. It can be reasonably assumed that the declining relative size of the Chinese youth cohort will reduce youth unemployment and that an increasing demand for skilled labour will ease the currently strained employment situation of university and college graduates, on the condition that curricula become more suited to labour market needs.²⁰⁵

Vocational education graduates entering the labour market may expect that any period of unemployment will be short-term and mainly reflective of the problems of school-to-work transition. They will also find that employers prefer young workers. Having said that, the 16-19 age cohort experiences a higher level of unemployment (62%) than the 20-24 cohort (19.3%) – in part due to the preference by employers for people with some work experience.²⁰⁶ However, an obvious trend over the last decade has been that the demand for lower and middle-level qualified workers has exceeded supply. Vocational skills have in particular come to be in extremely short supply.²⁰⁷

Education Environment

The State Guidelines published in July 2010 contained a number of strategies for the education system including quantifiable development targets for 2020²⁰⁸. In relation to vocational education these were:

202 RMRB, 2014

203 Xinhua, 2014

204 Schucher, 2014

205 Ibid

206 Schucher, 2014

207 Ibid

208 KPMG, 2010

TABLE 3.2: VOCATIONAL EDUCATION ENROLMENT - CHINA

Vocational Education Enrolment	2009	2015	2020
Junior Secondary	22m	23m	24m
Senior Secondary	13m	14m	15m

As the diagram in Appendix A shows, the Chinese school system includes four stages: pre-school education (1-3 years), primary school education (6 years), secondary school education (3 years of junior level and 3 years of senior level) and post-secondary education (4 years or more).²⁰⁹ Compulsory education lasts for 9 years and covers primary and junior secondary education level. Vocational education is offered at vocational junior secondary schools, of which there were 40 still in existence in 2013,²¹⁰ usually for 3 to 4 years and provides basic knowledge of a certain occupation and some occupational skills.²¹¹ These schools are generally located in rural areas where the economy is less developed.²¹²

At senior secondary level, vocational education and training is offered at secondary vocational schools, which consist of secondary specialised schools, schools for skilled workers and vocational high schools. The duration of the programmes is 3 to 4 years.²¹³ This policy on streaming secondary school students could be a reflection of China's continuing need for large number of semi-skilled and skilled workers for its large manufacturing sector – a sector which is in decline in many of the other countries studied.

Although students with a vocational secondary school certificate are officially allowed to take the national college entrance examination (*gaokao*), their scores tend to be lower than those who completed the general secondary education due to the limited number of general subjects in their courses.²¹⁴ As a result, once students have enrolled in a vocational secondary school they are locked out of receiving academic tertiary education in reality.²¹⁵ However in February 2014, the reform of the national college entrance examination was approved and

209 Harris et al, 2009

210 Ministry of Education, 2013

211 UNESCO-UNEVOC, 2014b

212 UNESCO-IBE, 2011

213 Ibid

214 Nuffic, 2012

215 Hansen & Woronov, 2013

a new system will be introduced which will consist of two tests; one for technical education students and the other for general education students.²¹⁶ This will allow talented students from both streams to enter higher education.²¹⁷ In line with its plan to transform 600 universities into higher education vocational colleges, the Government expects more students to enter tertiary vocational education in the future.²¹⁸

China has not established a national qualifications framework.²¹⁹

Legislation, Governance and Finance

Legislation

The *Vocational Education Law of the People's Republic of China*, adopted in 1996, is the main policy document in China, which covers regulations on vocational school education at all levels.²²⁰

In the late 1990s, as enrolment into HE began to expand, increasing numbers of students chose general schools rather than vocational schools.²²¹ As a result, enrolment at vocational senior secondary schools declined. (see Figure K.1, Appendix K)

Responding to this situation, the Government introduced a series of policies such as 'Decision of the State Council of Actively Developing Vocational Education' in 2005; 'The provisional rules of national subsidization in secondary vocational schools' in 2006 and 2007; and 'Comments on free education of rural students from poor families and students studying agriculture-related subjects in secondary vocational schools' in 2009.²²² Although enrolment rates at vocational schools subsequently improved, they are still lower than the Government wishes. In June 2014, a six-year Modern Vocational Education Development Strategy (2014-2020) was released which stated the Government's intention to increase the number of students in vocational education institutions

from the present figure of 29.34 million to 38.3 million by 2020.²²³

Governance Structure

At the national level, the responsibilities for VET lie with two authorities; the Ministry of Education (MoE) and the Ministry of Human Resources and Social Security (MOHRSS).²²⁴ The MoE is responsible for vocational and technical education and the MOHRSS for skills training. At the local level, their respective departments are responsible for the daily routine of TVET administration, including budget allocation and personnel management of state-run TVET institutions.

Funding of Vocational Education

In 2008 public expenditure on education was 3.3% of GDP.²²⁵ The proportion of the education budget allocated to vocational education is not clear. Although senior secondary schools normally require fees, the Government introduced a number of measures to subsidise students in VET schools with the aim of attracting more students.²²⁶ In order to address the Modern Vocational Education Development Strategy (2014-2020), local governments will need to raise their vocational education budgets to at least 30% of their total education budget.²²⁷

Institutions²²⁸

As of 2009, there were 3,789 regular, specialised, secondary schools, 5,652 vocational senior secondary schools, 3,077 technical schools, and 153 vocational junior secondary schools. In contrast, there were 70,774 regular secondary schools of which 14,607 were senior secondary schools, and 56,167 were junior secondary schools.

In 2009 the total enrolment at vocational junior secondary schools was 72,995 against 54.33 million in regular junior secondary schools, i.e. 0.13%. In the same year, the total number of students at senior vocational schools was 20.33 million against 24.34 million of regular school

216 Gbtimes, 2014

217 Ibid

218 Gbtimes, 2014

219 Nuffic, 2012

220 UNESCO-UNEVOC, 2014b

221 Huang et al, 2012

222 Ibid

223 China Daily, 2014 and The PIE NEWS, 2014

224 Ibid

225 OECD, 2011a

226 OECD, 2011b

227 CCTV.com English, 2014

228 UNESCO, 2011

students, i.e. 45.5 %. While the average students-teacher ratio in 2009 was 15.4:1 in junior secondary schools and 16.3:1 in senior secondary schools, the ratio was higher in vocational schools: 23.6:1 in vocational senior secondary schools and 27.8:1 in specialised secondary schools.

Curriculum and Related Issues

Curriculum

The National Center for School Curriculum and Textbook Development (NCCT) is an agency affiliated to the Ministry of Education and is responsible for assessing curricula, textbooks and educational materials for primary and secondary education, as well as assessing teaching and the administration of teaching affairs.²²⁹ According to research conducted in two vocational schools in Nanjing in 2007-2012, in addition to specialised training, vocational students are taught a diluted version of core subjects such as secondary math, science, Chinese, English and social studies.²³⁰ The specialities they offer are mainly related to the service sector.²³¹

Students' choice of courses is often directed by senior family members²³² and the survey data²³³ collected in Zhejiang, Anhui and Shanxi Provinces in 2010 shows that the majority of students chose information technology (24.5%), health and medicine (14.4%) and teaching (13.7%) as their major at vocational senior secondary schools. Despite the Government having waived tuition fees since 2009 for students of agriculture at state-run vocational schools, the sector does not generally attract students due to the big wage difference between agricultural workers and those in the industrial and service sectors.

Curricula are often out-of-date and less skilled teachers in vocational schools cannot fulfil the needs of advanced knowledge training in a changing environment.²³⁴ The World Bank recognises these challenges and has been supporting the introduction of modular, competency-

based curricula and student-centered pedagogy,²³⁵ e.g. in Guangdong.

School/Industry Partnership

Most schools offer some kind of apprenticeship (*shixi*) for part or all of the final year of study. However, this can be informal and may vary widely between students. There are cases where the apprenticeships have little to do with the student's field of study.²³⁶

Vocational Teachers

The Regulation on Qualifications of Teachers, which came into force in 1995, stipulates that Chinese citizens who are teaching in educational institutions, at all levels and of all types, must have a teaching qualification.²³⁷ Schools have authority for the selection and recruitment of teachers and for determining their conditions of employment. To ensure that teachers in vocational schools remain up-to-date, they are required to spend an average of one month in industry each year. Many schools employ a significant number of part-time teachers who also work in industry.²³⁸

Evaluation

The main challenge for Chinese vocational education and its need to increase enrolments, is the public's negative perception of it.²³⁹ As the number of students wishing to pursue university studies increases, general secondary schools are preferred to vocational secondary schools and vocational schools.²⁴⁰ The low quality of teaching²⁴¹, out-of-date curricula,²⁴² inappropriate training programmes²⁴³ and a weak link between vocational and general education,²⁴⁴ all contribute to the low status of vocational education in China. In some rural areas and poorer provinces, schools' resources are adversely affected by the

229 UNESCO-IBE, 2011

230 Hansen & Woronov, 2013

231 UNESCO-IBE, 2011

232 Hansen & Woronov, 2013

233 Huang et al, 2012

234 Xi Yu, 2013

235 World Bank News, 2013

236 Hansen & Woronov, 2013

237 UNESCO-IBE, 2011

238 OECD, 2011a

239 Xi Yu, 2013

240 Yan, 2010

241 Hansen & Woronov, 2013

242 Xi Yu, 2013

243 Hansen & Woronov, 2013

244 Xi Yu, 2013

limited resources of the province and county/district.²⁴⁵ There are few clear minimum standards for equipment and teachers, and some national guidelines are only applied if resources are available.²⁴⁶ This shortage of funding from government and imbalanced development between regions was reported by the Central Institute of Career and Technical Education (CICTE) in 2009.²⁴⁷

The quality of vocational education is therefore not meeting the needs of the labour market.²⁴⁸ OECD emphasises the importance of co-operation between vocational schools and employers by pointing out the lack of quality standards for workplace training and few regional, sectoral or national bodies to engage employers and link them to the VET system.²⁴⁹ This is despite the introduction of *Vocational Education Groups* and other initiatives.²⁵⁰

Drawing on a survey of 106 secondary vocational schools and 7,309 students in two provinces, analysis found that secondary vocational schools have met government benchmarks for teacher qualifications and training, student opportunities for practical training and adequate facilities. Furthermore, poor students are attending schools that are of comparable quality to the schools of their non-poor peers, possibly due to the equal distribution of financial resources from central government and its recent wave of policy interest. However, the report²⁵¹ suggests that inputs (teachers, facilities, curricula etc.) are not translating to student outcomes and voices concern that the drop-out rate from secondary vocational schools is in the region of 15%.

Despite the challenges, the employment rate for vocational school graduates looks encouraging at a glance. According to the Ministry of Education, it reached 96.56% in 2010.²⁵² Recent statistics reveal that the employment rate of vocational school graduates was the highest in east China's Jiangxi Province at the end of June in 2014 exceeding that of Bachelor's, Master's and

PhD graduates.²⁵³ Although the Government sees this as an achievement of the Chinese vocational education system,²⁵⁴ Hansen and Woronov (2013) warn that it is too early to reach such a conclusion as it could be just a reflection of the fact that the rapidly-growing Chinese economy is still generating a significant number of new jobs that university graduates would not choose.²⁵⁵

MALAYSIA

Context

Malaysia is a federation of 13 states with a population²⁵⁶ slightly in excess of 30m, 16.9% of whom are in the 15-24 age group. In 2012, the 15-40 year old cohort represented 61% of the country's labour force and 64% of total employment.²⁵⁷

Labour Market Environment

The country has been enjoying a generally strong, though slightly volatile, labour market, with labour force participation surging by 4.5 percentage points from September 2012 to a peak of 69.6% in September 2013. Meanwhile, unemployment figures remained stable within the range 3.0–3.2%. These two developments reflect significant employment gains during 2013²⁵⁸: the economy added 948,200 jobs in the 12 months from December 2012 and the ratio of employed persons to the working-age population climbed 3 percentage points to 67%. The manufacturing sector made a small contribution to that, adding over 12,000 jobs in 2013 despite a small decline in Electrical And Electronics (E&E) jobs. E&E employment recovered in early 2014 and wage growth accelerated as the industry offered higher salaries to attract workers.

The informal sector in Malaysia contributed 13% to GDP in 2005. The following year a survey was conducted²⁵⁹ which showed that 708,100 workers were employed in the informal sector, 41.7% of whom were craft and

245 OECD, 2011a

246 Ibid

247 Yu, 2013

248 Xi Yu, 2013

249 OECD, 2011a

250 Cambridge Education, 2014

251 Yi et al, 2013

252 People's Daily Online, 2011

253 China.org.cn, July 9, 2014

254 People's Daily Online, 2011

255 Hansen & Wornov, 2013

256 Index Mundi, 2014

257 ASEAN Forum on Youth Employment, 2013

258 The World Bank, 2014

259 Baharudin et al, 2006

related trade workers (motor vehicle mechanics, tailors/dressmakers, house builders etc.), 20.5% were service, shop and market sale workers, and 15.8% were in elementary occupations. Across all age groups, men were more likely to be employed in the informal sector than women, mainly in services, construction, manufacturing, mining and quarrying.

School leavers entering the labour market will find themselves at the centre of a conundrum: if the economy requires increasing numbers of talented workers, why does a relatively large share of better-educated youth have trouble finding a job?²⁶⁰ In Malaysia the ratio of youth unemployment to overall unemployment is 3.3 times and 60% of all unemployed workers in Malaysia are between 15 and 24. Of special concern is the concentration of the unemployed among 20-24 year-olds, as this cohort is relatively well-educated. Their lack of employment can be partly attributed to shortcomings in basic education and, more specifically, inadequate soft skills. For example, half of companies surveyed said that graduates lacked skills in problem-solving. In the most recent PISA assessment of creative problem solving, 15-year old students performed relative poorly, with about half of students unable to understand even a small part of an unfamiliar problem. It appears that students are carrying these deficiencies up to the tertiary level, where the emphasis shifts to developing in-depth technical knowledge of a subject as opposed to improving these skills, which are nonetheless highly-prized in labour markets.²⁶¹

However, new entrants to Malaysia's labour market should be encouraged by the results of Grant Thornton's International Business Report in January 2014. The survey on which it was based found that businesses in Malaysia were cautiously optimistic about the economic outlook: 36% expected to hire more workers and 90% were expecting to offer employees a pay rise. Encouragingly for the country's economy, business owners also reported an increase in the availability of skilled workers.²⁶²

Education Environment

At present only primary education, which takes 6 years, is compulsory. Lower secondary education takes 3 years and

260 The World Bank, 2014

261 Ibid

262 The Sun Daily, 2014

upper secondary education takes 1-2 years. Both levels have two streams: academic and vocational. The vocational route for the lower vocational secondary education (PAV) culminates in the Malaysian Skills Certificate or *Sijil Kemahiran Malaysia* (SKM).²⁶³ Upper vocational secondary education culminates in the Malaysian Vocational Certificate or *Sijil Pelajaran Malaysia Vokasional* (SPMV). Vocational pathways for Malaysian students are shown at Appendix A, Figure 5. Streaming students as young as 12 into a vocational route is in marked contrast to schooling in, for example, the UK and is a direct response to the need for skilled workers in sectors such as manufacturing and construction. It is questionable however whether these students will be sufficiently prepared in terms of adaptability and core skills to be able to successfully negotiate a rapidly changing labour market in the future.

Young people who leave school early may access the TVET system. The TVET system in Malaysia is characterised by multiple providers, qualifications and curricula. The main providers are the Ministries of Education, Human Resources, Youth & Sports, Rural and Regional Development, and Higher Education, the States and private providers, amounting to a total of around 1,000 TVET institutions. The result is a fragmented landscape with multiple qualification systems and non-uniform curricula standards.²⁶⁴

In December 2005 the Malaysian National Government agreed to an 8-level qualifications framework (see Appendix L). This focuses on the rationalisation of post-secondary qualifications and is administered by the Malaysian Qualifications Agency (MQA) under the Ministry of Higher Education. Students with a higher school certificate may enter its diploma courses at level 4. Following the implementation of the National Education Blueprint, skills qualifications at the lower levels of the framework will in future be achievable by school students (see below).

