Qualifications Frameworks: Implementation and Impact

Background Case Study on Malaysia
Jack Keating,
University of Melbourne Centre for Post-Compulsory Education and Lifelong Learning

Skills and Employability Department
ILO

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Foreword

This report was prepared as one in a series of background studies under an international research project conducted by the ILO Skills and Employability Department in partnership with the European Training Foundation on the implementation of National Qualifications Frameworks (NQFs) and their use and impact. The individual country studies and the subsequent cross-country comparative analysis strengthen the empirical foundation for eventual policy advise on whether and, if so, then how to introduce a qualifications framework as part of a strategy to achieve countries' wider skills development and employment goals.

Whether the emphasis is on increasing the relevance and flexibility of education and training programmes, easing recognition of prior learning, enhancing lifelong learning, improving the transparency of qualification systems, creating possibilities for credit accumulation and transfer, or developing quality assurance systems, governments are increasingly turning to qualifications frameworks as a policy tool for reform. Despite the growing international interest, there is very little empirical research about the actual design process, implementation and results of NQFs as an approach to reform skills development systems where it has been attempted.

This report on Malaysia is one of a dozen studies of countries around the world undertaken to examine the extent to which qualifications frameworks are achieving policy objectives and which types of qualifications frameworks seem most appropriate in which contexts. The case studies were conducted through two stages of field work. The first stage generated a description of the qualifications framework, the design process, its objectives and the existing system of qualifications that it was intended to reform. For the second stage, the focus was on implementation, use, and impact of the qualifications framework, including asking employers, training providers, workers, and government agencies about the extent of their use of the qualifications frameworks and the extent to which they felt it was serving their needs.

In addition, five case studies on the early starter qualifications frameworks (Australia, the English NVQs, New Zealand, Scotland, and South Africa) were written on the basis of existing research and documentation only, and published as an Employment Working Paper (Allais, Raffe, Strathdee, Wheelahan, and Young, ILO 2009).

I would like to thank Professor Jack Keating of the University of Melbourne Centre for Post-Compulsory Education and Lifelong Learning for carrying out the research and preparing this case study report. I would also like to acknowledge our gratitude to the practitioners and stakeholders who made time to respond to the questions and share their views. The paper reflects the views of the author and not necessarily those of the ILO.

Dr. Stephanie Allais, as Research Associate in the ILO Skills and Employability Department, supported the group of researchers in preparing the country studies and wrote the synthesis report *(The implementation and impact of National Qualifications Frameworks: Report of a study in 16 countries*, 2010) which also explains the methodology set out for the country studies.

Christine Evans-Klock
Director
Skills and Employability Department

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Introduction

Malaysia established an official national qualifications framework (NQF) – the Malaysian Qualifications Framework (MQF) in 2007. At the same time, the Malaysian Qualifications Agency (MQA) was established to manage the framework and its associated mechanisms.

These developments, however, followed earlier developments across higher education and technical and vocational education and training. Post-school education and training involves four types of providers: universities and colleges; polytechnics; community colleges; and skills centres. Funding and administration for these providers entails three systems – for universities and colleges; polytechnics and community colleges; and skills centres, respectively. Responsibility for the funding and administration of the skills centres is located in the Ministry of Human Resource Development (MHRD) and for universities, colleges, polytechnics and community colleges across separate divisions of the Ministry of Higher Education (MHE). In addition, a range of professional associations award their own credentials and overseas qualifications are issued by some providers.

As a consequence there have been parallel developments towards an NQF in Malaysia. What was termed the National Skills Qualification Framework (MLVK) was introduced in 1993. This was based on a five-level skills certificate framework, which was to merge into the National Occupational Skills Standards System (NOSS) for the skills sector. In 1996 a National Accreditation Board Act (Act No. 556) established a National Accreditation Board (LAN) with responsibility for regulating the standards of private higher education institutions (colleges and universities) (Direct Study Malaysia, 2009). The LAN provided the basis for a standards framework for the higher education sector.

The developments in 2007 therefore represent both an extension of these initiatives and a more extensive and ambitious agenda concerned with establishing an overall NQF embracing qualifications across all three sectors and the relations between them. In this regard the Malaysian developments have parallels with other countries, such as England and Wales, as well as with European developments where the Bologna processes preceded the European Qualifications Framework. The MQF, therefore like many other NQFs, represents a work in progress.

This case study is based upon a review of available documentation, including background literature on education and training in Malaysia. This review provided the basis for two visits to Malaysia where interviews were conducted with personnel from key agencies, stakeholder organisations and a selection of providers.

Background and context

Malaysia with a population of 28 million is a medium-sized country and at this stage of its development can be described as a middle-level economy. It gained independence from Britain in 1957 and formed as a federation of nine states. Shortly after its formation Singapore ceded from the federation to form an independent country. Although Malaysia is officially a federation, the national government has most of the power and all of the major policy areas, including education, are located with the national government.
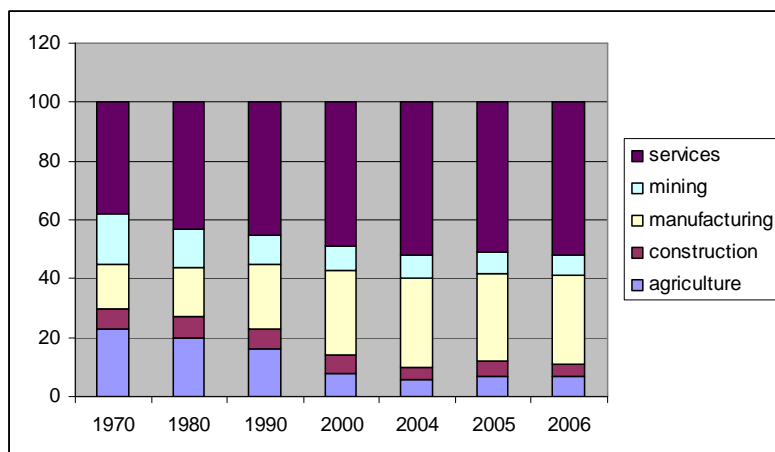
With a population consisting of the majority indigenous Malay or Bumiputra and large Chinese and Indian communities, ethnic issues have been prominent in economic and social policies. Following some racial tensions in the early years of self government, the country was relatively stable for the subsequent half century. In the 1960s, a small communist insurgency existed in the north of the country on the Thailand border. This disappeared by the late 1970s.

The ethnic issues have been associated with relatively wide income disparities across Malaysia. On the whole, the more urban-based Chinese community and to a lesser extent the Indian community have been more economically successful than the Malay community. Over the past 40 years, the national government - the National Front (Barisan Nasional) coalition - has implemented policies to help rectify these disparities, largely through education and public sector employment policies. Thus Malay politics have suffered from endemic problems of sectionalism and the ethically based policies of affirmative action have caused some tensions and potential weaknesses in the education system (Rudra, 2008).

Between 1991 and 2005 the Malay economy grew at an average rate of 6.2 per cent and was estimated at 5.1 per cent in 2008. The per capita gross national product (GNP) was US$5142 in 2005 (CIA, 2009) with a Gini index of 46.1 per cent in 2002 and a life expectancy of 74 years. This growth rate made Malaysia one of the Asian tiger countries, although not on the scale of South Korea, Taiwan and Singapore. Nevertheless Malaysia has continued to produce impressive economic data including an unemployment rate of 3.7 per cent in 2008, a consistent current accounts surplus, and a substantial increase in investment rates, albeit it from a low base. Inflation in 2008 was 5.6 per cent (Goh, 2008). The manufacturing sector is a large-scale contributor and employer by international standards and its gross domestic product (GDP) contribution has grown rapidly since 1980.

The contributions of different sectors to the GDP since the 1970s are shown in figure 1. In common with most economies, the services sector has grown over this period. The manufacturing sector also grew rapidly in the 1980s. However, the advent of the Asian economic crisis of 1997-98 stabilised this growth and the country entered a period where its manufacturing sector changed from a context where it replaced industries in the industrialised countries to one where many of its manufacturing industries faced major competitive challenges from the new and low-labour industrial sectors in countries such as China, India and Vietnam.

Figure 1.   Sector contributions to GDP (%), 1970-2006

Source: Goh, 2008.

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The high Gini index is related to a substantial informal sector, and a large and mostly low-wage immigrant or guest worker population of about 2 million workers.[1] There also is a substantial unofficial or illegal immigrant population (estimated at 2 million) especially in the border regions.

The Malaysian economy is basically deregulated but subject to high levels of state intervention. In the 1980s the economy was opened up with reductions in tariffs and other measures. The labour market is essentially unregulated, with no minimum wages and minimal levels of regulation for occupational practices. Minimal regulations are applied to some occupations such as electrical fitting, and there are moves to extend these other occupations where safety and public health are at stake. The union movement is relatively weak with a membership of about 800,000 out of a workforce of 11.5 million, of which about 6 million are in the formal sector. Many of the unions are company based or house unions.

The immigrant workforce is concentrated in jobs that have been described as difficult, dirty and dangerous with few if any industrial rights, although there has been a tightening of regulations over the use of immigrant labour. There has been little if any formal investment in skills in this large section of the workforce. As a consequence there has been a tendency for Malaysian industry to use low-wage and low-skilled labour as a substitute for investments in skills and technology transfer, for example, in the construction industry 70 per cent of the workforce was estimated as immigrant labour in 2005. The "immigrants, being largely unskilled, did not contribute to skill formation. Instead, they accumulated skills on-the-job, which were lost when they returned home". (Narayanan S., Lai YW, 2005, p. 31).

The combined impact of a deregulated labour market and the use of immigrant labour in the 1980s appear to have been successful and key factors in rapid growth until the late 1980s. However, a longer-term consequence has been industry dependence upon this labour which has weakened industry's capacity and inclination to invest in technology transfer. As a result, the training cultures of the industries that have depended upon this labour are weak, especially in small and medium enterprises. As immigrant labour can remain in Malaysia for five years, and can subsequently return for another period, such workers can gain significant levels of work- or practice-based skills. Industry and employer groups are of the view that these skills should be recognized for the benefit of these workers, both in Malaysia and when they return to their home countries, so that companies can better utilise and enhance the skills concerned.

The deregulated nature of the labour market contrasts with Malaysia's investment in economic planning since self-government. The most recent plan has emphasized the goal of becoming a knowledge economy. In 2007, a National Master Plan for Education (2007-2020) and a National Master Plan for Higher Education (2007-2020) were established. There are also plans for the skills sector and for industry subsectors. The effectiveness of these plans is questioned by some who see them as broad and aspirational with rhetoric that approaches "motherhood" statements.

Like many other countries across the globe, Malaysia's secondary industries have suffered from competition from low-wage economies, including those of its neighbours Thailand and Vietnam. In common with other countries, it has relied upon

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[1] These workers are typically referred to as immigrant workers. However, as they only have temporary visas (5 years) they could be regarded as guest workers.

increased labour productivity based on cost reduction rather than value added to achieve much of its past productivity growth. Textiles, footwear and other light manufacturing industries have been hard hit. At the same time, wage pressures are being exerted through wage increases in the public sector. The high levels of foreign direct investment that occurred in the 1980s have now tapered off as some of this investment has shifted to other countries. According to some stakeholders, the country has deeply entrenched structural-economic problems and is paying the price for the policies of the 1980s.

It has become apparent that Malaysia cannot compete on a wage costs basis with the neighbouring low-wage economies. The country aspires to build an advanced economy, with all of the trappings of high levels of innovation, investment and research outlay. It is here that it appears to face significant problems of human capital and technology transfer.

There are problems on both the supply and demand side. The overall standards of Malaysian schooling are at the middle level when compared with those of similar countries. However, it appears that the quality of post-school education is mixed and in many areas is poor. One interviewee cited the example of a friend who had a PhD from a Malaysian university and who worked in a technology-based company. He was the only person amongst 200 similar level employees who with a Malaysian degree. The rest held foreign degrees that were deemed to be of higher quality.

On the demand side, employers have had the option of employing low-skilled and low-paid workers, including immigrant workers. As a result, there has been a low propensity for technology transfer and consequential weak contributions of technology investment, labour skills and technology utilisation to total factor productivity (Jajri, 2007).

While the liberalisation policies of the 1980s appear to have been successful in the subsequent rapid economic growth, the returns from these changes are now dwindling as evidence by falling levels of growth and a substantial challenge of raising total factor productivity. While some economic settings are positive, indicators such as the low levels or research and development and patent registration suggest that Malaysian industry has a limited capacity to innovate. The objective of lowering levels of poverty has been partially successful because economic growth has raised income levels across each decile of income groups across the country. However, relative levels of income have not improved and in fact have deteriorated over the past two decades. Of course this trend is common across many countries.

The currency of qualifications within the Malaysian labour market appears to be mixed. As in most countries, the public sector, which has been a large employer of qualified labour, sets the pace regarding the use of qualifications both in recruitment and within internal labour markets. However, this appears to be somewhat distorted by the issue of the quality of both local and overseas qualifications. There has been recent media coverage of former senior civil servants complaining about the low skills of graduate recruits.

Outside of the public sector is a more mixed pattern. Low levels of unemployment reduce the use of qualifications as selection mechanisms, as is typically the case in open labour markets.[2] Yet some occupations, mainly at the higher skills and income

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[2] Qualifications tend to have greater currency in recruitment practices in regulated labour markets, such as Germany, and weaker currency in unregulated labour markets such as the USA (e.g. Rosenbaum,

levels, do have strong demand for qualifications. This may be partially cause by status issues rather than occupational skills issues, or at least may reflect that qualifications play a role as a signal of potential for labour productivity. At the middle-skills level it appears to be a mixed pattern. However, in some sectors such as construction where there are an estimated 300,000 official and a similar number of unofficial low-paid migrant workers, the demand for skills is low and the use of qualifications in recruitment is negligible.

