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TVET System Review Myanmar

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DEUTSCHE ZUSAMMENARBEIT

TVET System Review

Myanmar

2019

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Acronyms

ADB	Asian Development Bank
AEC	ASEAN Economic Community
ASEAN	Association of South East Asian Nations
CBSC	competency-based short course
CESR	Comprehensive Education Sector Review
COE	centre of excellence
DICA	Directorate of Investment and Company Administration
DTVET	Department of Technical and Vocational Education and Training
ELPS	English Language Professional School
EMIS	Education Management Information System
ESDL	Employment and Skills Development Law
EYE	Equipping Youth for Employment
FDI	foreign direct investment
GCI	Global Competitiveness Index
GDP	gross domestic product
GNI	gross national income
GSP	(EU) Generalized System of Preferences
GTC	government technical college
GTHS	government technical high school
GTI	government technical institute
HDI	Human Development Index
ICT	information and communications technology
ILO	International Labour Organization
ITC	industrial training centre
LMI	labour market information
MoALI	Ministry of Agriculture, Livestock and Irrigation
MoE	Ministry of Education
MoI	Ministry of Industry
MoLIP	Ministry of Labor, Immigration and Population
MoPF	Ministry of Planning and Finance
MPLCS	Myanmar Poverty and Living Conditions Survey
MRS	mutual recognition of skills
MSDP	Myanmar Sustainable Development Plan
NAQAC	National Accreditation and Quality Assurance Committee
NCC	National Curriculum Committee
NEL	National Education Law
NESP	National Education Strategic Plan
NGO	non-government organization
NOCS	National Occupational Competency Standards
NQF	National Qualifications Framework
NSSA	National Skill Standard Authority
NVTI	Nyaungshwe Vocational Training Institute
QMS	quality management system
PPP	purchasing power parity
RPL	recognition of prior learning
SDGs	Sustainable Development Goals
SDP	school development plan
SITE	School of Industrial Training and Education
SMEs	small and medium-sized enterprises
SMVTI	Singapore Myanmar Vocational Training Institute
TTTI	TVET Teacher Training Institute
TVET	technical and vocational education and training
UDE	university of distance education
UNDP	UN Development Programme
USF	universal service funds
YWTC	Yadanar Welding Training Center

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Acknowledgements

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The team undertook the scoping mission to the country from 18 February to 1 March 2019. During the scoping mission, the team held numerous meetings with key stakeholders and visited training centres, universities and workplaces (see Annex 1). National level review report consultation was organized on 8 and 9 July 2019 at Mingalar Thiri Hotel in Nay Pyi Taw. Around 100 participants from both private and public sector stakeholders including other line Ministries in TVET, the National Education Policy Commission, the National Curriculum Committee and the National Accreditation and Quality Assurance Committee, Myanmar Industrial associations and other private companies attended the consultation workshop and contributed their inputs for the report. Besides the consultation workshop, UNESCO provided a capacity development session on skills assessment, forecast and anticipation for officials from DTVET and other relevant line ministries on 10 and 11 July 2019, with technical inputs provided by Camille Courchesne and Thomas Yeo (*see Annex 4*).

The team wishes to thank all of the persons met for their generous time and the valuable information and suggestions shared.

Executive summary

A review of Myanmar's technical and vocational education and training (TVET) systems was conducted in 2019 in order to analyse the status of TVET systems, as well as the social, economic and labour market context of Myanmar, and propose recommendations for policy actions to further improve TVET systems. A number of key TVET developments have taken place in Myanmar. Some of the most significant include:

- National Education Law (NEL) was approved by the Parliament in 2014 and the NEL amendment was established in 2015. National Education Strategic Plan (NESP 2016-2021), a comprehensive, evidence-based roadmap drives the reform of the entire education sector, including TVET.
- The development of a National Qualifications Framework has been under preparation in Myanmar in order to ensure lifelong learning opportunities for learners and effective and efficient provision of education and training.
- A wide range of TVET has been provided by thirteen different ministries, as well as the private sector, in order to meet various skills demands in Myanmar including from ethnic minorities;
- Pathways of continuous learning exist from TVET to higher level of education and training (although the actual number of TVET graduates who continue their training at higher education institutions has been limited); and
- A four-level national skill framework and over fifty National Occupational Competency Standards (NOCS) have been developed by the National Skill Standard Authority (NSSA) based on the Employment and Skills Development (ESD) Law;

Below are a summary of the key findings from the comprehensive review of the status of TVET systems in Myanmar and recommendations for further improvement.

Social and economic development

Myanmar is on a continuing path of transformation. Sustained focus on implementing broad-based reforms through the difficult transition years led to a growing and stable economy dependent on agriculture as the major growth engine and main source of livelihood for 49 per cent of the labour force (World Development Indicators, 2018). Economic gains translated to a significant decline in poverty from a high of 48.2 per cent in 2004/05 down to 32.1 per cent in 2015 (IMF, 2018). Human development outcomes improved, posting measurable results in increased life expectancy, improved maternal mortality and more years of schooling. Securing peace and stability in conflict-affected areas and finding sustainable solutions remain critically important as the foundation for bringing about inclusive and sustainable development.

Labour market structure

Myanmar has a demographic profile conducive for economic growth. Its population is projected to expand, particular the large youth population and prime-age workers. The working-age population is expected to increase by 7 million, creating a total of 42 million people in the labour force. Unemployment is considered low compared to ASEAN neighbours, but this masks the high under-employment of the population that is highly dependent in low-productivity agriculture and household informal enterprises. Youth unemployment is higher (3.9 per cent in 2017) compared with the unemployment of total labour force (1.5 per cent in 2017). New jobs are needed to absorb the rapid expansion of the labour force, and improvements in labour market conditions will be essential to support increased productivity and competitiveness. Employment of the population is starting to transition to industry and services, now accounting nearly half of total employment compared to just 25 percent in 2000.

However, Myanmar's workforce is largely unskilled, with low educational attainment. Four out of every ten workers have only primary level of education, and 21 percent had achieved any secondary education or above. The poor quality and relevance of education adds an important challenge that needs to be addressed. This has produced a labour pool with knowledge and skills that are insufficient for a growing number of jobs in the labour market. A skill-deficient graduate has poor employability and reduced potential for increased earnings in the future.

Skills needs in the labour market

Particularly in the rural areas, the seasonality of output and employment drives farm workers to seek alternative income sources, typically in low-paid and informal jobs. About one-third of rural labour force engage in multiple jobs, combining farm work with non-agriculture waged or household enterprise work. Six out of ten workers in Myanmar work in informal jobs or run their own micro-business. The projected growth in jobs and thus demand for new skills will intensify. The economy is starting to transition from agriculture to high value added goods and services. In fact the high growth in GDP in the last 8 years was driven largely by growth in industry and the services sectors accounting for more than 80 percent of the increase. It is clear that new kinds of jobs are forthcoming as a result of the new drivers of growth, particularly in the energy sector, construction sector, manufacturing, tourism, and information technology (IT). The level of foreign direct investment (FDI) and domestic investments are now at all-time highs. As of March 2019, FDI proposals approved totalled US$81 billion, and around 1,220 Myanmar companies invested about $8.9 billion. It is likely that the competition for skilled workers will increase, and intensify and could dampen economic growth if these are not addressed.

The education system

The government has been reforming the national education system with a view to adapt it to meet the lifelong learning and career aspirations of learners, new development challenges of the country and international trends. The *National Education Strategic Plan (2016–2021)* set key directions for the government, education stakeholders and citizens and outlined a 'roadmap' for sector-wide education reforms and expected targets over five years. The education system is still facing major challenges and going through structural transformations. The basic education system is being transformed into the KG + 12 system and a new curriculum related to twenty-first-century skills is being developed. The existing system is being replaced in phases. Achievements of the education reforms include an increase in the budget for education, an increased net enrolment rate in basic education and the launching of new schools, teaching ethnic languages in basic education schools, recruiting new teachers and upgrading teacher qualifications. Upon completing middle school (lower-secondary level), students can choose TVET high school (government technical high schools: GTHS), but only a very small number of students go to GTHS partly due to the provision of training in limited areas (GTHS currently only offer engineering-related courses). In 2017/18, there were only 7,350 GTHS students compared with 1,049,444 students in general high schools.

TVET systems

Provision: The government provides TVET at upper secondary and post-secondary levels as a part of the National Education System. TVET programmes are also provided by thirteen different line ministries and private organizations. MoE is the largest of the public providers of formal TVET. It manages a national network of government technical institutes (GTIs), technical high schools (GTHSs) and vocational schools offering diplomas, technical high school qualifications and short courses whereas the Ministry of Agriculture, Livestock and Irrigation (MoALI) offers the diploma and other certificate courses related to the Agriculture and Livestock. The Ministry of Labor, Immigration and Population (MoLIP) and the Ministry of Industry mainly provides the Non-formal TVET training for pre-employment and re-skilling of labours. Other ministries, together with an increasing number of private-sector providers, also conduct TVET programmes, but these are more likely to focus on short-term technical training related to specialized areas and needs.

The limited choices of courses, insufficient learning pathways and the lower perception of TVET in Myanmar have caused these TVET schools, especially at the upper secondary level (GTHSs), to be regarded as inferior to other formal learning pathways such as general education. The access to post-secondary TVET (at GTIs) is limited to the outstanding students from general high schools and GTHSs. While the official minimum working age is 18 years old in Myanmar, under the current education and training system, the standard age of GTHS graduate is 16, and individuals of age 16-18 in Myanmar are allowed to work only as apprentices (generally for four hours per day).

Teacher training: The training for TVET teachers have been paid a lot of attention by the Ministry of Education and other Line Ministries providing TVET. The pre-service training and in-service training for TVET teachers, especially TVET trainers under the Ministry of Education, are provided by the Technical Promotion Training Centre (TPTC). Teachers and instructors of TVET programmes provided by other line ministries have been trained by each ministry in their own capacity. Some of the TVET trainers from other line Ministries also join the TVET training programme under MoE based on the request at the working level.

Qualification and Certificates: The Myanmar NQF is a developing tool but it provides descriptions of each education level. At present, the TVET diploma programme and certificates are certified by the relevant Ministries. Once the TVET law is established, the qualification and certificates of the TVET programme will be standardized by the TVET council.

Skill certificates: Based on the Employment and Skills Development (ESD) Law, the National Skill Standard Authority (NSSA) has developed skill standards, assessments and certifications for skilled labour. There are about fifteen technical sectorial committees which include experts from both private and public organizations: companies, associations and relevant ministries. NSSA has so far developed a four-level national competency framework, known as NSSA Levels 1 to 4. As of March 2019, NSSA had prepared 173 competency standards, mainly for Level 1 and 2, in selected occupational areas, such as engineering, hospitality and tourism.

Governance: The Ministry of Education has a mandate to harmonize and coordinate among multiple ministries and entities providing TVET programmes in Myanmar.

Curricula: TVET curricula are developed centrally (i.e. by each relevant ministry). Under the National Education Law, the National Accreditation and Quality Assurance Committee (NAQAC) and National Curriculum Committee (NCC) are responsible for standardization and approving the curriculum in the whole education sector including TVET.

Financing: In an effort to reform financing and governance of the TVET sector, the government is in active consultation before choosing a more sustainable financing path. The current financing of TVET in Myanmar is not yet currently based on an integrated approach: the thirteen different ministries that conduct TVET programmes of one form or another are allocated budgets independently by the Ministry of National Planning based largely on the previous year's budgets.

Digitization

Myanmar has moved with dizzying speed into a digital future. The majority of young people and adults use smartphones and have robust connections to the internet. The TVET sector is just beginning to come to terms with this new connected reality. Increasingly, the MoE and other ministries recognize that digitization presents new employment opportunities as well as avenues to expand access to and improve the quality and relevance of learning and training, but examples of successful deployments are rare. The next step is to begin acting on digital opportunities with pilots and possibly larger-scale initiatives and programmes. Stakeholders across the sector are encouraged to begin approaching TVET with a mobile-first outlook toward technology; older paradigms of computer labs filled with expensive and difficult-to-maintain equipment are no longer relevant in a country where mobile technology is so dominant. There remains a dearth of high-quality mobile learning TVET content, and this is where government resources should be directed in the near and intermediate future.

In the light of these key findings, the following policy options are proposed for the consideration of TVET stakeholders in Myanmar:

- **Social and economic development:** Addressing key development challenges and harnessing unique opportunities on multiple fronts will be pivotal in maintaining Myanmar's strong growth momentum. It is critical to implement the *Myanmar Sustainable Development Plan (MSDP) 2018–2030*, which provides a roadmap to successfully navigate the subsequent stages in Myanmar's development trajectory and outlines five strategic pathways (peace and security, economic stability, job creation, human resources and natural resources development).
- **Skills needs in the labour market:** Myanmar's ability to improve matching of demand and supply of labour needs to be enhanced through the use of new technology, as well as by strengthening the collection and analysis of labour market information. In particular, data on informal, seasonal and contractual workers, as well as learners in non-formal and informal training programmes and employment status of TVET graduates need to be systematically collected, analysed and uses for TVET policies and strategies. The use of big data and artificial intelligence in matching demand and supply for labour and skills could complement existing methods. Myanmar's new jobsites, the near-universal use of mobile phones and high penetration of the internet can make this possible. In the meantime, efforts should be continued to systematically collect and analyse relevant survey and administrative data and institutionalize the use of labour market information for TVET policies and strategies.

- **Governance and relevance of TVET:** Ongoing structural changes in TVET led by MoE will need to be expedited to make TVET system responsive to the changing skills needs in the labour market. Critical reforms include: (i) reviewing the industrial relevance of the training programmes; (ii) update of the curricula; (iii) establishing close and appropriate engagement with and involvement of the economic community (industries, employers and so on); (iv) strengthening coordination across different line ministries providing various types of TVET programme; (v) using labour market information for decision-making on TVET; (vi) assuring the continuous development of occupational standards, qualifications and quality assurance frameworks associated with national, regional (ASEAN) and international developments; and (vii) ensuring quality assurance and certification of all types of TVET institutions and programmes in Myanmar, including those provided by private and non-governmental entities. The draft TVET law has been under preparation, which defines rules and regulation on all aspects and types of TVET in Myanmar.
- **Expansion of quality TVET programmes:** In view of the increased enrolment in and completion of basic education, TVET and higher levels of education and training opportunities will need to be further expanded and learning content will need to be continuously updated in order to meet changing demands for skills by employers and industries. In addition, new TVET programmes will need to be launched to meet the social and economic development needs of Myanmar and skills demands by industries and employers, ensuring access to TVET for all young people and adults, particularly women, ethnic minorities, out-of-school youth and people with disabilities. Moreover, TVET programmes responding to specific demands for skills in each region and state need to be designed and provided.
- **Reform of existing TVET programmes:** Pathways to higher levels of education and training need to be ensured, and opportunities for higher levels of training will need to be provided for TVET graduates. The quality and relevance of TVET training provided will need to be reinforced and updated so that the learners can acquire transversal and soft skills, as well as occupation-specific skills in order to ensure their employability.
- **TVET financing:** Whether the government chooses the path of a common integrated national training fund—a model where all sources of financing from the public sector, levy grants, the private sector, and development partners are pooled and disbursed--or the path where there are two separate financing flows, to the formal TVET providers and to workplace skills development, is the key to enabling the sector to move forward to contribute to the national economic agenda. Through increases in the budgets for TVET in the NESP, the sector has attained some gains in access and quality in the last two to three years. A sustainable financing mechanism on TVET will need to be established by both public and private sectors, such as the expansion of the allocation of governmental budget to training and the introduction of the system to mobilize financial resources from employers for training, to meet the changing skills demands of a modernizing and growing economy in a timely manner.
- **Digitization:** Immediate priority should be given to building high-quality digital learning content. The aim is to expand learner access to TVET. Digitization initiatives should be exclusively 'mobile-first' in light of the technology and connectivity available in the country. In parallel, the sector should establish digital systems to observe where employment and unemployment is concentrated, how salaries differ within and across sectors, and how skills demands in Myanmar vary geographically and compare with other countries. This information will help the government respond to current skills needs and strategically position TVET programmes to accelerate progress towards national development goals. Finally, Myanmar should consolidate information about TVET on a single publicly-accessible website. This will help create clear points of entry for learners, teachers, school leaders and other TVET stakeholders, in addition to establishing a shared understanding about the organization of the sector and providing a vehicle for effective communication.

Introduction

This report presents the findings of a review of technical and vocational education and training (TVET) systems in Myanmar, led by the Department of Technical and Vocational Education and Training (DTVET) of the Ministry of Education (MoE) with the technical support of UNESCO. It provides a basis for further cooperation between the Government of Myanmar, UNESCO, other development partners and various relevant national, regional and international entities concerned with TVET.

For this review, the national system of TVET was reviewed, using knowledge gained from existing studies and statistics, with first-hand information collected from a number of meetings with key national stakeholders and visits to the field. In particular, the TVET system review sought to capture the status of youth employment and more broadly human development given the patterns of economic activity and labour market functioning in Myanmar.

The report starts with an analysis of the context in which the TVET systems operate in Myanmar. ***Chapter 1*** reviews Myanmar's social and macroeconomic context, which provides key background for analysing the demand for skills and job creation in the labour market.

Chapters 2 to ***7*** analytically present the key building blocks and features of the TVET systems in Myanmar, focusing on labour market structure ***(Chapter 2)***, skills needs in the labour market ***(Chapter 3)***, overview of the education system ***(Chapter 4)***, status and challenges of TVET systems ***(Chapter 5)***, status of digitization and digital skills development ***(Chapter 6)*** and financing TVET ***(Chapter 7)***.

Based on the evidence outlined in the earlier chapters, ***Chapter 8*** presents the Review's key findings, and policy implications and options. These relate to reform efforts designed to equip young people and adults in Myanmar with the necessary skills for employment, decent work, entrepreneurship and lifelong learning, and contribute to the sustainable development of the country as a whole.

Chapter 1. Social and economic context

Myanmar is the second largest country in South-East Asia, with a total land area of 676,600 square kilometres. It shares its borders with China, Laos and Thailand to the east, and Bangladesh and India to the north. The country is divided into twenty-one administrative subdivisions, including seven states (Chin, Kachin, Kayah, Kayin, Mon, Rakhine and Shan). Its estimated population of about 61 million people is ethnically diverse: Burmese form the largest group (68 per cent) and the rest are a mix of Shan, Kayin, Kayah, Rakhine, Chinese, Indian, Mon and other smaller ethnic groups living mostly in the upland regions of the country. A resource-rich country with abundant rainfall, Myanmar is blessed with agricultural and forest land, mineral and water resources. Its long coastline and strategic market location create significant opportunities for international trade and rapid economic growth.