Legislation, Governance and Finance

Legislation

In October 2011 the Ministry of Education launched a comprehensive review of the education system in Malaysia

263 Ministry of Education Malaysia, 2014

264 Ministry of Education Malaysia, 2010

in order to develop a National Education Blueprint.²⁶⁵ One of the elements of Wave 1 (2013-15) of the implementation of the Blueprint is the strengthening of vocational education. This is being carried out under the Vocational Education Transformation Plan²⁶⁶ introduced in 2012. Unlike most countries in the Asia-Pacific region the Plan introduces pre-vocational education in lower secondary where students may achieve a level 2 Skills Certificate at the age of 15. A new combined curriculum is being introduced which comprises 70% vocational skills training and 30% academic education.

The Plan also allows for the transformation of vocational upper secondary schools (SMVs) into vocational colleges or *Kolej Vokasional* (KVs). These colleges will offer a revamped curriculum and diploma-level accreditation. This will be recognised for credit under the national standards established by the Ministry of Higher Education in its national qualifications framework. The new diploma curriculum also comprises 70% practical skills training and 30% general academic education but includes a 7-month long work placement.

With the expected growth in enrolment which will result, 220,000 more work placements will be needed by 2020. The Ministry will encourage partnerships with industry, to be formalised in a new Memorandum of Understanding (MoU) to be signed between the Ministry of Education and industry partners. The aim is that 40% of public KVs will have MoUs with top feeder industries by 2015 and that all public KVs will have at least one MoU with industry by 2020. Potential target industries for collaboration with vocational schools are shown in Appendix I.

Private vocational colleges are also being drawn into the Government's Plan, as the Ministry continues to look for cost-efficient solutions to vocational education. It aimed to select and put in place offtake agreements with 2 private providers by the end of 2012, increasing to 10 by the end of 2014.

The Government recognises the impact the Plan will have on the number and quality of teachers required and within it includes measures to address that issue.

265 Ministry of Education Malaysia, 2012a

266 UNESCO, 2013a

Governance Structure

Education as a whole is under the jurisdiction of the Ministry of Education, which is responsible for managing a comprehensive school system ranging from primary to post-secondary, regulating syllabi, controlling national examinations and generally supervising the development of education in the country.²⁶⁷ Tertiary education is managed by the Ministry of Higher Education.

Funding of Vocational Education

In 2013 RM38.7 billion (US\$11.5b) was allocated to education, of which just under 10% was allocated to TVET.²⁶⁸ The total rose significantly to RM54.6 billion (US\$16.3b) in 2014. Government spending on education increased from 15.12% in 2009 to 16.7% in 2011.

Institutions

The transformation of technical schools into KVs may account for the decrease in the number of technical schools from 61 in 2010 to 18 in 2012, while the number of vocational schools increased over the same period from 27 to 70.²⁶⁹ These changes are reflected in the number of students enrolled during that period: 29,648 in technical schools in 2010 dropping to 10,777 in 2012; and 12,770 in vocational schools in 2010 rising to 28,756 in 2012. This is at a time when the Ministry of Human Resources was reporting severe labour shortages of over 700,000 skilled workers in the manufacturing, agriculture and construction industries.²⁷⁰

Curriculum and Related Matters

Curriculum

As has been mentioned above, general education continues as a significant component of vocational education both in lower and upper secondary schools. However, in an effort to streamline the technical education pathway, electives will be restricted to 3 options: (i) engineering and applied sciences; (ii) design

267 SEAMEO, undated

268 UNICEF, 2013

269 Ministry of Education Malaysia, 2012b

270 UNICEF, 2013

and technology; (iii) business and services. Recognition and accreditation by professional associations will be negotiated by the Ministry.²⁷¹

School/Industry Partnerships

Traineeship programmes representing school-industry collaboration were introduced into the vocational education system in 2012. These programmes offer the opportunity for upper vocational secondary school students to work in industry for 2 days each week. Several initiatives have been taken by the MoE and by individual schools to ensure the success of traineeship programmes. For example, the MoE signed an MoU with Shell Malaysia in which the latter contributes US\$32,000 annually over a period of 5 years to provide students with specialist welding training. Despite some success stories, there are challenges to implementing the traineeship programmes. Primarily these relate to the lack of guidance available. Some employers are apprehensive about taking very young trainees (some can be as young as 14) into their workplace. Others are reluctant to accept students that have yet to become skilled. In order to encourage employers, the Government has improved the terms of the Human Resource Development Fund given to participating industries in which an employer can claim up to 100% of training related expenditure.²⁷²

Vocational Teachers

The Technical and Vocational Education Division of the Ministry of Education, works with the Faculty of Technical and Vocational Education at *Universiti Tun Hussein Onn Malaysia* (UTHM) in responding to the shortage of qualified TVET teachers.²⁷³ TVET teachers are expected to achieve the Malaysian Skills Certificate up to level 3 and the Bachelor of Vocational Education.²⁷⁴

Evaluation

The impact of the National Education Blueprint and accompanying Vocational Education Transformation Plan on vocational secondary education is still to be fully

felt but should successfully address many of the current shortcomings of the system. However, two in particular will be very challenging:

- It is predicted that demands for vocational skills will continue to rise, in part due to the expected 3.3 million jobs that will be created under the National Key Economic Areas (NKEA) by 2020 of which it is estimated 46% will require vocational certificates or diplomas. In order to fulfill this demand, 50,000 additional places in vocational education need to be created each year.²⁷⁵ The expansion of vocational education places therefore needs to take place in a controlled manner which does not compromise on quality and which makes it attractive to students.
- Linked to the above is the need to a) address current weaknesses in teacher competencies; and b) attract more teachers into the profession both to make up the current shortfall in vocational education and to deal with the expected rise in number of students. OECD suggests that the quality of those entering the teaching profession needs to be improved by making teaching a profession of choice instead of a profession of last resort. It goes on to say that the performance incentives of teachers need to be strengthened by replacing the current system of permanent tenure for teachers with performance-based contractual employment.²⁷⁶ Most vocational education teachers are recruited directly after they graduate from university or college, based on their academic qualifications and do not have industrial work experience. At the same time qualified personnel with work experience are unwilling to become teachers due to an unattractive salary scheme.²⁷⁷

These challenges are linked also to the continuing problem of the negative perception of vocational education and its largely fragmented delivery system with numerous training providers from various ministries.²⁷⁸

271 Ministry of Education, 2012a

272 Alias & Hassan, 2012

273 Wan Azlinda, undated

274 Ibid

275 UNICEF, 2013

276 OECD, 2013

277 Mimi et al, 2009

278 Ashari et al, 2014

BRAZIL

Context

With a population approaching 206million, Brazil is the largest country in South America and has the world's 6th largest workforce of 107.1m. It consists of 26 states, over 5,500 municipalities and a Federal District in which the capital city, Brasilia, is located.

Labour Market Environment

Despite only modest growth in 2013, in 2014 Brazil's economy was ranked 7th in the world. Persistent skills shortages in Brazil are caused, at least in part, by the country's inflexible labour laws and low levels of education. In some sectors employers depend on recruiting foreign workers as they cannot find enough people locally with the required skills.²⁷⁹

Brazil has experienced relatively modest economic growth over past decades. Even though workers moved out of agriculture, many shifted to jobs in low productivity services sectors, not higher-productivity manufacturing. In addition, large parts of the manufacturing industry have not benefitted from significant innovation or diversification and, as a result, manufacturing gains have not reached levels that support aggregate economic growth. Unemployment stood at 6.9% in 2012 and is projected to remain fairly steady, falling only slightly to 6.5% by 2016.²⁸⁰ It was higher for young people: 15.6% for those aged 15/16–24, but still a relatively low rate compared with the OECD average of 17.1%, and an indicator of a comparatively smooth school-to-work transition.²⁸¹ However, rates vary between sectors of the population, with 12.1% of Brazilian males being neither in employment nor education and training in 2007, 21.1% of females and 28.2% of Afro-Brazilian youth – a particularly high-risk group.²⁸² Of all of the G20 countries, Brazil had the most favourable employment outcomes during the global financial crisis.²⁸³

In 2013, 68% of Brazil's employers reported a lack of available talent causing recruitment difficulties, which is linked to increased employee turnover.²⁸⁴ In 2012 the labour force participation rate was only 57.2% - well below the OECD average of 70%; for young people it was 54.8% with 18.6% of Brazil's youth neither in employment, education or training - on par with the OECD average.²⁸⁵

During the period 2002 to 2009 there was a significant reduction in the number of informal workers in Brazil and the underground economy was re-assessed and found to account for only 16% of GDP.²⁸⁶ This reduction is attributed in large part to the increasing education attainment, which gives workers greater access to the formal jobs market. This is not to say that the informal economy is not still a significant source of employment for many people. In 2009, more than 36 million workers were estimated to be in informal employment, of whom two-thirds were engaged in agriculture. Of the remainder, the majority had work mainly in construction, transportation, manufacturing and trade.²⁸⁷

Despite Brazil's lacklustre economic performance, new entrants to the labour market encounter a relatively buoyant situation. As the Financial Times reported in March 2013²⁸⁸ 'in spite of the slower (GDP) growth, more Brazilians have formal jobs than ever before, with unemployment hovering near a record low in January of 5.4%..... as Brazilians have got richer, they have increased their consumption of services. This has pushed down the unemployment rate and boosted consumption..... "Services have grown much more than industry, and services tend to hire more people, they are more labour intensive. Today, 75% of all Brazilian workers are in the service sector," said Itaú (Unibanco) Chief Economist' who also declared Brazil to be a full-employment economy.

As a result of the above, there is demand for entry- and mid-level professional and retail service jobs and the labour market is expected to be strong for some time. A high education premium is helping to keep labour supply tight and only a very severe crisis could increase the

279 GoinGlobal, 2014

280 ILO, 2014

281 OECD, 2014a

282 Ibid

283 G20, 2012

284 Manpower Group, 2013

285 OECD, 2014a

286 Filho, 2012

287 ILO Department of Statistics, 2012

288 Beyondbrics, 2013

opportunity cost to staying at school sufficiently to force more young people into the labour force.²⁸⁹ A downturn is indeed expected in 2015, with various forecasts predicting that the economy will shrink by 1%²⁹⁰ with the Brazilian real already at an 11-year low and political scandals threatening to derail the government's attempts at economic reform.²⁹¹

Education Environment

School education in Brazil follows a 9+3 pattern. Primary education (*ensino fundamental*) is compulsory, free and lasts for 9 years. Successful students achieve the *certificado de ensino fundamental*. Secondary education is not compulsory, but is free, lasts for 3 years and is for pupils aged 15-18. Successful students achieve the *certificado de conclusão de ensino médio*.²⁹² Appendix M shows that at the end of primary education (i.e. aged 14) pupils have the choice either to continue with general education or to opt for vocational education. The quality of education in secondary schools is reported to vary considerably.²⁹³

Brazil has not established a national qualification framework, neither are national qualifications referenced to an overarching framework.

Legislation, Governance and Finance

Legislation

The Brazilian education system has its roots in the 1988 constitution and in the 1996 National Education Guidelines and Framework Law (*Lei de Diretrizes e Bases Educação Nacional* - LDB). The LDB was implemented by the 2001 National Education Plan, which linked basic vocational education courses to primary and lower secondary education and established a binary system at all levels of education.²⁹⁴ This binary system comprises: (i) the *sistema de educação básica e superior* (general education) and (ii) the *sistema de educação profissional* (vocational education), with two levels per system:

289 Rapoza, 2013

290 Anadolu Agency website 30/3/15

291 Focus Economics website 17/3/15

292 Stanek, C., 2013

293 Nuffic, 2011

294 Ibid

educação básica and *educação superior* (basic and higher education).²⁹⁵

The Law assigns three main objectives to secondary education, one of which is to prepare youth for employment by producing flexible learners, capable of adapting to changes in the labour market in an increasingly global economy.

Also in 1996, Constitutional Amendment 14/96 created the Fund for Primary Education Development and for Enhancing the Value of the Teaching Profession (*Fundo de Manutenção e Desenvolvimento do Ensino Fundamental e de Valorização do Magistério* - FUNDEF), which promised to provide states and municipalities with a minimum sum of money per primary school pupil. The amendment discouraged states and municipalities from expanding youth and adult education.²⁹⁶ These limitations were only removed after 2007, when the legislature approved the Constitutional Amendment that turned FUNDEF into FUNDEB (Fund for Basic Education Development and for Enhancing the Value of the Teaching Profession - *Fundo de Manutenção e Desenvolvimento da Educação Básica e de Valorização dos Profissionais da Educação*), which included early childhood education, secondary education and youth and adult education.²⁹⁷

Governance Structure

Responsibility for vocational and technical education falls within the remit of the states and the Federal Government²⁹⁸ (ref Appendix A). It is provided by a variety of public and private agencies that cater for both the formal and informal sectors of the economy.²⁹⁹

The Secretariat of Technical and Vocational Education (*Secretaria de Educação Profissional e Tecnológica* - SEPTEC) is responsible for promoting training in secondary education. Its function is to direct, coordinate and supervise the implementation of vocational and technological education policies. It also promotes actions to strengthen and improve the quality of such education.³⁰⁰

295 Ibid

296 Ministério da Educação, 2008

297 Ibid

298 Ministério da Educação, 2008

299 Leite et al, 2009

300 UNESCO, 2013b

Funding of vocational education

TVET in Brazil is maintained by an annual investment in the region of US\$3 billion, representing 2% of the total gross national product (GNP) and 40% of the total expenses on education (5% of GNP). Of this total, 50% comes from private sources, and 50% comes from public financing. The system is characterised by the existence of different forms of management and sources of financing: (a) public financing and management; (b) public financing with private management; and (c) private financing and management.³⁰¹

Institutions

The Ministry of Education supports a network of vocational education schools that offer programmes aimed at fulfilling the need for vocational training in the areas of services, industry and agriculture.³⁰² At the time of the 2004 School Census there were 3,047 institutions offering technical vocational training in 20 fields, to 676,000 students. The majority (71%) of these institutions were private, accounting for more than 50% of enrolments.³⁰³ Vocational schools are expected to establish partnerships with industry so that students may develop practical skills in the workplace as part of their training.

Curriculum and Related Issues

Curriculum

The TVET track of secondary/high school education lasts for 3-4 years and each course has a different workload:

- ▶ Primary sector technicians have a workload of a minimum of 2900 hours of which at least 1200 should be vocational courses, complemented by practical skills work;
- ▶ Secondary sector technicians have a workload of a minimum of 2900 hours of which at least 1200 should be vocational courses, complemented by practical training;

- ▶ Tertiary sector technicians with a minimum workload of 2200 hours of which at least 900 should be vocational courses.³⁰⁴

All courses include both general subjects (e.g. languages, literature, sciences, art and physical education) and vocational subjects. After completion of the programme, pupils are awarded the certificate/professional qualification of *técnico de nível médio/diploma de ensino médio com habilitação em*.³⁰⁵ These grant access to the university entrance examination, as well as to the 3-year post-secondary vocational courses - *cursos superiores de tecnologia*.

In support of the increased priority for vocational education, SEPTEC is implementing a number of programmes, including: *Brazil Professionalized*, which provides funding to states to modernise and expand the technical programme options at secondary level and *Red-e-Tec Brazil*, which seeks to promote distance learning technical education at secondary level.³⁰⁶

School/Industry Partnerships

Brazil's Young Apprentice Scheme caters for 15-17 year olds. The rate of conversion from apprenticeships to full-time employment is estimated at around 70%.³⁰⁷ Apprenticeships are based on a tripartite approach between the federal government, medium-large sized companies, and a network of training institutions. In 2000, the Government introduced legislation requiring medium-large sized companies to have 5%–15% of their workforce made up of apprentices.³⁰⁸ Apprentices' time is split between practical training in the workplace and theoretical education in training institutions.