Malaysia's economic problem of being "stuck in the middle" has prompted new policy thinking. There is talk of establishing demand side incentives for skills. Apart from the practice of training levies, there are moves to copy the Singapore practice of establishing penalties for hiring non-qualified staff. Regarding workers, incentives such as individual learning accounts also are being considered. Approval was granted in 2000 for the establishment of a Skills Development Fund to provide access to training for companies and individuals. Government has imposed a levy on the employment of foreign labour and intends to increase this; a move that has been opposed by some industry organisations in the light of current economic conditions (FMM, 2009).

It does appear that unlike most European countries, there are weak communities of trust linked to qualifications in Malaysia. This is an historical phenomenon associated with Malaysia's rapid advance from a developing to a middle-level economy; a small and now defunct apprenticeship system; and a mostly unqualified industrial workforce. Symptomatic of this situation has been the minor role of industry in the development and infrastructure of the MQF and the role of the public sector in the market for qualifications. Consequently, the Department of Public Service is an important player in giving recognition to qualifications on the MQF. This is seen as essential if professional bodies, the universities and the private sector are to recognize the qualifications.

In the Malaysian context this is defined as "an economy in which knowledge, creativity and innovation play an ever-increasing and important role in generating and sustaining growth. …In a k-based economy, educated and skilled human resources, or human capital is the most valuable asset." (Economic Planning Unit, 2002, p. iii). The Master Plan states:

> The P- [physical] economy demands a brawn-intensive, disciplined workforce. The K-economy demands a brain-intensive, thinking, creative, innovative and disciplined workforce. Malaysia today has a world-class workforce for the P-economy. But we have a poor workforce for the K-economy. Unfortunately, with the rise of the K-economy, a global transformation that cannot but gather pace, there has been a fundamental structural shift whereby economic value will increasingly come from knowledge-intensive work and increasingly less from physical production (although this will remain important). The shift from a poor K-economy workforce to a world-class K-economy workforce has to be rapid and dramatic. There is little time to lose. (The National Brains Trust on Education, 2002, p.1)

1990). On the other hand, they can have stronger private rates of return in unregulated labour markets that typically have high levels of wage discrepancies. There also is evidence that employers are more inclined to use qualifications for recruitment purposes in contexts of high unemployment as they have a larger pool of applications to select from.

In this environment, universities are seen as the major contributor to human resource development: "Tertiary education is the major means of meeting human resource needs for Malaysia to achieve its vision of becoming an industrialized nation, according to the Education Development Plan (2001-2010)" (Gill, 2007, p. 2). The developmental plans emphasize high and digital technology, and the government has supported infrastructure developments in this area. Following the economic crisis, the government decided that technology education and high-tech industries would play leading roles in the country's economy and the idea of a "knowledge-based" or "K-economy" became prominent in the economic and educational master plans: "The emphasis on high-tech economy and education shifted the government focus from the practice of hand-picking individuals and businesses under the indigenous or Bumiputra policy to introducing information technology at the level of the masses" (Education Encyclopedia, 2009).

The emphasis on a knowledge-based economy and the education sector (especially higher education) is reflected in the high level of 8 per cent of all public expenditure that is spent on higher education, compared with an Organisation for Economic Co-operation and Development (OECD) mean of 5.5 per cent (UNESCO, 2006). This is reflected in the language of the Knowledge Economy Master Plan, issued by the Economic Planning Unit of the Prime Minister's Department, which has 'strategic thrusts', as follows:

- cultivate and secure the necessary human resources;
- establish the institutions necessary to champion, mobilise and drive the transition to a K-based economy;
- ensure the incentives, infrastructure and infrastructure necessary to prosper the optimal and ever-increasing application of knowledge in all sectors of the economy and the flourishing of knowledge-enabling, knowledge-empowering and knowledge-intensive industries;
- dramatically increase capacity for the acquisition and application of science and technology (including information and communication technology) in all areas;
- ensure that the private sector is the vanguard of the K-based economy's development;
- develop the public sector into a K-based Civil Service; and
- bridge the knowledge and digital divides.

(Economic Planning Unit, 2002)

The knowledge economy goal has been criticized on two grounds. One is that it is largely rhetorical and the means of achieving it are unclear. The other, expressed by industry, is that the vast bulk of Malaysian workers are low skilled and not in knowledge industries and that there is a need to attend to their and their industry sector needs. This view dovetails with complaints that public policy and funding are too concentrated on the higher education sector at the expense of the other sectors.

The Asian economic crisis in 1997 and 1998 saw an outflow of speculative funds from Malaysia across borders. It has been estimated that up to RM2 billion[3] flows out of the country annually when Malaysian students study abroad. Therefore the quality of local education and training has become an economic and international current accounts issue. As a consequence, the country has adopted a type of free trade policy

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[3] Approximately US$500,000.

towards education. Cross-border participation in higher education is evidenced by the significant presence of international higher education providers in Malaysia, and the country's willingness to accept the General Agreement on Tariffs and Trades (GATS) requirements for autonomous liberalisation.

Demand for and supply of skills

There can be little doubt that the Malaysian government has invested heavily in the supply of skills. Its levels of spending have increased since the economic crisis of the late 1990s. The percentage of the government budget that is devoted to education has consistently been over 20 per cent (27 per cent in 2000). In particular, the percentage of education spending that is directed towards higher education at 32 per cent in 2000 is high by international standards (appendix 1, tables 1 and 2). As one university interviewee noted, "we have plenty of money".

There is evidence that demand for private education in Malaysia is high. Approximately 34 per cent of educational investment in Malaysia is private, which is high by international standards. The private rates of return for higher education are mostly higher than the social rates of return; estimated at 34.5 per cent in 1980 before the starting point of Malaysia's rapid growth (Keeves and Wantanbe, 2003).[4] It appears that these have risen in line with those of developed (OECD) countries, and this is reflected in the relatively high rates of private investment in education in Malaysia (UNESCO, 2006).

However, interviews with a range of stakeholders and commentators revealed a more complex picture of the levels of industry demand and investment in skills. On the one hand, the high private rates of return for tertiary level qualifications appear to be strong. All of the interviewees from universities, colleges and training sectors indicated that their graduates were readily employed. However, several people stressed that this depended on course quality and relevance, and that the acquisition of practical and workplace skills through internships or industry placements were essential. A number of people, including employer representatives, indicated that employment rates for arts and humanities graduates have not been strong. Some indicated that the reputation of the provider and the quality of the course and its linkages with industry are important, and that there remains a strong preference for overseas qualifications in Malaysia - reflected in the presence of overseas universities. Comments from industry personnel that many tertiary education graduates lack relevant skills and that the quality of education and training is highly variable were shared by most stakeholders.

A wide range of personnel from government, industry and providers indicated that the demand for skills below the professional level is not strong. This in part is because of the existence of the large immigrant or guest worker population and because of the weak labour regulatory framework. Only a few trades, such as electrical, have any regulations that relate to training or qualifications. A further factor here is the growth of small and medium-sized enterprises (SME). As in other countries, SMEs typically have lower demands for skills because of their weaker capacity for technology transfer. Several stakeholders, including those from industry organisations, indicated that sections of industry (especially SMEs) prefer to source their skills from outside rather than provide training for their workers. There also appears to be some

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[4] The calculation of private rates of return is highly contested. It is likely to be high in Malaysia because of the high levels of wage discrepancies.

weaknesses in individual and worker demand. The provision of publicly funded training places including those for redundant workers in the current economic downturn has been met with a weak take up.

As with most countries, Malaysia faces the challenge of market failure in industry skills.[5] For this reason it established a training levy in the form of the Human Resources Development Fund (HRDF). Established in 2001, it levies 1 per cent of the wage costs of enterprises with 50 or more employees. Unlike other levy schemes, most of the funds that have been collected through the HRDF have been spent on training, including training facilities in enterprises. The scheme does appear to have the support of stakeholders, although exemptions have been given to some sectors, and the levy has been temporarily reduced to 0.5 per cent in the current economic downturn (HRDF, 2009). An early evaluation conducted by the World Bank concluded that: "the Human Resource Development Fund (HRDF) was instrumental in promoting increased enterprise training among all firms, but especially among medium size companies." (Tan, 2002, p. 13)

The Malaysian economy, in common with almost all economies, has suffered in the current downturn. However there are signs of recovery; the Coincident Index (CI), that measures current economic activity, rose by 0.9 per cent in April 2009, and the Leading Index (LI) which monitors economic performance in advance also increased in April 2009.

Education and training in Malaysia

Education and training in Malaysia can be viewed through four historical lenses: characteristics that relate to the country's legacy as a British colony; the country's ethnic structure and its political expression; its constitutional formation as a formal federation but with a high degree of centralism; and its developmental drive since the 1980s, including its commitment to build the factor conditions for a knowledge-based economy.

The stamp of British education can still be seen in the basic structural divisions of the school sector with its primary and secondary schooling and the titles of some of the qualifications, notably the O levels. It also can be observed in the tradition of self-accredited universities and the separate technical colleges or polytechnics. Governmental efforts to advance the educational levels of the majority Malay population are reflected in aspects of the school and tertiary education systems. Centralism and the developmental drive can be seen in the succession of economic, sectoral and education and training plans issued by the national government.

The basic structure of the education and training system is shown in table 1.

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[5] That is, the failure of industry to produce the supply of skills that it needs for its production systems. Reasons include: a reliance of the external supply of skills and a reluctance to invest in skilled and better paid workers, skills training and technology.

Table 1.   Outline of the structure of education and training in Malaysia

	University and colleges - public universities - private universities - international universities	Colleges - polytechnics - private colleges		Skills training centres (SKM)
Pre tertiary 1-2 years	Sixth form (2 years) Malaysian Higher Schools Certificate (STPM)	Pre-university (1.5 years)	Matriculation (1 year)	
5 years (free)	Lower secondary – national schools and Chinese independent high schools. Academic secondary education or technical/vocational secondary education or religious secondary education Malaysian Certificate of Education			
6 years (7-12) (free)	Primary – national and national types (Chinese and Tamil)			
(4-6)	Pre-school – voluntary – limited attendance			

A voluntary and mostly fee-based, pre-school education is followed by a near-universal primary stage of six years. There is also near-universal entry into the lower secondary stage which consists of five years and culminates in the Malaysian Certificate of Education. Here schools are divided into national and Chinese independent high schools (most Chinese students now attend these schools). Entry into university and colleges requires pre-tertiary studies through either sixth form or matriculation colleges, which can be attached to particular universities. Some students study in private colleges and can take a variety of qualifications including International Baccalaureate (IB), the English A levels and United States (US) or Australian qualifications. The operation of ethnically based quotas influences the patterns of participation in pre-tertiary and tertiary studies. Non-Malay students are more likely to enrol in private colleges and private universities.

At the tertiary or post-school level, there are three distinct sectors, also reflected in the MQF: the industry training or skills sector; polytechnics and community colleges; and the higher education sector. The skills sector, under the Ministry for Human Resource Development, consists of public and a large number of private training centres. The polytechnics and community colleges are publicly owned and administered, under the jurisdiction of a division of the Ministry of Higher Education. The higher education sector consists of public universities and a large number of private universities and colleges, including branch campuses of overseas universities. Malaysia also has a number of internationally sponsored institutes, such as the German-Malaysian Institute, which is located within the large public University of Kerbangsaan Malaysia (UKM). Other institutes have been sponsored by countries such as Japan and the

United Kingdom (UK). There are also a small number of colleges and polytechnics that have been sponsored by state governments.

Within the skills sector, a National Dual Skills Training System (NDDTS) has recently been initiated (DSD, 2009). Modelled loosely on the German apprenticeship system, it is a two-year programme of in-company and provider-based training. Trainees are given an allowance and companies have their training costs reimbursed. Graduates receive a level 3 training award. The initiative appears to have qualified support, although some have pointed out that it is confined to a small range of industries and companies, such as Siemens and Chrysler, and industry personnel have expressed doubts about its capacity to expand and firms' capacities to support it.

Within the higher education sector there are government-funded public universities that deliver bachelor's degrees, postgraduate programmes and some programmes at diploma level. There also is a large private sector consisting of universities, colleges and branches of foreign universities.

The education system is highly centralised, particularly primary and secondary schools, with state and local governments having little say in the curriculum or other major aspects of education. The centralisation is reflected in the strong ministry ownership of the different sectors. Schools are under the Ministry of Education (MoE). Universities and colleges are within the Ministry of Higher Education which was separated from the Ministry of Education in 2004 because of the perceived importance of higher education in the knowledge economy. Polytechnics and community colleges are also in the Ministry of Higher Education but a separate division. The skills sector is under the Ministry of Human Resource Development.

The combination of centralisation and strong ministry boundaries represents a major mediating theme of the Malaysian education and training "system". A further theme, as indicated above, is the ethnic groupings in Malaysia; realised in the higher income of the Chinese community and its consequential higher rates of investment in education, and in government policies that favour Malaysian students in quota-based entry into pre-tertiary education and public universities. It also is reflected in the greater proportion of Chinese students who attend Chinese independent high schools.