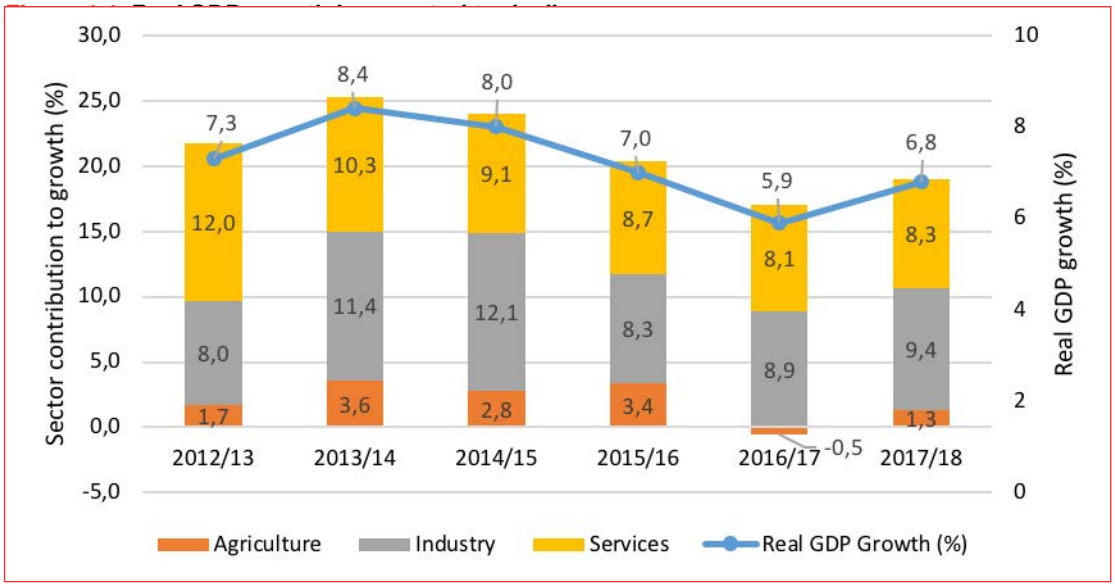
1.1. Macroeconomic and social status

The post-independence development trajectory of Myanmar has been characterized by difficult transitions. Since the country gained independence from the United Kingdom in 1948, Myanmar had a long history of development struggles – from decades of international isolation, to military dictatorship and state controls weakened by persistent armed conflicts with ethnic groups in the border areas. A military coup in 1962 installed a one-party rule which initiated widespread nationalization of all major industries, increased military control and closed the country to foreign influence. This period lasted for twenty-six years, and had adverse impacts on Myanmar's overall economy and the aspirations of its people. Years of state control and self-imposed economic isolation led to suppressed business activity and stunted private-sector growth. In addition, decades of neglect resulted in infrastructure in disrepair and outdated technology, bringing about low levels of foreign investment (World Bank, 2014). At the same time, the stagnating education system depleted Myanmar's human capital, while a great majority of the poor faced increased vulnerability, with little to no income-earning opportunities or access to essential services. Fifty years after its independence, Myanmar faced economic and political stagnation which contributed largely to its status as one of the poorest countries in the South-East Asian region.

The takeover of a civilian-led government in 2011 marked a significant milestone for Myanmar. The new civilian-led administration led the country through an era of 'triple transition' which required a multi-pronged development strategy – first, on the political front, the change from military rule to multi-party democracy; second, on the economic sphere, a shift from a centrally planned, closed economy to an open, market-oriented economy; and third, from internal strife and instability from ethnic violence in conflict areas to securing peace and security through sustainable solutions.

To ensure macroeconomic stability and an enabling environment for development, the new administration embarked on a historic set of reforms aimed at reintegration with the global economy and strategic transition to a market-based economy to attract investments. This period led to sweeping structural and policy changes to secure macroeconomic stability and establish a sound framework for monetary and exchange rate policies, which included passage of a new Central Bank Law, a new Foreign Exchange Management Law, and a Foreign Investment Law. The economy grew from 4.5 per cent in 2005/06 to 7.3 per cent in 2012/13 – a rate of growth which kept it on a par with comparator countries in the region (World Bank, 2014).

Recent estimates indicate that Myanmar can expect slower growth in 2018/19 at 6.2 per cent, down from 6.8 per cent in 2017/18. Rising costs and a slowdown in investments will moderate the pace of economic growth (World Bank, 2018a). Industry, which contributes 32 per cent of gross domestic product (GDP) and employs 18 per cent of the labour force, is expected to decline from a 9.4 per cent rate of growth in 2017/18 to 8.2 per cent in 2018/19. The services sector, which contributes 43 per cent of GDP and accounts for 33 per cent of employment, is expected to decrease from an 8.3 per cent rate of growth in 2017/18 to 7.6 per cent in 2018/19 (Figure 1.1).

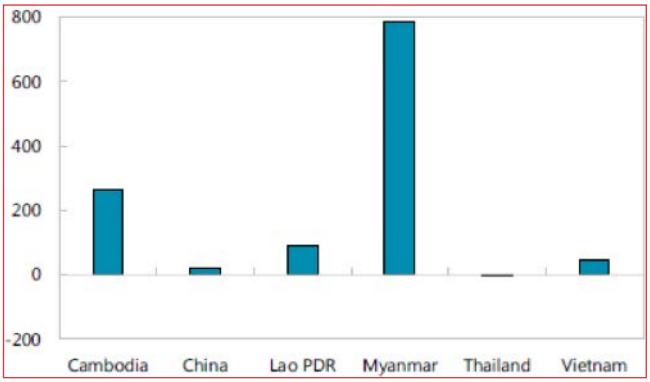


Source: World Bank (2018a).

Myanmar's economy relies heavily on its natural resource base. More than a third of the country's GDP comes from agriculture and natural resources. Agriculture is a major growth engine for the economy which employs 49 per cent of the labour force and accounts for about 20 per cent of total exports. A stable output growth is projected in agriculture at 1.2 per cent in 2018/19 (World Bank, 2018a).

Manufacturing activity, which represents 75 per cent of the industrial sector, is expected to reduce to 8.2 per cent growth in 2018/19, down by 2 percentage points from 2017/18 owing to declining investments and depreciation of the kyat. Robust performance of the garment sector contributed a quarter of export growth in the first quarter of 2018, which helped narrow the trade deficit from 8.5 per cent of GDP in 2016/17 to 5.7 per cent of GDP in 2017/18 (Figure 1.2). The garment sector has created 730,000 jobs, and 83 per cent of its workers are women. With the possible removal of the Generalized System of Preferences (GSP) by the European Union, the garment industry could be adversely affected, weakening the growth of the sector.

Figure 1.2. ***Garment exports (Percentage change, 2013–16 average versus 2010–12 average)***

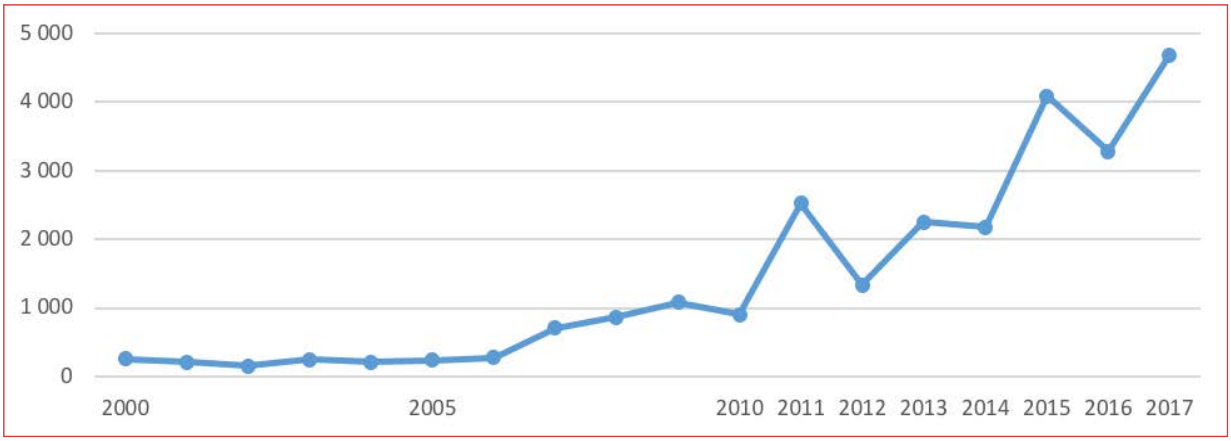


Source: IMF (2018).

With the shift to a market-based economy, Myanmar experienced a 'catch-up' growth momentum led by expansion of international trade. Market-oriented reforms such as the phasing-out of economic sanctions and policy constraints consisting of import-export licensing requirements and government trade monopolies opened up significant opportunities to boost Myanmar's export performance and reverse lingering trade shortfalls. Earlier estimates from the Asian Development Bank (ADB) suggested that the country was trading at 15 per cent of its potential amount of trade, well below its market potential (ADB, 2013).

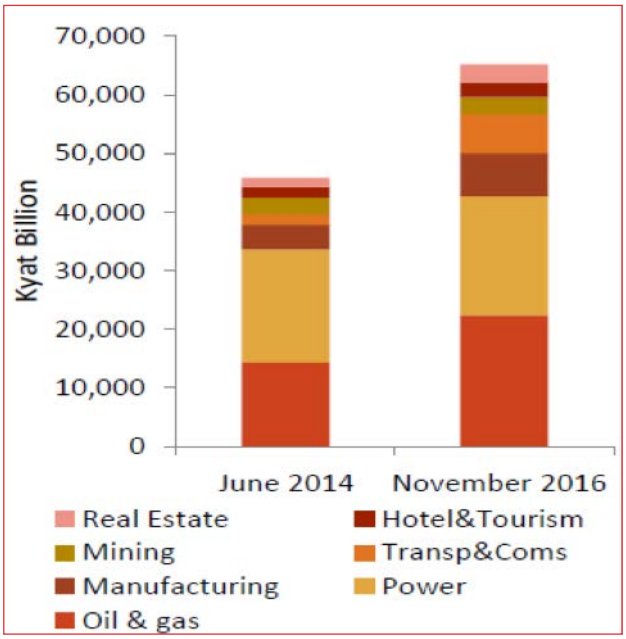
Foreign investment flows took off, fuelling an upward trend from 2013 onwards (Figure 1.3). The oil, gas and power sectors accounted for about 60 per cent of foreign investment commitments between 2014 and 2016 (Figure 1.4). The manufacturing sector (77 per cent) and the transport and communications (275 per cent) sectors posted the largest increase in foreign direct investment (FDI) commitments between 2014 and 2016. During this period, the largest foreign investment flows to Myanmar came from China (28 per cent), Singapore (23 per cent) and Thailand (18 per cent) (Figure 1.5).

Figure 1.3. ***Foreign direct investment in Myanmar (net inflows, Balance of Payment, current US$ million)***



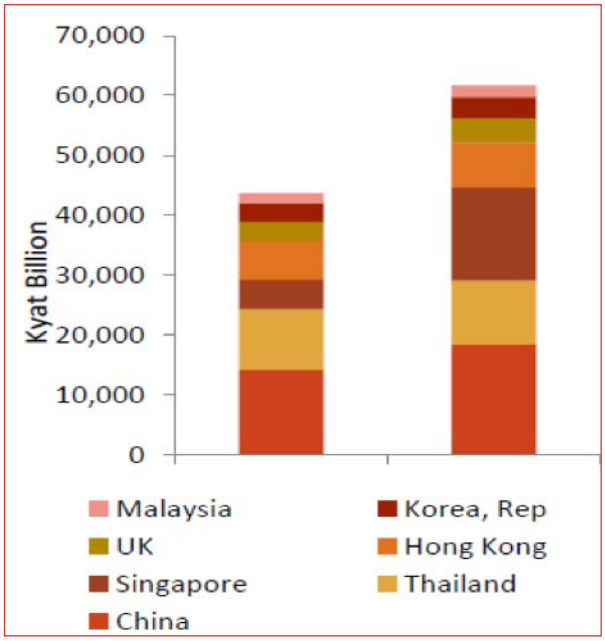
Source: World Bank Open Data (Accessed 9 July 2019).

Figure 1.4. ***Cumulative approved FDI by sector***



Source: World Bank (2016a).

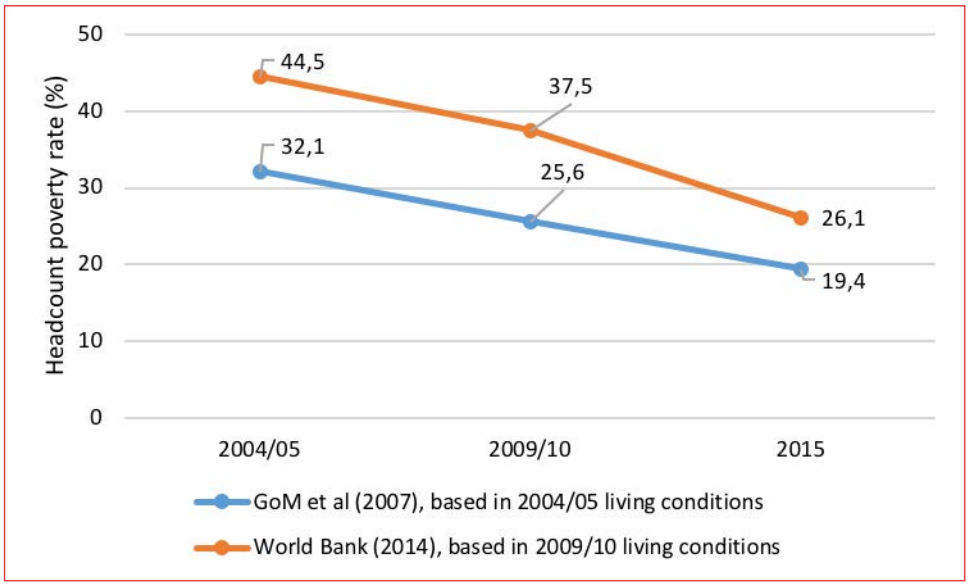
Figure 1.5. ***Cumulative approved FDI by country***



Source: World Bank (2016a).

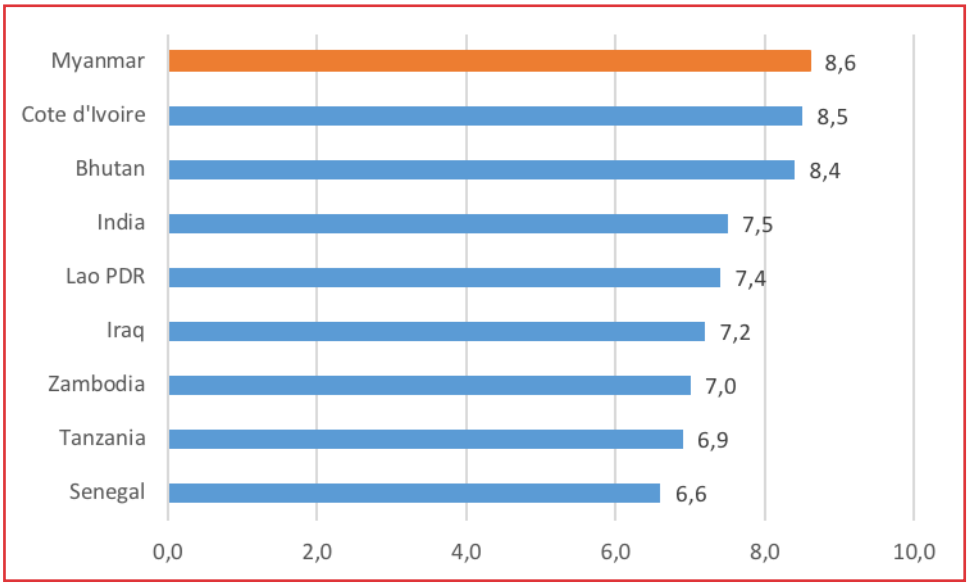
With this remarkable pace of FDI growth, Myanmar's economy grew even higher at 8.3 per cent in 2013/14 (World Bank, 2018a). Alongside these economic gains, Myanmar achieved substantial declines in poverty over a 10-year period – a 32.1 per cent poverty rate (based on headcount estimates) in 2004/05 went down to 25.6 per cent in 2009/10 and 19.4 per cent in 2015 (Figure 1.6). Based on IMF estimates, the projected 2016 GDP growth signalled a positive outlook for Myanmar, making it one of the world's fastest-growing economies at 8.6 per cent (Figure 1.7).

Figure 1.6. ***Poverty reduction between 2004/05 and 2015***



Source: MoPF and World Bank (2017).

Figure 1.7. ***The fastest-growing economies in the world***
Projected percentage of real GDP growth (2016)



Source: IMF World Economic Outlook, April 2016

1.2. Economic policy of the Union of Myanmar

An emphasis on inclusive and sustainable economic development became the overarching priority of the new government in 2016. Given a strong mandate from broad-based popular support, the new administration launched an *Economic Policy of the Union of Myanmar*, the policy framework to articulate a clear direction for Myanmar's path to economic development. The stated economic policy is 'people-centered and aims to achieve inclusive and continuous development and establish an economic framework that supports national reconciliation, based on the just balancing of sustainable natural resource mobilization and allocation across the States and Regions' (Ministry of Planning and Finance (MoPF), 2018, p. 6). Specific policy priorities underpin the implementation of the economic vision (Box 1.1).

Box 1.1. Economic policy of the Union of Myanmar

1. **Expanding financial resources through transparent and effective public financial management.**
2. **Improving the operations of state-owned enterprises and privatising those state-owned enterprises that have the potential to be reformed, while promoting and assisting small and medium-sized enterprises as generators of employment and growth.**
3. **Fostering the human capital that will be needed for the emergence of a modern developed economy and improving and expanding vocational education and training.**
4. **Prioritizing the rapid development of fundamental economic infrastructure, such as electricity generation, roads and ports, and establishing a data ID card system, a digital government strategy, and an e-government system.**
5. **Creating employment opportunities for all citizens including those returning from abroad, and giving greater priority in the short term to economic enterprises that create many job opportunities.**
6. **Establishing an economic model that balances agriculture and industry and supports the holistic development of the agriculture, livestock and industrial sectors, so as to enable rounded development, food security and increased exports.**
7. **Asserting the right of individuals to freely pursue the economic opportunities they choose, so as to enable private sector growth in line with a market economy system; formulating specific policies to increase foreign investment; and strengthening property rights and the rule of law.**
8. **Achieving financial stability through a finance system that can support the sustainable long-term development of households, farmers and businesses.**
9. **Building environmentally sustainable cities, upgrading public services and utilities, expanding public spaces, and making greater efforts to protect and conserve our cultural heritage.**
10. **Establishing a fair and efficient tax system in order to increase government revenues and protecting individual rights and property rights through enacting laws and regulations.**
11. **Establishing technical systems and procedures to support intellectual property rights that can encourage innovation and the development of advanced technology.**
12. **Identifying the changing and developing business environment both in ASEAN and beyond, so as to enable our own businesses to situate themselves to take advantage of potential opportunities.**

Source: MoPF (2018).

1.3. Myanmar Sustainable Development Plan (MSDP) 2018–2030

To set the foundation and long-term direction for a successful economic transformation, the government launched the Myanmar Sustainable Development Plan (MSDP) 2018–2030 (Figure 1.8). Building on the country's achievements after a series of bold social and economic reforms, the government adopted a multi-pronged development plan to strengthen reform momentum and promote bold action. The MSDP, fully aligned with the government's economic policy, articulates a three-pronged vision to achieve a peaceful, prosperous and democratic country, and emphasizes the importance of pursuing a coordinated, inclusive approach to actively engage stakeholders across various sectors – public entities, the private sector and non-MSDP goals. MoPF is overseeing the implementation and coordination of the plan. The government identified various funding sources to finance the MSDP implementation. To track and monitor progress, impacts and outcomes, a comprehensive results framework will be implemented supported by an online portal to serve as an information and knowledge resource for wider public access.

Figure 1.8. ***Myanmar Sustainable Development Plan 2018–2030***
A Peaceful, Prosperous & Democratic Myanmar

Goal 1: Peace, National Reconciliation, Security & Good Governance	Goal 2: Economic Stability & Strengthened Macroeconomic Management	Goal 3: Job Creation & Private Sector Led Growth	Goal 4: Human Resources & Social Development for a 21st Century Society	Goal 5: Natural Resources & the Environment for Posterity of the Nation
Pillar 1: Peace & Stability		Pillar 2: Prosperity & Partnership	Pillar 3: People & Planet	

Source: MoPF (2018).

Myanmar's ranking in the Global Competitiveness Index (GCI) is among the lowest, at 131 out of 140 economies. It garnered a score of 3.3 in 2015–16 which improved marginally from 3.2 in 2013 and 2014. The comparison chart shows that Myanmar is lagging in nearly all of the twelve pillars of the GCI. The lowest scores indicate the widest gaps relative to comparator countries in the region. Myanmar's competitiveness challenges are in infrastructure (2.1), technological readiness (2.2), higher financial market development (2.4), and education and training (2.5) (Figures 1.9 and 1.10).