Vocational Teachers

Until recently in many areas of the country, teachers only had high school education. The LDB mandated that all teachers should have a university qualification and that each state and municipality must establish career paths for teachers. It raised the educational requirements to

301 Leite et al, 2009

302 UNESCO, 2010

303 JICA, 2005

304 UNESCO, 2010

305 Nuffic, 2011

306 UNESCO, 2013b

307 Effective Education for Employment, undated

308 OECD, undated

become a teacher, and made both pre-and in-service teacher-training free. However, improving the quality of teachers remains a major priority for the Ministry of Education (MEC).³⁰⁹

Evaluation

Secondary education in Brazil is fraught with difficulties: 'No segment of the Brazilian education system crystallizes the quality gap between Brazil and the OECD countries as clearly as secondary school.³¹⁰ It is characterised by very high drop-out rates, recurrent repetition (15% of graduates are over age 25) and underqualified and temporary teachers. Over the past 20 years a massive expansion of the system has resulted in low quality, poorly resourced public secondary schools. Despite the challenges, innovative reforms and good practice approaches are spreading, some of these in vocational education provision.³¹¹ These include the introduction of a secondary-level voucher programme in Minas Gerais, in an effort to diversify and expand the technical and vocational training options for youth and young adults, often in partnership with employers.

According to Schwartzman³¹² the 1996 LDB set so many mandatory requirements for general education, the fact that it also allowed for vocational education is irrelevant. In his view the legislation has led to an excessively large

compulsory curriculum, which stifles vocational education as it can only be taught in addition to, or after the more traditional secondary education. As a result the country faces the twin dilemmas of large numbers of students failing to complete secondary education and a serious lack of skilled workers of middle-education level.

Given that it is impossible for students to take vocational courses in lieu of academic ones, and given that those who successfully complete the requirements of the academic course load are natural candidates for university, it is not surprising that so few students follow the vocational education path. The 2009 Student Census, reported 9.8 million high school students throughout the country, of whom less than 9% were taking regular technical courses—an extremely small proportion when compared to other countries"³¹³. Schwartzman argues that the steps necessary to change this situation include ending the uniform high school curriculum and allowing vocational education to develop independently. IADB confirms that much of what is taught as part of the secondary school curriculum appears irrelevant to those expecting to enter the labour market or those already in it.³¹⁴ While the labour market continues to be favourable, young people may be successful in entering it anyway, despite shortcomings in their school education. But if the projected downturn in the economy is severe and jobs become scarce, adequate preparation and training for skilled work will become critical.

309 UNESCO, 2014a

310 Bruns et al, 2012

311 Ibid

312 Schwartzman, 2011

313 Ibid

314 Wolff & Castro, 2000



CHAPTER 4 Summary

Taking each of the 4 specific objectives of the 'Vocationalisation of Secondary and Higher Secondary Education' scheme, now to be delivered as part of RMSA, the following pages summarise each comparator administration's response to that challenge. Whether particular characteristics can be defined as strong or weak depends on the Government of India's aspirations for vocational education. For example, streaming children at the age of 12 can be seen as a strength if a country's policy is to have young workers trained to workplace standards and into the labour market by

age 16. However, if an administration's policy is to keep young people in education beyond compulsory schooling and to increase the numbers of students accessing university education and advanced technical education, then streaming at age 12 with a consequent diminution of general education subjects will be seen as a weakness. What should be clear from this study is that administrations develop policies and practices based on their history, their economic and geographic context and their vision, and that these policies will therefore vary between administrations.

Enhance the employability of youth through demand-driven, competency-based, modular vocational courses

Country	Relevant Features
England	<ul style="list-style-type: none"> • It is legally binding on all young people under 18 to participate in education or training to enhance their employability. • Both academic and vocational qualifications are included in the National Framework, the latter being designed by sector skills councils comprised of employers. • Qualifications are broken down into smaller competency-based modules to allow individuals to learn and accumulate credits over time. • Funding for education is devolved to local authorities, schools have a high level of managerial autonomy; responsibility for teaching methods and materials is devolved to schools and teachers. • Education and training programmes are designed by independent awarding bodies responsible for external moderation and certification and are widely recognised. • Vocational qualifications are in theory given parity with academic qualifications. • Concern that unless achievement in vocational qualifications counts towards schools' performance measures, vocational qualifications will be associated only with lower ability and their value and quality will be undermined.

Country	Relevant Features
	<ul style="list-style-type: none"> • The drive to introduce vocational education into schools can result in poor quality qualifications being offered which have little value either in the labour market or as a means of progression to further study. • Teachers of vocational subjects are required to hold the same level of qualifications as their general education counterparts. • Vocational qualifications are continually under threat of being crowded-out by academic education.
Germany	<ul style="list-style-type: none"> • Responsibility for education is devolved to Länder which then collaborate to achieve policy uniformity and comparability. • The design of vocational programmes is heavily influenced by employers. • A proportion of the curriculum at full-time vocational schools is reserved for general education subjects and, in response to the globalisation of the labour market, the development of competence in languages takes place throughout secondary schooling. Within the dual system language competence relevant to the professional field is stressed. • At full-time vocational schools, VET teachers must be either skilled workers or qualified craftsmen. In-service training is provided. • Costs of vocational education are increasing with the changes in skill needs.
Poland	<ul style="list-style-type: none"> • All teachers, whether of academic or vocational subjects, require to have both subject and pedagogical qualifications. At the same time, there is a need to attract more highly-qualified specialists to work in vocational schools. • The school curriculum is not yet entirely based on learning outcomes. • There is the intention to make exams lead to uniform vocational qualifications. • The impact of a significant general education content in training programmes for 16-20 year-olds may be at odds with industry-based learning outcomes and lead to high drop-out rates.
Scotland	<ul style="list-style-type: none"> • Breadth of subject range is emphasised, rather than specialisation, particularly up to age 17. • There is no streaming of academic and vocational students either between or within institutions. Neither employers nor educationalists are in favour of separate streams at school age. • Schools are largely funded by local authorities. FE colleges, which cater for 16+ aged students are funded against student performance criteria. • Secondary school teachers, regardless of the subject they teach, must hold a first degree and a post-graduate teaching qualification. • Pathways leading to vocational qualifications and apprenticeships could be strengthened in senior secondary, in partnership with colleges. Progress in vocational education should be measured and used as one of the school performance indicators.
China	<ul style="list-style-type: none"> • Curricula are often out-of-date and are neither modular nor competency-based. • Low-skilled teachers struggle to fulfil the needs of advance knowledge training in a changing environment. This is despite the fact that all teachers are required to have a teaching qualification and spend time in industry each year. • There are few clear minimum standards for equipment and teachers, and some national guidelines cannot be applied in poor districts with few resources. • There are few quality standards for workplace training and few regional, sectoral or national bodies to engage employers and link them to the VET system.
Malaysia	<ul style="list-style-type: none"> • A combined curriculum is being introduced which comprises 70% vocational skills training and 30% academic education. • Some vocational upper secondary schools will become vocational colleges with diploma-level accreditation recognised in the national qualifications framework and including a work placement. • Specific industries have been identified to be targeted and electives in the technical education pathway will be restricted to 3 broad options. • On-going reforms have a major impact on the number and quality of teachers required, which was already a cause for concern. They are expected to have a level 3 Skills Certificate and a Bachelor of Vocational Education. There are proposals to replace the current tenured contracts with ones based on performance and to require industrial work experience.

Country	Relevant Features
	<ul style="list-style-type: none"> Concerns over quality are linked to an over-rapid expansion of the vocational education system.
Brazil	<ul style="list-style-type: none"> (Upper) secondary vocational schools offer technician courses in the areas of services, industry and agriculture, each with a specified number of hours for general and vocational education and for practical training. These allow access to HE as well as to post-secondary vocational courses. Distance learning technical education is being piloted. The qualifications of teachers are being upgraded and all will be expected to have a university degree. The quality of teachers remains a major priority. An excessively large compulsory curriculum stifles vocational education, squeezing it out.

Maintain their competitiveness through provisions of multi-entry, multi-exit, learning opportunities and vertical mobility/inter-changeability in qualifications

Country	Relevant Features
England	<ul style="list-style-type: none"> A national qualifications framework is already in existence and referenced against the EQF. Vocational education and general education routes are not distinct and students can move between them. At age 14-16 students are expected to follow a broad-based curriculum with vocational subjects comprising no more than 20%. There is a lack of continuity between vocational education for 14-16 year olds and the options post-16. The labour market offers very poor returns to low-level vocational qualification holders, but good returns at the higher levels.
Germany	<ul style="list-style-type: none"> at age 16 students choose between an academic school, a vocational school and an apprenticeship. Choosing vocational education does not prevent students from subsequently progressing to academic education. A national qualifications framework is being set up, to reference against the EQF, to include informal and non-formal learning. The Chamber exam which students take at the end of their apprenticeship does not include the school-based element of the programme. As a result students may not take their schooling seriously and limit their chances of accessing HE in the future.
Poland	<ul style="list-style-type: none"> The increasing interest in vocational education is linked to the opening up of overseas labour markets. A national qualifications framework is being developed which will be referenced against the EQF. The Government is considering extending vocational schools to include provision for adults. The need for more flexibility in integrating vocational and general education is recognised, in particular to enhance general education in the basic vocational school curriculum.
Scotland	<ul style="list-style-type: none"> A national qualifications framework brings together all qualifications from Access to Doctorate levels, both academic and vocational. It is referenced against the EQF. The importance of articulation between pre-16 and post-16 education is recognised in recent reviews. There need to be more comprehensive standards for careers guidance which cover guidance pre- age 15; CPD for teachers re the world of work; and school/industry partnerships.
China	<ul style="list-style-type: none"> China has no plans to develop a national qualifications framework. Vocational secondary schools offer limited general education and, until now, their graduates have been unlikely to access tertiary education. Reforms are under way to address this and allow talented students from the vocational stream to enter HE. The public has a negative perception of vocational education for a variety of reasons including the lack of a pathway to HE and the weak link between vocational and general education.

Country	Relevant Features
Malaysia	<ul style="list-style-type: none"> • A national qualifications framework is being introduced but it focuses on post-secondary qualifications. • General education continues as a significant component of vocational education both in lower and upper secondary.
Brazil	<ul style="list-style-type: none"> • No national qualification framework has been established.

To fill the gap between educated and employable

Country	Relevant Features
England	<ul style="list-style-type: none"> • Employer-led bodies advise on vocational education and influence the development of qualifications and training programmes. They may also advise on core subjects. • School-based vocational education may be in partnership with universities, colleges and businesses to match national curriculum requirements to local needs. • Education/business partnerships may include work experience for both pupils and teachers.
Germany	<ul style="list-style-type: none"> • An introduction to the world of work is included in the curriculum for students still in compulsory education. • Employers are strongly represented on all statutory and consultative bodies for vocational education. • The Chambers administer exams and certificate trainees. • The service sector is much less likely to offer apprenticeships than the manufacturing sector which leads to a shortage of training places for young people.
Poland	<ul style="list-style-type: none"> • Employers need to be engaged to a greater extent in curriculum development and assessment. • The Government plans to set a minimum number of hours for practical training for certain types of vocational schools.
Scotland	<ul style="list-style-type: none"> • A post-16 transition planning model has been introduced to support students to progress within and beyond senior secondary schooling. • A standard is required against which to measure and evaluate the content of work experience, with accompanying guidelines for employers. • Recent reforms have included more skill-for-work options for school pupils and greater emphasis on entrepreneurship. • The employer-led bodies mentioned under England (above) also have a remit in Scotland.
China	<ul style="list-style-type: none"> • Although work experience or 'apprenticeships' are often offered in the final year of vocational schooling, the quality of these varies widely and may even be unrelated to the student's field of study.
Malaysia	<ul style="list-style-type: none"> • Formal partnerships between government and industry and between schools and industry are being established based on MoUs. • Apprehension by employers on taking unskilled, 14+ aged students into the workplace is hindering the successful implementation of the new traineeship programmes for upper vocational secondary school students. Better guidance for employers is required. Employers are being offered an inducement of 100% of training-related expenditure.
Brazil	<ul style="list-style-type: none"> • Vocational schools are expected to form partnerships with industry so that students can develop practical skills in the workplace as part of their training.

To reduce the drop-out rate at the secondary level

Country	Relevant Features
England	<ul style="list-style-type: none"> Some work-related, vocational courses have been introduced for 14-16 year-olds and for 16-19 year olds still at school. 16-18 year-olds may attend college for full-time study or as part of an apprenticeship.
Germany	<ul style="list-style-type: none"> At age 16 students have the choice of full-time, occupationally-based, vocational education which includes work experience, or part-time linked to an apprenticeship. Careers guidance can be very variable between Länder with no single agency responsible for providing quality information to students.
Poland	<ul style="list-style-type: none"> At age 14-16, 15% of the curriculum is devoted to vocational education. Those who decide to continue their education beyond age 16 must choose between general upper secondary, technical upper secondary, basic vocational schools or an apprenticeship. The rate of dis-continuation from secondary schools has been increasing. This may be the result of lengthy vocational programmes with weak links to the labour market.
Scotland	<ul style="list-style-type: none"> Vocational options are available in secondary schools from age 14. At age 16 students may continue their education at school, transfer to an FE college or begin an apprenticeship. All state secondary schools are comprehensive and students may continue their education, academic or vocational, within the same institution. From 14 years old, students choose the mix of subjects which best suits their needs. There need to be more comprehensive standards for careers guidance which cover guidance pre- age 15; CPD for teachers re the world of work; and school/industry partnerships.
China	<ul style="list-style-type: none"> Students may specialise as early as 12 years of age, by transferring to a vocational junior secondary school. There are also vocational high schools. Fees for vocational schools are often waived in an attempt to encourage more students to enrol for vocational education courses.
Malaysia	<ul style="list-style-type: none"> Both lower and upper secondary school have two streams: academic and vocational. A level 2 skills certificate may be obtained at the age of 15. Private vocational colleges are being contracted as cost-efficient solutions to lack of capacity.
Brazil	<ul style="list-style-type: none"> At age 14 students can opt for either general education or vocational education. Much of what is taught in the secondary school curriculum appears irrelevant to those expecting to enter the labour market or already in it.

It is clear from the preceding tables that there are some critical areas where there is divergence in policy-making in the different administrations, although all are trying to achieve broadly the same goal of producing sufficient numbers of young workers with the education and skills which will make them valuable members of the labour force. Again using the objectives of the 'Vocationalisation of Secondary and Higher Secondary Education' scheme, these main areas of divergence are:

- Enhance the employability of youth through demand-driven, competency-based modular vocational courses:

- the level of progress made towards introduction of a competence-based curriculum;
- the proportion of general education included in the vocational education curriculum and the extent to which that remains the student's choice or is dictated by the structure of the programme;
- the incorporation of workplace training into the curriculum;
- the level of technical competence required of teachers.

- ▶ Maintain their competitiveness through provisions of multi-entry, multi-exit, learning opportunities and vertical mobility/inter-changeability in qualifications:
 - the development of a national qualifications framework and whether it is sufficiently comprehensive to include vocational qualifications gained at school;
 - institutional streaming and, where it exists, the age at which it starts and its impact on future career and education choices;
 - the extent to which school vocational qualifications are distinct from, or articulate with, post-school vocational programmes.
- ▶ Fill the gap between educated and employable:
 - the level of success achieved in engagement of employers;
 - the amount of practical training undertaken within schools;
 - the role and monitoring of work experience;
 - the inclusion of entrepreneurship within the curriculum.
- ▶ Reduce the drop-out rate at the secondary level:
 - the age at which vocational education is introduced;
 - the role of private institutions in vocational secondary schooling;
 - the level of importance given to careers guidance for school pupils.