This theme merges with the issue of language of instruction. From independence in 1957 until the 1980s, the medium of instruction was English. In the mid 1980s this was changed to Bahasa Malay. In the late1980s this policy was changed by the then Prime Minister Dr Mahathir back to instruction in English, especially in the main subjects. This appears to have been controversial, causing major difficulties for many teachers, especially in the mathematics and science areas, who had weak English. Although the policy has recently been abandoned, it remains contentious as employers continue to identify weak English skills as a major factor in skills deficiencies.

Another theme is that similar patterns of secondary education to other Anglophone countries can be detected. The curriculum is essentially academic with a premium placed on university entrance. As a consequence, vocational studies are weak in secondary schools. Moreover, a culture of departmental territorialism has ensured that applied and vocational studies have been developed, accredited and assessed through the Ministry of Education rather than integrated with the SKM (skills certificates) of the skills sector under the Ministry of Human Resource Development.

A further theme is private education and training. During the 1980s the Malaysian government took measures to liberalise higher education, or what Gill (2005) terms "autonomous liberalization", noting that:

> [T]he need for private sector involvement has been spurred by various reasons which range from economic factors to the science and technology ideology which underpin the crucial need for skilled and competent human resource in the context of the knowledge economy. The expansion of the private higher education industry has resulted in the bifurcation of higher education in Malaysia – a dual system of private and public institutions of higher learning. This dual system is driven by varying legislative applications because the functions of the dual higher education sector are coloured by different national needs. The public sector has been largely driven by national social development needs and the private sector by market-driven global needs. This dual system attains a complex perspective in the multi-ethnic complexion of our nation. (Gill, 2005, p. 3)

The public universities fulfil a social function by providing educational opportunities to Malaysians at rates heavily subsidized by the government. They are only allowed to take 5 per cent of foreign students into the science and technology streams and 25 per cent into the social sciences and humanities. Therefore private tertiary education is viewed as a means of attracting foreign students. The country aims to have 100,000 international students by 2010. In 2008 the overall number of international students in Malaysian international schools and higher education institutions was 65,000 (Global Higher ED, 2008). As indicated in appendix 1, table 6, there are over 500 private colleges and universities in Malaysia compared with 20 (now 21) public universities. However, private colleges are on average much smaller than the public universities.

Perhaps a final theme is that of the relationship between the school and tertiary education sectors. The tertiary or post-school sector is differentiated, with a clear hierarchy of universities, colleges, polytechnics, and training centres. The hierarchy is mediated by patterns of public funding, so for example, while a private university such as the International Medical University would have a higher status than a polytechnic or certain faculties in the public universities, its fee levels would prohibit large sections of the population from accessing it. As Moodie (2008) has noted, differentiated post-school education systems are usually matched with differentiated school systems and qualifications. This is the case in Malaysia with its different structures of pre- university and college schools and certificates. This in turn is mediated by policies relating to ethnic group participation in the different schools and certificates. All in all, it makes for a complicated set of relations between senior secondary and post-school education and training in the country.

Regulating post-school education and training

Malaysia has three distinct post-school sectors: higher education, technical and vocational education, and skills. Two of these sectors - higher education and skills - have robust private sectors. As a consequence, two separate systems have evolved to build quality assurance into the respective sectors: the LAN for higher education sector and the NOSS for the skills sector.

These two systems continue to provide the core of the Malaysian Qualifications Framework, both separately and in combination. Their relationship within the MQF can be regarded as a form of territorial settlement between the responsible agencies for these sectors: the Ministry of Higher Education and the Ministry of Human Resource Development. Therefore a study of the MQF revolves around two questions:

- the design and impact of the two standards setting and quality assurance systems of the NOSS and the LAN, and their continued development (especially that of the LAN that has been extended to the public universities); and

- the development of relationships between the different sector qualifications within the MQF.

Account also needs to be taken of the relationship between the technical and vocational sector (effectively the polytechnics and community colleges) and the higher education sector, both of which are located in the Ministry of Higher Education. Developmental processes, across the two sectors, including those for qualifications, remain different; although they do come together within the MQA which gives final accreditation for the inclusion of all qualifications on a register of qualifications (see next section of the case study).

Investment

The mediating themes combine to weaken the capacity of education and training in Malaysia. However, all countries have mediating and inhibiting factors and the Malaysian government has invested heavily in education and skills. Additionally, there is a high level of private investment.

Following the 9th Malaysian Plan (2006 to 2010) a total of RM40.3 billion (about 21 per cent of the total budget allocation) has been allocated to the development of education and training. The expenditure from the HRDF has also risen, from R217 million to R372 million over the period 2004-2008 (MHRD, 2009).

Performance

As would be expected for a developing and middle-level economy, patterns of highest educational qualifications are below those of the OECD averages (table 1). However, 43.4 percent of the population has completed upper secondary or tertiary education. Malaysia has achieved universal participation in primary education and universal transfer from primary education into lower secondary education (99 per cent in 2005 – appendix 1, table 2). Over 70 per cent of students entered upper secondary education of some form. In this regard, UNESCO reported a level of secondary school graduation of almost 90 percent compared with an OECD average of just over 80 per cent. In 2003, 28.3 per cent of the age cohort completed tertiary education. As a middle-level economy, Malaysia's educational performance appears to be strong. The Ministry of Education has set a target 40 per cent of the 17-23 age cohorts entering tertiary education by 2010, and officials are confident that this target will be reached.

Some of these trends can be observed in table 3 below. The movement towards universal primary education is visible across the age groups, and there is a similar pattern for lower secondary education with 93 per cent of 15-19 year olds achieving at least this level, and 73 per cent of 20-24 year olds achieving in upper secondary education. The growth in tertiary education is dramatic; 25 per cent of 20-24 year olds achieved at this level in 2004. This steep upward trend is the basis for the official optimism that the 40 per cent target will be reached.

Malaysia has participated in the most recent Trends in International Mathematics and Science (TIMMS) study for eighth grade students. In 2007 the average mathematics score was 474 compared with an average of 500 for all countries. This put Malaysia in the middle level along with countries such as Italy and Norway, and ahead of its

neighbour Thailand with an average of 441. However, this level was behind the lead countries of Chinese Taipei (598), South Korea (597), Hong Kong (572), and Singapore (593), all of which are in the same region and similarly endeavouring to develop knowledge and high value added economies.

It is difficult to generalise about the overall standards of Malaysian education and training. The trends in patterns of investment and participation are extremely positive. The national commitment to education is observable in official documentation and supported by high levels of public and private investment. Trends in participation are also very positive and there is a robust policy environment to support improvements in both participation and outcomes.

Numerous stakeholders identified the changing policies on language of instruction in core areas of the curriculum as damaging for the quality of schooling in Malaysia. The extent to which this issue has been resolved and its impact upon standards is difficult to judge.

Table 2.   Highest level of education, Malaysia (2003) and OECD mean (2004)

	Year	No schooling	Primary	Lower secondary	Upper secondary	Tertiary (type B	Tertiary (type A)
Malaysia	2003	7.5	a 27.6	21.3	31.5	x(7)	12.1
OECD mean	**2004**	**x(3)**	**12.8**	**17.0**	**44.9**	**7.4**	**17.7**

Source: UNESCO, 2006.

Table 3.   Levels of educational attainment by age group, Malaysia (2003), OECD mean (2004)

	25-64	15-19	20-24	25-34	35-44	45-54	55-60
At least primary							
Malaysia	93	99	98	98	95	90	76
At least lower secondary							
Malaysia	65	93	88	83	71	49	26
Upper secondary							
Malaysia	44	68	73	59	47	30	16
OECD mean	**67**	**...**	**...**	**77**	**71**	**64**	**53**
Tertiary							
Malaysia	12	6	25	17	12	8	5
OECD mean	**25**	**...**	**...**	**23**	**31**	**27**	**18**

Source: OECD, 2006.

Trends in the skills area are also positive. The numbers of certificates at all three SKM levels have risen over recent years (appendix 1, table 3). Although the numbers at level 3 have recovered after an initial fall, they remain low. The number of diplomas awarded has increased, although the number is small with only a handful of

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advanced diplomas. The number of employers in the services sector that are registered with the HRDF has increased dramatically since 2004 (appendix 1, table 4) and the number of training places funded and the amount of funds delivered under the scheme have also increased steadily (appendix 1, table 2). In 2008 expenditure exceeded revenue for the HRDF. This might be considered unusual in the light of international experience of training levy schemes; probably an expression of the dedication of the scheme, a relatively secure government revenue base and efforts to take the economic downturn as an opportunity to invest in skills.

There has also been a steady growth in the levels of participation in polytechnics and community colleges (DPCCE, 2009).

The NQF: Origins, influences, and purposes

As indicated in the preceding sections, the Malaysian NQF needs to be seen as consisting of sets of developments:

- the establishment of the National Occupational Skills Standards (NOSS);

- changes within the vocational and technical sector;

- setting up the National Accreditation Board or LAN system for private higher education providers; and

- the establishment of the Malaysian Qualifications Framework.

The intersection of these sets of developments through the establishment of the MQA and the formation of the MQF could be described as partial and ongoing. All publicly recognised Malaysian qualifications are to be located within the MQF and its qualifications register. This includes the NOSS-based skills qualifications. There are also relations between the sets of qualifications through levels 3, 4 and 5 of the MQF. However, to a significant extent the sets of qualifications remain separate. Therefore, the three sets of developments can be regarded as continuing, although with the potential for greater integration.

The **NOSS system** is located in the Ministry for Human Resources (MHR) and was introduced in 1993 as a new five-level certificate framework. This has subsequently been modified into three levels of Malaysian Skills Certificates (SKM) and two diploma levels across 35 industry areas (ILO, 2000). Within the MQF, the three levels of skills certificates broadly articulate with the certificates in the vocational and technical sector and the two diploma levels articulate with the diplomas in the other two sectors. In 2008, 98 per cent of awards within the skills sector were at the certificate level (appendix 2, table 1).

The system is standards and outcomes based and a sample of a NOSS standard for the automotive sector is contained in appendix 2. The system is under the governance of the National Vocational Training Council (MLVK) and is administered through the Ministry of Human Resource Development.

The **technical and vocational education** sector (DPCCE, 2009) delivers to advanced diploma level. As a relatively eclectic sector that caters for school leavers, the workforce and the community, it has taken a developmental approach. It has not adopted the skills standards approach of the skills sector, but rather uses more broad-based standards that combine traditional knowledge-based curricula with skills

standards. Qualifications are developed through processes that involve Course Advisory Committees (with industry representation) and Curriculum Development Committees. The qualifications are then approved by an internal Curriculum Board before they passed to the MQA for accreditation and inclusion in the Qualifications Register. They also are sent to the Public Service Department for approval.

The **National Accreditation Board or LAN** was established under section 3(1) of the Lembaga Akreditasi Negara Act, 1996 as the statutory body with responsibility for monitoring the standards and quality of private higher education in Malaysia. It has four functions, to:

1. formulate policies on the standard and quality control of courses of study, certificates, diplomas and degrees;
2. set, monitor, review and oversee the standard and quality of courses of study and for accreditation of certificates, diplomas and degrees;
3. determine the level of achievement for the national language and the compulsory subjects as prerequisites to the award of certificates, diplomas and degrees; and to
4. advise and make recommendations to the approval of the Minister for courses of study to be conducted by private higher education institutions in terms of their facilities and the standard and quality assurance of the courses of study. (Ministry of Higher Education, 2006, p. 60-61).

An example of a LAN guideline on 'criteria and standards for courses of study' is included in appendix 2. The LAN has its origins in the liberal economic reforms of the 1980s. During this period the government liberalised the economy, reducing trade barriers and other regulations. These included the deregulation of the post-school or tertiary education market. This resulted in a proliferation of private tertiary education providers. Overlaid upon the British system of self accreditation of university and other higher education providers, most of these private providers issued diplomas and degrees. Many of these providers were small with minimal facilities and unqualified staff.

The issue of quality extended to the public higher education sector which in some areas had and continues to have a reputation for poor quality courses, qualifications and graduates. This appears to be a long-standing issue associated with the lack of quality control, including control over staff appointment practice and affirmative action policies and practices – in both staff appointments and student entry.[6]

Quality concerns are associated with an apparent preference for overseas qualifications on the part of industry and the public sector. This is both a symptom of the problem and something that has exacerbated it. Although the government has been generous in funding students to study in overseas universities, it appears that many of the undergraduate scholarships have been located at universities and colleges of dubious quality, especially in North America.

These sets of developments all fore grounded the establishment of the Malaysian Qualifications Framework (MQF). The history and current developments therefore need to be understood as two processes. One is essentially the extension of the LAN processes. The MQF is the initiative of the Ministry of Higher Education. All higher education institutions in Malaysia are now required to gain accreditation from the MQA. The most immediate impact of the MQA is the audit and subsequent accreditation processes within the public universities. The skills centres and the

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[6] This issue was raised by personnel from the agencies and higher education institutions.

polytechnics and community colleges are not directly affected by this because they are under the governance of a different ministry and department, respectively.

The other is the location of the MQF within a set of objectives that are similar to, and have been informed by, the establishment of NQFs in other countries, including the reconciliation of, "the bewildering proliferation of qualification titles which are sometimes misleading and applied misleadingly" (MHE, 2003, p. 4).

Participants in the developments all indicated that the processes were extensive both in technical and consultative dimensions. Apart from the continuation of the developmental processes within the MLVK/SKM skills system and the LAN system, and the international studies, various models of an MQF were considered (Shahabudin, 2004).