Firms surveyed identified the major problems for doing business. The topmost problematic factors identified were access to financing, inadequate education of the workforce and political instability. Much-needed reforms to boost Myanmar's competitiveness and improve the business environment are addressed in the current MSDP.

Figure 1.9. ***Global Competitiveness Index regional ranking, 2015–16***
Emerging and Development Asia

Malaysia	18
China	28
Thailand	32
Indonesia	37
Philippines	47
India	55
Vietnam	56
Sri Lanka	68

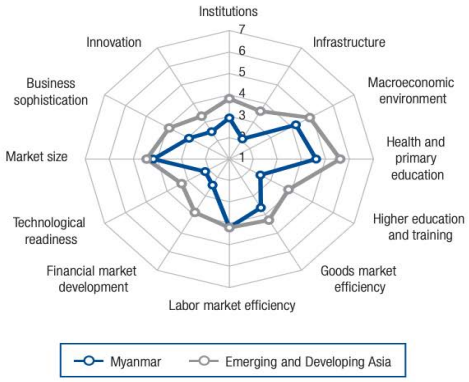
Lao PDR	83
Cambodia	90
Nepal	100
Mongolia	104
Bhutan	105
Bangladesh	107
Myanmar	131

Source: Schwab (2017).

Figure 1.10. ***Global Competitiveness Index***

Global Competitiveness Index

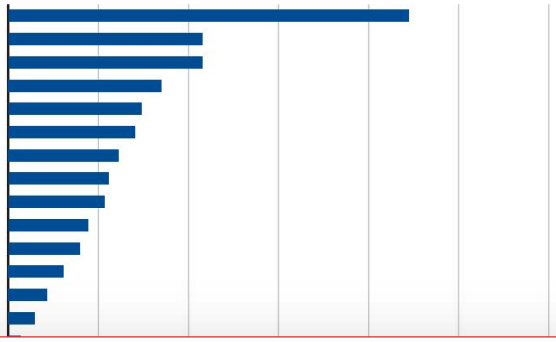
	Rank (out of 140)	Score (1–7)
GCI 2015–2016	**131**	**3.3**
GCI 2014–2015 (out of 144)	134	3.2
GCI 2013–2014 (out of 148)	139	3.2
GCI 2012–2013 (out of 144)	n/a	n/a
Basic requirements (60.0%)	**128**	**3.5**
1st pillar: Institutions	133	2.9
2nd pillar: Infrastructure	134	2.1
3rd pillar: Macroeconomic environment	106	4.2
4th pillar: Health and primary education	113	4.6
Efficiency enhancers (35.0%)	**131**	**3.2**
5th pillar: Higher education and training	134	2.5
6th pillar: Goods market efficiency	130	3.6
7th pillar: Labor market efficiency	73	4.2
8th pillar: Financial market development	138	2.4
9th pillar: Technological readiness	138	2.2
10th pillar: Market size	60	4.2
Innovation and sophistication factors (5.0%)	**134**	**2.7**
11th pillar: Business sophistication	135	2.9
12th pillar: Innovation	132	2.5



Stage of development

The most problematic factors for doing business

	Score*
Access to financing	22.2
Inadequately educated workforce	10.8
Policy instability	10.8
Corruption	8.5
Complexity of tax regulations	7.4
Inefficient government bureaucracy	7.0
Inadequate supply of infrastructure	6.1
Tax rates	5.6
Government instability/coups	5.3
Poor work ethic in labor force	4.4
Inflation	4.0
Foreign currency regulations	3.1
Insufficient capacity to innovate	2.2
Restrictive labor regulations	1.5

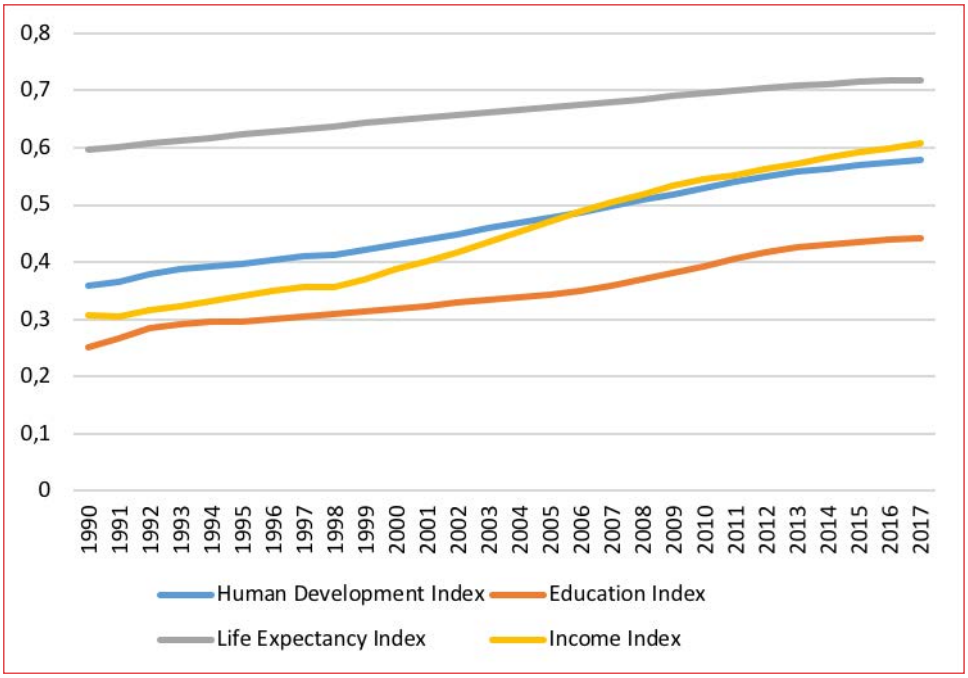


Source: Schwab (2017).

1.4. Poverty and social conditions

Recent data on the UN Development Programme (UNDP) Human Development Index (HDI) shows that Myanmar has achieved substantial improvements in HDI indicators, moving up its HDI ranking to 148 out of 189 countries and territories (***Figure 1.11***). Between 1990 and 2017, Myanmar increased life expectancy at birth by 8.0 years, from 58.7 to 66.7; increased mean years of schooling by 2.5 years, from 2.4 to 4.9, and expected increase in years of schooling by 3.9 years, from 6.1 to 10; and also increased gross national income (GNI) per capita (US$ 2011 purchasing power parity, PPP) by about 623.0 per cent between 1990 and 2017 (from $770 to $5,567).

Figure 1.11. Trends in Myanmar's HDI component indices 1990–2017



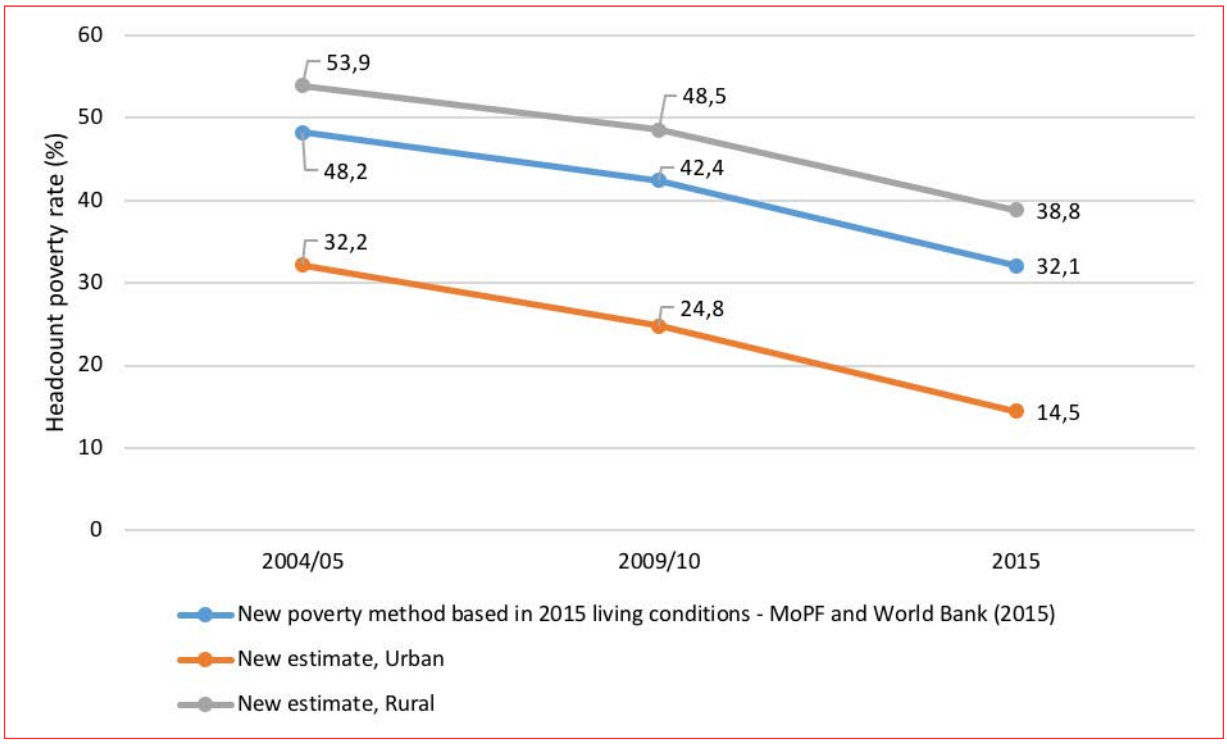
Source: UNDP (2018).

While these positive human development outcomes are significant improvements, high poverty incidence in Myanmar remains a major development concern. About 32 per cent of the population lived in poverty based on 2015 data. To better reflect the needs and living conditions of Myanmar's population in 2015, poverty estimates were based on an expanded consumption basket.1 Based on the new welfare measures, an estimated 32.1 per cent of the population lived in poverty in 2015 (Figure 1.12).

A rural–urban disaggregation shows that poverty is worse in rural areas at 38.8 per cent, compared with urban areas at 14.5 per cent. Across Myanmar, this translates to a total of 15.8 million poor, of whom 13.8 million live in rural areas and 2.0 million in urban areas.

1 The revised welfare measures are based on adjustments in three factors: (1) durables included to reflect the growing importance of home assets (e.g. electric fans, solar batteries and mobile phones); (2) calorie norms and adult equivalent are updated calorie estimates from the Ministry of Health; and (3) new consumption aggregate and poverty line based on the food and non-food consumption patterns of the population in 2015 (UNDP, World Bank and MoPF, 2018).

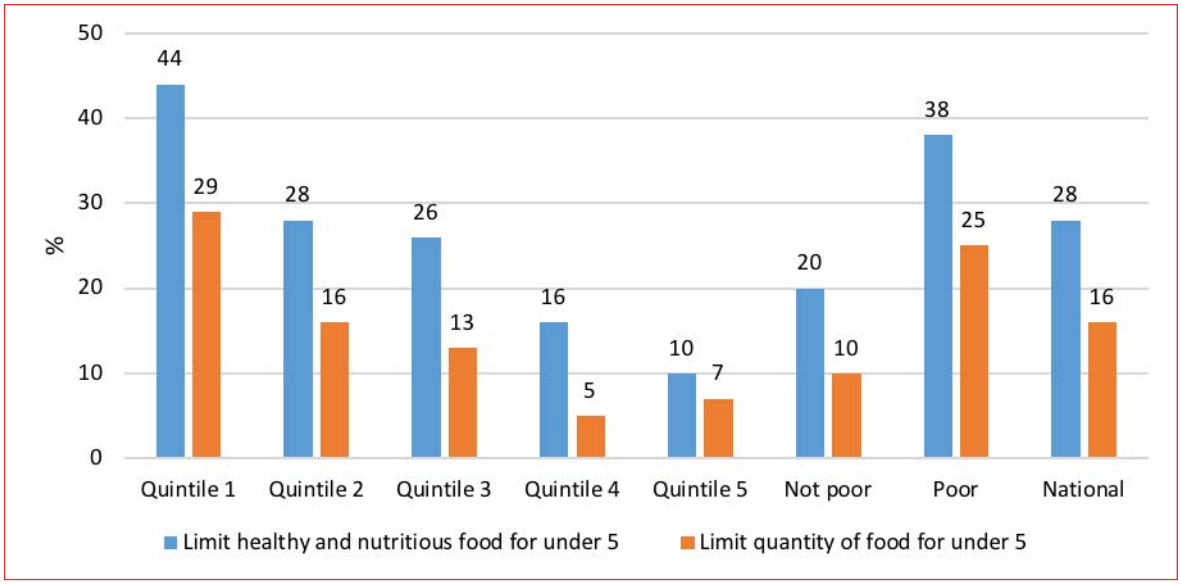
Figure 1.12. ***Poverty incidence, 2004/05–2015***



Source: IMF (2018).

Poor households face increased risks and vulnerabilities because of their negative coping strategies. One out of three households suffers from inadequate food supply owing to their lack of financial means. As a result, they cope by limiting the quantity of food intake (***Figure 1.13***).

Figure 1.13. ***Share of households reporting having to limit food for younger children***
Share of households reporting having to limit food for young children

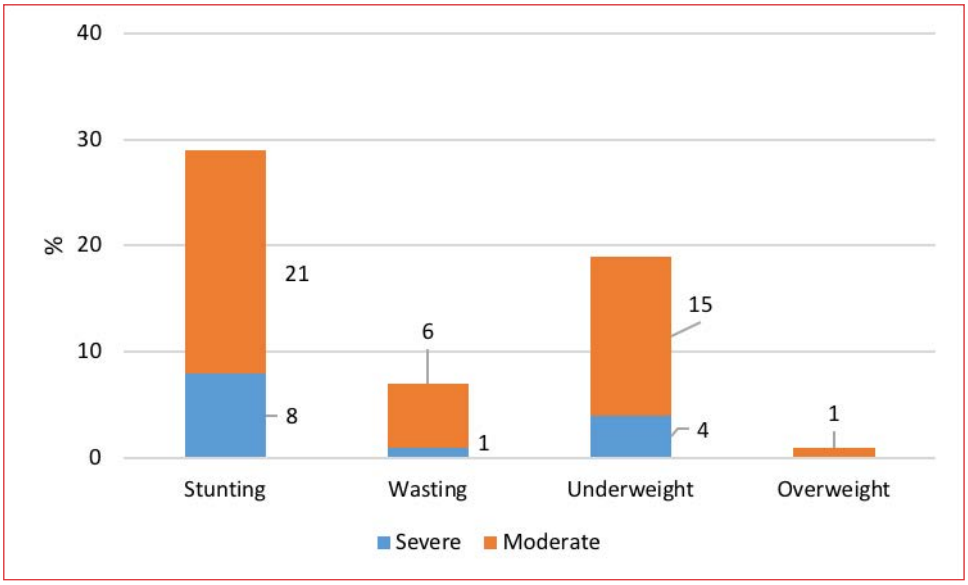


Note: Analysis conducted using population weights. Quintiles are estimated using spatially deflated per adult equivalent expenditures in January 2015 prices and using population weights.

Source: MoPF and World Bank (2017).

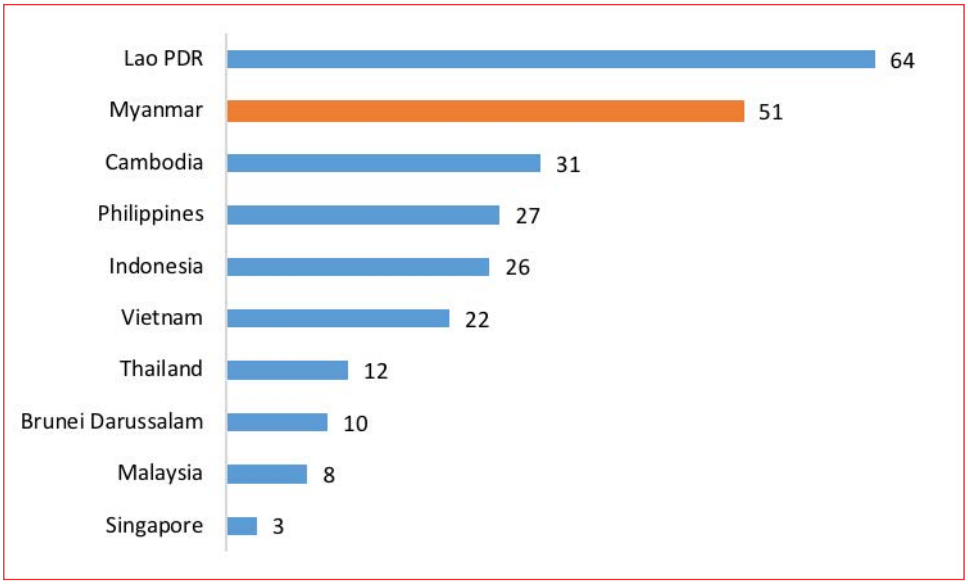
Young children are particularly at high risk of malnutrition and more likely to suffer from illness if they are deprived of adequate food and their daily nutritional needs. Despite slight improvements from 2000, recent available data shows that than one-third of children under 5 years of age are stunted, and 19 per cent are underweight (Figure 1.14). Myanmar is well behind its regional peers in improving the health and nutritional status of young children. Reports from the Ministry of Labour, Immigration and Population (MoLIP) revealed that out of every 100 children born in Myanmar, 6.2 die before their first birthday and 7.2 before they reach 5 years old (Figure 1.15).

***Figure 1.14.* Nutritional status of children**
Percentage of children under age 5 classified as malnourished



Source: Ministry of Health and Sport and ICF (2017).

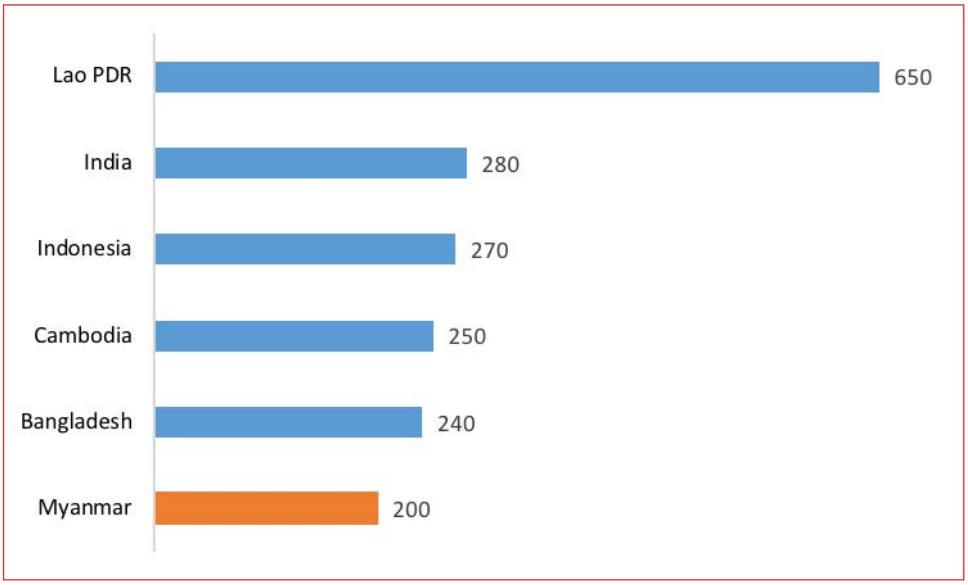
***Figure 1.15.* Under-5 mortality rate**
Deaths per 1,000 live births (2016)



Source: ADB (2018*a*).

Maternal mortality has improved since 2000, and available data show that it is now lower in Myanmar than for its regional peers, except Viet Nam (Figure 1.16).