These divergences in policy-making will be discussed in more detail in the following Section 5 next page.



CHAPTER 5

Key Questions

In taking forward the Vocationalisation of Secondary and Higher Secondary Education through the RMSA, there are a number of key questions arising from the 7-administration study which the GoI may want to consider. These are outlined below:

What is the place of school-based vocational education within India's National Skills Qualification Framework?³¹⁵

Of the administrations studied, all of the European ones are well-advanced in establishing a single comprehensive NQF which will incorporate all types of qualifications. These qualifications are largely competence-based. In the case of Germany, it will include informal and non-formal learning as well. Malaysia is introducing an NQF which focuses on post-secondary education although, as part of its reforms, some of the skills qualifications contained within the NQF will be able to be gained by students at secondary school. Of the 7 administrations, only China and Brazil have no plans to develop an NQF.

³¹⁵ The Ministry of Labour and Employment developed the National Vocational Qualifications Framework (NVQF) and the Ministry of Human Resource Development developed the National Vocational Educational Qualification Framework (NVEQF). Realising the need to have a unified framework, an Inter-Ministerial Committee was formed by the Cabinet Secretariat to use the work already done by the two Ministries as the foundation of the National Skills Qualification Framework. (ref. Gazette Notice 27/12/13).

Having an NQF which includes school qualifications should help a country to address other issues which arose in this study, such as a plethora of providers and qualifications, a desire for flexible pathways between academic and vocational routes and articulation into higher education. However, it is worth noting that in England and Scotland, both regarded as administrations with a long-established, well-designed framework, there remain concerns that continuity between school-based vocational provision and post-school provision is not well co-ordinated. Including secondary school qualifications within an NQF does not of itself guarantee good articulation but does provide a framework within which weaknesses of the system can be recognised and addressed.

For India, this question has wide-reaching implications - political, technical and educational - as its NSQF is still under development and the governance structure liable to change. There is employer engagement through the SSCs which may be attractive on the one hand but may sit uncomfortably within an educational context on the other. At the same time GoI is looking for ways of converging the school infrastructure with that available in ITIs and polytechnics and being part of the NSQF could assist that.

Where general education qualifications, or school-based vocational qualifications are included within a framework then it becomes necessary to define the levels using terminology which is not based exclusively on work-place definitions. For example, in the Australian Qualifications

Framework (AQF),³¹⁶ the levels describe the relative complexity and depth of achievement, and the autonomy required of graduates to demonstrate that achievement. This could be in an academic context or in a vocational context. The criteria for each level and the descriptor for each qualification type include the three dimensions of: knowledge, skills, and application of knowledge and skills.

Taking the summary of what graduates at level 4 in the framework would be expected to have achieved, the Australian example says: 'Graduates at this level will have theoretical and practical knowledge and skills for specialised and/or skilled work and/or further learning.' It does not refer to these graduates as 'skilled workers' and the definition recognises that for some of them the qualification is a route to further learning, not a route into the workplace. The language used to describe the skills of level 4 graduates is similarly broad: 'Graduates at this level will have a broad range of cognitive, technical and communication skills to select and apply methods and technologies to: analyse information to complete a range of activities; provide and transmit solutions to sometimes complex problems; transmit information and skills to others. Graduates at this level will apply knowledge and skills to demonstrate autonomy, judgement and defined responsibility in known or changing contexts and within broad but established parameters.'

By defining the levels using this type of language, the AQF is giving parity of esteem to the multiple pathways which may lead to a qualification at a specified level, without demanding that the knowledge and skills acquired are relevant only to a workplace setting.

A similar approach is evident in the Scottish Credit & Qualifications Framework which states: SCQF levels are based on a single set of level descriptors that are the common reference points and definitions which provide a way of recognising learning that is outcome-based and quality-assured, irrespective of whether that learning is academic, vocational, non-formal or informal.³¹⁷

Therefore, when it comes to referencing a qualification against a framework and developing assessment procedures and methodology for it, the qualification

316 Australian Qualifications Framework, 2nd edition, January 2013

317 SCQF Level Descriptors, August 2012

will be examined against the level of complexity, depth of achievement and self-management which are required to complete it successfully. By focusing on these underpinning competences, qualifications can be assessed comparably, regardless of the subject matter.

How much choice should be left to school students to decide on the balance of general and vocational education in their learning programme?

In the majority of administrations studied, students had to decide whether to attend a vocational education institution or an academic education institution. This decision generally had to be made at the end of lower secondary school (i.e. age 15) although in Malaysia and China (particularly the rural areas of the latter) it may be made at the end of primary school (i.e. age 12). In England, although students may elect to take vocational subjects from age 14, the majority of school students continue within a general education institution, which offers vocational options. Only in Scotland was a strong and specific statement found against the division of school students into vocational or academic streams.

Those administrations in which vocational secondary schools were found were strongly driven by the need to expand vocational education and to produce greater numbers of workers who can fulfil the skill requirements of industry. Similar, indeed, to India's current position. This suggests a strong economic development motivation behind this policy but a danger, as experienced to some extent in England, that the drive to increase quantity may have a negative impact on quality.

In the UK administrations, the motivation for introducing vocational education into the school curriculum, without streaming, appears to be driven more by the wish to keep young people longer in education by including options for those who are less interested in academic subjects. It also allows students the opportunity to create a study programme which combines academic and vocational options and therefore delay making career decisions until they are more mature and have a better understanding of the world of work. In India, the need to incorporate vocational subjects as additional in lower secondary and as a compulsory elective in senior secondary has been identified. GoI's aim is to introduce vocational education

from Class IX, i.e. in senior secondary. The challenge will be to make vocational subjects available without streaming students into a rigidly narrow study programme leading to a limited range of career options.

One of the striking differences between those administrations which streamed and those which did not, was that the vocational education programmes in the former appeared to be much more proscribed with students being locked in to a pre-determined programme often with very specific regulations on the amount of time to be spent on practical training. Students in administrations which did not stream were able to exercise a much greater degree of choice about the combination of subjects they studied. There also appeared to be correlation within administrations between high levels of institutional autonomy and freedom for students to choose subjects.

Some administrations, such as Germany, take steps to try to ensure that students who have chosen a vocational route are not denied the opportunity to proceed to tertiary education. China is now taking steps to do the same, having acknowledged that the vocational secondary school certificate is not enabling able students to access tertiary education.

What proportion of the vocational education curriculum should be devoted to general education?

Only in those administrations which stream, does the issue of proportionality really arise to any degree. In the main, they all included some general education within their vocational education programmes, although the proportion varied between countries, between sectors and between types of school.

However, concerns were voiced in England (even although streaming is not common there) and in Brazil about the 'crowding out' of vocational education by general education, and in Poland about the volume of general education in vocational courses being too great, causing the courses to be overly long and leading to dissatisfied students dropping out.

The Government of India will wish to consider how vocational education is placed within institutions and within timetabling option columns, and the extent to

which it is desirable to teach core skills such as literacy, numeracy and IT through vocational subjects rather than as stand-alone classes.

How can sufficient numbers of teachers of good quality be found to teach growing numbers of vocational students?

Those countries, such as Malaysia and China, which are actively working to increase the number of vocational education students, or Poland, which is experiencing an increase in the level of interest in vocational education, will face the challenge of finding sufficient numbers of well-trained and experienced vocational teachers. In the case of China, improvements are starting from a very low base, with many existing teachers poorly qualified and already having difficulty in responding to the introduction of modern curricula and teaching practices.

In most administrations there is a move towards teaching being a graduate-only profession, although Germany makes an exception for the teaching of practical skills, for which craftsmen with industrial experience are employed. In every country, the challenge of keeping teachers up-to-date with modern industrial practice is mentioned, although this is less of an issue in non-streaming countries in which only the non-workplace content is taught in schools and practical training is introduced post-school or in partnership with FE colleges. In China, the challenge is met in part by employing large numbers of part-time teachers, who also work part-time in industry, thereby keeping their skills and knowledge up-to-date. In Malaysia, where teachers are more often full-time and have been recruited directly from university without industrial work experience, schools are competing for staff with industrial employers offering more attractive salaries.

The GoI may therefore wish to factor into decisions on the vocational content of secondary education, the feasibility of recruiting teachers with industrial experience, if practical training is to be included.

How beneficial is objective careers guidance for school pupils?

The issue of careers guidance is mentioned in both the German and the Scottish reference documents. In the

former there is concern that the devolved nature of the governance system has prevented a coherent careers guidance system from developing. In Scotland, there were recommendations that learning about the world of work should happen in lower secondary and that comprehensive standards for careers guidance should be published. These concerns reflect the level of importance which these two administrations attach to providing school pupils with information and guidance on future choices and the extent to which choice is left up to the pupil.

Careers guidance seems to be less of an issue in countries which stream from an early age, without much mobility between streams, and where choices are therefore very limited. The more choice students have, of subject and of career, the more professional and well-informed the careers guidance needed. However, one could argue, that lower secondary school pupils who are being streamed into vocational schools should be made fully aware of the career-limiting consequences of any such decision.

What is the role or purpose of work experience for school pupils?

All of the administrations studied recognise the value of work experience and seek to include it in the curriculum. However, it can take different forms depending on the motivation of each country and the programme which the pupil is following. At one end of the spectrum, such as in Brazil and China, schools are expected to form partnerships with employers in order that students can develop practical skills as part of their training. Unfortunately, at least in the case of China, such work experience is often insufficiently planned or monitored and its value to students may be limited, other than to allow them access to an employer who may subsequently give them a job on graduation.

Ideally, a work placement would have clear objectives, with identified workplace competences to be achieved and guidance for employers on their management. This is more likely to be the case where work placements are part of a structured apprenticeship training, as in Germany, or are part of a formal education/business partnership, as happens in England and Malaysia. In addition, as in England, it must be clear that the placement is for learning purposes, not to supplement the workforce of an employer.

At the other end of the spectrum, a work placement can simply be a 'taster' for school pupils to experience the world of work, regardless of the industry, exposing them to workplace norms and expectations, being part of their careers education. This is most likely to occur in lower secondary schools in countries which do not stream and places responsibility on schools to arrange work placements for their pupils, requiring them to have strong links with local employers.

The problem with workplace liability and insurance of young people below working age, which Malaysia is experiencing and which is also an issue for the Chinese Government, needs to be considered by GoI before introducing work experience which includes practical training. Also, in those countries such as Malaysia, where a significant increase in the number of vocational students is expected, making work experience a mandatory element of training programmes can be a major challenge for schools and can only work when there is co-operation from employers to provide placements.

What contribution to vocational education can be expected from employers if the labour market is largely informal with a small manufacturing sector?

Of the administrations studied, Brazil has the largest, although diminishing, informal sector, heavily focused on agriculture. Malaysia and Poland also have informal sectors of some significance. However, none of these compare in scale or range to the informal sector in India. In Brazil, the reduction in size of non-agricultural informal jobs is attributed to improved education levels, which give students access to the formal jobs market. To use the informal sector for work experience could therefore be regarded as a contradiction – at odds with students' own aspirations and that of their parents. Furthermore, there are major challenges to including informal sector employers in formal participation in vocational education provision. These include:

- ▶ informal employers' unwillingness to expose their businesses to government scrutiny when they may have shortcomings in aspects directly related to training and employment, such as health and safety arrangements, and indirectly,

such as compliance with tax and employment regulations;

- ▶ a lack of coherent representation of informal employers, making it difficult to elicit their views on skill needs and the structure of training programmes;
- ▶ an inability or unwillingness of small, informal workplaces to provide structured, meaningful work experience which follows a prescribed programme to predetermined standards, with some form of quality assurance applied by the participating school.

The extent therefore to which employers in the informal labour market can be included will depend on the role which they are expected to play and the regulatory arrangements which the government and institutions impose. A tension between quality and quantity is very likely to arise.

What form should assessment take, how would it be carried out and is there a relationship between it and general education?

Decisions relating to the form of assessment will follow from the question raised in Section 1: is the focus of secondary vocational education to be on allowing a smoother transition to the workplace or is it to be on pre-vocational education as a way of increasing job awareness? If the latter, then formal assessment may be conducted using the same mechanisms as are used for general education. If the former, then assessment coupled with quality assurance, will be an important issue and is likely to include workplace assessment. As an aid to that, as India develops a competency-based curriculum, with learning outcomes clearly defined for each competence, the process of assessment becomes more objective. Even so, issues which the GoI will want to consider are:

- ▶ whether assessment will be a joint responsibility between schools, a central authority, and employers, or exclusively the responsibility of one of them; concerns over credibility, competence/training of assessors and standardisation will need to be taken account of;
- ▶ which competences will be assessed during work experience and by whom; concerns over

the capacity of workplaces to provide learning opportunities for specific competences, the ability of workplace supervisors to conduct assessment and access by school staff to workplaces will need to be addressed;

- ▶ transfer of credits (i.e. formal recognition of achievements) between vocational education and general education, as well as between different vocational education courses; this will need to be designed into the curricula to avoid unnecessary duplication.

In considering these issues the lessons from Germany of ensuring adequate recognition of the school-based component of any training programme will be important as will the recommendation of England's Wolf Report³¹⁸ that the assessment and awarding processes used for vocational awards should involve local employers on a regular basis.

How can responsibility for vocational secondary education be allocated within a federal system of government?

Of the administrations studied, China and Germany best represent systems where responsibility for vocational secondary education is shared between national and regional governments. In both countries the main responsibility for policy and legislation lies with national government, with regional governments applying those to their own economic situation and institutional arrangements. Also in both countries a mechanism is put in place to ensure some uniformity between regions to enable recognition of educational achievement beyond regional boundaries. National government also supports regional governments financially (in part) and through conducting research and development for introduction of new initiatives and improvement of existing ones. An example of this in China is the research into education/industry links undertaken by the national government with support from the Asian Development Bank.³¹⁹

There is one significant difference between these two examples however, and that is the extent to which, in Germany, employers and their Chambers, play a role

³¹⁸ Wolf, 2011

³¹⁹ Cambridge Education, 2014

in assessment, regulation of quality and certification. Germany thereby demonstrates a three-way split, within a federal system, of responsibility for vocational education.