In preparation for a national seminar in 2003, the Ministry of Higher Education's position paper (MHE, 2003) outlined the following purposes of an MQF:

- Improving public understanding of qualifications; including:
    - o international comparability of qualifications to facilitate student and graduate mobility of qualifications;
    - o entry and exit points and the opportunities for progression and credit transfer; and
    - o clarity of the intended outcomes and graduate attributes.
- Reference point for quality assurance and accreditation; including:
    - o shared explicit standards for qualifications; and
    - o transparent quality assurance processes.
- Eliminating confusion in nomenclature of qualifications.
- Standardising the use of academic load (credits) in defining qualification, including:
    - o the factoring of 'student effort' and learning outcomes into credit systems.

A degree of consistency is noted amongst stakeholders regarding the reasons for the establishment of the MQF. They include the need:

- for greater quality assurance of qualifications;
- to manage the proliferation of qualifications;
- for parity of esteem between the academic and vocational qualifications and routes and to make the skills sector a viable alternative to higher education;
- to gain stronger international recognition of Malaysian qualifications;
- to reduce the overlapping responsibilities of different ministries and agencies for qualifications; and
- for greater seamlessness in Malaysia qualification system.

The MQF has been influenced by the international context, in terms of rhetoric and structure. Its development spanned the period 2003-07, and was therefore informed by first-phase NQFs in New Zealand, Australia, Scotland, England and Wales. The

position paper of the Ministry of Higher Education (MHE, 2003) and documents of the MQA (2007, 2008) use similar rhetoric to that found in much of the international NQF literature.

Malaysia has a strong sense of its location within the international community and the global economy. It is typical of a middle-level and middle-size economy that aspires to move into a more knowledge-based economy. This includes a movement away from its traditional base as a commodities exporting country in favour of high valued added industries, including education. As a consequence it has an open and international outlook on education. This "borderless" view of education extends to both the internal relationships between sectors and their qualifications and the openness towards and linkages with international qualifications (Fahmi, 2008).

However, in addition to the drivers of quality assurance within the higher education sector, and especially the private higher education sector and international influences there has been a third driver. Malaysia has a highly formalised and centralised governance structure and culture. It is also very legislation based. As a consequence, it has a high degree of institutional separation between its ministries, each of which is governed by its own set of legislation. The political context of a multi-party legislature and coalition governments means that ministries have ministers from different political parties. These factors have contributed towards a high degree of territorial separation between ministries.

There has been (and probably continues to be) a considerable degree of rivalry or at least territoriality between the Ministry of Higher Education and the Ministry of Human Resource Development. This is especially so in the area of technical and vocational education, which is under the jurisdiction of the Ministry of Education and its Department of Higher Education. For example, in the skills sector, providers were accredited by the Ministry of Human Resource Development but subject to the supervision of the Ministry of Education when issuing qualifications. This means that providers require the approval of two authorities when delivering courses and issuing qualifications.

Responsibility for skills training has been fragmented with four main ministries with responsibility for pre-employment skills training: Ministry of Human Resource Development, Ministry of Education (Technical Education Department), Ministry of Entrepreneur Development, and Ministry of Sport and Youth. In 2003 the Ministry of Human Resource Development listed 1,809 accredited training centres and 6,813 accredited programmes under the responsibility of ten ministries, and six other agencies. Of these, 1,475 centres and 4,692 programmes were private providers. So a similar pattern of proliferation of programmes and responsibilities has existed within the vocational training sector.

The core rationale for the MQF has been the extension of the LAN system to all higher education providers. However, the NQF has a further rationale to build greater consistency between qualifications across sector and provider types (including those owned by different agencies) and across the public and private divide. The establishment of the MQF and its Malaysian Qualifications Agency in 2007 was envisaged as a means of building consistency and comparability across public and private sector higher education qualifications. The same logic could then be applied to the skills sector with its diverse array of public and private skills centres and multiple ministry 'owners'. So while the MQF at this stage simply locates the SKM (NOSS) system within the framework, without placing major demands upon it, it does imply a

potential means of reconciling tensions related to the dispersed ownership of skills centres.

In the early stages of negotiations – from 2003 when the MQF was first proposed by the Ministry of Higher Education – relationships were described by one participant as being 'at war'. These tensions are likely to have been over the locus of responsibility for the quality assurance of qualifications and consistency in levels and credit value of qualifications. Within the skills sector, this had historically resided with the Ministry of Human Resource Development and its MLVK, and the outcome of the extensive consultations has been to continue these arrangements - now endorsed in the MQA Act (2007). The "big breakthrough" came with the agreement that the Ministry of Human Resource Development would be responsible for the standards and quality assurance of qualifications in the skills sector. Relevant officials now regard relationships between the MQA and the Ministry of Human Resource Development as constructive and consultative. The Ministry of Human Resource Development has a similar challenge to that of the MQA: bringing all the skills qualifications delivered by other ministries into the NOSS system. For a skills qualification to be included in the MQF Qualifications Register it must be accredited through the NOSS system.

However, the location of the accreditation responsibility for all other qualifications, including technical and vocational qualifications rests with the MQA. This history explains why the MQF has three sets of qualifications for skills (based), technical and vocational and higher education qualifications. It also partially explains the absence of senior secondary qualifications.

Other symptoms of the qualifications legacy in Malaysia have been the multiplication of qualifications, complex and contested accreditation procedures and the status of the skills based qualifications. So anticipated benefits included the "harmonisation" of qualifications: both a reduction in the profligacy of qualifications and more consistency in standards and volume between qualifications; consistency and clarity in the accreditation of qualifications and greater parity of esteem between the different genre of qualification.

This last point has been stressed by the Ministry of Human Resource Development which notes that skills-based occupations are not valued and skills-based qualifications have low status within the wider education and training system, especially in the secondary schools. This endemic issue is related to the mission of the Ministry of Human Resource Development to lift occupational and industrial skill standards. The achievement of greater parity of esteem between skills-based and other qualifications is seen as a means of achieving this. One option that is being considered is the establishment of higher level (6 and 7) skills certificates. At this stage, the use of the framework as a mechanism to allow for elements of common courseware and cross credit does not appear to be prominent. The difficulty for the NOSS system and its stakeholders is that it is subject to two sets of demands. It has been designed to meet industry skill needs and its main use has been at relatively low levels (appendix 1, table 3). Although industry seems to be happy with the NOSS system and its qualification, the system is also a pathway for increasing numbers of school leavers and there is a desire amongst policy makers to build the system into a more attractive post-school option that can provide a route into higher level qualifications that are located either in other sectors or within the NOSS system.

It does seem, however, that the main challenges and processes have been the reconciliation of differences between government agencies rather than building the

support of industry and providers. This is reflected in the composition of the Malaysian Qualifications Agency Council. The largest group of members are from government agencies, together with a small number of provider and user representatives. The last of these consist of industry and professional associations.

According to the MQA Act (2007) the formal purposes of the MQF are to:

- establish a single structure for all higher education qualifications – that is those issued by public and private universities and colleges;
- secure standards and reinforce policies on quality assurance;
- build mechanisms for progression and lifelong learning;
- support collaboration between sectors;
- build parity of esteem between different qualifications;
- facilitate credit systems, transferability and external linkages;
- provide better information to facilitate evaluation;and
- facilitate comparisons of qualifications.

The establishment of the MQF and the MQA appears to have strong support across stakeholders. As discussed, reasons for its establishment included the potential of the new arrangements to transcend the ministerial territorialism that has afflicted education and training provision and qualifications in Malaysia. Part of the problem has been the tentative manner in which ministries and associated agencies have approached issues of, and opportunities for, linking qualifications and achieving consistency in standards and quality assurance.

Other reasons for supporting the initiative have included the potential for the MQF to give greater parity of esteem between the skills and TVE qualifications, and potentially with the higher education and academic stream. Several stakeholders have identified the proliferation of qualifications and awarding agencies across Malaysia and the need for them to be benchmarked and brought within a single framework and common, or at least consistent, sets of accreditation and quality assurance processes and rules.

Industry representatives also support the objective of establishing better mechanisms for the recognition of workers' skills, including the skills of the immigrant and guest workers.

The Minster of Higher Education, at the Malaysian Education Summit 2005 expressed the value and importance of the Malaysian Qualifications Framework. He said:

> The introduction of the Malaysian Qualification Framework (MQF) is another milestone in our higher education system. MQF would be able to better synergize public and private higher education institutions. The educational pathways as stipulated by MQF, I believe, would facilitate greater student mobility between public and private higher education institutions. Under the framework, student mobility between both institutions could be fostered through credit transfer once common standards are achieved. It may still be a long way, but I strongly believe, that together we can make it happen. (Shafie, 2005, p. 3)

The various objectives of the MQF raise the issue of the ownership of qualifications. It does appear that the MQF and the MQA have avoided the mistake of attempting to centralize the processes for the generation and accreditation of all qualifications across Malaysia. There is ample evidence from the testimonies of stakeholders that the market is selective in its acceptance of qualifications on the basis of provider, course content and graduate attributes. Other agencies, notably the Public Service

Department and professional bodies such as the Institute of Certified Public Accountants and the Malaysian Institute of Banking undertake their own examinations and issue their own qualifications. Apart from the overseas universities, some providers issue overseas awards such as those of the Royal Society of the Arts and Edexel. A central tension for all NQFs and especially national qualifications agencies or authorities is the relationship between the distributed ownership of qualifications and their communities of users or trust and the centralized role of the agencies in ensuring consistency in quality and standards, and the relationships between qualifications.

An independent NQF and agency would have little need to have a major role in the content and intrinsic purpose of qualifications. However, there is a danger of this when the agency has evolved from or within an agency that does have that role within a sector. This is partially the case in Malaysia where the MQA is located within the Ministry of Higher Education. However, this is mitigated by the historical tradition of self accreditation within the higher education sector.

Against this background is a view from industry organizations of skills shortages.[7] Most workforce entrants are people who have no post-school or only basic-level SKM qualifications. This means that about 80 per cent of the workforce is low skill, and consistent with international patterns, most low-skill workers do not achieve any formal advance in their qualifications level over the course of their working lives. Industry personnel have pointed to a need to have workforce skills recognized and the need to do this through a publicly funded and flexible system of assessment.

The sectors

Secondary schools

Secondary school qualifications are not included within the MQF. This is despite the fact that several school certificates are issued in Malaysia including the Higher Schools Certificate, the Foundation Certificate and the Matriculation Certificate. Students in private and international schools may also complete an overseas qualification, which are usually recognized by universities and colleges, especially within the private sector.

The complex processes and regulations for entry into higher education arguably obviate the need for an NQF that could assist in identifying the relative levels and credit value of these certificates. Processes include quotas and special conditions for groups of students. Of course this argument could be reversed, as greater consistency in levels and standards could exert some pressure on these arrangements. On the other hand, Malaysia does have a strong type B (in OECD terms) tertiary sector, and this does accommodate different levels and types of school certificates - although they are mostly based on a general and academic curriculum. The inclusion of school certificates within the MQF might also assist the development of stronger linkages with the skills certificates of the skills sector.

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[7] The industry associations acknowledge that the skill shortage question is complex because industry does not invest in training and because of the preference for large sections of industry to employ low-cost and low-skilled workers. On the other hand, one industry representative was of the view that the immigrant workforce was more likely to achieve on-the-job skill advances and that these skills should be formally recognized. A major barrier is the cost issue as the employer or the worker has to pay the assessment and awarding costs, which the industry organisation feels should be met by government.

The main reason cited by policy makers for their non inclusion was that they were not part of the responsibility of the Ministry of Higher Education, which covers two of the three sectors within the framework and which was the driver and developer of the NQF. The inclusion of the skills certificates within the framework has been a negotiated, and incomplete, settlement.

Broadly the patterns of levels and courses and qualifications in upper-secondary schooling match with the tripartite structure of post-school education and training. The Schools Certificate (MCE), or Leaving Certificate, allows entry into the SKM system of skills certificates delivered by public and private training centres. Schools will variously have vocational and technical streams. The MCE also allows entry into the polytechnics, as do the other qualifications in the tertiary preparation stage of secondary education. Access to the prestigious universities mostly requires the full two years of pre-tertiary studies.

As with the tertiary system, the technical and vocational programmes and qualifications of the secondary schools have been developed and managed independently of the NOSS system, although the Ministry of Human Resource Development has operated a small number of secondary schools that use the NOSS. It now seems that the secondary schools are moving towards the use of the NOSS in at least some of their programmes. Once again, given this complexity, the inclusion of at least the pre-tertiary schools qualifications within the framework would seem to have potential advantages.

Skills

As in most countries, technical and vocational education and training (TVET) has a diverse background in Malaysia with antecedents in the skills sector including apprenticeship schemes, technical colleges, technical schools and trade schools. The current sector differentiation began to emerge in the late 1970s. However, skills training remained heterogeneous with a range of public and private training providers, including those run by different ministries such as the Ministry of Youth and Sports, and the Ministry of Entrepreneurial Development. The State Skills Development Corporation also has played a role in skills development, but has more recently moved into the knowledge economy area. In 2007 apart from the skills centres run by the Ministry of Human Resource Development, there were another 191 run by nine other ministries. Overall, 1,151 different training institutions were accredited to offer 6,575 training programmes based on the NOSS, of which 363 centres were administered by public agencies and authorities, whilst the remaining 788 were private (Pang, 2008). In 2008 ten government ministries operated 348 centres (DSD, 2009).