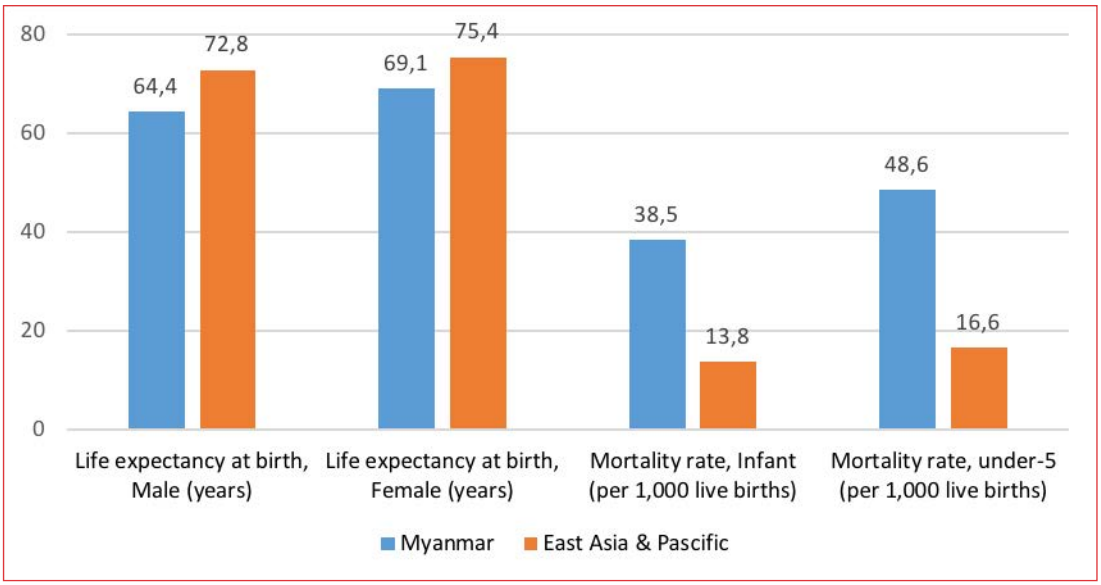
Figure 1.16. Maternal mortality rate, per 100,000 live births



Source: ADB (2014).

Despite improvements over the last two decades, the health status of Myanmar is low and compares poorly with the other countries in the region. While Myanmar's health indicators have improved since 1995, increasing female life expectancy for both males and females, Myanmar still lags behind comparator countries in the East Asia region. Infant mortality rates per 1,000 live births and under-five mortality rates are well above the regional average in the East Asia region (excluding high-income countries) (Figure 1.17).

Figure 1.17. Health indicators in Myanmar and selected ASEAN countries, 2017

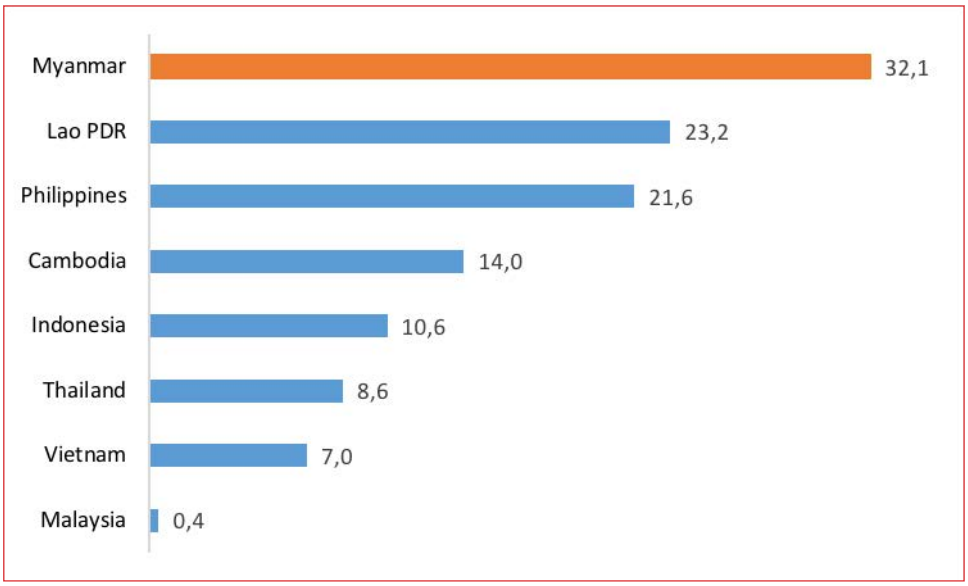


Source: World Bank (2017/2018*d*).

Not only are poor households faced with food scarcity, they also have to cope with non-income poverty in terms of material deprivation and lack of access to basic services. In Myanmar, only one-third of people have access to electricity, year-round safe drinking water and improved sanitation.

A regional comparison on the extent of poverty in some South-East Asian countries (ADB, 2018) shows that Myanmar has the highest poverty incidence in the region, more than twice that of Cambodia and over four times higher than Viet Nam. As one of the fastest-growing economies in the region, Myanmar holds the potential to pursue broad-based, inclusive development, leverage its young population and intensify poverty-reduction efforts through job creation and equitable economic opportunities (Figure 1.18).

Figure 1.18. Poverty incidence in selected South-East Asian countries
Share of population below the National Poverty Line (%)

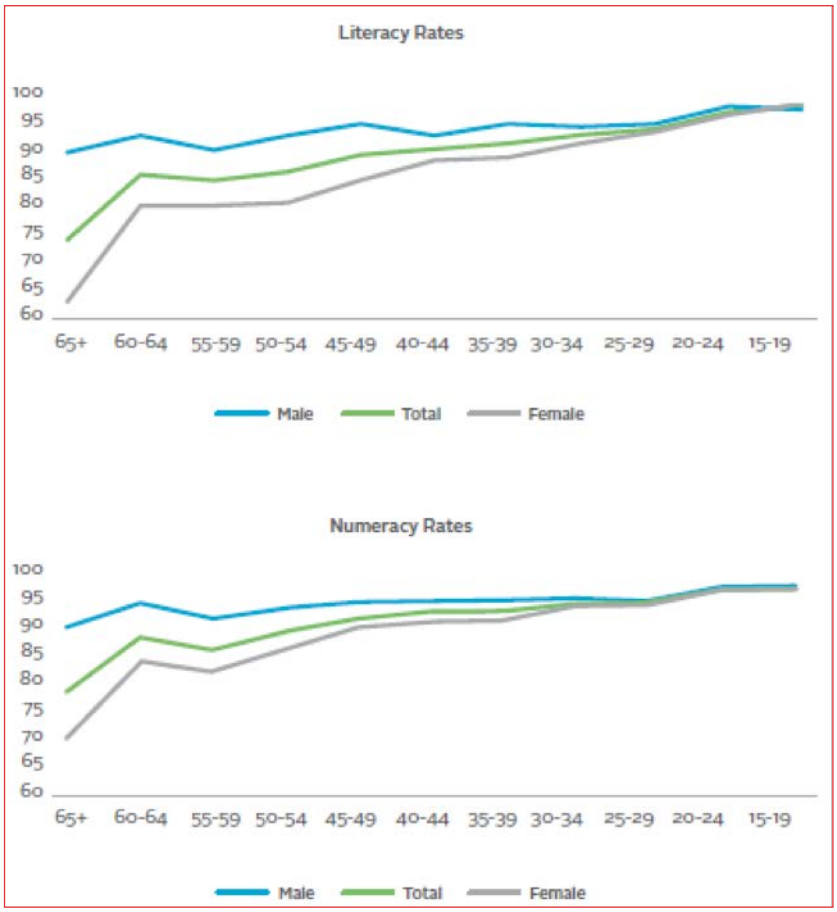


Source: ADB (2018a).

1.5. Literacy and numeracy

The literacy and numeracy rates in Myanmar rose steadily over the past decades (Figure 1.19) (CSO, UNDP and World Bank, 2018). A significant rise in female literacy rates from 80 per cent narrowed the gender gap and contributed to the Myanmar's sharp rise in average literacy rate. In 2008–2012, the total adult literacy rate was estimated at 92.7 according to the UNESCO Institute for Statistics, and slightly higher at 96 per cent for the youngest cohort aged 15 to 19 years. Numeracy rates followed a similar upward trend and narrowing gap between male and female. At current levels, Myanmar's figures are comparable to its regional cohorts, Indonesia (95 per cent), Thailand (93 per cent) and Viet Nam (93 per cent). Myanmar's significant achievement in improving literacy and numeracy demonstrates the positive effects of development priority given to increased access to basic education.

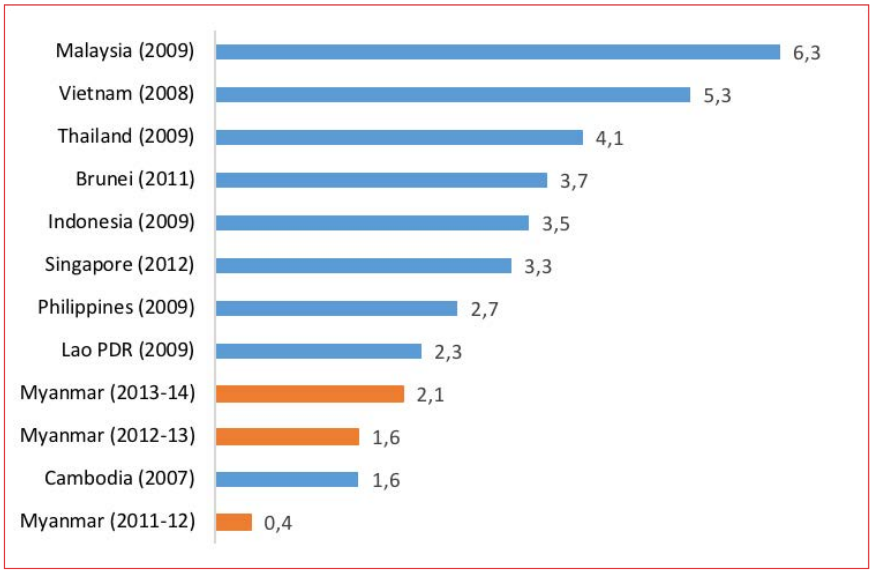
Figure 1.19. ***Literacy and numeracy rates in Myanmar***
Literacy and numeracy rates in the population aged 15 and above, by gender and age cohort



Source: CSO, UNDP and World Bank (2018).

Building on this foundation, the government increased public spending on education, reversing the trend of sustained underinvestment in the sector. In 2011, Myanmar had the lowest public investment in education among several Asian economies (Figure 1.20) (ADB, 2015). After significant allocation of public sector funding to education between 2011 and 2013, government education expenditure increased to about 2 per cent of GDP.

Figure 1.20. ***Public financing of education, as a percentage of GDP***

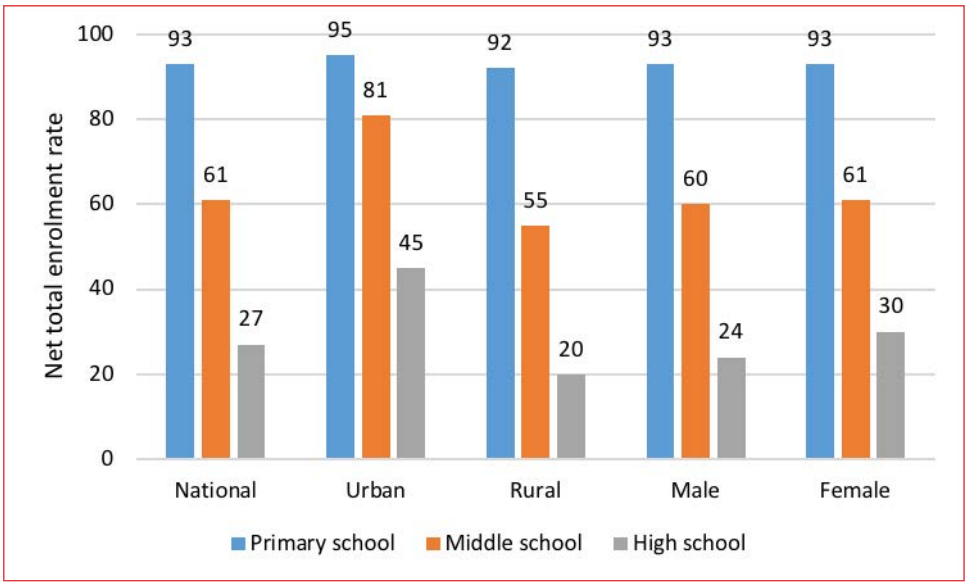


Source: ADB (2015).

Despite the noted improvements in literacy rates, more needs to be done in accelerating human capital development in Myanmar. The 2018 World Bank Human Capital Index (2018c), which quantifies the contribution of health and education to the productivity of the next generation of workers, showed that Myanmar scored 0.47. This means that children in Myanmar today will be only be 47 per cent as productive in adulthood as they could be if they had received the full benefits of health and education.

Myanmar has achieved universal primary education, and high primary completion rates keep it on par with most of regional peers. However, more than a third of those who complete primary school do not move on to secondary school. Of the 61 percent who move on to secondary, only one in four proceed to upper secondary level. Myanmar's primary to secondary school transitions is among the lowest in Southeast Asia. Two-thirds of grade 11 students fail the matriculation exams which is used to assess the upper secondary completion and eligibility to higher education and for many TVET programs. Thus, of the 1.1 million entrants each year in grade 1, only 10 percent complete upper secondary 11 years later leaving about 1-million youth with no access to higher education, or higher education (ADB 2015, CESR 2015). The big percentage of Myanmar's children who fail to complete secondary education is attributed to poor primary preparation, the direct cost of secondary schooling to parents, poverty and opportunity costs, and the poor secondary school coverage in rural areas.

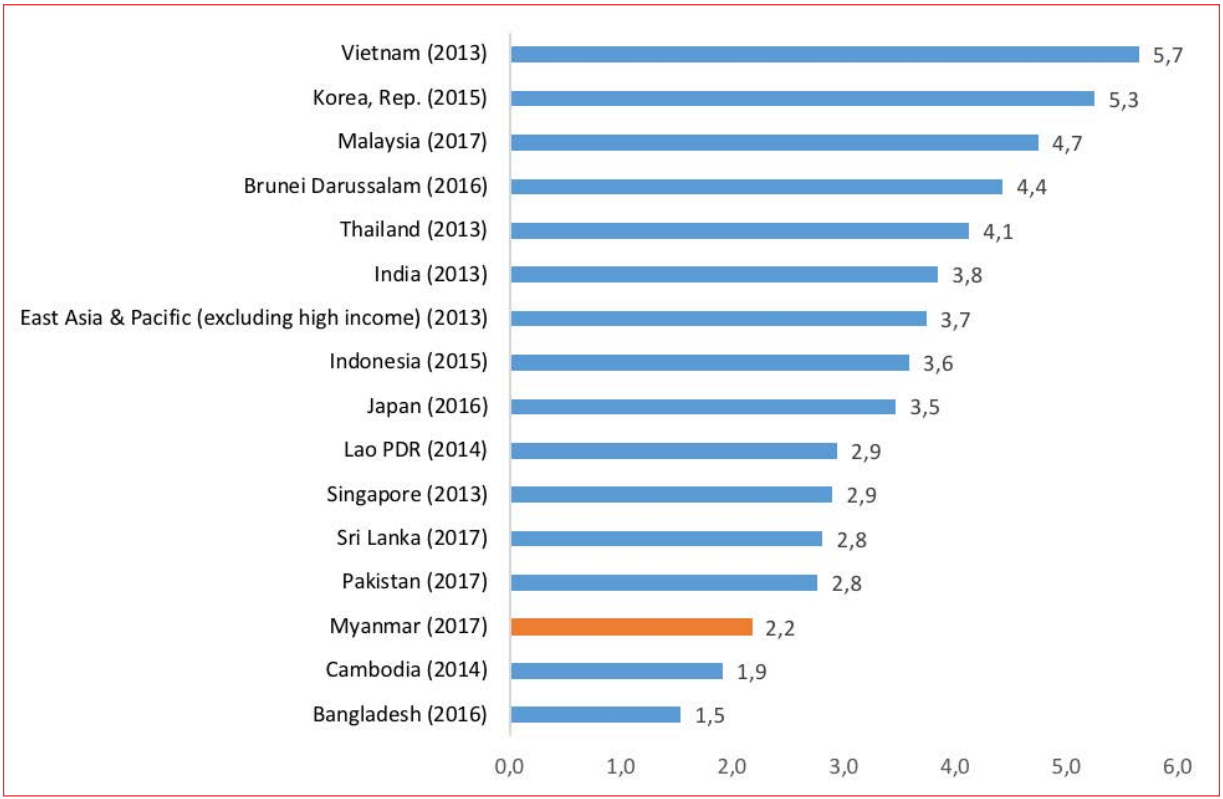
Figure 1.21. ***Enrolment rates in primary, middle and high schools***



Source: CSO, UNDP and World Bank (2018).

While the need to scale up public investments in education and health is fully recognized, the gap between planned and actual expenditure could pose risks to human capital outcomes. Data from the 2018 Myanmar Economic Monitor (World Bank, 2018a) shows that Ministry of Education (MoE) spending has stagnated at 2.2 per cent of GDP, while Ministry of Health spending has declined to 0.8 per cent of GDP from 1.0 per cent (Figure 1.22).

Figure 1.22. Public spending on education in Asia
Government expenditure on education, total (% of GDP)

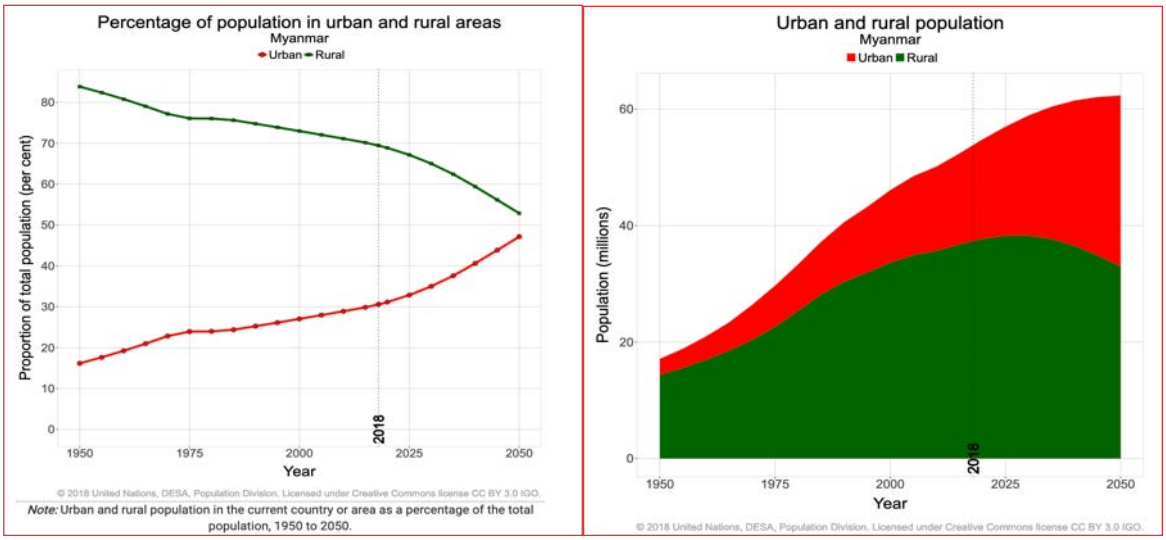


Source: World Bank Open Data (Accessed 9 June 2019).

1.6. Demography: Characterized by rapid urban–rural migration

Myanmar has a total population of 53.3 million (2017), comprising 51.2 per cent females and 48.4 per cent males, with 30.3 per cent living in urban areas and 69.7 per cent in rural areas. While the country is still predominantly rural-based, the urban population more than doubled since 1975 from 7.1 million to 16.1 million in 2017 (Figure 1.23). Driving the rapid urban–rural migration are young people aged 15–24, who make up 30.7 per cent of the migrants. Among the younger cohort aged 15–17, an estimated 40 per cent migrate before the age of 14 (ADB, 2014).