The extent to which decentralisation of education reform responsibilities has taken place in China 'has produced a number of important successes, but it has been plagued at the same time by an inability for local government to allocate sufficient resources to the reforms to meet centrally promulgated goals and guidelines'.³²⁰ Where

decentralisation has been successful it has been mainly due to the capacity of motivated local actors to push reforms in ways that are directly responsive to the demands of their economies. China's social, cultural and economic diversity means that localising reforms has real benefits for making them effective. The success of pilot programmes and the difficulties of generalising them nationally, suggest that local governments themselves should take charge of planning and implementing reforms.³²¹

320 Lai et al, 2011

321 Ibid



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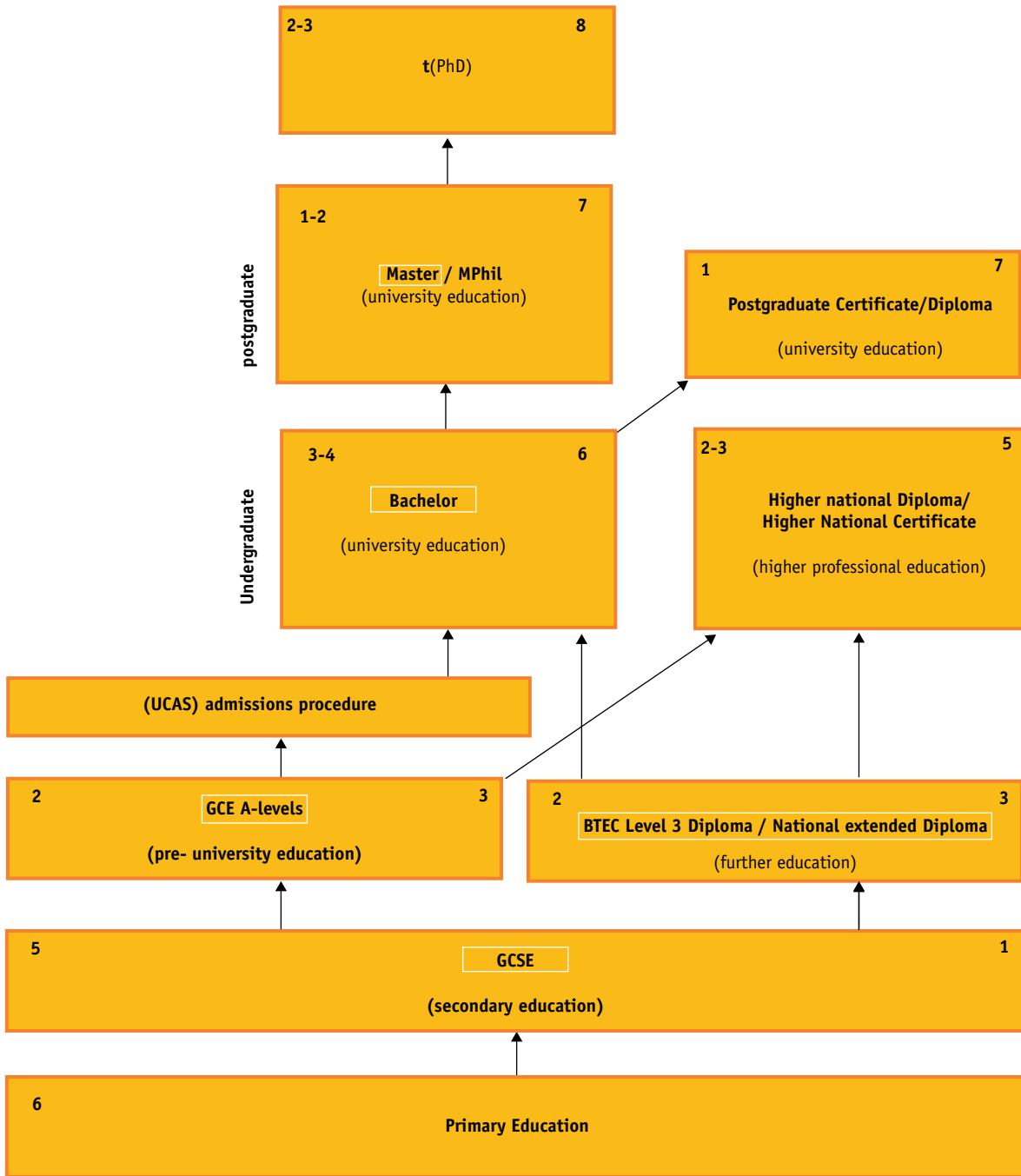
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Structures of the Education Systems

FIGURE A.1: ENGLAND



Source: Nuffic (2014) Country module United Kingdom, p.2.

FIGURE A.2: GERMANY

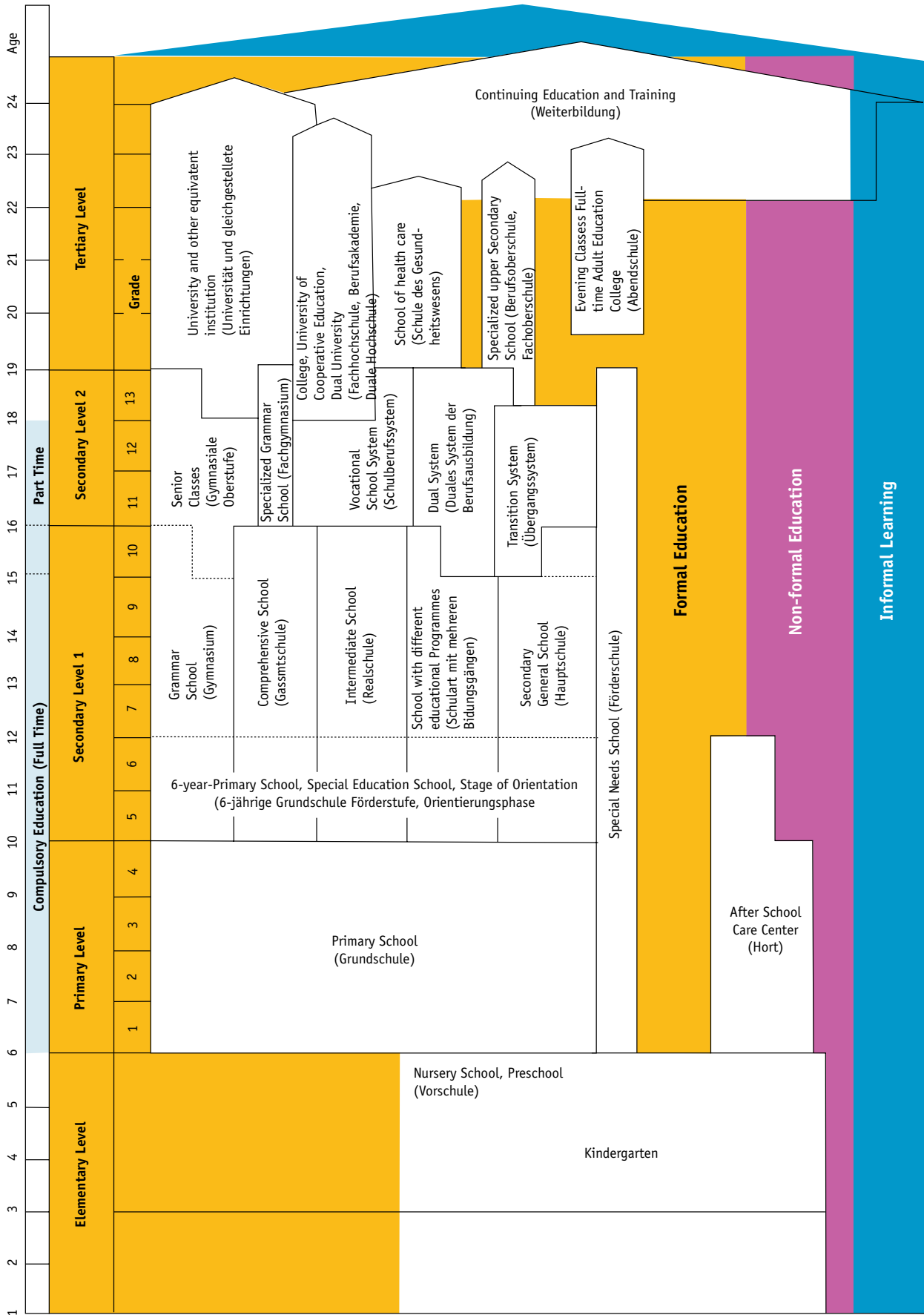
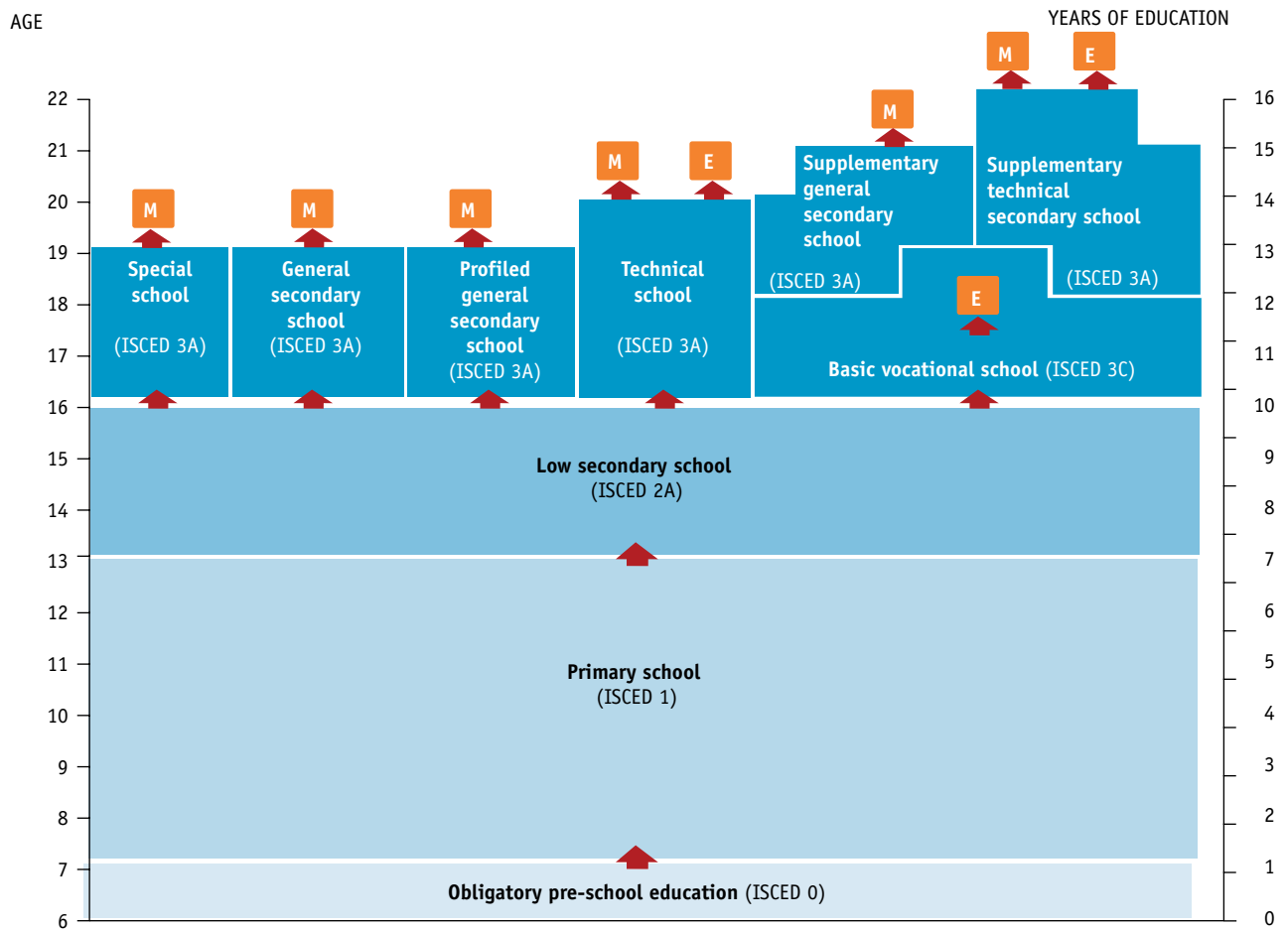
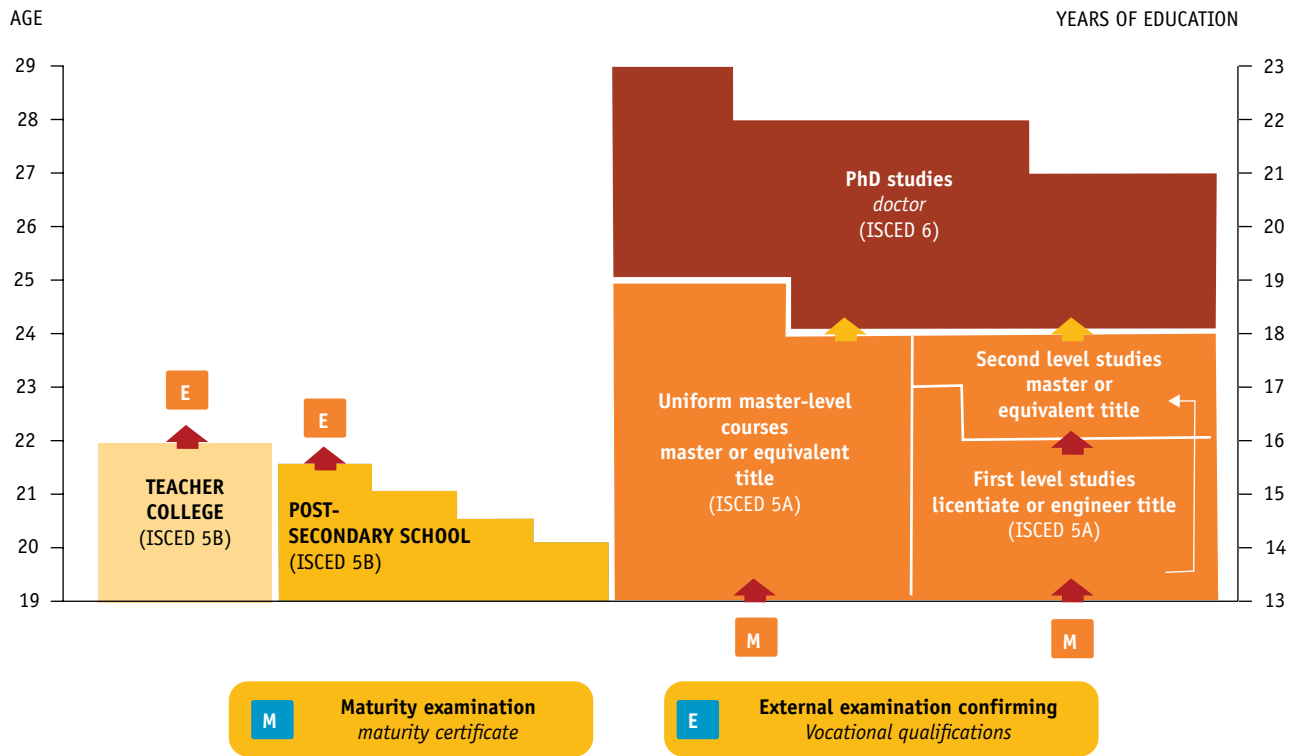


FIGURE A.3: POLAND



Source: ReferNet Poland (2010)