The NOSS system has essentially been the unifying system for the skills sector, and in this sense it effectively defines it. The system is formally governed by a National Vocational Training Council. This is a tripartite body with an industry representative as the chair. It formally accredits all providers of the NOSS qualifications – the SKM, including accreditation or scope of accreditation for specific qualifications.[8] The qualifications are standards or qualifications based and include a description of the occupation, the level, the duty and task, and the standard and sub-tasks. An example of NOSS qualifications and a standard from the automotive sector is attached as appendix 3.

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[8] Scope of accreditation refers to the list of qualifications that a provider is accredited to deliver.

There appears to be a good level of trust in the NOSS and SKM across industry. Legislation is pending that will allow the Public Service Commission to recognise the SKM, although these qualifications are mainly oriented towards the private sector. A criticism of these qualifications is that they are not suitable for school leavers because they are highly occupationally focussed and lack general knowledge and skills.

There are discussions within the skills sector regarding extending skills programmes and qualifications to levels 6 and 7 of the MQF - that is bachelor and master's degree levels. This possibility is being treated with various degrees of enthusiasm and scepticism by policy makers and stakeholders. The main argument in favour of the development is that the skills sector needs to create its own routes to higher order skills as the programmes offered within the higher education sector are too theoretical and students from the skills centres lack progression routes.

Arguments against the development are that these levels do require a strong base in theoretical skills and that the skills sector would first need to bed down its diploma programs and then look at articulation with higher education qualifications. In 2008, only 27 advanced skills diplomas were issued (appendix 1, table 3) suggesting that the market for high-level skills qualifications is weak. On the other hand, it may be that graduates within the skills sector are forced to transfer to the tertiary sector for more advanced studies. Stakeholders from the skills sector indicated that this has proven difficult for such graduates in the past because of the different types and standards of mathematics requirements.

The authority to take this initiative forward needs a legislative base. Work on this mooted development has so far been based on the ILO Regional Model of Competency Standards, rather than the MQF, because the MQF can provide little guidance for the skills sector. There appears to be little communication between the skills and the vocational and technical sectors about these possible developments.

Vocational and technical education

This sector is an amalgam of sub-professional education and community education. The polytechnics are mostly accessed by school leavers who have completed a Malaysian Certificate of Education (O levels or Vocational) or a Matriculation Certificate (DPCCE, 2009). There are 27 polytechnics across Malaysia delivering diploma and certificate courses to about 85,000 students (equivalent full time [EFT]). Most of the courses are at the diploma rather than the advanced diploma level. There are 21 community colleges with another 18 being developed across the country. These provide for a range of community needs including access and re-entry programs for adults. Most of their courses are at the certificate levels together with a number of work-based diploma programmes. In 2008 they provided short courses for over 100,000 participants.

The course and qualifications development processes of this sector are essentially internal to the Department of Polytechnics and Community College Education (DPCCE) within the Ministry of Higher Education. However, they are to be based upon the broad standards and domains that have been established by the MQA. As with higher education qualifications, they are included on the Qualifications Register as interim qualifications, but will be required to be fully accredited by the MQA by 2011. The standards include qualification descriptors and domains of learning outcomes (see forthcoming section). The processes are based upon curriculum reviews and studies and consultation with industries. Thereafter, proposals are

considered by course advisory committees that include industry sector representatives. Subsequently, they are considered by the Curriculum Development Committees that include subject or area specialists and representation from the university sector. The course and qualification are then approved by a Curriculum Board before being considered by the MQA for inclusion within the Qualifications Register. The Public Service Department also considers them for accreditation and the DPCCE has found their requirements to be more restrictive than those of the MQA.

The DPCCE effectively accredits the polytechnics and community colleges that it directly administers, but it is not formally an accrediting body. This role is located in the MQA. The post-school private sector providers are located either in the skills sector or the higher education sector. Hence they are accredited through those sectors by the Ministry of Human Resource Development and the MQA, respectively.

Stakeholder participation is through the course advisory committees and mainly through the industry associations such as the Malaysian Employers' Federation, the Malaysian Association of Hotels and through public sector bodies such as the Malaysian Development Corporation. Professional and occupational bodies tend to be linked to degree-level and skill-level occupations and qualifications, respectively, and therefore have little input into and possibly interest in the qualifications delivered through the polytechnics.

Efforts are being made to strengthen articulation arrangements with the higher education sector and to build industry linkages. Polytechnic course typically include a semester of industry experience and attempts are being made to strengthen this.

Several stakeholders, including those from industry, believe that there should be only one skills and vocational sector. They typically point to ministerial territorialism as the main barrier to this.

Higher education

The higher education sector has seen rapid growth over recent decades. Levels of public investment are high by international standards and the policy of expansion of the private sector has led to a rapid growth of private colleges and universities, as well as the arrival of campuses of overseas universities. Including overseas universities, there are 50 private universities and institutes, ranging from medical colleges to hotel schools. There are 21 public universities. Only the public universities receive state subsidies, which are substantial and allow low fee levels for students. Students attending private universities and colleges have access to a loans scheme.

The establishment of the LAN was specifically designed to establish a quality assurance system for the private universities and colleges. These providers, like the public universities, have undertaken their own course and qualifications development processes, which are subject to their internal accreditation processes. The LAN introduced external scrutiny and endorsement of these processes. However, this was extended to include scrutiny of the capacities of the providers, in terms of their facilities, staff qualifications and delivery systems.

In terms of their origins, the MQF and the MQA represent an extension of the LAN to public universities, all of which are now required to undergo audits. According to several university representatives, this has come as a shock to some universities, and especially to people who are responsible for course accreditation. A group of eight, mostly well-established public universities has been nominated as eligible for self accreditation following satisfactory audits. All personnel who were interviewed

agreed that the private university sector needs to have a stronger and an external quality assurance system. Interviewees from the public universities were of the view that the quality assurances processes in their universities would also benefit from the new MQA systems. Several personnel from the sector noted that Malaysia has only two universities included in the Cambridge list of top 100 universities and that, in part, the extension of the LAN system was a means to achieve this.
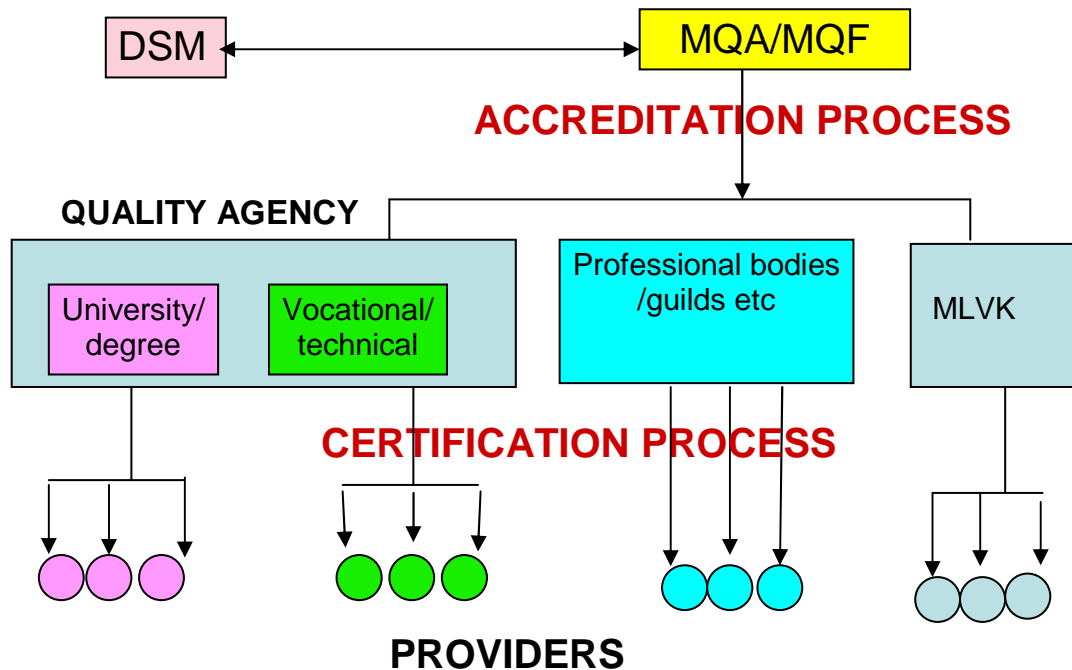
Professional associations

A fourth type of sector is that of professional associations and other occupational bodies such as guilds that issue certificates and other credentials. Several of these bodies have considerable status and this is reflected in the formal accreditation processes across the three sectors, especially in the higher education and technical and vocational sectors. These organisations were recognised as awarding bodies in the developmental processes towards an MQF before its enactment and establishment in 2007. Shahabudin (2004), for example, shows their relative importance in his description of accreditation and certification system for qualifications in Malaysia (figure 2). Figure 2 also shows how various agencies in Malaysia began to use the term MQF either to describe sector frameworks, notably the skills sector framework, or to refer to the broad national qualifications system.

Malaysia has combined a relatively open education and training market with a high degree of centralization and robust state intervention in some aspects of economic and educational activity. For example it has encouraged the growth of private higher education providers but has now extended a regulatory regime including external course and qualifications accreditation to the public sector.

Figure 2 indicates the importance given to standards in the parallel role of the Department of Standards. It notes that: "Standards are required by industry, government and consumers to facilitate both domestic and international trade; enhance industrial efficiency and technological development; enforce regulations for public safety, health, environment protection and prevention of deceptive practices." (DSM, 2009, p. 1). The establishment and regulation of standards requires an accreditation process related to product standards and health and safety. The processes therefore relate to the competence of companies (such as food companies and export-oriented companies) and other organisations.

Therefore, as indicated in the figure, there is a natural relationship between qualifications accreditation and quality assurance and the regulation of product and consumer standards in Malaysia. The catalyst for the MQF, identified by all stakeholders was the need for quality assurance for domestic and international students in the private higher education market.

Figure 2.   Quality System in Education (adapted from Department of Standards Malaysia, 2004)

Source: Shahabudin, 2004.

This suggests that the development of the MQF should be seen essentially as a regulatory response to a robust education market fuelled by the strength of the economy; the objective of building a stronger import replacement and export education industry; apparent high rates of individual demand for education and high levels of government funding.

The other driver has been the fractured nature of the Malaysian education and training system. Ironically this has been caused by the high degree of centralization of the governance of education and training which has created departmental territorialism and reduced the capacity for localised links between education and training sectors.

The further major purpose of the MQF has been that of greater cross-sectoral links and seamlessness between different sector qualifications. All of the official documentation pertaining to the MQF and numerous presentations by officials and stakeholders includes references to the Recognition of Prior Learning (RPL). The idea of RPL existed before the establishment of the MQF, and for example was included in the LAN *Guidelines on criteria and standards for courses of study* (see appendix 2). However, in these documents it appears to refer to the criteria for course entry, rather than to the recognition of prior learning for credit purposes. It is the case that credit can be given for students who transfer from diploma- (and possibly certificate-) level studies in the polytechnics (and possibly private providers) to degree-level courses within the university sector. As in other countries, the realisation of this credit and the amount of credit are determined by the universities, probably influenced by their and their courses' selective or recruiter status.

There is little evidence of credit-based transfers between the skills sector and the other two sectors. This is because there are few transfers, given the low levels of diploma level enrolments in the skills sector, and the stated differences in the course foundations between the three sectors.

It does appear that the MQF has been influenced, but not necessarily driven by, international developments. Some of the key personnel in the development of the NQF emphasised that the study of international developments in NQFs was an educational and a developmental process, and that there was no attempt to replicate any model in the Malaysian context. These studies were supported by international organisations such as the World Bank. Seminars were conducted and studies facilitated, however, as one of the people involved noted: "We took their money but we did our own thing".

Design and implementation

The MQF is established by legislation and is under the management of the Malaysian Qualifications Agency (MQA). It is described by the MQA (2007, p. 2) as "an instrument that develops and classifies qualifications based on a set of criteria that is approved nationally and at par with international practices, and which clarifies the earned academic levels, learning outcomes of study areas and credit system based on student academic load."

The MQF comes with an expansive rhetoric and an even more expansive superstructure. The formal framework is outlined in table 4. The superstructure can be described as consisting of four elements.

First, it is an eight level framework housing three sets of qualifications for skills, vocational and training and higher education. In this sense it is similar to some of the earlier NQFs where nationally recognized or endorsed qualifications are located on a framework that implies some broad levels of equivalence and progression between qualifications. An obvious difference is the separation of skills and technical and vocational qualifications. The framework does not include senior secondary qualifications, although some or most of them would be of a sufficient standard to be located within the formal framework, for example, the Malaysian Higher Schools Certificate allows entry into university and so would be at least at level 3 and arguably level 4 or 5 within the MQF.[9] The MQA literature indicates that statements of completion and honorary degrees are not included in the framework. This emphasizes the primary design feature of a regulatory framework or in Raffe's (2009) terms a reforming framework. It could also be described as a developmental framework. However, its superstructure appears to be quite heavy and the developmental capacity may be limited.

The eight levels of the framework have been determined upon the basis of:

- depth, complexity and comprehension of knowledge;
- application of knowledge and skills;

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[9] The location of senior secondary qualifications within NQFs is an endemic problem. This is especially the case in countries that have school-centric education and training systems for the school-age cohort and that have a common senior secondary qualification. Such qualifications must be able to accommodate a wide range of scholastic levels. In a country like Malaysia where there are multiple senior secondary qualifications their inclusion in the NQF would probably result in their location at different levels. This may be something that policy makers want to avoid.

- degree of autonomy and creativity in decision making;
- communication skills, and
- breadth and application of practices.

It appears that the eight levels have been informed by the International Standard Classification of Education (ISCED) levels, and during interviews officials mainly referred to individual NQFs rather than the European Qualification Framework (EQF) as informing their developments.