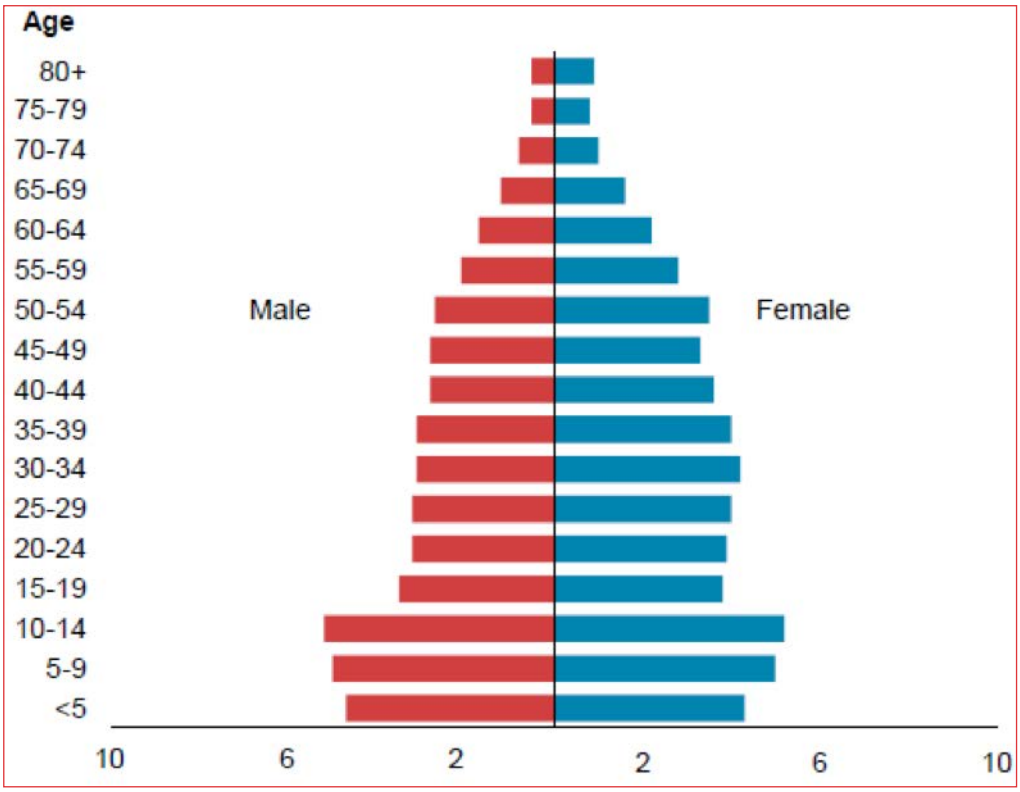
Figure 1.23. ***Urban and rural population***



Source: UNDESA (2018).

Myanmar has the potential to benefit from a demographic dividend, with a relatively young population. Nearly 40 per cent of the working-age population are clustered in the 15–29 age group (Figure 1.24).

Figure 1.24. ***Population pyramid***
Percent distribution of the household population



Source: Ministry of Health and Sport and ICF (2017).

1.7. Conclusion

Myanmar is on a continuing path of transformation. Sustained focus on implementing broad-based reforms through the difficult transition years led to a growing and stable economy dependent on agriculture as the major growth engine and main source of livelihood for 49 per cent of the labour force. Economic gains translated to a significant decline in poverty from a high of 44.5 per cent in 2004/05 down to 26.1 per cent in 2015. Human development outcomes improved, posting measurable results in increased life expectancy, improved maternal mortality and more years of schooling. In addition, securing peace and stability in conflict-affected areas and finding sustainable solutions remain critically important as the foundation for bringing about inclusive and sustainable development.

Addressing key development challenges and harnessing unique opportunities on multiple fronts will be pivotal in maintaining Myanmar's strong growth momentum. Going forward, the Myanmar Sustainable Development Plan (MSDP) 2018–2030 provides the roadmap to successfully navigate the subsequent stages in Myanmar's development trajectory. Strategic pathways have been outlined in the Plan, which focuses on peace and security, economic stability, job creation, human resources and natural resources development – five core strategies to achieve the overarching goal of a peaceful, prosperous Myanmar.

Chapter 2. Labour market structure

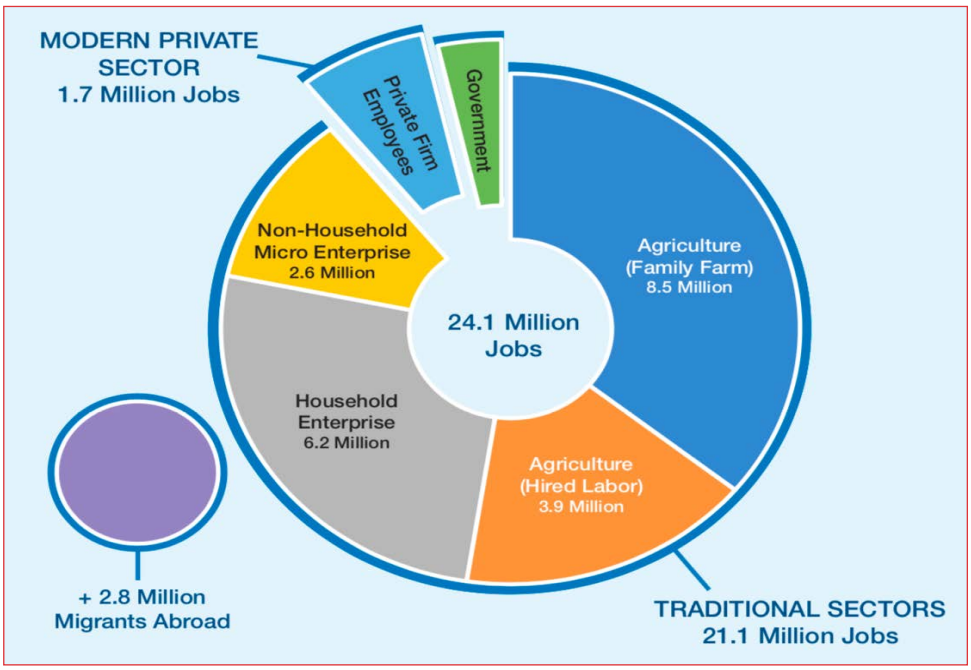
2.1. Overall analysis of the labour market

Myanmar's labour force will increase with projected population growth. Myanmar's working-age population (15 years and above) is about 35 million people, comprising 54 per cent females and 44 per cent males. Its labour force is estimated at 24 million people, of whom 45 per cent are female (9.8 million) and 55 per cent male (11.9 million) (World Bank, 2018b).

Myanmar's rapid economic growth and structural transformation in recent years has been accompanied by an expansion of jobs in the private domestic sector, but given the magnitude of the number of jobs in Myanmar – more than 24 million – the new sectors have made only a small dent in expanding job quantity and quality.

The jobs picture in Myanmar shows that more than one-third of workers own a family farm, and another 16 per cent are agricultural labourers. One in four people own their own non-farm household businesses. Of the wage earners who do not work in agriculture, half are in small firms – and thus are likely to receive few worker protections – while the other half work in large, domestic or foreign private-sector firms or in government jobs (Cunningham, et al., 2018) (Figure 2.1).

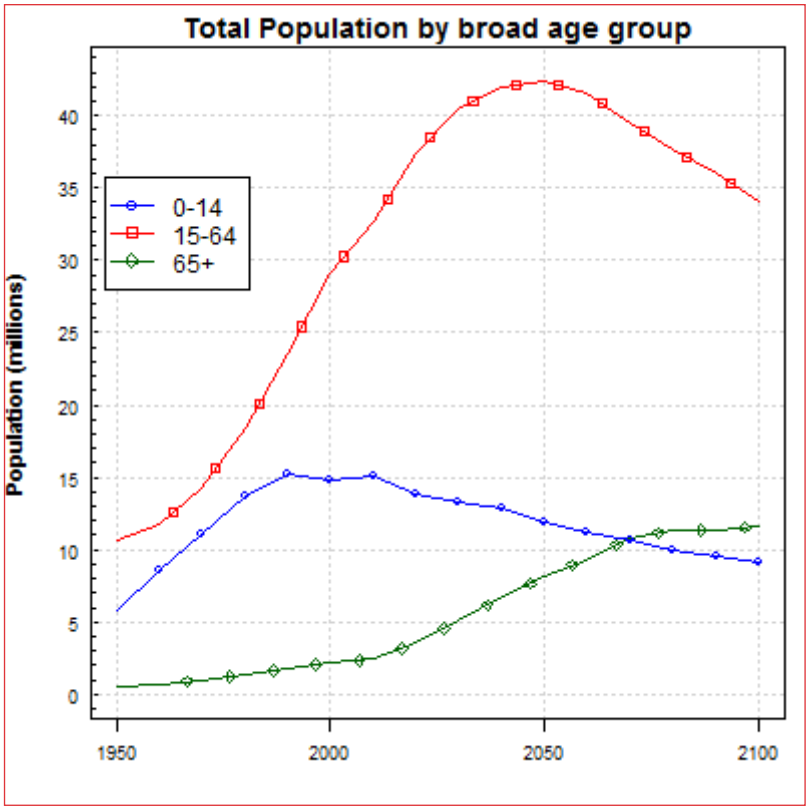
Figure 2.1. ***The jobs picture in Myanmar 2018***

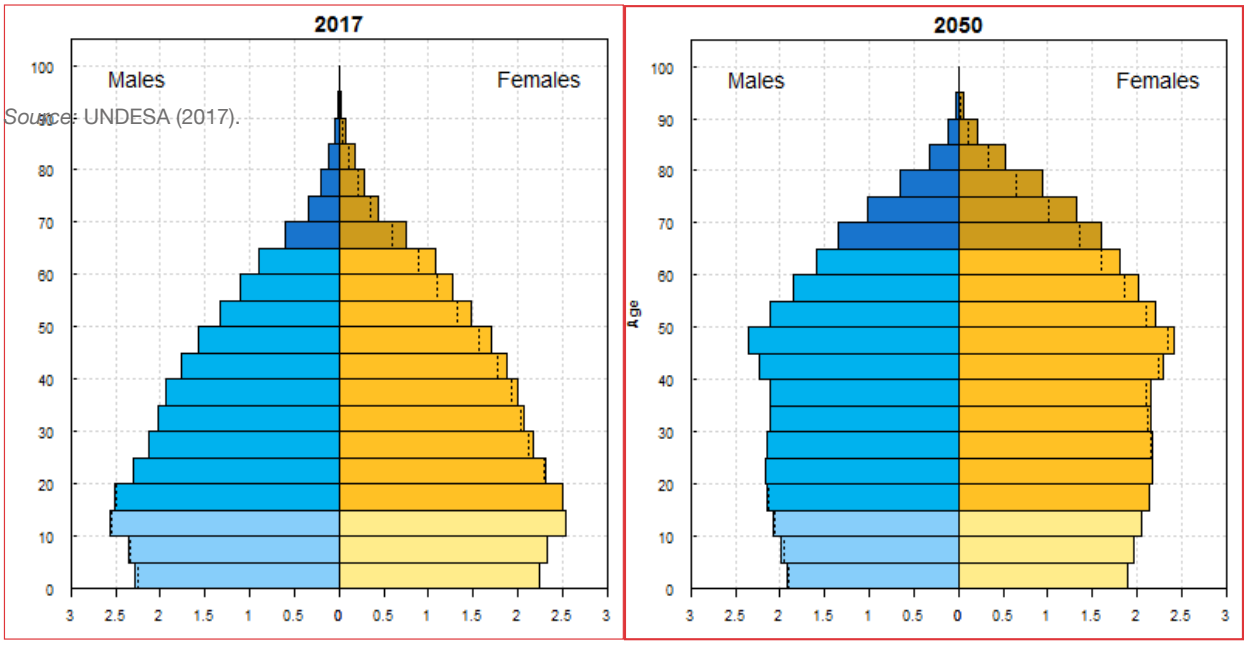


Source: Cunningham et al (2018), basic data from Labor Force Survey 2017.

With the projected growth in Myanmar's population estimated at 18 per cent until 2050, the working-age population is expected to increase by 7 million, creating a total of 42 million people in the labour force (UNDESA, 2017). The growth will be highest among young (15–24) and prime-age workers (25–50 years old) (Figure 2.2). With this sizeable expansion in the workforce, Myanmar needs to accelerate the pace of job creation and skills training to meet the labour demand and leverage the economic potential of its demographic dividend. According to UN Population Fund (UNFPA) projections, 3.7 million new jobs will be needed to keep employment on a par with current levels (ILO, 2018).

Figure 2.2. ***Increases in population***

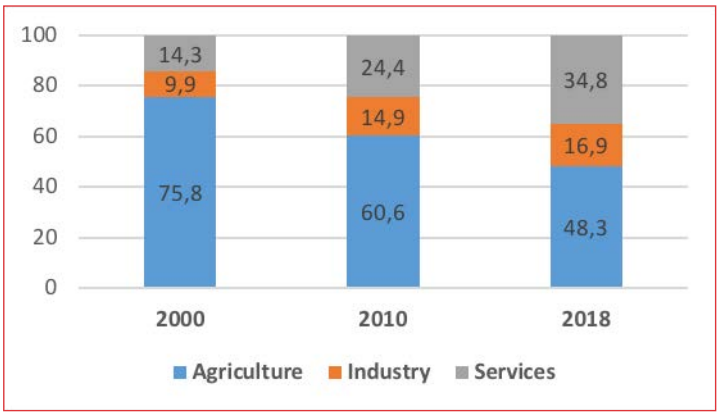




Source: UNDESA (2017).

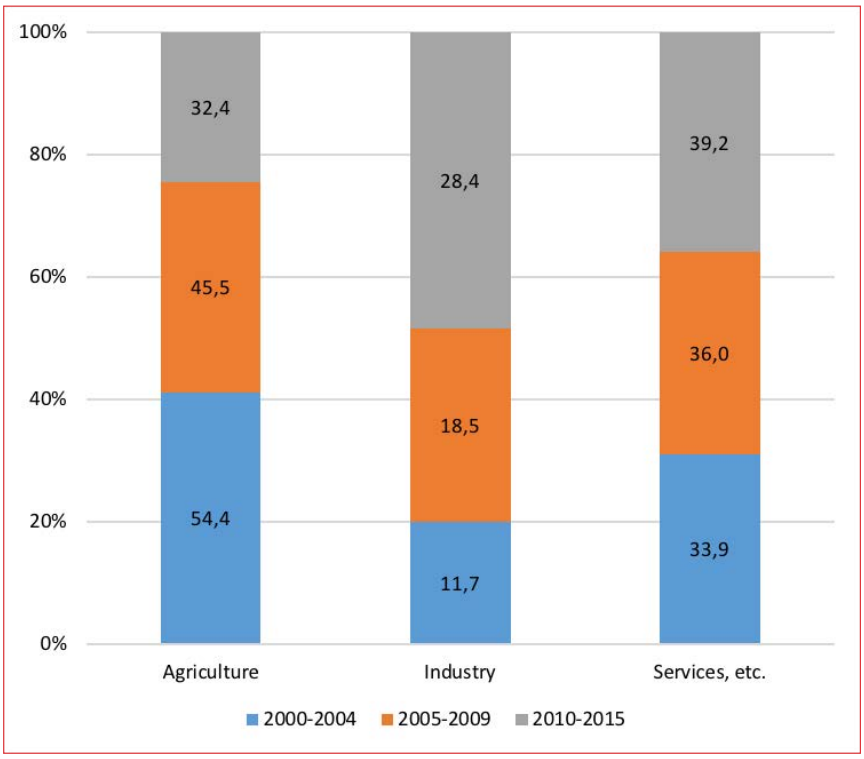
Agriculture is the main source of employment for nearly half of the labour force. The agriculture sector continues to be the major provider of jobs in Myanmar, although its share has declined significantly since 2000 – previously accounting for as much as 76 per cent of all jobs, it was down to 48 per cent in 2018 (Figure 2.3). The services sector, on the other hand, showed a significant rise and more than doubled its share, providing 35 per cent of total employment. The industry sector had a moderate rise in share of employment at 17 per cent in 2018 from 14 per cent in 2000. The declining trend in agriculture as a primary occupation mirrors the shifting trend in Myanmar's economy – moving away from agriculture, declining substantially in its share of GDP from 54.2 per cent in 2000 to 32.4 per cent in 2015 (Figure 2.4).

Figure 2.3. ***Employment by sector (% of total employment)***



Source: World Development Indicators, 2018

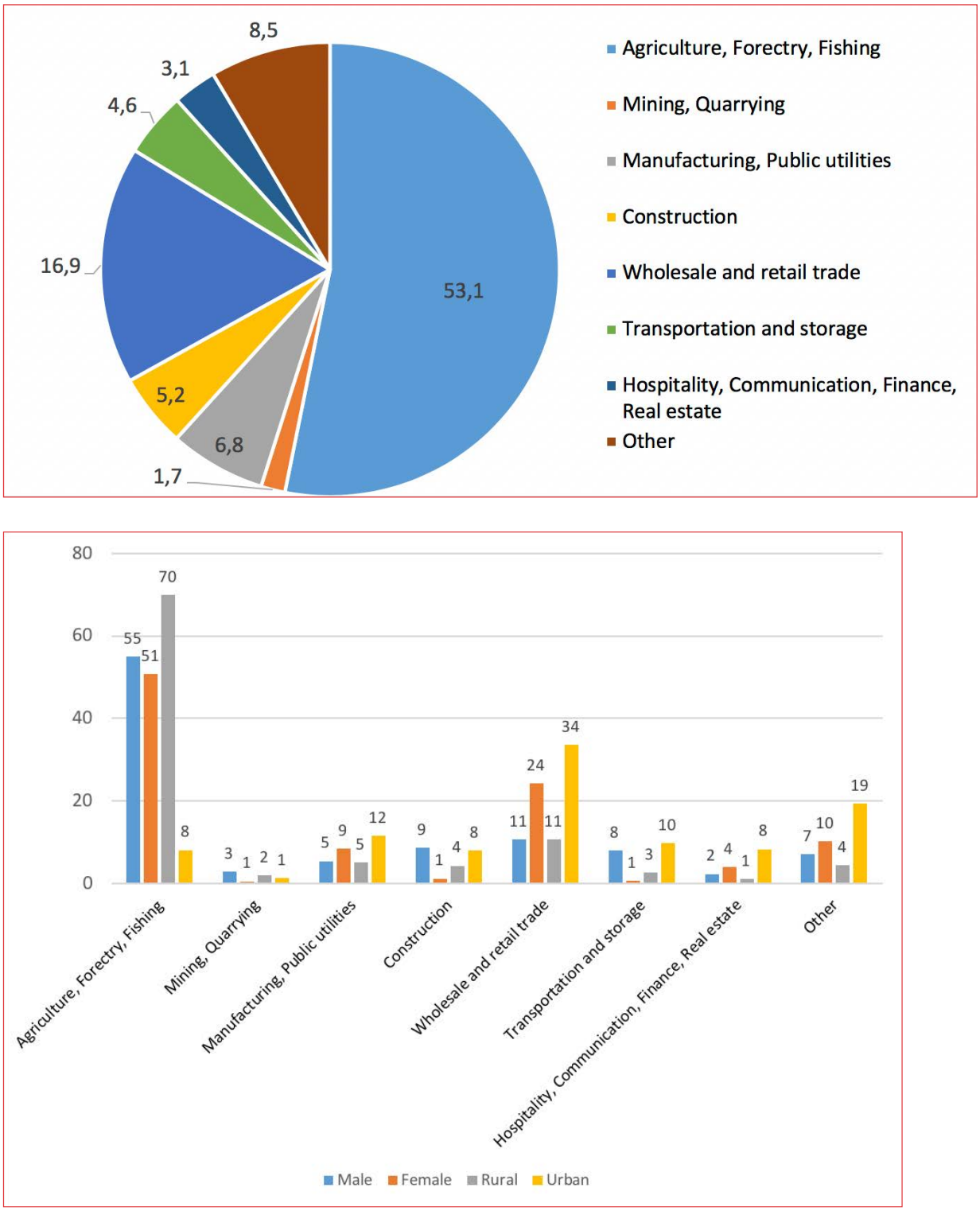
Figure 2.4. ***Sector value-added contribution to GDP (%)***



Source: World Bank (2017/2018*d*).