FIGURE A.4: CHINA

People's Republic of China: Structure of the Education System

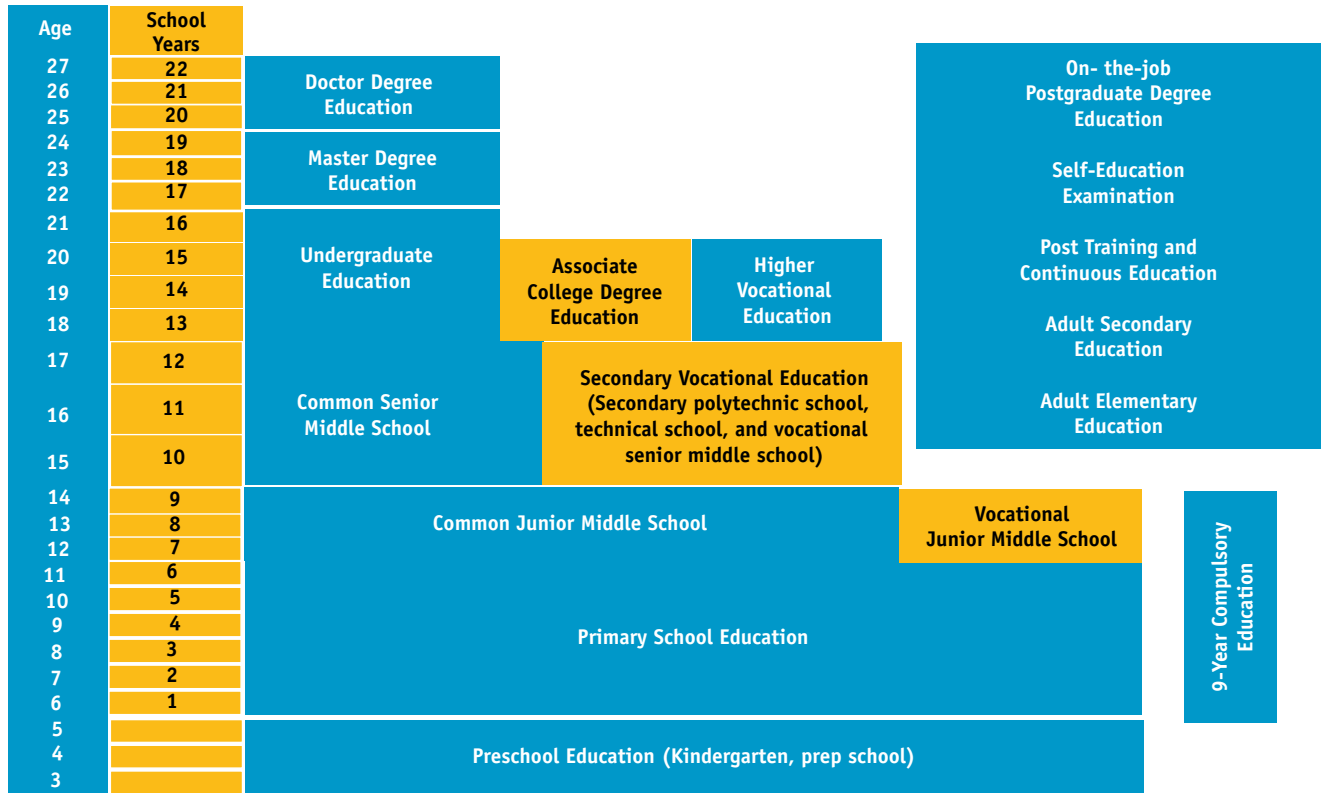
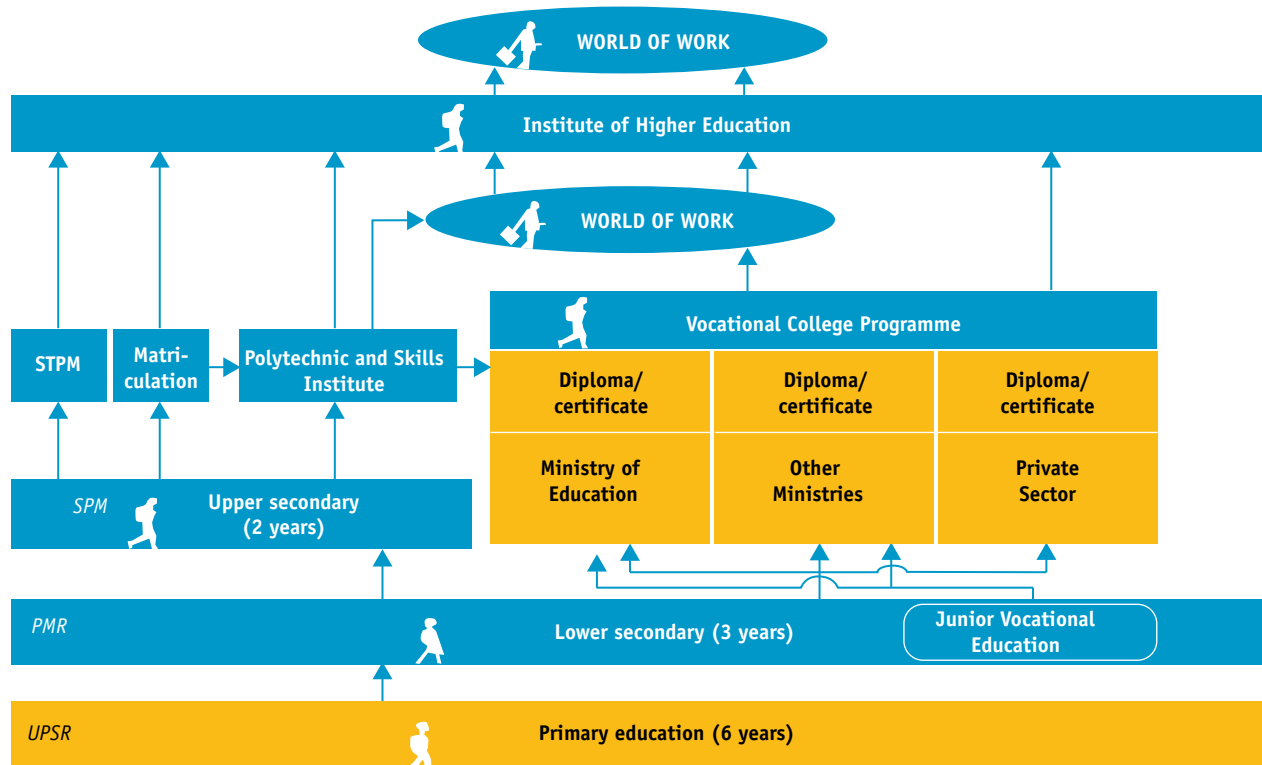
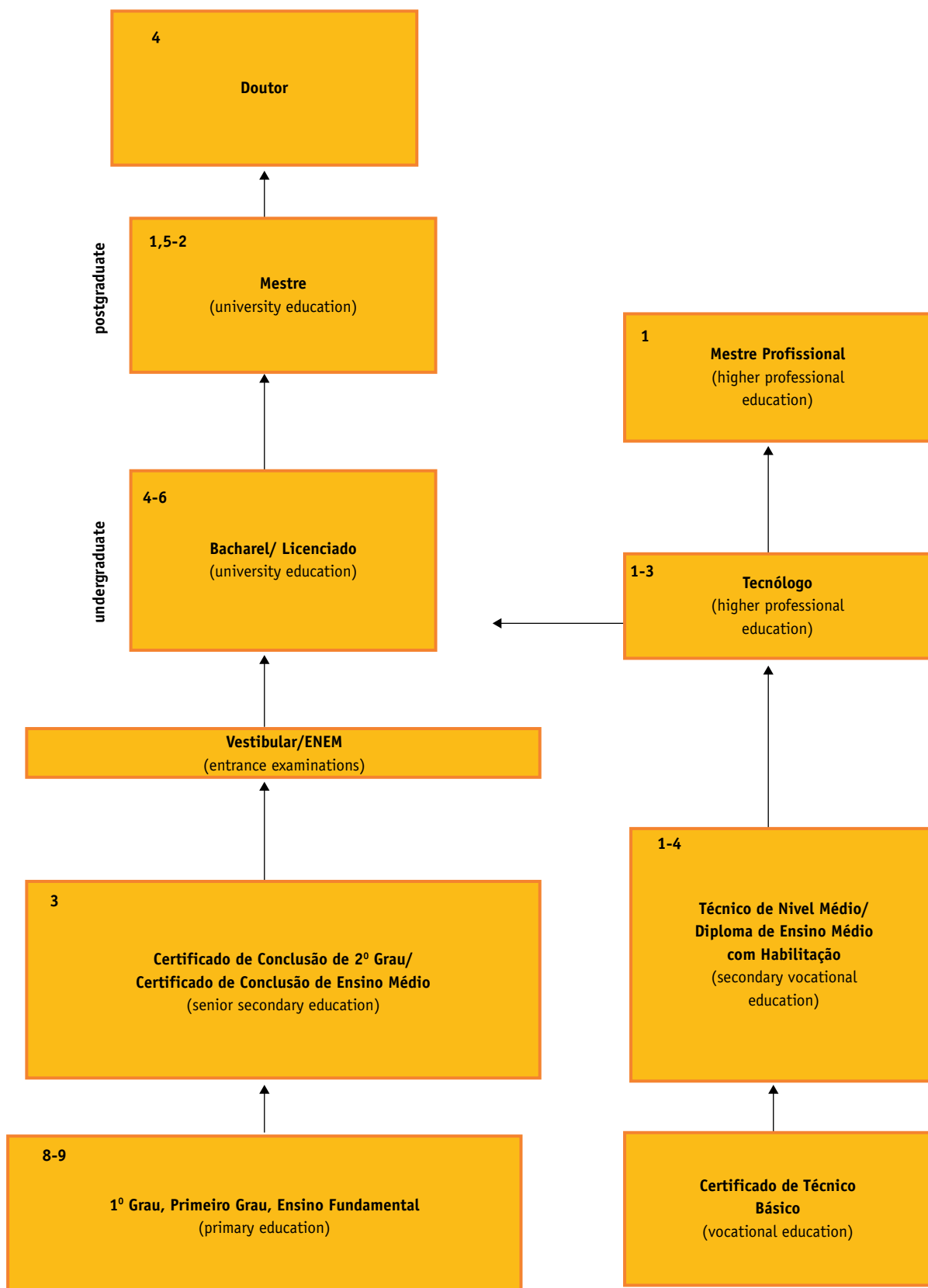


FIGURE A.5: MALAYSIA



Source: Ministry of Education Malaysia (2014) Malaysian Education System

FIGURE A.6: BRAZIL



Source: Nuffic (2011) Country Module - Brazil

APPENDIX B

Schools approved under the Vocationalisation of Secondary and Higher Secondary Education Programme, India

Sl. No.	States	Number of schools approved
1	Haryana	240
2	West Bengal	93
3	Assam	60
4	Karnataka	250
5	Himachal Pradesh	200
6	Sikkim	52
7	Uttar Pradesh	100
8	Andhra Pradesh	46
9	Delhi	22
10	Madhya Pradesh	50
11	Jammu and Kashmir	132
12	Bihar	38
13	Jharkhand	24
14	Maharashtra	350
15	Odisha	30
16	Arunachal Pradesh	21
17	Chandigarh	6
18	Chhattisgarh	25
19	Uttarakhand	44
20	Manipur	39
21	Nagaland	5
22	Punjab	100
23	Rajasthan	70
24	Goa	38
TOTAL		2035

Source: RMSA India website on 27th November 2014

Descriptors defining levels in the European Qualifications Framework

Level	Knowledge	Skills	Competence
Level 1	Basic general knowledge	basic skills required to carry out simple tasks	work or study under direct supervision in a structured context
Level 2	Basic factual knowledge of a field of work or study	basic cognitive and practical skills required to use relevant information in order to carry out tasks and to solve routine problems using simple rules and tools	work or study under supervision with some autonomy
Level 3	Knowledge of facts, principles, processes and general concepts, in a field of work or study	a range of cognitive and practical skills required to accomplish tasks and solve problems by selecting and applying basic methods, tools, materials and information	take responsibility for completion of tasks in work or study; adapt own behaviour to circumstances in solving problems
Level 4	Factual and theoretical knowledge in broad contexts within a field of work or study	a range of cognitive and practical skills required to generate solutions to specific problems in a field of work or study	exercise self-management within the guidelines of work or study contexts that are usually predictable, but are subject to change; supervise the routine work of others, taking some responsibility for the evaluation and improvement of work or study activities
Level 5	Comprehensive, specialised, factual and theoretical knowledge within a field of work or study and an awareness of the boundaries of that knowledge	a comprehensive range of cognitive and practical skills required to develop creative solutions to abstract problems	exercise management and supervision in contexts of work or study activities where there is unpredictable change; review and develop performance of self and others
Level 6	Advanced knowledge of a field of work or study, involving a critical understanding of theories and principles	advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study	manage complex technical or professional activities or projects, taking responsibility for decision-making in unpredictable work or study contexts; take responsibility for managing professional development of individuals and groups

Level	Knowledge	Skills	Competence
Level 7	Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and/or research Critical awareness of knowledge issues in a field and at the interface between different fields	specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields	manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches; take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams
Level 8	Knowledge at the most advanced frontier of a field of work or study and at the interface between fields	the most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice	demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research

Source: <https://ec.europa.eu/ploteus/content/descriptors-page>

Summary of Policy Changes related to VET in England, 1996-2011

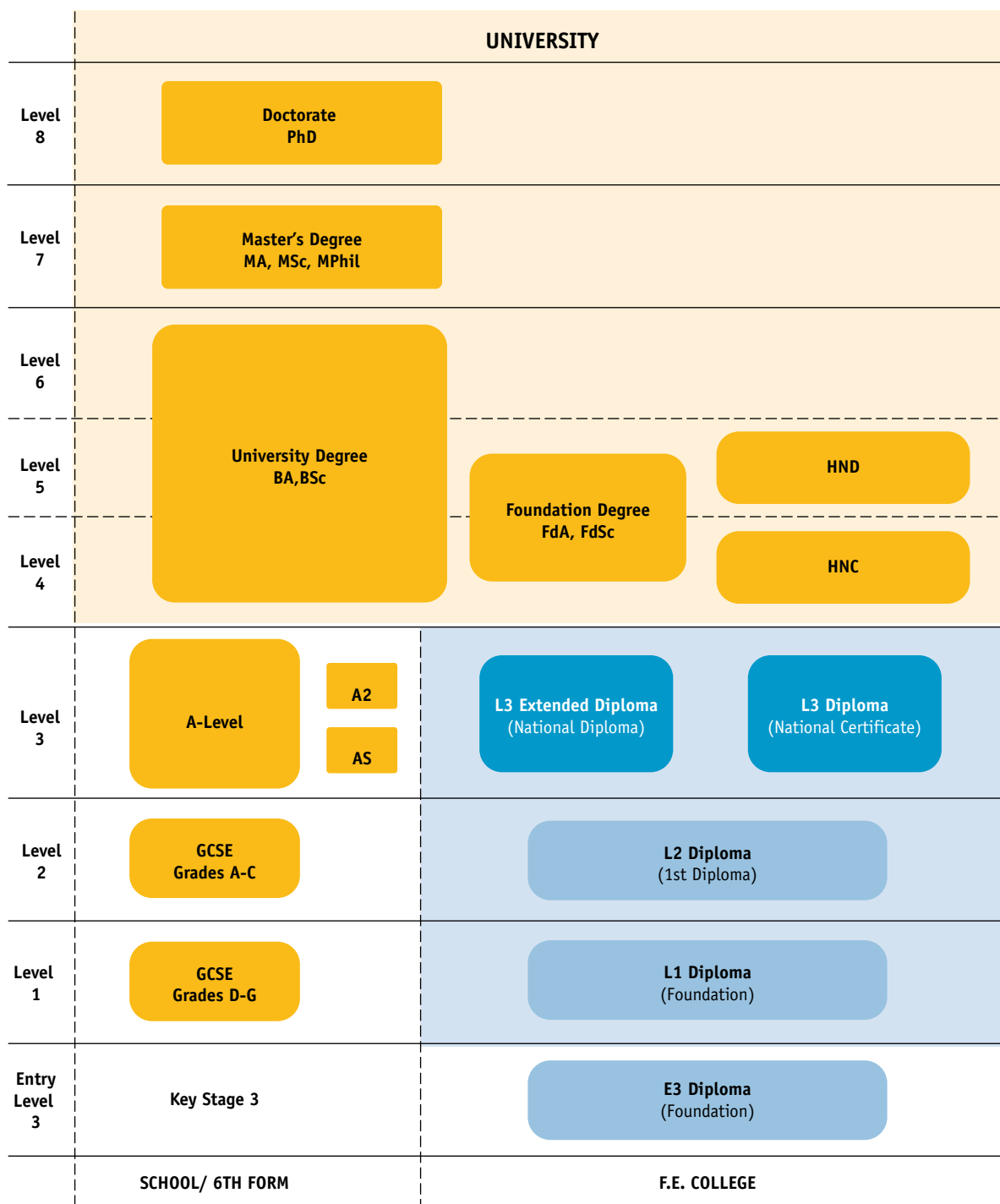
Policy changes	Impact
The Education Act 1996	Defined the scope of secondary education
The School Standards and Framework Act 1998	Enabled further education institutions to provide secondary education for pupils aged 14 to 16 in collaboration with local authorities (LAs)
The Learning and Skills Act 2000	The planning and funding for all post-compulsory learning below higher education was integrated into one overarching sector, the Learning and Skills Council (LSC)
The Education Act 2002	Created a legislative distinction between key stages 1 to 3 (5- to 14-year-olds) and key stage 4 (14- to 16-year-olds) of compulsory education, which allowed flexibility to tailor education to individual needs for pupils in key stage 4. For example, the number of compulsory subjects was reduced, and a statutory requirement for all students in key stage 4 in maintained schools to be offered some work-related learning was introduced.
The Education and Inspection Act 2006	Developed new diplomas for 14- to 19-year-olds, which combine general and vocational learning.
The Education and Skills Act 2008	Raised the compulsory age of participation in education or training to 18 from 2015. Young people between 16-18 years old must follow one of the following options; a) full-time education, b) an apprenticeship, or c) part-time education and training if they are employed, self-employed or volunteering full-time (defined as 20 hours per week) ³²²
The Apprenticeships, Skills, Children and Learning Act 2009	Transferred the responsibility for funding education and training for young people over compulsory school age (but under 19) from LSC (as defined in The Learning and Skills Act 2000) to LAs. Established the Office of the Qualifications and Examinations Regulator (Ofqual) as a new independent regulator of qualifications and assessments. Introduced the National Apprenticeship Service which provides a single point of contact for employers who want to offer apprenticeships, and for prospective apprentices. Gave all employees the right to request time for training from their employer
The Youth Contract announced in 2011	Offering a range of opportunities to unemployed 18-24 year-olds and additional support for disengaged and vulnerable 16 and 17 year-olds ³²³ .