The MQA has an Equivalency Committee with the function of analyzing: "equivalency assessment reports or programmes and qualifications; and to make decision on the equivalency of qualifications for their placement in levels of qualifications in the MQF." (MQA, 2008a)

Table 4.   Outline of the MQF

MQF levels	Credits	Skills	Vocational and Training	Higher Education	Lifelong Learning
8				Doctoral degree	
7	40 30 20			Master's Degree Postgraduate Cert & Diploma	Recognition of Prior Learning
6	120 60 30			Bachelor Degrees	
5	40	Skills Advanced Diploma	Advanced Diploma	Advanced Diploma	
4	90	Skills Diploma	Diploma	Diploma	
3	60	Skills Certificate 3	Vocational and Technical Certificate	Certificate	
2		Skills Certificate 2			
1		Skills Certificate 1			

The second element is the processes for developing and accrediting qualifications. The MQF is formally an outcomes framework with broad descriptors for learning outcomes at each of the eight levels described against eight domains:

- Knowledge
- Practical skills
- Social skills and responsibilities
- Values, attitudes and professionalism
- Communication, leadership and team skills
- Problem solving and scientific skills
- Information management and lifelong learning skills
- Managerial and entrepreneurial skills.

These are used to develop more specific learning outcomes for fields of study, a task undertaken by committees consisting of "stakeholders from academia, industries, professions, employers, the government and other relevant parties" (MQA, 2007, p. 4).

Learning outcomes thus derived are constructed as units, subjects and courses and are given a credit value as a measure of volume or 'academic load'. The expectations of credit value for different levels of qualifications are specified within the framework. The credit system is seen to enhance "the higher education provider's autonomy to design and plan the teaching activities that are no longer bound to contact hours" (MQA, 2007, p.5)

The third element is the quality assurance process for providers. This is based on nine areas. Providers develop programmes that are given provisional accreditation by the MQA. Programmes and the providers are subject to audits from the MQA.

Finally, a Qualifications Register onto which accredited programmes are entered, the objectives of which register are to:

- provide information on accredited programmes and qualifications;

- enable stakeholders to know, understand and make comparisons on the features of a qualification; and

- facilitate the credit transfer process.

Information held on the register includes provider details and details of the qualification including its credit requirements for graduation. These details can be accessed online by providers and students (MQA, 2008). MQF officials see the register as a key to the new system and "a safety net for students".

Outcomes

The framework emphasises that qualifications are outcomes based. In the core document (MQF, 2007), learning outcomes are stated in three categories: (i) levels of qualifications (ii) fields of study and (iii) programmes (MQA, 2008, p. 3). Supporting documentation emphasises that the establishment of the MQF represents a shift to outcomes-based education and training.

The MQF version of outcomes-based qualifications is largely implemented through its Code of Practice for Programme Accreditation, which states that:

> The programme **must** [emphasis in original] define the competencies that the student should demonstrate on completion of the programme that covers mastery of body of knowledge practical skills; social skills and responsibilities; values, attitudes and professionalism; problem solving and scientific skills; information management and lifelong learning skills; and managerial and entrepreneurial skills." (MQA, 2008a, p.11)

Credits and recognition

Credits within the MQF are based upon one credit for 40 learning hours. The learning hours have been described as 'not notional', rather, consisting of formal instruction and supervised learning plus student-directed learning, as well as assessment time (MQA, 2008d). The credit level of different qualification types has caused some problems for providers who either have been forced to include more learning and/or instruction in their courses or who argue that their qualifications and courses need more credit.

It also appears that the combination of levels and credit has acted to restrict the amount of credit that can be realised in transfers from certificates to diplomas, both within and between sectors. In regard to credit transfer between qualifications at the same level, the MQF does not create any restrictions, unless the standards established by the Area Standards Committees provide content restrictions. Here the idea of more explicit and benchmarked standards is seen as providing a better foundation for transfer, including credit-based transfer, between courses, qualifications and providers. Universities and colleges have various agreements with other providers, both in Malaysia and other countries.

The MQA has established a developmental guide for RPL. In Malaysia, RPL is often understood as the recognition of learning for course entry, rather than for credit. The MQA appears to have a role in laying down minimum conditions for entry to some courses. There is a clear hierarchy of providers and courses, especially for school leavers.

The idea of RPL for entry and credit is seen as being enhanced by an outcomes based framework. However, the MQF should properly be described as partially outcomes based. It operates at the qualifications rather than the unit level, and the more outcomes-based SKM qualifications are only located on the MQF as whole qualifications within the Qualifications Register – their NOSS standards are within the Ministry of Human Resource Development and its MLVK.

There is strong in principle support for RPL across all agencies and amongst key stakeholders. However, apart from guidelines, it is not apparent how the MQF alone can enhance the capacity for its realisation.

Standards and quality assurance

A senior official of the MQA noted that the MQA "must have quality assurance and standards at the centre".[10] The evolution of the MQA has been driven primarily by the need to regulate the private higher education market, the establishment of the LAN to do this, and the extension of the LAN system to the public universities. Previously standards were based on peer review. This was seen as inadequate as a basis for consistency in standards.

However, quality assurance for the skills sector and the training centres, and the polytechnics and community colleges, is only partially located with the MQA. In a formal sense the MQA is responsible for the quality assurance of all qualifications that are included on its register. This requires that all qualifications should include the information required for the register, including details of learning outcomes and credit value of qualifications and their components. However, for the skills sector, the formal accreditation of qualifications remains with the Ministry of Human Resource Development. Indeed part of the settlement between the Ministry of Human Resource Development and the MQA has been that the skills sector is now subject to only one accreditation process. In the past its qualifications were required to also be accredited by the Ministry of Education.[11] The MQA formally acknowledges that the skills sector qualifications (SKMs) are subject to the NOSS standards under the responsibility of the Ministry of Human Resource Development and its separate developmental processes and committee structures.

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[10] Interview, 4 August 2009.
[11] The Ministry of Higher Education was formally separated from the Ministry of Education in the early 1990s.

Regarding polytechnics and community colleges, qualifications are formally accredited by the MQA. However, their developmental processes are located with the Department of Skills Development (DSD), albeit within the Ministry of Higher Education – where the MQA also resides. The DSD has its own (separate) committee structures and developmental processes, and at best they appear to be "informed" by the MQA's standards committees and processes.

Quality assurance typically is through front-end or input measures and/or back-end or outcome measures. The establishment of the Qualifications Register gives the MQA a formal role in terms of input measures for all qualifications, to ensure that all qualifications meet requirements regarding course descriptions, graduate outcomes and credit values. However, the remaining input measures are more distributed across the three sets of agencies: Ministry of Human Resource Development, DSD and MQA.

In terms of other input and the output measures, it also appears that responsibilities are distributed across the three sectors. The Ministry of Human Resource Development accredits skills centres on the basis of its own criteria. As the DPCCE effectively owns most of the polytechnics and colleges, it is directly responsible for the quality and quality assurance of these providers. Here all of the polytechnics are quality assured or accredited by the Public Service Department (PSD) and all are accredited by the International Organization for Standardization (ISO).[12] All skills centres are subject to accreditation processes supervised by the National Vocational Training Board (NVTB).

In the higher education sector, the MQA establishes 'programme standards' through programme or area committees, which include representatives of providers and professional associations. These standards must be met by providers in their course development. The programme standards are also meant to apply to the polytechnics and community colleges, although it would seem that at this stage there has been little connection. Within the higher education and technical and vocational sectors, processes for the accreditation of qualifications are effectively centralised.

Within the skills sector the number of accredited programmes has grown from 201 in 2004 to 5,755 in 2008, although the number has declined slightly over the past six years (DSD, 2009). Here the NOSS standards virtually constitute qualifications, although they allow for a considerable degree of scope (see appendix 2).

The MQA does have the direct responsibility for the accreditation of providers within the higher education sector. This involves processes for the accreditation of all providers and includes institutional audits (see figure 3). It is possible for some providers to become self accredited and eight of the older public universities are currently taking this route. Quality assurance is based on eight areas:

1. Vision, mission, educational goals and learning outcomes
2. Curriculum design and delivery
3. Assessment of students
4. Student selection and support services
5. Academic staff
6. Educational resources
7. Leadership, governance and administration

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[12] Other providers such as the University of Malaysia also have ISO accreditation.

8. Continual quality improvement.

(MQA, 2008a).

Figure 3.   Quality assurance processes for higher education

Source: Fahmi, 2007.

Public and private providers have been given provisional accreditation for existing courses with all qualifications to be accredited and included on the register by 2011. If a course and qualification is not approved it can be reassessed and providers can appeal. The MQA stresses the need for flexibility and a negotiated relationship with providers. However, they also stress that there are limits to this, as excessive flexibility will undermine the system.

Output measures of quality assurance include the management of assessment and certification processes and the gathering of data on user satisfaction. Within the skills and technical and vocational sectors this is effectively a system of centrally supervised tests and examinations overseen by the Ministry of Human Resource Development/MLVK and the DPCCE, respectively.

The obvious feature of post-school education and training in Malaysia is the existence of three sectors; this is reiterated in the MQA structure. The internal relationships between the three sector's qualifications are different to each other. The framework includes a common set of descriptors (appendix 3) for all three sectors. While these descriptors appear to be qualification-type descriptors, they are effectively and officially level descriptors.

However, as level descriptors they do not include different domains, such as those that exist in the EQF. Given that the three sectors differentiate their different qualifications (that are located at the same level) by the percentage of practical and applied and theoretical learning, it will be difficult to use these descriptors for an exercise such as the credit rating of equivalent qualifications across two sectors. The extent to which the programme standards do this is unclear. However, it seems likely that these standards are designed essentially for the higher education sector.

On the other hand the descriptors are outcomes based and identify graduate capacities. These capacities are broad and could not be regarded as competencies, especially as there is only one descriptor for certificates 1 to 3.

The descriptor for certificates 1 – 3 acknowledges the separate role of the Ministry of Human Resource Development in the development of the NOSS standards. Consequently, there is an assumption that the development of standards for the technical and vocational and the higher education sectors is a single or consolidated process. The MQA has established a set of committees that include academic and industry representation to carry on the work of the LAN in establishing guidelines and

criteria for standards and courses and it is implied that these guidelines and criteria apply to both the technical and vocational and the higher education sectors. However, while officials from the technical and vocational division (DPCCE) of the Ministry of Higher Education were aware of these committees, these committees appeared to have little impact on the developmental processes for qualifications within the sector. The division has established and continues to operate its own industry advisory and course development committees, independent of the MQA. However, its courses have to be approved by the MQA and its qualifications are included on the Qualifications Register.

Impact and achievements

The formal MQF is its earliest stages of implementation. Therefore, measures of its impact will be difficult to locate. However, its core elements, notably the LAN and the NOSS system have been underway for some years and some indicators of their impact should be available. Putting the three developments together the following can be observed:

- *There is widespread support for the MQF.* All stakeholders agreed that there has been a need for greater quality assurance across sectors and that processes for benchmarking and quality assuring standards are required.

- *There is widespread support for the broad objectives of the NQF.* These include greater seamlessness across sectors and qualifications. There is evidence of the need for greater connectivity between the sectors at the formal and higher levels. Officials noted a high degree of communication and agreement. However, this is not so apparent at the provider levels.

- *There has been a growth in qualifications.* This growth has been across the three sectors and especially across the higher education sector. The extent to which the MQF has contributed to this growth is difficult to tell. Growth does include a significant number of international students in the higher education sector, which suggests a degree of confidence in its qualifications.

- *It is an adapted and negotiated framework.* The MQF is clearly a product of its institutional context. It encompasses two sets of arrangements: one as an integrated framework that is attempting to build coherence and linkages across Malaysian qualifications, and another that recognises the institutional separateness of Malaysian education and training and qualifications. In Raffe's (2009) terms it attempts to build intrinsic logic, but recognises the strength of institutional logic.

MQA officials have described the MQF as "a good framework for our circumstances." In one sense, this is probably a reasonable assessment. Malaysia's circumstances are unique, as is the case with most countries, and the framework certainly has not been adopted or imported from outside the country. It is a distinct framework for the historically formed institutional settings of Malaysian education and training and one that is designed to serve the ambitious national agenda for system growth and quality improvement.

Certain elements of the MQF appear to have clear advantages. A single register of nationally quality assured qualifications has obvious advantages for users. A framework that promotes dialogue between sectors has potential developmental advantages in terms of articulation and integration between qualifications and offers

the potential for credit systems. Moreover, a single and more consistent standards framework affords more transparency for users.

In another sense, however, the conclusion needs to be more open. The MQF as a new entity might be considered a limited innovation when the LAN and its extension to the public universities and the NOSS system are taken from it. As a discrete innovation its main mission is to tackle and change the heavy institutional logic of the Malaysian qualifications system. At this point it might be observed that this is no small endeavour for NQFs in general, and it is doubtful if any could be regarded as having high levels of success in this mission – and to an extent they cannot and should not be completely successful.

So, while it can be observed that at least at face value the MQF – through its component elements – is bringing greater quality assurance and standards alignment to Malaysian education and training, it is more difficult to observe any advances towards a more coherent and articulated qualifications system. On the other hand, it can also be observed that this is the right sequence: coherence and articulation must be built upon standards and quality assurance.

The MQF has been described as a developmental agenda. This is manifest in the fact that it has an active agency (MQA) and associated agencies that are undertaking vigorous processes of quality improvement and associated developments. The key question is at what point do these activities intrude upon and therefore challenge institutional logic?