Jobs in the agriculture sector are particularly prone to seasonality, and farm workers are subject to adverse impacts of severe weather events like the massive flooding in 2015, which affected the livelihoods and income of half of the working population and 70 per cent of the rural labour force (World Bank, 2018*a*). Male and female farm workers have almost equal shares of the employment in the agriculture sector. The rural non-farm sector provides about 20 per cent of jobs in the wholesale and retail trade, manufacturing and construction services sector (Figure 2.5).

Figure 2.5. Employment distribution in Myanmar (percentage), 2017



Source: Cunningham et al (2018), basic data from Labor Force Survey 2017.

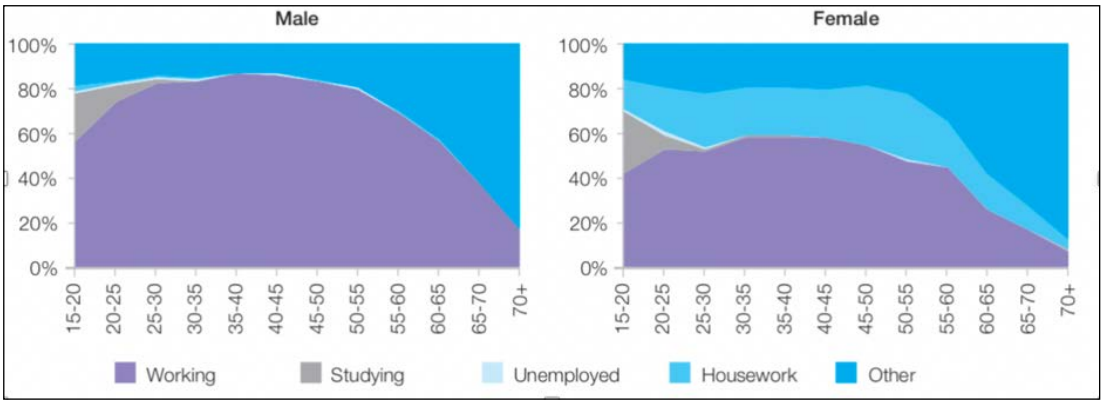
2.2. Labour market participation

With the projected 18 per cent population growth in Myanmar, labour force participation rates are expected to rise. Based on International Labour Organization (ILO) 2017 data, the labour force participation rate in Myanmar is 77.7 per cent (ILO, 2017).

Female labour participation in Myanmar is considered low (at 47.7 per cent) relative to comparator countries in South-East Asia, namely Viet Nam at 79 per cent and Cambodia at 77 per cent. The gender disaggregation further shows that men and women in the labour force tend to continue working when aged 50–55. Women work slightly longer than men in their productive years, until the age of 60 when a steep drop in employment takes place. Those who are primarily engaged in housework could also be doing income-generating work, but this might be under-reported because of the high seasonality of rural farm activity.

Among male youths (aged 15–20), six out of ten are already working, and the transition from school to work accelerates up to age 25. Myanmar outpaces countries in developing East Asia where the youth labour force participation rate is 52 per cent. Girls from age 15, like their male counterparts, show a sharp drop in educational attendance up to age 20, as they join the workforce (Figure 2.6).

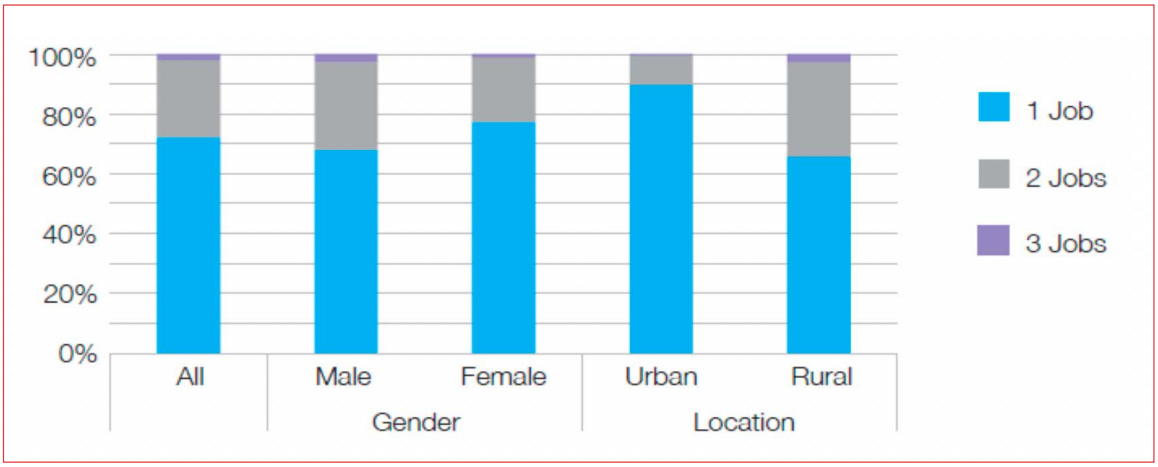
Figure 2.6. Principal activity, by age and gender



Source: Cunningham et al (2018), basic data from Labor Force Survey 2017.

Rural workers are more likely to take a second job. About one-third of the rural labour force, both men and women, engage in multiple jobs, combining farm work with non-agriculture waged or household enterprise work. The seasonality of farm work tends to drive this pattern, as agricultural workers who need to stay economically active seek alternative forms of employment during lean months. This is much less prevalent among urban workers, who have less flexibility and typically put in longer work hours, 53 hours per week compared to the average 48 hours of work per week across Myanmar (Figure 2.7).

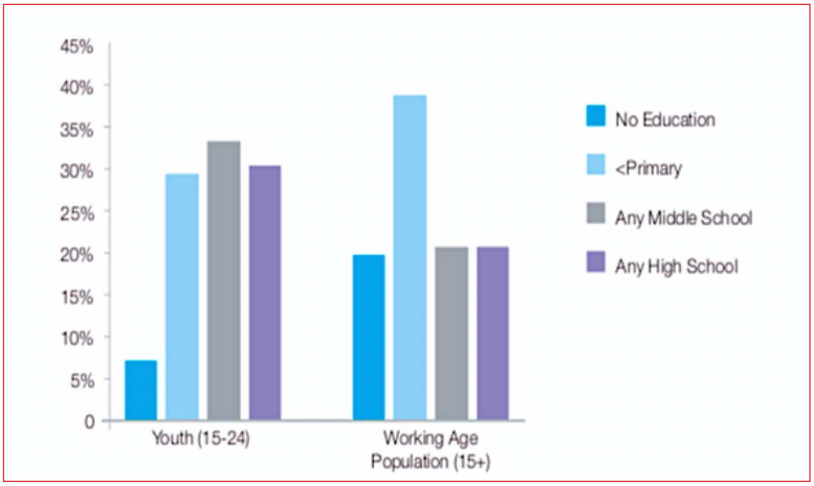
Figure 2.7. ***Number of jobs worked over the year***



Source: Cunningham et al. (2018).

Myanmar's labour force has low educational attainment -- four out of every ten workers have only primary-level education. Only 21 per cent have achieved a high school education or above. The youngest cohort of workers (age 15–24) have higher achievement levels, with significantly more middle-school graduates, and one in three attended high school or higher (Figure 2.8).

Figure 2.8. ***Highest level of education, by age***



Source: Cunningham et al (2018), basic data from Labor Force Survey 2017.

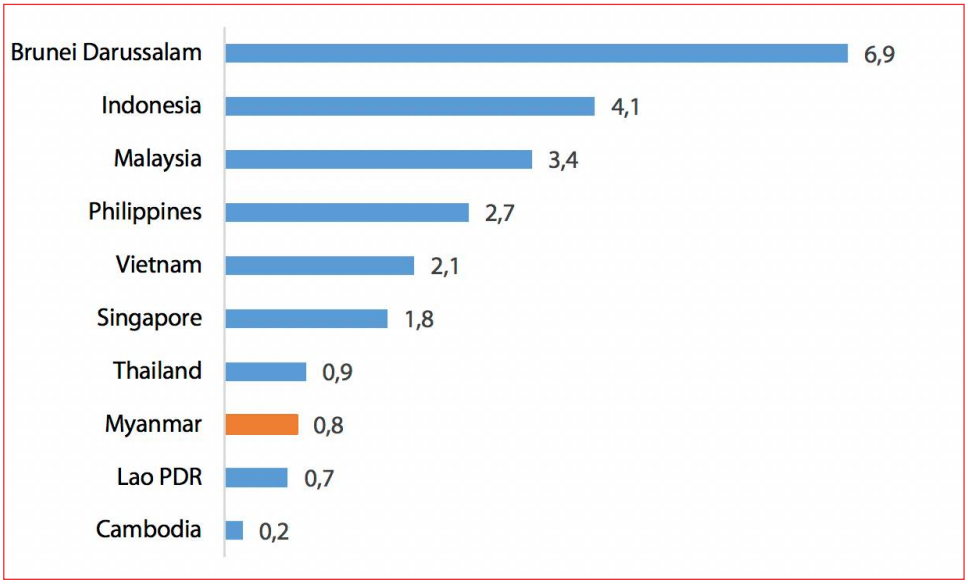
Decades of isolation have set back not just access but the quality of education critical for the country's economic growth. The government's Comprehensive Education Sector Review (CESR) identified key issues in the quality and relevance of secondary education – outdated curriculum, pedagogy and assessment – and their negative impact on access and learning outcomes (ADB, 2015). Another key challenge in teaching and learning is Myanmar's ethnic and linguistic diversity. Studies show that students have difficulty with the current practice of teaching upper-secondary maths and science subjects in English, which leads to poor learning outcomes.

2.3. Unemployment by level of education

Myanmar has a low unemployment rate which has remained fairly constant since 2009 (based on a modelled ILO estimate). A comparison with other countries in the region shows that Myanmar has one of the lowest unemployment rates, slightly ahead of Lao People's Democratic Republic and Cambodia (Figure 2.9).

Figure 2.9. Unemployment rate, selected East Asian countries

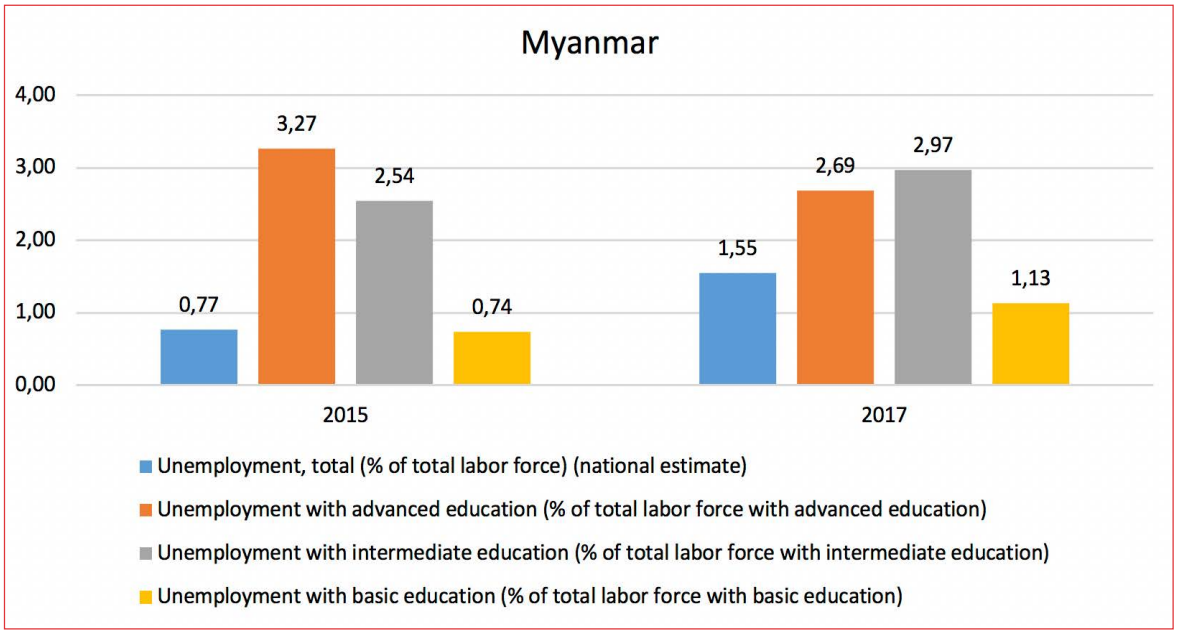
Unemployment rate (%), Total (2016)



Source: ADB (2018*a*).

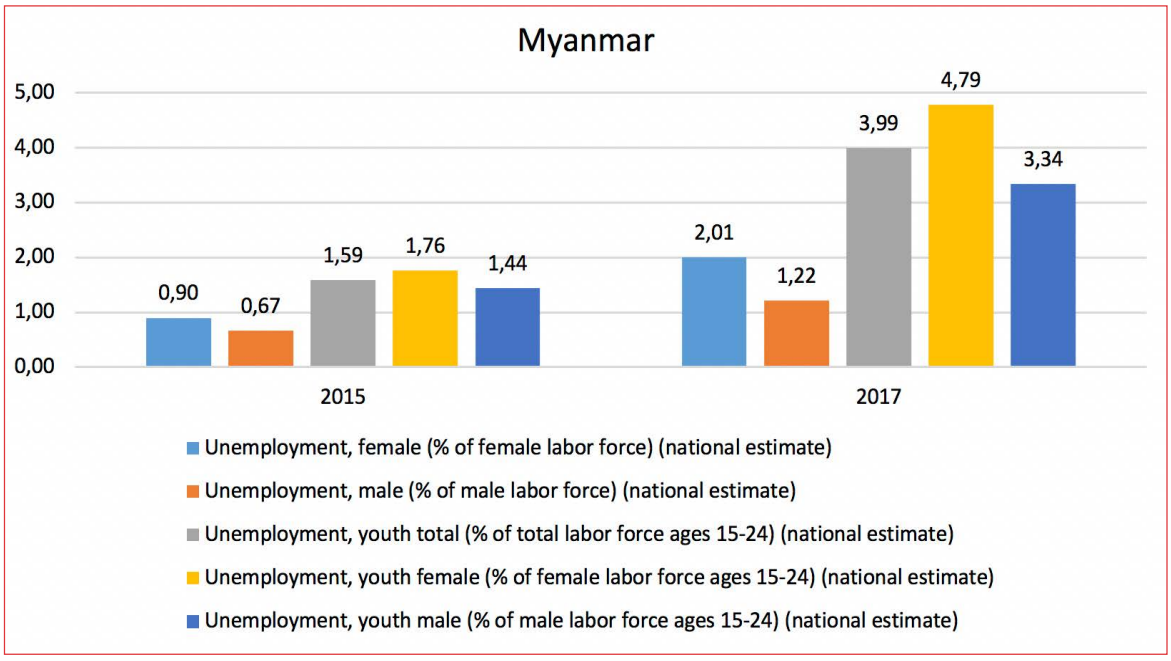
A breakdown by level of education shows that in 2015 the unemployment rate was highest among those with advanced education at 4.74 per cent, though this dropped sharply in 2017 to 3.91 per cent, which reflects the positive impact on employment of higher value-added sectors such as industry and services growing as a share of GDP. The number of unemployed with intermediate education increased from 2015 to 2018, which suggests an inability to qualify for jobs in the growth sectors because of skills deficits. This is particularly severe among those without work experience (Figures 2.10 and 2.11).

Figure 2.10. ***Unemployment by level of education (% of total labour force)***



Source: World Bank Open Data (Accessed 9 June 2019).

Figure 2.11. ***Unemployment by gender and age (% of total labour force)***



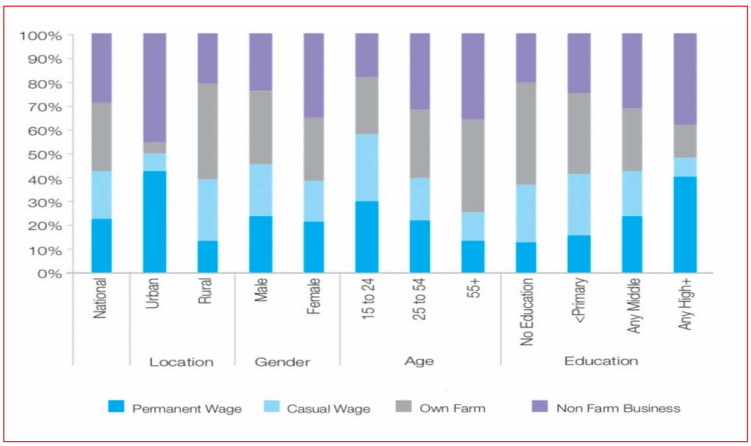
Source: World Bank Open Data (Accessed 9 June 2019).

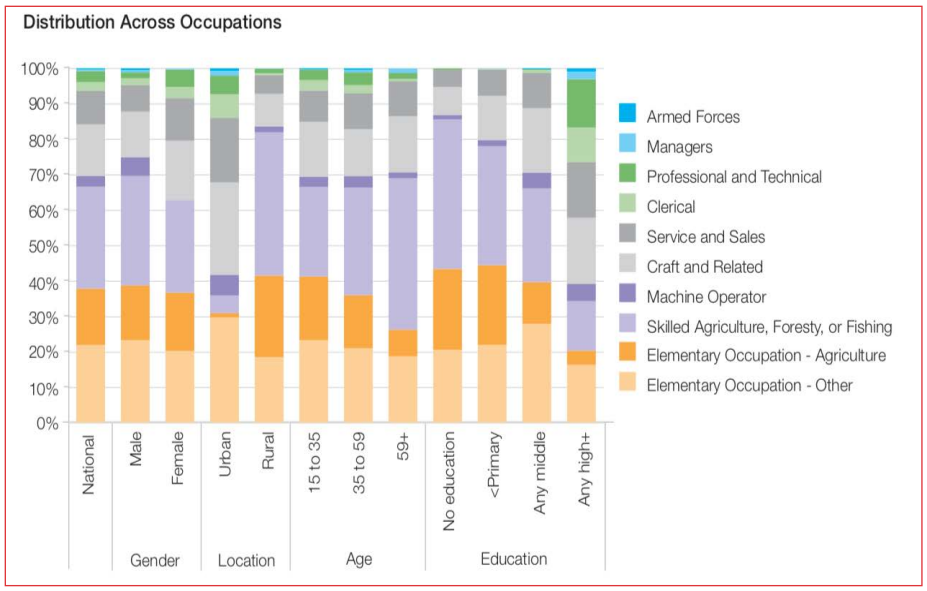
From 2014 to 2016, manufacturing and services were the biggest contributors to job creation: 40 per cent of jobs from new firms, and over three-quarters of job creation from the expansion of existing firms, were in the manufacturing sector (Cunningham et al., 2018). The 2016 Myanmar Enterprise Survey (World Bank, 2016b) estimated the net annual job creation rate at 13 per cent, with the number of jobs from new firms growing at 18 per cent per year and those from the expansion of surviving incumbent firms growing at 7 per cent a year.

2.4. Barriers to employability and better jobs

The majority of the labour force have low education levels and work in low-skilled, low-wage jobs. In rural agriculture, this means subsistence work in a low-value-added sector. In the urban sector, these jobs are largely unskilled, manual labour work in the non-farm sector (Figure 2.12). Both occupational categories are associated with low education levels, low-wage jobs and limited social benefits. In the urban areas, the wholesale and retail trade sector employs one in three workers. A small percentage of workers with high school education or higher are in jobs classified as professionals, managers, skilled technicians or associate professionals. There are more males working in agriculture, forestry and fishing than females, and there are more females working in services and sales than males.