322 EURYPEDIA: European Encyclopedia on National Education Systems, United Kingdom (England) 'Secondary and post-secondary non-tertiary education': https://webgate.ec.europa.eu/fpfis/mwikis/eurydice/index.php/United-Kingdom-England:Secondary_and_Post-Secondary_Non-Tertiary_Education

323 Eurydice, 2013a

APPENDIX E

Qualifications and Credit Framework of England, Wales and N. Ireland

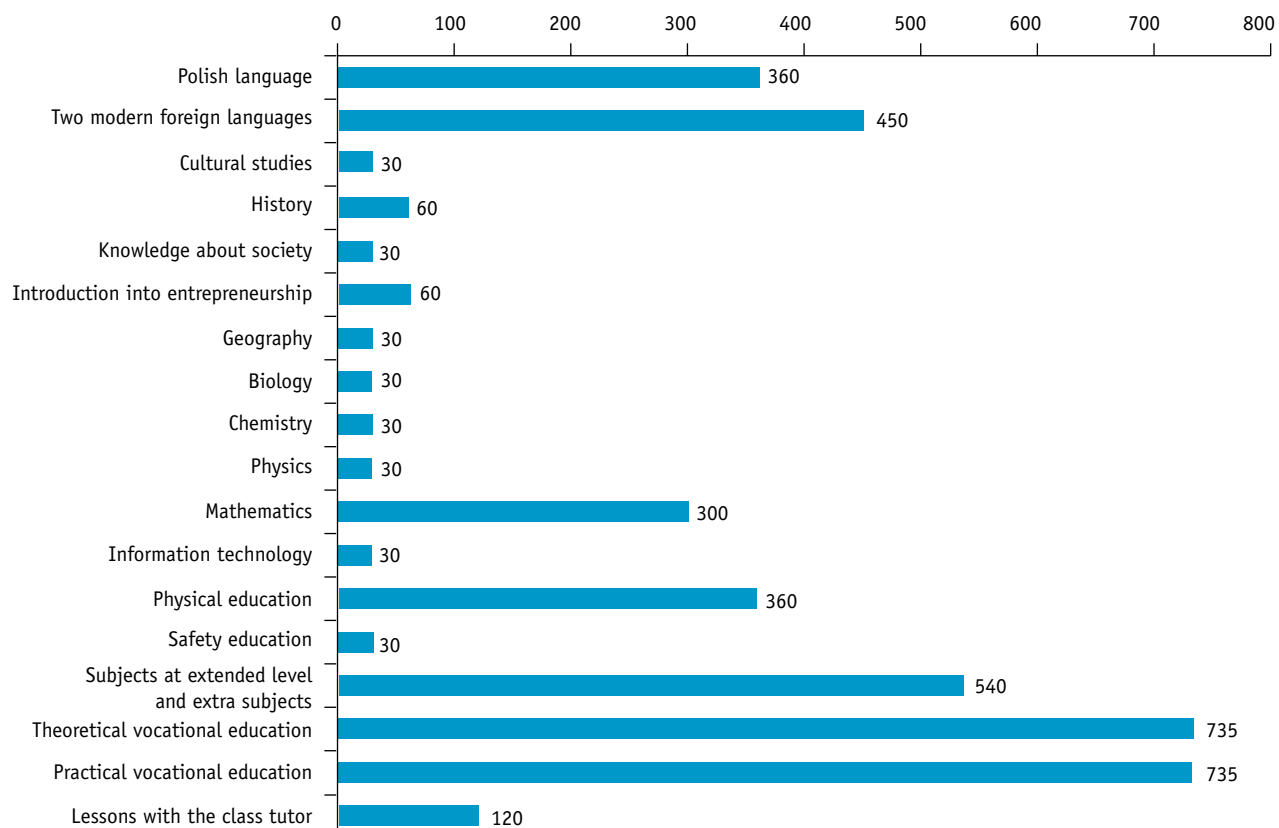


Source: <http://www.accreditedqualifications.org.uk/qualifications-and-credit-framework-qcf.html>

Management and Administration of Vocation Education and Curriculum Content in Poland³²⁴

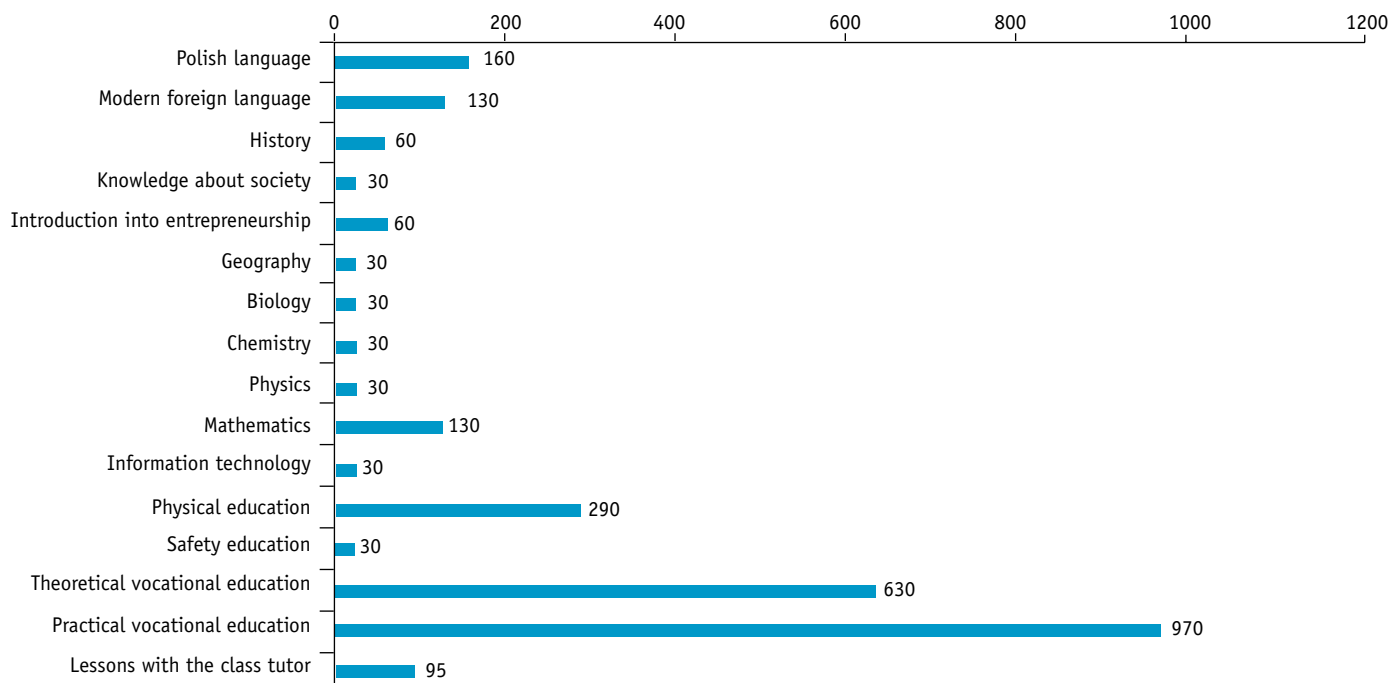
National Level	The Minister For National Education	
	<ul style="list-style-type: none"> Formulates education policy Creates a legal framework for functioning of all education establishments, including vocational education and training Manages the national budgets for education Sets out the core curricula for general and vocational education. Accepts the curricula for particular subjects. Approves the textbooks used in both general and vocational education. Partly supervises the operation of school superintendents (<i>Kurators</i>) 	
	The Board of National Education (Consultative body) <ul style="list-style-type: none"> Cooperates with the Ministry of National Education in formulating educational policy to higher education Gives opinions on the proposed direction of changes in education Consults the proposals of legislative acts. Provides suggestions on reforms in education. 	Institutions of social dialogue <ul style="list-style-type: none"> Consults the proposals of legislative acts. Gives opinions on issues concerning vocational education, training for unemployed people, and programmes promoting employment.
Regional Level	The regional authorities represents by school superintendent (<i>Kurator</i>)	
	<ul style="list-style-type: none"> Supervise implementation of National Policy Provide pedagogical supervision for education establishments in the region. Run schools and educational establishments or regional significance, including schools for medical staff and social workers, public establishments for teacher training and development, as well as teachers libraries. 	
Direct Level	Institutions of social dialogue	
	<ul style="list-style-type: none"> Give opinions on VET in the region consult questions of educational organization and financing. 	
	Institutions of Social dialogue: district employment boards (constative bodies)	
Local Level	<ul style="list-style-type: none"> Gives opinions on VET in the district 	
	The district authorities (<i>Powiaty</i>) represented by their heads (<i>starosta</i>)	
	<ul style="list-style-type: none"> Are in charge of managing upper secondary education (including vocational education). Run post –secondary schools and special schools (Primary and secondary), sports schools and schools of sports mastery. Manage practical and continuing education centers. Are in charge of psychological and pedagogical assistance centers. 	
School Level	Local self-governments (<i>gmina</i>)	
School Level	<ul style="list-style-type: none"> Are in charge of managing lower secondary education. Run primary schools. Are in charge of pre-school education (kindergartens). 	
	The headmaster of a school or educational establishments	
School Level	<ul style="list-style-type: none"> Chooses curricula. Provides pedagogical supervision, hires and dismisses personnel. Manages the school budget. 	

FIGURE F.2: STAGE IV GRADES 1-4, TECHNICAL UPPER SECONDARY SCHOOL - MINIMUM NUMBER OF TEACHING HOURS BY SUBJECT OVER 4 YEARS



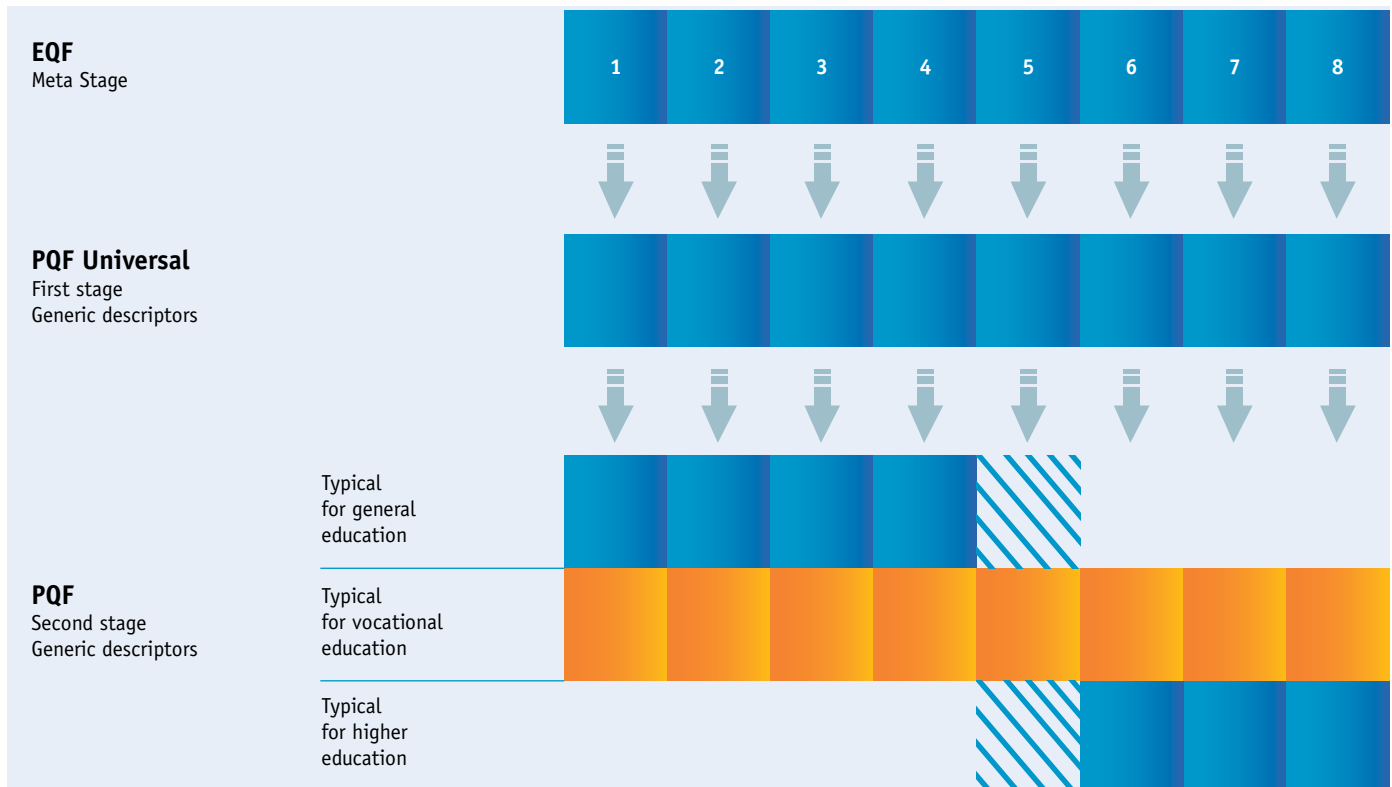
Source: The System of Education in Poland, Polish Eurydice Unit, Foundation for the Development of the Education System (2012)

FIGURE F.3: STAGE IV, GRADES 1-3, BASIC VOCATIONAL SCHOOL - MINIMUM NUMBER OF TEACHING HOURS BY SUBJECT OVER 3 YEARS



Source: The System of Education in Poland, Polish Eurydice Unit, Foundation for the Development of the Education System (2012)

Structure of the Polish Qualifications Framework



Source: Educational Research Institute (2013) 'Referencing Report: Referencing the Polish Qualifications Framework for Lifelong Learning to the European Qualifications Framework'. Warsaw 2013

APPENDIX H

The Scottish Credit and Qualifications Framework

SCQF levels	SQA qualification			Qualification of higher education institutions	Scottish vocational qualifications
12				Doctoral degree	
11				Integrated masters degree Masters degree Post graduate diploma Post graduate certificate	SVQ5
10				Honours degree Graduate diploma Graduate certificate	
9			Professional Development award	Bachelors/ordinary degree Graduate diploma Graduate certificate	SVQ4
8		Higher national diploma		Diploma of higher education	
7	Advanced higher Scottish baccalaureate	Credit Points 32 104	Higher national certificate	Certificate of higher education	SVQ3
6	Higher	24			
5	Intermediate 2 Credit standard Grade	24 24			SVQ2
4	Intermediate 1 General standard grade	24 24	National certificate	National Progression award	SVQ1
3	Access 3 Foundation standard grade	18 24			
2	Access 2	18			
1	Access 1				