Stakeholders and sectors

All stakeholder interviewees supported the establishment of the MQF. Their degree of involvement in, and satisfaction with, the processes is more mixed. Involvement is at the central agency, occupational and provider levels across the three sectors. The business sector is represented on the MQA board and employers and unions are variously represented upon provider councils, course development committees, standards committees, and so forth.

However, there are limits to this involvement, which is often limited to consultation, and unions in particular appear to have very little involvement. The professional associations appear to be the most important stakeholders for the MQA and to a lesser extent for the MQF, and are key stakeholders in the standards committees. This is something of a problem for the skills and vocational and technical sectors as many, if not most, of the professional associations only recognise degrees. Some stakeholders regard the consultations largely as lip service, because decisions are still made by and within ministries.

Broadly speaking, providers across the three sectors appear to support the MQF. The higher education sector is most affected by it. Within the public universities there has been 'some grumbling' but the need has been accepted. There is a high degree of variation across the private sector. The large providers are supportive of measures to strengthen the standards and quality of the sector. Within the vocational and technical sector there is acceptance of the MQF. Here accreditation or approval is also required from the Public Service Department (PSD) This is regarded as an important benchmark, and the PSD has more stringent procedures than those required by the MQA. Across the skills sector there is limited exposure to the MQF, but the idea of a

single framework that may bring greater coherence and equality of esteem is welcomed.

Some providers outside of the higher education sector have noted that the MQA is located within the Ministry of Higher Education and reports to it, and that the MQF as an extension of the LAN is reverting to academic thinking.

A view can be observed amongst a range of people from the skills and technical and vocational sectors that the NOSS/SKM system has not been well accepted within Ministries of Education and Higher Education. Much is made of the different balances in applied and academic learning across the three sectors.[13]

Issues and barriers

The main barrier to the MQF appears to be its main challenge: the institutional barriers associated with ministerial separation. Several stakeholders pointed to this and made the observation that skills centres and training institutes continue to be located across multiple ministries. To an extent this also applies in higher education where teachers' colleges are located within the Ministry of Education, since the Ministry of Higher Education was separated from it in 2003. There is also an array of training institutes that are located across multiple agencies including across some state governments.

Most of the stakeholders from the skills sector, and to a lesser extent the technical and vocational sector, complained about the priority that the government gives, especially in its funding policies, to the higher education sector. As indicated above the bulk of post-school public funding goes to the public universities, at the expense of the other sectors. The training centres are largely dependent upon the HRDF. These observations are on top of the observations that the MQF is oriented towards the higher education sector, and that this is reflected in the experience of its personnel, the content of its operations and the composition of its committees and board. This is likely to weaken the climate for dialogue and cooperation between sector agencies.

More of a parallel issue is the respective roles of the sectors and providers in initial and continuing education and training, and the broader education industry. The skills sector is an industry training sector and the key sector in supporting skills upgrades. However, each year in Malaysia an estimated 200,000 school leavers do not enter any education and training. Most could not afford to enter the private universities or be accepted into them, and assumptions are made that more could enter the skills sector. Some stakeholders have pointed out the NOSS qualifications that have been designed to meet industry-specific skill needs and worker training are not appropriate for the career development of young school leavers, and there appears to be little capacity within the MQF system to modify these qualifications or develop more appropriate qualifications for these young people.[14]

Parallel developments

A parallel phenomenon of educational expansion has taken place in Malaysia via two processes: the liberalisation of the skills and higher education markets and increased

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[13] A typical description of this balance is: skills – 70/30; vocational and technical – 50/50; higher education – 30/70.

[14] This problem is not isolated to Malaysia. Countries such as Australia and the United Kingdom that have adopted industry-derived qualifications for school-level vocational programmes have faced the same issues.

public investment. The core logic of the MQF has been to deal with the consequence of the expansion of the education and training market, and public investment has also been directed towards the expansion of the polytechnics and the community colleges. Educational expansion also includes objectives and targets for higher rates of secondary school completion and transfer to tertiary education and the establishment of the Dual System of training.

There can be little doubt that the innovation has strong government support. The MQA has been well resourced and the MQF has a strong presence in documentation from other agencies. Government is also active in other initiatives. It engages in extensive planning activities and has other mooted initiatives to increase the demand for and investment in education that are also consistent with the intention of the MQF.

Several stakeholders, including MQA personnel have identified the capacity building of providers as key to the effectiveness of the MQF. Here there appears to be a degree of frustration within both the MQA and some providers, where staff may be finding it difficult to accept and work within the new accreditation requirements. Several interviewees identified teething problems. Some indicated that the accreditation processes are too long, especially in areas such as information and communications technology (ICT) where standards quickly become obsolescent.
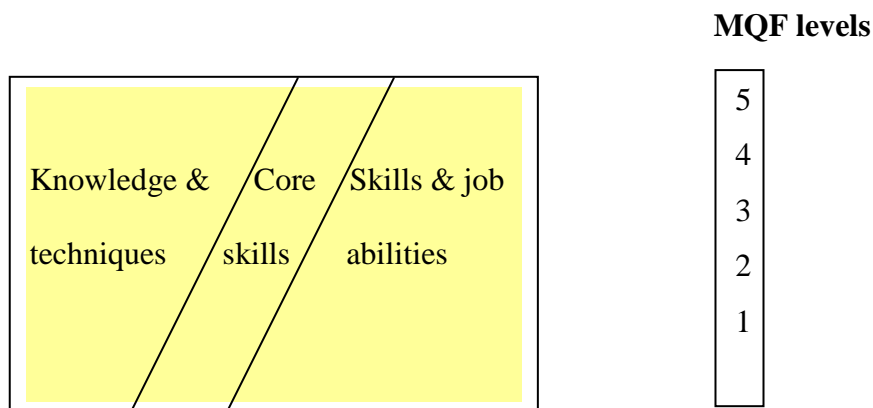
Credit and RPL

The most obvious unanswered questions about the MQF relate to credit and RPL. There is a considerable amount of rhetoric given to credit and RPL in the official and associated documentation. Yet the capacity to transfer credit and achieve RPL appears to be limited. Most of the agency personnel acknowledge that there is "more to do on the credit system and RPL".

Relationships between the certificate- and diploma-level qualifications in particular appear to be a point of contention. Both the skills and the technical and vocational sectors have favoured a capacity for the large transfer of credit from level 3 certificates to the diploma level – up to 70 per cent. However, the MQF because of its constructs of descriptors and volume now only allows a 30 per cent transfer.

Several sector agency personnel described the balance between knowledge and skills in terms similar to that depicted in figure 4. At level 1 of the MQF, learning is primarily skills-based and applied. The balance moves in favour of more knowledge and theory based learning as the levels increase, with a constant element of core skills.

Figure 4. **Learning type of MQF levels: balance of applied, core, and academic learning**

MQF levels

Knowledge & techniques / Core skills / Skills & job abilities

5
4
3
2
1

This would appear to provide a ready basis for credit transfer between qualifications at the same level. However, several provider-based stakeholders referred to the difficulty of articulation between the sectors because of the different epistemological and learning practices-based structures of the sectors. These difficulties are also exacerbated by the experiences and formal learning backgrounds of the students or learners.

There also are difficulties pertaining to transfer within sectors. For example, the NOSS system does not share standards across types of qualifications, as occurs within training qualifications in countries such as the United Kingdom and Australia. This does not allow any automatic credit for participants who transfer courses or who subsequently undertake parallel courses. The MQF provides no real facility for qualifications to talk to each other because of its base in qualifications type descriptors and the absence of domain and unit base descriptors. Whether the area standards can assist here is not clear, although it seems likely that they will only be available for qualifications at diploma level and above.

Indicators

When asked about current and anticipated indicators of the success (or otherwise) of the MQF, most stakeholders indicated that it is very early days. They did note the appearance of wide stakeholder support and high levels of activity towards building the standards and quality of courses. They also pointed to the parallel developments. Some measurable indicators were identified that could be used in the future; the included:

- the number of qualifications that are included in the register and the amount of use made of the register by students, employers and providers;

- graduate and other user surveys;

- the quality of courses and providers as revealed through the audit processes;

- the number of international students who study in Malaysia towards qualifications that are included on the register;

- employer feedback through committees and consultative forums; and

- graduate tracer studies that reveal information about their patterns of employment and salary levels.

Analysis and lessons

The chief executive of the MQA has written that:

> [T]he MQA succeeds LAN, not replace it. The migration from LAN to MQA represents a movement into 'the next phase' – a maturing process, if you like – in the evolution of quality assurance of Malaysian higher education, in tandem with national and international developments. Its functions expand, but its core business, and its dreams, remains the same: to quality assure Malaysia's higher education to inspire the confidence in it, and to push the boundaries of quality enhancement to make Malaysia's higher education comparable with the best in the world." (MQA, 2009b)

The key observation about the MQF is that in the particular context of developments in Malaysian education and training and its economic and social context, all roads

have led to standards and quality assurance. This is the view expressed by the MQA officials who see the framework primarily as a developmental instrument. It is a "basis for communication, and not an entity in itself".

There are obvious lessons from the MQF regarding to the ways in which context must shape any NQF and the ill advisedness of importing models. Similar observations can be made about the developmental approach, the need for foundations to be established over a long period of time and the importance of capacity building. These observations are similar to those made by a number of commentators on NQFs (Tuck, 2007; Young, 2007; Raffe, 2008).

Is there anything that the Malaysian experience, so far, can offer? If there is, it lies in the heavy institutional logic of the "system". Here there is need for caution as the concept of institutional logic has a negative sense and institutions are important in education and training. In a primarily supply-led sector, institutions are important, and in the Malaysian context they have proven to be particularly important in the context of market liberalization. The MQF is fundamentally an institutional response – a movement towards a somewhat guided and developmental approach following a period of liberalization.

However, as an institution, the MQF is designed to establish and build a new set of processes and in doing this it seeks to create different forms and currencies between different sets of stakeholders. Herein lie the constraints of institutional logic because the new institution must utilize the old institutions and therefore be subject to their constraints. In the case of the MQF, this is observable in the higher education location of the agency, the differentiated relationship between the formal MQF and its elements (levels and descriptors), and the limited realization of some of its rhetoric, such as that surrounding RPL and credit. Further observations of institutional constrains could be made across the other sectors.

So, a possible transferable lesson of the MQF experience is that the intrinsic logic of NQFs will always embody institutional constraints because of their inherent dependence upon established institutions. Put another way, intrinsic logic will always need to make concessions to institutional logic because of its dependent relationship.

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Appendix 1. Tables

Table 1.   **General economic and educational data.**

	2000	2007
GDP per capita (current US$)	3927	..
Average years of schooling of adults (aged 15+), total	7	..
Literacy rate, adult total (% of people 15+)	89	92
Public current education expenditure, % of total education expenditure	66	..
Public education expenditure as % of GDP	6	..
Public education expenditure, % of Gov-t spending	27	..
School life expectancy (years), total	12	..
Share of expenditure for tertiary education (% of total education expenditure)	32	..
Student enrolment, tertiary, total	549205	..
TIMSS: Eighth grade students reaching the advanced international benchmark of mathematics achievement (%)	..	2
TIMSS: Eighth grade students reaching the advanced international benchmark of science achievement (%)	..	3
Vocational and technical enrolment (% of total secondary enrolment), total	6	..

Table 2.   General economic and educational data, 1970-2005

	1970	1975	1980	1985	1990	2000	2005
GDP per capita (current US$)	394	807	1812	2027	2467	3927	5142
Average years of schooling of adults (aged 15+), total	..	..	..	5	6	7	..
Literacy rate, adult total (% of people 15+)	..	..	70	..	..	89	..
Progression to secondary level (%)	..	..	..	..	..	..	99
Public current education expenditure, % of total education expenditure	..	..	..	..	..	66	..
Public education expenditure as % of GDP	4	6	6	6	5	6	8
Public education expenditure, % of Gov-t spending	..	..	..	..	18	27	..
School life expectancy (years), total	..	..	..	..	..	12	13
Share of expenditure for tertiary education (% of total education expenditure)	..	..	10	12	..	32	..
Student enrolment, tertiary, total	..	..	57650	93249	121412	549205	696760
Vocational and technical enrolment (% of total secondary enrolment), total	..	..	..	..	..	6	6

Table 3.   **Number of Skills certificates and diplomas registrations and awards, 2004-2008**

Skills levels	2004		2005		2006		2007		2008	
	Reg	Quals	Reg	Quals	Reg	Quals	Reg	Quals	Reg	Quals
SKM 1	36,023	34,867	42,869	41.332	29,364	39,311	45,692	40,906	38,163	49,438
SKM 2	40,405	39,175	38,855	37,737	24,928	32,863	33,087	32,078	32,741	40,934
SKM 3	12,837	11.407	17,247	14,958	7,627	8,255	11,800	9,124	11,789	11,664
Dip	898	898	1,386	1,386	1,149	2,133	1,611	2,789	2,244	2,041
Ad. Dip	0	0	0	0	0	0	16	5	21	27
Total	90,163	86,347	100,357	95,413	63,068	82,562	92,208	84,904	84,953	104.104

Source: Min. of Human Resource Development (2008) Labour and Human Resource Statistics

Table 4.   **Employers registered with the Pembangunan Sumber Manusua Berhad (PSMB) - HRDF**

Year	Manufacturing	Services
2004	496	332
2005	316	873
2006	298	507
2007	296	705
2008	439	1,065

Source: Ministry of Human Resource Development (2008) Labour and Human Resource Statistics

Table 5.   Number of training places and financial assistance, 2004-08

Year	Training places	Financial assistance (million)
2004	458987	207
2005	535,266	232
2006	606,431	278
2007	687,941	319
2008	732,303	

Table 6.   Number of tertiary providers, 2006

Provider type	Number
Public universities	20
Private universities and university colleges	22
Foreign branch campuses	4
Private colleges	532
Polytechnics	20
Community colleges	34

Source: Fahmi, 2006.