Figure 2.12. Distribution of workers across types of employment





Source: Cunningham et al (2018), basic data from Labor Force Survey 2017.

2.5. Conclusion

Myanmar has a favourable demographic profile conducive for economic growth. Its population is projected to grow -- the highest increase will be among the large youth population and prime-age workers. New jobs will be needed to absorb the expansion of the labour force, and improvements in labour market conditions will be essential to support increased productivity and competitiveness. However, Myanmar's workforce is largely unskilled with low educational attainment, and the poor quality and relevance of education adds an important challenge that needs to be addressed. Currently the education system is producing a labour pool with insufficient knowledge and skills who are ill-prepared to match the required skills sets of the labour market. And a skill-deficient graduate has poor employability and reduced potential for increased earnings in the future.

Agriculture is the main source of employment for nearly half of the labour force, many of whom are vulnerable because seasonal factors mean a fluctuating income. Rural workers, both men and women, take second jobs in the informal sector to supplement subsistence farm income and use it as a safety net during lean months or poor harvest caused by weather disasters. Urban workers, likewise, engage in informal employment typically as owners of unregistered, largely home-based micro-enterprises. The prevalence of informal sector work is of particular concern as it indicates the increased dependence on low labour productivity and low-paying jobs. Successful implementation of the *Myanmar Sustainable Development Plan 2018–2030,* specifically the goal on job creation and private sector-led growth, will be pivotal in creating stable, productive employment opportunities and is essential for driving sustainable and inclusive economic growth.

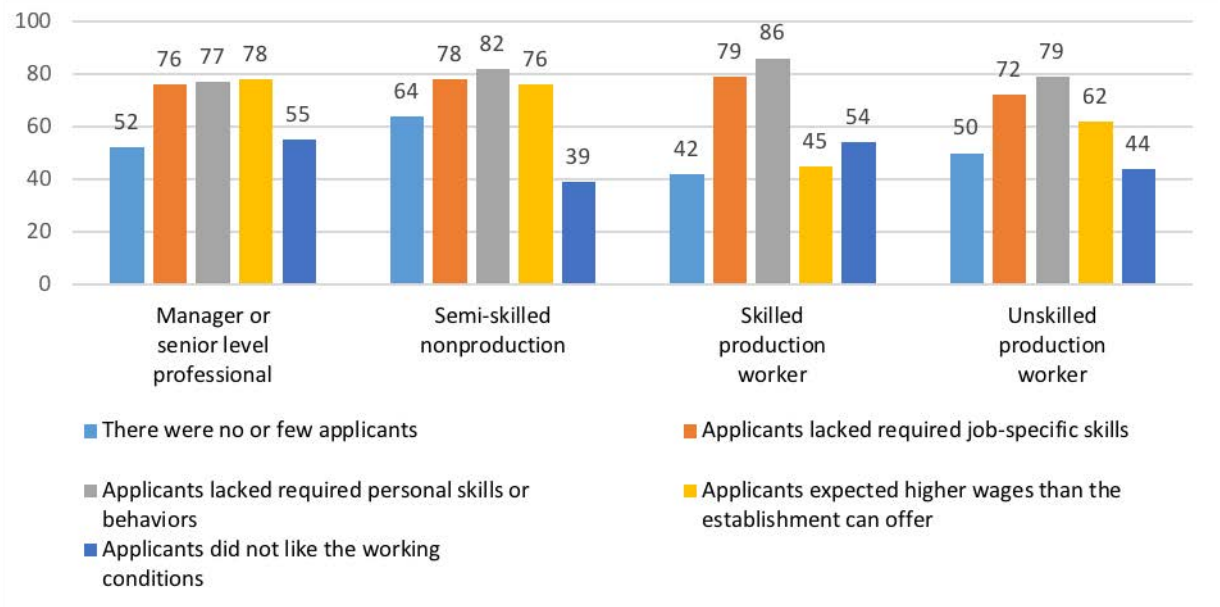
Chapter 3. Skills needs in the labour market

3.1. What skills are demanded by the market, and what are the growth sectors?

Workers lack the skills needed by hiring firms. A 2016 firm survey in Yangon and Mandalay confirmed that many firms are unable to fill jobs because the workforce lack the requisite skills (Cunningham et al., 2018). The biggest demand for skilled workers comes from large firms and foreign private-sector companies. The majority of the firms surveyed reported receiving low response rates, and at times no response, to advertisements for jobs available (Figure 3.1).

***Figure 3.1.* Reasons for employer difficulties in hiring, 2016**

Employer difficulties in hiring, 2016 (% of firms)



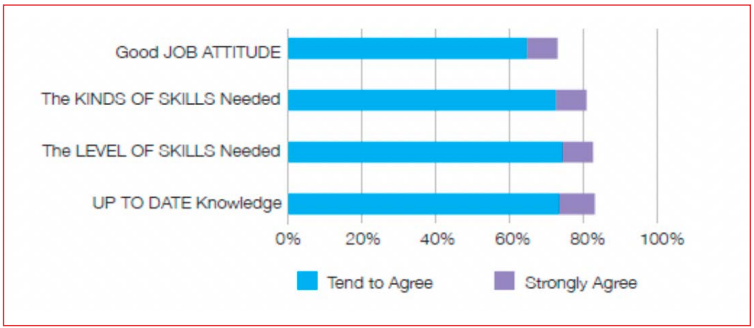
Source: Cunningham et al. (2018).

Firms consider the low education level of workers a major business constraint. A 2016 enterprise survey of business owners and top managers in 607 firms (World Bank, 2016b) cited inadequate education of Myanmar's workforce as a major obstacle, second to access to finance as the topmost concern. In particular, medium-sized firms with less than 100 employees ranked inadequate education and training of the workforce as the greatest obstacle.

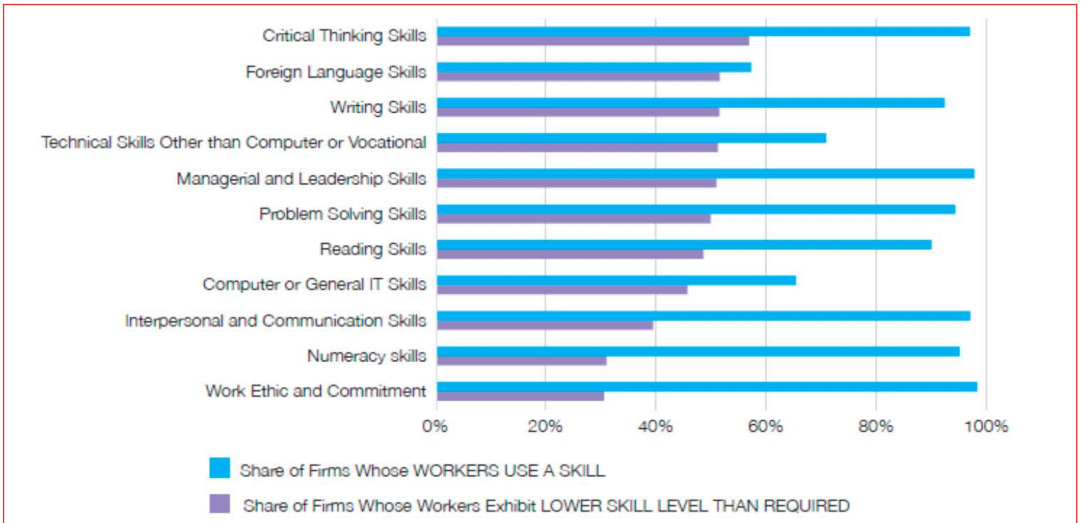
Employers value a range of job-relevant skills and identified important skills gaps. Data from a 2014 survey of employers in Myanmar (Cunningham and Huertas, 2017) provide insights on the critical skills needed in the workplace. The majority of employers cited two main concerns: first, the lack of up-to-date knowledge at the level of proficiency needed for job-specific requirements; and second, the mismatch between the skills learned and those needed by industry. Among the most needed skills identified by employers, but are in short supply, were foreign languages (57 per cent), computer and general IT skills (65 per cent) and technical skills other than computing (70 per cent). Employers also raised concerns about poor behavioural, non-cognitive skills that are considered important in the workplace, and the importance of managerial/leadership, interpersonal, critical-thinking, problem-solving, and work/ethic and commitment qualities (Figure 3.2).

Figure 3.2. ***Percentage of employers who agree the education system fails to produce workers with the required skills and attitudes***

Percent of employers who agree education system does not produce enough people



Skills Myanmar Employers Require in Workplace

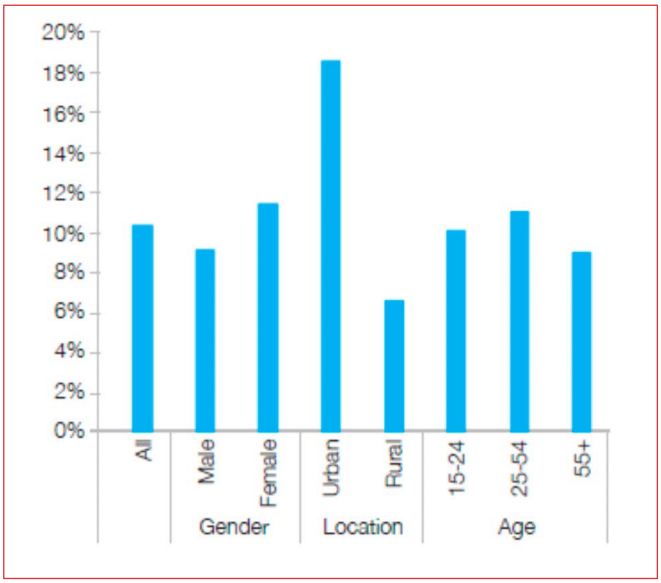


Source: Cunningham et al. (2018).

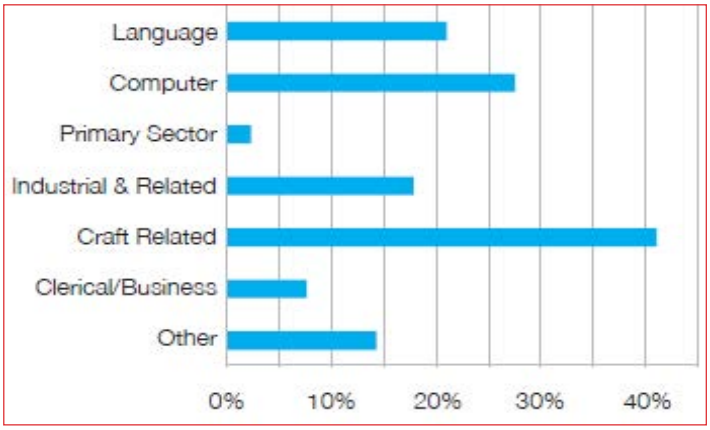
Few workers supplement their education with technical training. Studies show that only 10 per cent of workers supplement their education with technical training. Young, urban workers and women are most likely to engage in vocational or technical training to expand their skills set (Figure 3.3). Craft-related work (40 per cent), computing (28 per cent) and languages (21 per cent) are among the most popular training programmes. Younger workers (age 15–24) see greater value in improving their English (32 per cent) and computer skills (45 per cent).

Figure 3.3. ***Enrolment in vocational or technical training***

Enrolment in Vocational or Technical Training



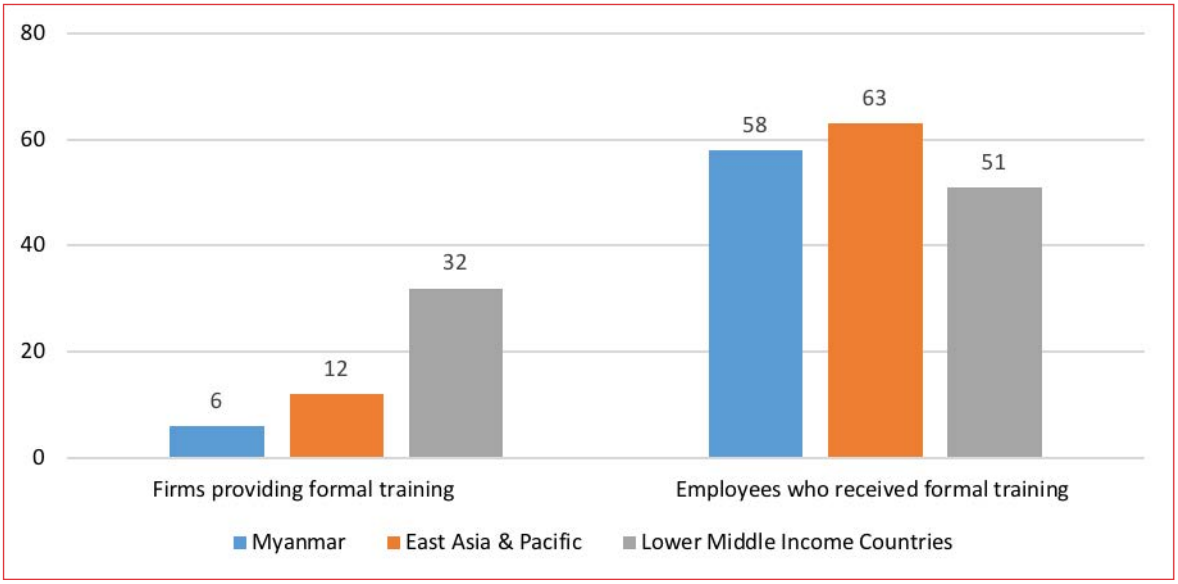
Subject of the Vocational Training Attended



Source: Cunningham et al. (2018).

Unlike most countries in the region, very few firms in Myanmar provide formal training to upgrade the skills of their workers. The 2016 World Bank Enterprise Survey (2016*b*) showed that only 6 per cent of firms surveyed invest in formal training for their employees, compared with 32 per cent across East Asia and the Pacific, as well as in lower-middle-income countries. In the manufacturing firms that provide formal training, six out of ten employees attended such training (Figures 3.4 and 3.5).

Figure 3.4. ***Firms providing formal training and employees who received formal training (%)***



Source: World Bank (2016*b*).

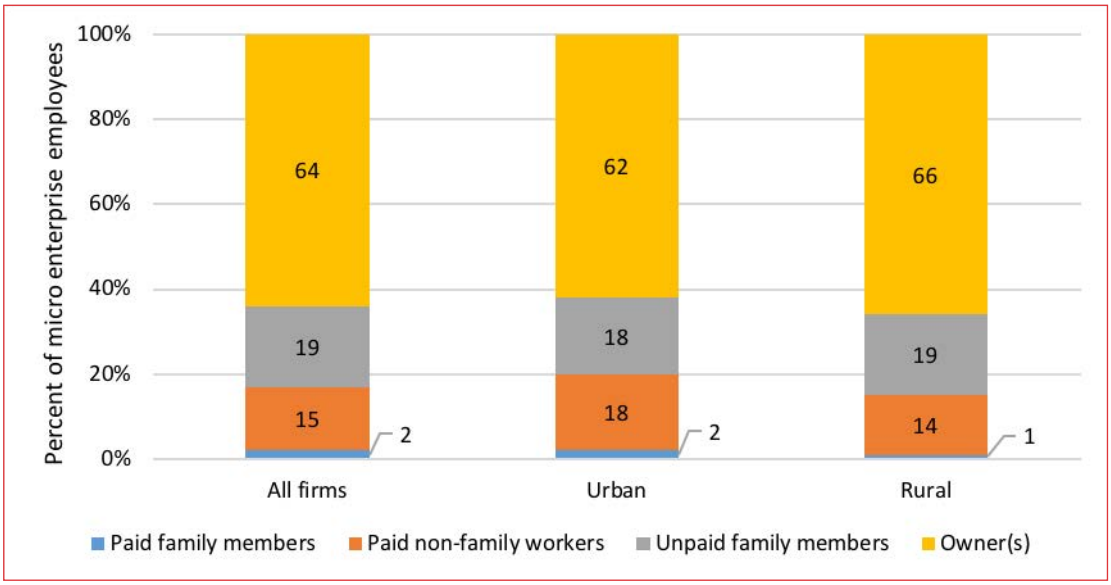
3.2. The informal labour market

Six out of ten workers in Myanmar work in informal jobs or run their own micro-business. The informal nature of work is more prevalent in non-farm businesses in the form of micro-enterprises, highest among workers with some high school education. Data from the *Myanmar Poverty and Living Conditions Survey (MPLCS)* indicate that close to one in every two households runs a small business, and about 9.6 million people reported work in a micro-enterprise as their primary job (Cunningham et al., 2018) These informal businesses are unregistered, and tend to be small, typically run by just the owner operating from inside the home, serving local consumers or street passers-by. About 20 per cent are engaged in food processing, woodworking and garments; another 20 per cent are in hospitality, retail and other services. The services sector accounts for 60 per cent of all micro enterprises.

In the rural areas, the seasonality of output and employment drives farm workers to seek alternative income sources, typically in low-paid and informal jobs. About 60 per cent of the micro enterprises in Myanmar are located in rural areas, which suggests the value attached to this form of employment as a safety net to supplement farm income, especially during lean months.

Individuals with vocational training are more likely to be owners of micro-enterprises. One out of three individuals with vocational training owns a micro-enterprise, compared with just 17 per cent of individuals with no vocational training, in both urban and rural areas. This suggests that having acquired specialized skills through vocational training yields higher returns from self-employment, or owning one's business, rather than the low daily wage associated with permanent jobs in the formal sector (Figure 3.5).

Figure 3.5. ***Distribution of workers in household enterprises, by location***



Source: Cunningham et al. (2018).

3.3. Labour market policies: employment policies for creating new jobs and supporting migrants

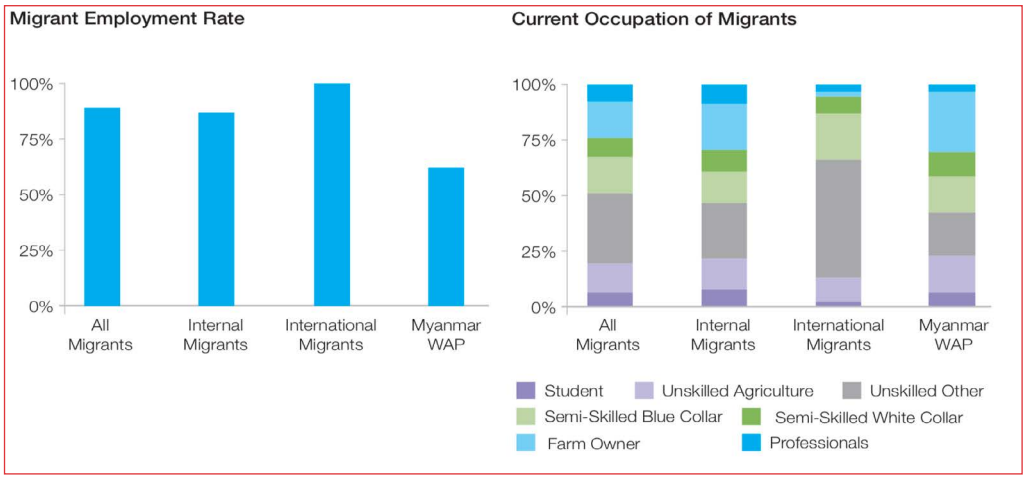
About one in four people in Myanmar are internal or external migrants. Based on the 2014 Census, more than 10 million Myanmar people have moved from their place of birth. More than 7 per cent of the population – a total of 3.4 million – migrated within Myanmar between 2009 and 2014 (Cunningham et al., 2018). In addition, about 3 million have migrated to other countries: the majority are in Thailand (88 per cent) and Malaysia (12 per cent). The typical local migrant is likely to have at least high school education (secondary education level), be younger, male, semi-skilled or unskilled, and with dependent children.