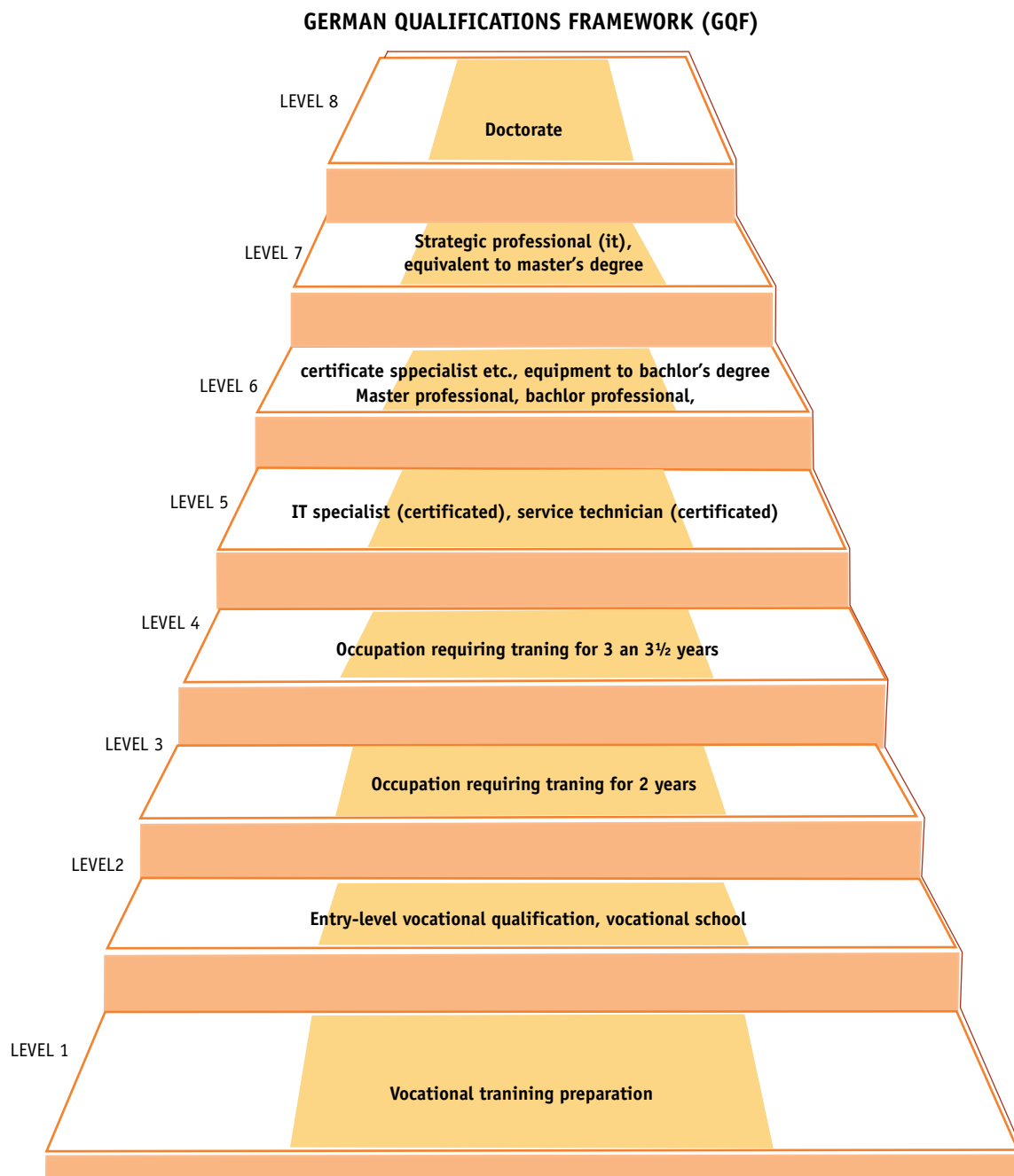
Potential Target Industries for Collaboration with Vocational Schools in Malaysia

POTENTIAL TARGET INDUSTRIES FOR COLLABORATION WITH VOCATIONAL SCHOOLS		
North corridor Economic Region (NCER)-kedah,Perak,Prlis,Penang	East Corridor Economic Region (ECER)- Kelantan, Terengganu, Pahang	Sabah Development Corridor (SDC)
<p>Information Technology</p> <ul style="list-style-type: none"> • Computer System Technology • Data Base and Programming Needs • Support Service Network • Telecommunication Technology <p>Agriculture</p> <ul style="list-style-type: none"> • Nursery Management • Agriculture Biotechnology, • Agriculture Product Processing • Aquaculture <p>Tourism</p> <ul style="list-style-type: none"> • Medical Tourism • Agro Tourism 	<p>Renewable Oil, Gas and Power</p> <ul style="list-style-type: none"> • Solar EnergyTechnology • Energy and Power Technology <p>Agriculture</p> <ul style="list-style-type: none"> • Nursery Management • Agriculture Biotechnology • Agriculture Products Processing (Halal) • Livestock Products Processing (Halal) <p>Transport and Logistics</p> <ul style="list-style-type: none"> • Aircraft Maintenance • Avionic Technology 	<p>Renewable Oil, Gas and Power</p> <ul style="list-style-type: none"> • Solar Energy Technology • Energy and Power Technology <p>Marketing and Sales</p> <ul style="list-style-type: none"> • Marketing • Retailing Management <p>Manufacturing</p> <ul style="list-style-type: none"> • Electric and Equipment Technology <p>Toursim</p> <ul style="list-style-type: none"> • Medical Tourism • Agro Toursim
Greater KL/Klang Valley	Iskandar Malaysia-Johor	Sarawak Corridor of Renewable Energy (SCORE)
<p>Transport and Logistics</p> <ul style="list-style-type: none"> • Global Logistics and Supply Chain Technology • Locomotive Technology <p>Health Science</p> <ul style="list-style-type: none"> • Medical Laboratory Technology • Environment Health <p>Finance</p> <ul style="list-style-type: none"> • Banking • Insurance <p>Tourism</p> <ul style="list-style-type: none"> • Medical Tourism • Sports Tourism (Golf) 	<p>Logistic and Transportation</p> <ul style="list-style-type: none"> • Marine Services Technology • Global Logistics and Supply Chain Technology <p>Information Technology</p> <ul style="list-style-type: none"> • Computer System Technology • Data Base and Programming Needs • Network Support Service • Game/Simulation/Animation Audio/Video Effects <p>Agriculture</p> <ul style="list-style-type: none"> • Agriculture Biotechnology • Agriculture Products Processing <p>Manufacturing</p> <ul style="list-style-type: none"> • (existing infrastructure, equipment 7 facilities) 	<p>Renewable Oil, Gas and Power</p> <ul style="list-style-type: none"> • Solar Energy Technology • Energy Technology and Power <p>Transport and Logistics</p> <ul style="list-style-type: none"> • Global Logistics and Supply Chain Technology • Marine Services Technology <p>Tourism</p> <ul style="list-style-type: none"> • Medical Tourism • Agro Tourism <p>Agriculture and Fishery</p> <ul style="list-style-type: none"> • Nursery Management • Agriculture Biotechnology • Aquaculture

Source: Govt. of Malaysia, Ministry of Education (2012) Preliminary Report: Malaysia Education Blueprint 2013-2025

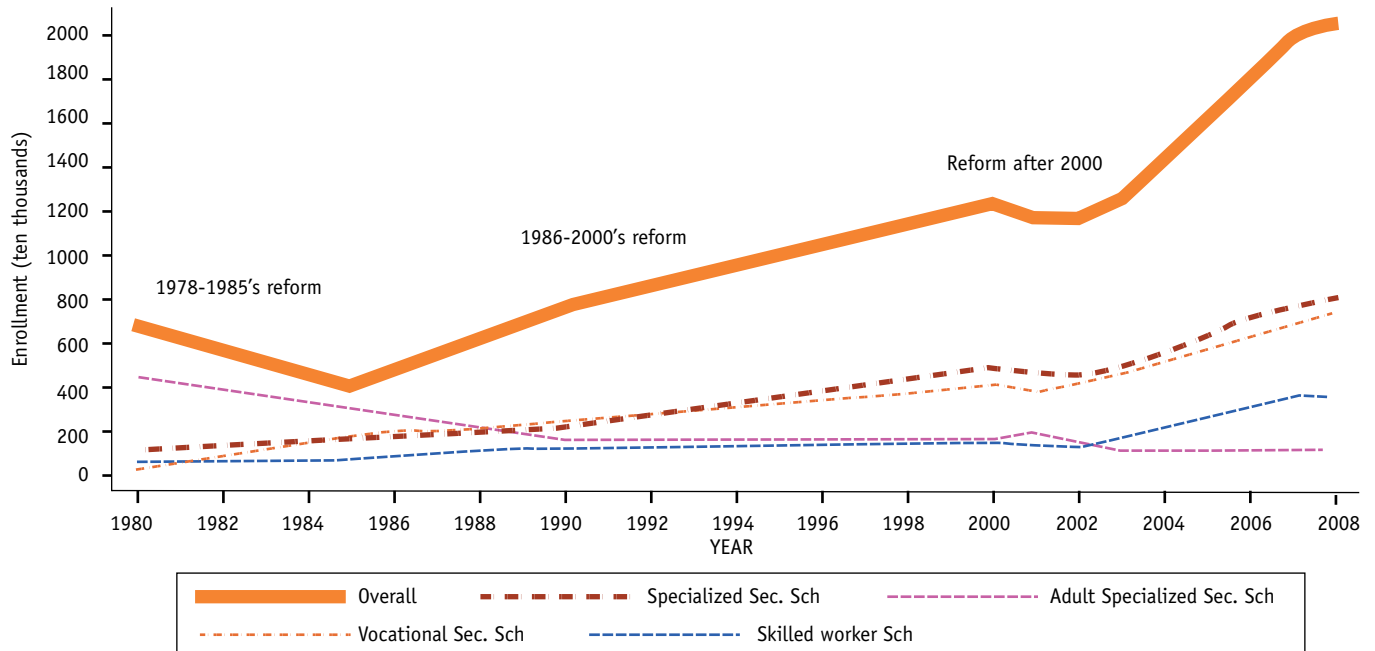
APPENDIX J

Qualifications Framework, Germany



Source: Association of German Chambers of Commerce & Industry

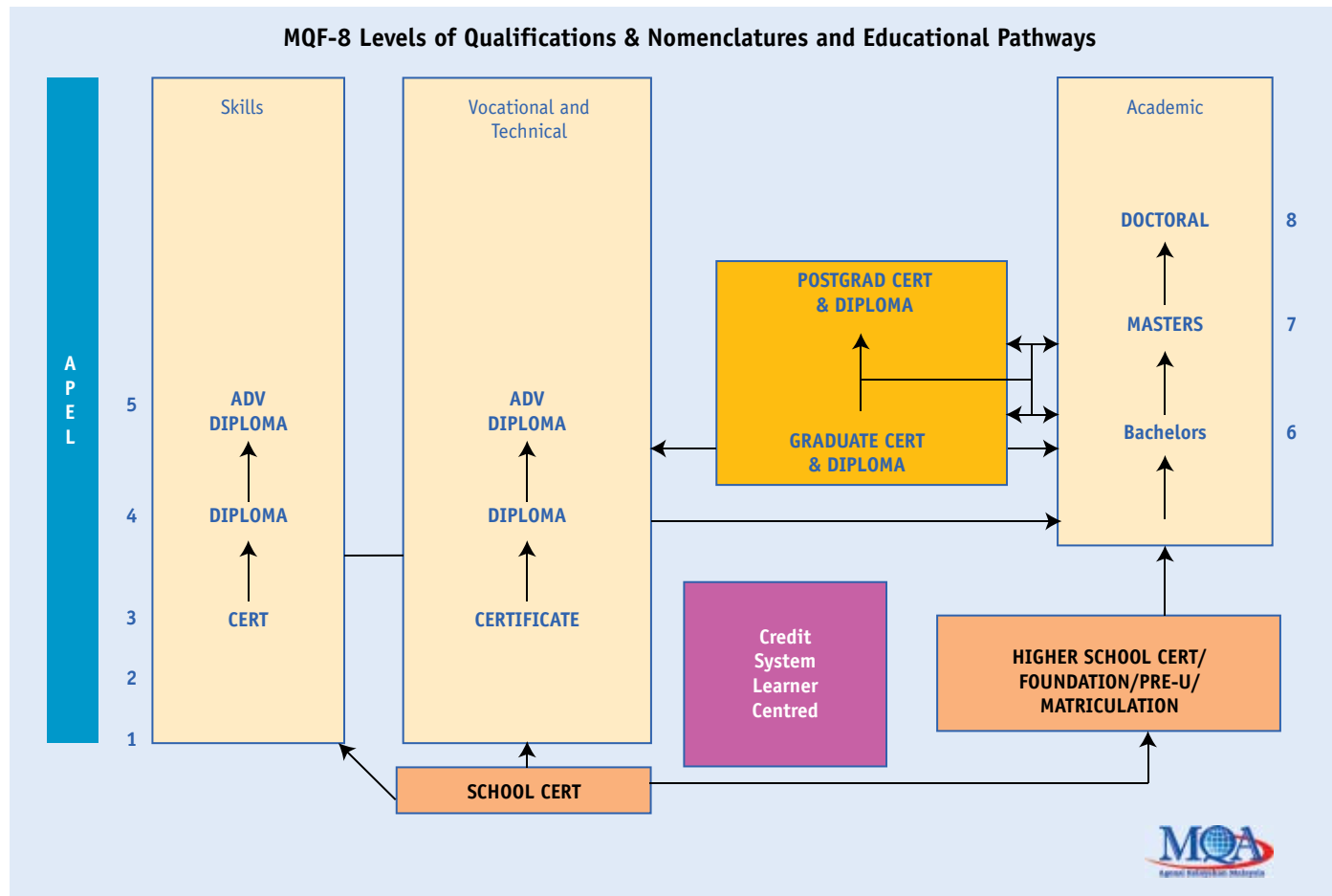
Numbers of Students in Secondary Vocational Education 1978-2008, China



Source: Huang et al, 2012, p.4

APPENDIX L

Malaysian Qualifications Framework: Qualifications and Levels



Source: Malaysian Qualifications Agency 2009

APPENDIX M

Structure of the Brazilian Education System and Educational Authorities

General programme	Specific programme	International denomination	Grades/Years	Theoretical age	Authority	
Basic Education	Early childhood education	Initial education	4 years	0-3	Municipalities	
		Pre-school	2 years	4-5		
	Primary education (Compulsory)	Elementary education	1st grade	6-10	6-10	Municipalities States
			2nd grade			
			3rd grade			
			4th grade			
			5th grade			
		Lower secondary school	6th grade	11-14		
			7th grade			
	8th grade					
	Secondary education	Upper secondary education	1st form	15-17	15-17	States
			2nd form			
			3rd form			
Vocational and technological education	Upper secondary education	Forms 1-3	15-17	15-17	States	
Higher education	Sequential Courses (Specific)		1,600 hours	18 or older	Federal Government	
	Complementation courses		Variable			
	Graduate	Bachelor's	2,400 hours			
		Higher Diploma	2.800 hours			
		Technological Diploma	1,600 hours			
	Post graduate	Master's	2 years			
		PhD	2 years			
		Professional degree	3 years			
Specialization courses (Certificate)		360 hours				

Source: Ministry of Education, 2008



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