Appendix 2. Sample NOSS qualifications and standards and LAN qualifications and standards

NOSS Qualifications for Automotive

	Motor vehicle servicing	Natural Gas Vehicle Servicing	Earth Moving vehicle servicing	Commercial vehicle servicing	Agricultural vehicle servicing
5	Automotive manager				
4	Automotive executive				
3	Motor vehicle technician		Earth moving vehicle technician	Commercial vehicle mechanic	Agricultural machinery mechanic
2	Motor vehicle mechanic	Natural gas vehicle installer	Earth moving vehicle mechanic	Commercial vehicle mechanic	Agricultural machinery mechanic
1	Motor vehicle mechanic		Earth moving vehicle mechanic	Commercial vehicle mechanic	Agricultural machinery mechanic

A standard and levels

PERFORM VEHICLE MAINTENANCE AND ROAD TEST	Carry out service on vehicle		Carry out check according to vehicle maintenance charts		Carry out corrective measures		Carry out road test		Analyze road test result	
01	01.01	L1	01.02	L1	01.03	L2	01.04	L3	01.05	L3

Description of technician

An Occupational Motor Vehicle Technician is designated top perform duties that involve analysis, synopsis and performs diagnostic testing for the whole motor vehicle system. He also determines the serviceability and the life span of components including recommending suitable components for changing. He also is responsible for supervising, training and guiding mechanics under his supervision in arranging out n normal duties.

In particular he/she:

- performs road tests and analyses results;
- services diesel dual systems by overhauling fuel injection pumps;
- repairs manual drive change by overhaul transfer box;
- repairs automatic transitions by conducting pressure and stall tests, test drives, gear shift patterns and overhaul automatic transmission;
- overhauls turbocharger;
- performs supervisory functions.

OCCUPATION: MOTOR VEHICLE TECHNICIAN			
DUTY NO.	01	DUTY:	PERFORM VEHICLE MAINTENANCE AND ROAD TEST
TASK NO:	01.05	TASK:	ANALYZE ROAD TEST RESULT
LEVEL:	L3	PERFORMANCE STANDARD ANALYZE ROAD TEST RESULT GIVEN SERVICE MANUAL USING TECHNICAL REPORT, EVALUATION FORM ETC. SO THAT THE VEHICLE PERFORMANCE MEET THE MANUFACTURER'S SPECIFICATION.	

SUB-TASK / STEP	ENABLING REQUIREMENTS (Knowledge, Skill, Attitude And Safety)	TOOLS / EQUIPMENT / MATERIALS

1. Analyse the road test result report	Knowledge of :
	 1.1 Various types of noise
	
	 Ability to :
	 1.1 Differentiate the types of noise ;
	     a) rattle
	     b) humming
	     c) vibration
	     d) engine sound
		3 Service manual
		 4 Vehicle
		 5 Road test report form

2. Report job that not meet the specification	Knowledge of : 2.1 Basic principle of automobile 2.2 Test report Ability to : 2.1 Locate abnormal noise from vehicle	

3. Send the vehicle to workshop for rework	Knowledge of : 3.1 Basic principle of automobile Ability to : 3.1 Rectify the defect 3.2 Follow service manual Attitude : 3.1 Use fender cover 3.2 Good house keeping Safety : 3.1 Disconnect battery terminals	
4. Retest the vehicle	Knowledge of : 4.1 Basic principle of automobile 4.2 Road safety sign Ability to : 4.1 Select all gears during driving 4.2 Handle vehicle on various road condition Attitude : 4.1 Road courtesy 4.2 Safe driving Safety : 4.1 Use seat belt 4.2 Possess a valid driving license	

Source: MOHR, 2008.

Example of LAN guidelines on qualifications and standards.

EDUCATIONAL GOALS/GENERAL: OBJECTIVES OF HOSPITALITY

To produce professionals in the field of hospitality, tourism & culinary arts who are ethical, competent and able to compete in their respective disciplines and who are:

1. Equipped with multi-skills applicable to the industry;
2. Able to work in different service sectors;
3. Able to contribute to the growth and continuous improvement of the industry by applying tactical and strategic planning capability.

LEARNING OUTCOMES / SPECIFIC OBJECTIVES

After completion of the courses of study\ at various level, graduates will be able to:

Culinary Arts

Certificate

1. Prepare and produce cuisine of the required standard;
2. Undertake further learning in the work place for future career or education advancement.

Diploma

1. Plan, apply, execute, and supervise tasks given to them;
2. Continuously upgrade and enhance themselves through life long learning;
3. Enhance the quality of the industry through training and development;
4. Demonstrate leadership skills at supervisory level;
5. Practise of safety, sanitation control and food hygiene system. Bachelor's Degree
1. Undertake various managerial functions in kitchen operations;
2. Conduct research and development in culinary arts;
3. Conduct training of food production and supervising skills;
4. Practice and enforce safety, sanitation control and food hygiene;
5. Adhere to the professional code of conducts;
6. Develop skills that are adaptable to various career levels and career advancement in the industry;
7. Communicate effectively in a multicontext culture.

Hospitality

Certificate

1. Know various aspects of food and beverage production and service techniques;

2. Assume all services responsibilities and duties;

3. Understand the sanitation, hygiene & safety procedures of the hotel and restaurant;

4. Handle restaurant service equipment;

5. Operate a computerized payment system.

Diploma

1. Know various aspects of hotel operation;

2. Conduct training for staff development;

3. Supervise every departmental operation;

4. Coordinate different functions in hospitality industry;

5. Communicate effectively with coworkers, customers and superiors;

6. Lead in practicing the highest standards in sanitation, safety and ethics.

7. Practice self-motivation and self development, and seek opportunity for life-long learning.

Bachelor's Degree

1. Identify and give priority to the consumer and meet their needs;

2. Analyse and evaluate the influences of hospitality business environment;

3. Apply and review the principles of hospitality management operations;

4. Identify and evaluate information for decision making;

5. Apply and review the principles of human resource management;

6. Identify and evaluate culture diversity in work and customer groups;

7. Apply the principles of management accounting;

8. Interpret the marketing concept and develop marketing plans;

9. Apply management theory in the hospitality industry.

TEACHING-LEARNING METHODS

Methods of handling the courses include lectures, discussion groups, practical instruction (laboratories), project work, seminars, tutorials, field work / trips, problem solving classes or self-directed learning.

Industrial placement is an integral part of the course and provides an opportunity for students to obtain\ industrial experience in various sectors of the industry.

STUDENT ASSESSMENT

Students' assessment process should be based on performance or competencies that include portfolio, projects, demonstration, presentation, peer evaluation, student evaluation (e.g. final exam), personal reflection and dissertation (degree level).

STUDENT SELECTION

Minimum entry level requirement1: Certificate SPM/SPMV with 2 credits or equivalent Diploma

· SPM/SPMV with 3 credits or equivalent ; or
· Certificate in related field and 2 credit in SPM; or
· 3 years recognized prior learning (RPL)

Bachelor's Degree

· STPM with 2 principals or
· Diploma CGPA 2.50 or higher

Appendix 3. MQF Descriptors

MALAYSIAN QUALIFICATIONS FRAMEWORK: DESCRIPTIONS OF QUALIFICATION LEVELS

Certificate Levels

Skills 1-3, Higher Education, Vocational and Technical

The Skills Certificate is conferred as a formal recognition to an individual who has shown the capabilities that have been acquired or practiced competently in the conduct of a task or work, usually "manual" skills. It is conferred without considering the ways in which the skills are acquired. The skills, often acquired cumulatively through stages of training and qualifications are usually recognised by competent authorities or industries.

The criteria and standards for these skills certificates are found in the National Occupational Skills Standards (NOSS), developed by the Department of Skills Development under the auspices of the Ministry of Human Resources.[1] The criteria and standards of skills certificates are articulated to higher level qualifications and enables certificate holder to progress from semi skilled to skilled, right up to supervisory, executive and managerial phases.

The Vocational and Technical certificate prepares students for specific technical tasks and is the beginning of further training in the selected field. Normally, the programme is based on in situ training at the training institutions and contains at least 25% vocational/ technical contents.

The certificate is conferred on students who are able to:

(i)   interpret and use technical information;
(ii)   assist and use the scientific work process and the techniques of designing;
(iii)   identify the impact of regulations, laws and contracts upon work process;
(iv)   prepare the estimated cost of work process and its operation;
(v)   utilise techniques and capabilities to search for and use data in decision making, having considered social, scientific, and relevant ethical issues;
(vi)   communicate effectively and convey information, ideas, problems and resolutions to the experts and non experts;

(vii)	attain team and interpersonal skills that are appropriate to employment;
(viii)	be responsible members of society; and
(ix)	use independent learning skills in further education.

<u>Foundation or University Preparatory Course</u>

Foundation Courses or University Preparatory Courses such as *Sijil Tinggi Persekolahan Malaysia (STPM)*, Matriculation and Foundation Certificates are not in the MQF as they are the entry qualifications to universities. Nonetheless, MQF determines standards for these certificates to ensure comparability and standardisation of student abilities. Generally, these are conferred on students who are able to:

(i)	show knowledge and comprehension in the field of study that is continued from secondary school as indicated in advanced text books;
(ii)	use knowledge and comprehension to identify and use data in respond to concrete and complex problems;
(iii)	communicate and clarify understanding and skills to peers and supervisors; and
(iv)	demonstrate skills for purposes of pursuing higher education.

Diploma Level

<u>Skills, Higher Education, Vocational and Technical</u>

Higher Education, Vocational, Technical and Skills Diploma encompass capabilities and responsibilities that are wide-ranging and will at the end, lead to a career. The employment is in various fields inclusive of business and management, social services, healthcare, sports and recreation, information technology and communication, arts and design, engineering, building construction, science and technology, hospitality and tourism, realty management, agriculture and forestry.

Diploma level education balances theory and practice or practical, and stresses on the instillation of values, ethics and attitudes to enable students to:

(i)	use knowledge, comprehension and practical skills at work;
(ii)	assess and decide, taking into account social, scientific and ethical issues with moderate autonomy;
(iii)	be confident and entrepreneurial in pursuing their own careers;
(iv)	be responsible members of society;

(v)   possess study skills in adapting to ideas, processes and new procedures for career development;

(vi)   acquire team and interpersonal skills that are appropriate to employment; and

(vii) communicate effectively and to transmit information, ideas, problems and resolutions cogently to experts and non-experts.

Advanced Diploma Level

Advanced Diploma

Advanced Diploma is a specific qualification, which identifies an individual who has knowledge, practical skills, managerial abilities and more complex and higher responsibilities than those expected at the diploma level. Advanced diploma is conferred on students who are able to:

(i)   use knowledge, comprehension and practical skills at work;

(ii)   assess and decide, taking into account social, scientific and ethical issues with autonomy;

(iii) possess study skills in adapting to ideas, processes and new procedures for career development;

(iv)   acquire team and interpersonal skills that are appropriate to employment;

(v)   communicate effectively and to transmit information, ideas, problems and resolutions cogently to experts and non-experts; and

(vi)   identify problems in their field of study.

Degree Levels

Bachelors

A Bachelors degree prepares students for general employment, entry into postgraduate programme and research as well as highly skilled careers. It enables the individuals to pair responsibilities, which require great autonomy in professional decision-making. The bachelors degree is conferred on individuals who are able to:

(i)   demonstrate knowledge and comprehension on fundamental principles of a field of study, acquired from advanced textbooks;

(ii)   use the knowledge and comprehension through methods that indicate professionalism in employment;

(iii)   argue and solve problems in their field of study;

(iv)   show techniques and capabilities to search and use data to make decisions having considered social, scientific and relevant ethical issues;

(v)   communicate effectively and convey information, ideas, problems and solutions to experts and non-experts;

(vi)   apply team and interpersonal skills which are suitable to employment; and

(vii)   posses independent study skills to continue further study with a high degree of autonomy.

Masters

A Masters Degree provides for the furtherance of knowledge, skills and abilities obtained at the Bachelors level. The entrance to masters is usually based on proven capabilities to pursue postgraduate studies in the selected fields. A masters degree is conferred on students who are able to:

(i)   demonstrate continuing and additional knowledge and comprehension above that of the bachelors degree and have capabilities to develop or use ideas, usually in the context of research;

(ii)   use the knowledge and comprehension to solve problems related to the field of study in new situations and multi-disciplinary contexts;

(iii)   integrate knowledge and manage complex matters;

(iv)   evaluate and make decision in the situations without or with limited information by considering social responsibilities and related ethics;

(v)   deliver clearly the conclusion, knowledge and the rationale to experts and non-experts; and

(vi)   demonstrate study skills to continuously progress on their own with a high degree of autonomy to do so.

Doctoral

A Doctoral Degree provides for the further enhancement of knowledge, skills and abilities obtained at the masters level. It generally provides the graduate with the abilities to conduct independent research and is conferred on students who are able to:

(i)   show a systematic comprehension and in depth understanding of a discipline and mastery of skills and research methods related to the field of study;

(ii)   show capabilities to generate, design, implement and adopt the integral part of research process with scholarly strength;