Migration among Myanmar workers is driven mainly by employment reasons. A 2015 ILO study of over 7,000 internal migrants in Myanmar found that 84 per cent of the interviewed households reported that work was the main reason for migration (Milio et al., 2014). The insecurity of rural farm income and the informal nature of work push people to seek better-quality jobs elsewhere. The majority of internal migrants move to economic centres where jobs are available, such as Northern Yangon, one of largest sources of jobs in manufacturing (MOLIP and UNFPA, 2016).

Myanmar has low urban-to-rural migration. Migrants typically move from urban-to-urban or rural-to-rural areas (MOLIP and UNFPA, 2016). Barriers to rural-to-urban migration may be the high cost of migration, lack of sufficient jobs, poor connectivity, and limited access to information about opportunities in urban areas.

Migrants have higher employability and are more likely to have a job than the general population. Almost all international migrants from Myanmar and nearly 90 per cent of internal migrants are employed compared with only 62 per cent of non-migrants (Figure 3.6). Internal migrants are engaged in semi-skilled jobs while international migrants are mostly in unskilled or semi-skilled blue collar jobs.

Figure 3.6. ***Employment rates and current occupations for migrants***



Source: Cunningham et al. (2018).

Myanmar has labour policies in place, but poor enforcement weakens the potential to improve the quality of jobs. Labour regulation in Myanmar has been described as robust relative to other countries in the region, as it sets clear policies on severance payments, work hours, the wage premium to overtime pay, and paternity leave (Table 3.1). However, in some areas such as fixed-term contracts and the notice period for redundancies labour laws are less protective than in other countries.

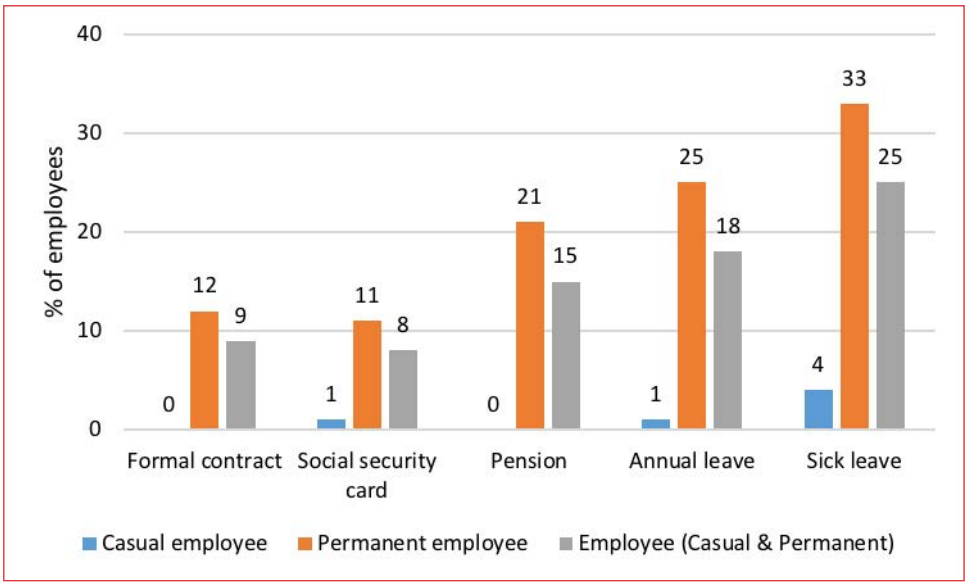
Table 3.1. ***Comparison of labour protection laws, selected Asian countries***
Labour protection country comparison

	Cambodia	China	Lao PDR	Myanmar	Thailand	Vietnam
Fixed-term contracts prohibited for permanent tasks	N0	No	No	No	Yes	No
Maximum cumulative duration of a fixed-term employment relationship (in months), including all renewals	24	No limit	36	No limit	No limit	72
Premium for overtime work (% of hourly pay)	50	50	50	100	50	50
Restrictions on night work	No	No	No	Yes	No	No
Paid annual leave for a worker with 10 years of tenure (in working days)	21	10	15	10	6	14
Retraining or reassignment obligation before redundancy	No	Yes	No	No	No	Yes
Notice period for redundancy dismissal after 10 years of continuous employment	13.0	4.3	6.4	4.3	4.3	0
Equal remuneration for work of equal value stipulated in law	Yes	No	No	No	No	Yes
Gender nondiscrimination in hiring stipulated in law	Yes	Yes	No	No	No	Yes
Minimum length of maternity leave (minimum number of calendar days that legally have to be paid by the government and/or employer	90	98	105	98	90	180
Paternity leave (days)	n/a	3	3	15	n/a	n/a

Source: Cunningham et al. (2018).

Not all employers implement the full range of labour laws, and there is selective enforcement in some cases. For example, among permanent employees, only 12 per cent have a work contract. Without a formal contract, employees have no binding agreement that ensure their rights as permanent employees are guaranteed, such as regularly paid wages, social benefits, paid vacations, maternity and paternity benefits, and dismissal rights (***Figure 3.7***).

Figure 3.7. Percentage of workers with employee benefits, by type of employment
Employee benefits, by nature of work arrangements



Source: MPLCS (2015)

3.4. Skills demand in the urban and modern sector

For this report, we analysed the demand for jobs and employment in Myanmar using big data from jobsites to demonstrate the power of new media, and the opportunity for Myanmar to leapfrog unto a new system where the friction in the labour market is minimized through near-real-time information on available jobs and people seeking jobs. The biggest jobsite in the country, JobNet.com, for instance has seen its number of users double every few months, and now reaches over 450,000 users. There are other jobsites also competing in this space, along with jobsites or global platforms like Indeed.com and Linked-In.com which are accessible to Myanmar job-seekers for national, regional and international jobs.

These new analyses provide very important help in tracking the trends in jobs available in the Myanmar market, and cover a good percentage of the urban areas such as Yangon, Mandalay and Nay Pyi Daw. These trends can provide new information on occupations which could be quantified in a granular way to help training providers in TVET and in the modern sector of Myanmar in customizing courses, and provide information to the job-seekers on the trending kinds of skills that employers want. Through such information, job-seekers and learners could personalize their learning path to address potential skills gaps and thus improve their opportunity to upskill and obtain a better job.

The methodology employs big data science and artificial intelligence (the methodology is given in Annex 1), and the results for Myanmar provide an evidence- and data-based insight to help not only educational planning for policy-makers and partner agencies, but also job-seekers and households needing to make informed data-driven decisions on careers and personal development. These methods are currently in use on a large scale in other Asian countries, notably Singapore, whose FutureSkills programme is anchored on a data-driven approach.

The 100 most demanded jobs for 2017 to 2019 in urban areas

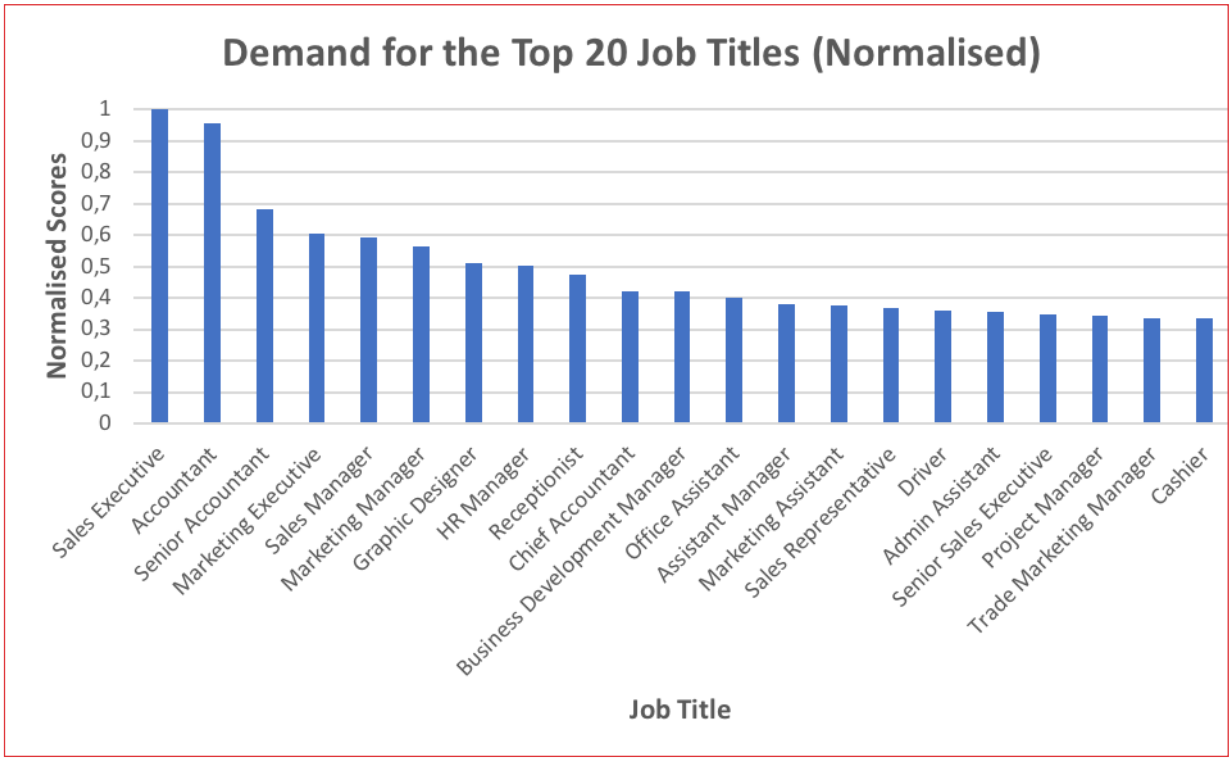
The top three job titles with the highest demand have been consistently across the years been sales executive, accountant and senior accountant. Most of these jobs are related to growth and expansion of firms in the urban sector. Most importantly there is increasing demand for skills that are needed for day-to-day administration to handle the increased amount of transactions in a growing economy. Employers tended to specify soft skills such as the ability to work collaboratively, along with technical requirements. In comparison with the skills demands from other countries, there seem to be lower technical requirements in Myanmar. The demand for interns and fresh graduates is highest in jobs that are more service-related. It is noted that most employers demand work experience. This is a very important point especially in addressing the need for apprenticeships, which are key to labour outcomes in this environment. The top jobs for fresh graduates are receptionist, office assistant, sales executive, administrative assistant, accounting assistant and graphic designer.

Demand for new types of job skills has increased more recently, especially technology-related skills such as social media marketing skills for marketing executives. For these marketing executives the top ten skills include marketing, marketing strategy, marketing communications planning, market research, managing relationships, social media and campaigns. For engineering and technical jobs, the top skills signalled by employers include equipment maintenance, teamwork, equipment installation, equipment repair, working independently, project development, project implementation and customer service.

The top job titles by demand in the engineering and technical groups include site engineer, technician, service engineer, project engineer, maintenance engineer, electrical engineer, project manager, civil engineer and assistant engineer.

The fifth most demanded job function in 2017-19 was in the area of IT hardware and software, which signals a shift to the digital economy as a sector of significance. The top job titles by demand in the IT field include senior web developer, web developer, Android developer, IT technician, IT assistant, database administrator, IT manager, senior developer, senior Android developer and senior Java developer. The top skills in demand within these job functions are a combination of soft skills and technical skills, including teamwork, software skills, application development, design, technical support, company law, software development, network infrastructure, and ability to work independently.

Figure 3.8. ***Data from the research into skills demand***



Note: Based on the data provided by JobNet.com.mm

Myanmar: Top 100 Job Titles by Demand, 2017-19

21	Trade Marketing Manager	37	General Manager	53	Senior Web Developer	69	Key Account Manager	85	Interior Designer
22	Finance Manager	38	Sales Engineer	54	Product Manager	70	Assistant Finance Manager	86	Business Analyst
23	Business Development Executive	39	Area Sales Manager	55	HR Officer	71	Customer Service Officer	87	Android Developer
24	Sales Supervisor	40	HR Assistant	56	Manager	72	Project Coordinator	88	Security Guard
25	HR Executive	41	Site Engineer	57	Regional Sales Manager	73	Sales Consultant	89	Logistics Manager
26	Operations Manager	42	Marketing Supervisor	58	EVP Marketing	74	Assistant Engineer	90	Accounts Assistant
27	Branch Manager	43	Personal Assistant	59	Customer Service Executive	75	Operations Assistant	91	Assistant General Manager
28	Translator	44	Technician	60	Operations Executive	76	Finance Assistant	92	Database Administrator
29	Admin Executive	45	Assistant HR Manager	61	Service Engineer	77	Procurement Manager	93	Medical Representative
30	Secretary	46	Senior Marketing Executive	62	Web Developer	78	Accounting Manager	94	Executive Assistant
31	Online Marketing Executive	47	Warehouse Supervisor	63	VP Customer Service	79	Senior Engineer	95	IT Manager
32	Assistant Accountant	48	Warehouse Manager	64	Management Trainee	80	Maintenance Engineer	96	IT Technician
33	Brand Manager	49	Project Engineer	65	Sales Assistant	81	Electrical Engineer	97	Territory Sales Manager
34	Junior Accountant	50	Digital Marketing Executive	66	Shop Manager	82	Civil Engineer	98	IT Assistant
35	Supervisor	51	Assistant Sales Manager	67	Account Manager	83	Medical Sales Representative	99	Auditor
36	Digital Marketing Manager	52	Assistant Marketing Manager	68	HR Supervisor	84	Site Supervisor	100	Warehouse Assistant

Top Skills in Sales/Business Development

#1

Job Function by Demand

Top 10 Skills for Sales Executive

01	Sales
02	Identifying New Business Opportunities
03	Customer Service
04	Manage Client Relationships
05	Retaining Customers
06	Long-term Customer Relationships
07	Sales and Marketing
08	Introducing New Products
09	Sales Plan
10	Listening to Customers

Top 10 Skills for Sales Manager

01	Sales
02	Sales and Marketing
03	Sales Management
04	Sales Plan
05	Manage Client Relationships
06	Sales Operations
07	Customer Service
08	Identifying New Business Opportunities
09	Retaining Customers
10	Sales Growth

Top 10 Skills for Business Development Manager

01	Identifying New Business Opportunities
02	New Business Development
03	Manage Client Relationships
04	Business
05	Business Development
06	Sales
07	Helping Clients Succeed
08	Introducing New Products
09	Building Relationships
10	Client Services

JobKred

Top Skills in Engineering/ Technical

#4
Job Function by Demand

Top 10 Skills for Site Engineer

01	Site Planning
02	Site Management
03	Site Inspections
04	Project Development
05	Site Plans
06	Teamwork
07	Site Design
08	Site Development
09	Construction
10	Work Ethic

Top 10 Skills for Technician

01	Maintenance
02	Equipment Installation
03	Hardware Installation
04	Software Installation
05	Plant Maintenance
06	Able to Work under Pressure
07	Equipment Repair
08	Permit to Work
09	Vehicle Maintenance
10	Administrative Work

Top 10 Skills for Service Engineer

01	Customer Service Training
02	Customer Service
03	Equipment Repair
04	Equipment Maintenance
05	Equipment Installation
06	Customer Service Operations
07	Software Installation
08	Electrical Maintenance
09	Customer Service Management
10	Test Equipment

JobKred

Myanmar: IT Hardware/ Software

#5
Job Function by Demand

Top 10 Skills by Demand

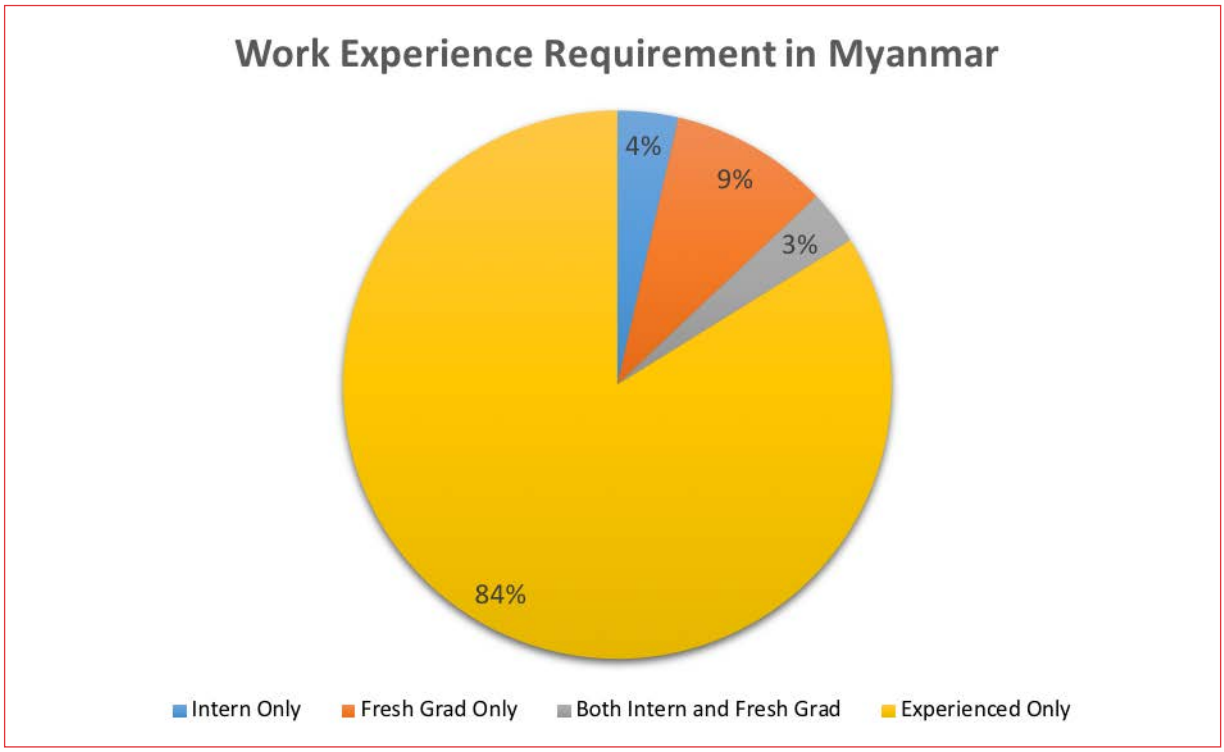
01	Teamwork
02	Software
03	Applications
04	Design
05	Technical Support
06	Company Law
07	Application Development
08	Software Development
09	Network Infrastructure
10	Work Well Independently

Top 10 Job Titles by Demand

01	Senior Web Developer
02	Web Developer
03	Android Developer
04	IT Technician
05	IT Assistant
06	Database Administrator
07	IT Manager
08	Senior Developer
09	Senior Android Developer
10	Senior Java Developer

- to be analysed in greater detail

JobKred



Source: Data obtained from JobNet.com.mm (analysed by JobKred).

Myanmar has a new opportunity in using digital jobsite platforms. Traditionally, jobs have been advertised through newspapers, radio or television, or via other forms of announcement in agencies and private-sector advertisements, for example through the jobs postings by MoLIP. Myanmar is now well on the way to widely using job portals on the internet as a way of discovering the jobs marketplace. In fact, not only are job portals being used particularly for the urban areas, most young people are now searching for jobs using their mobile phones. Mobile connectivity covers a big area of Myanmar, and coverage will likely accelerate as the use of these new technologies increases.

The opportunities offered by new methods through jobsites complement present systems like administrative and survey data, and help to fill gaps in labour market knowledge for the years between large-scale surveys like the Myanmar Labour Force Survey. The new methods, which allow for near-real time-information, should help job-seekers as well as education and course planners to be updated on labour market trends.

Box 3.1. Examples of the use of big data and AI for skills development

Global Big Data and AI usage examples

Countries around the world are starting to refer to Big Data insights to find out in real-time the skills demand and supply, and even use trends to predict the future.

In South Asian countries like Bangladesh, Sri Lanka and Bhutan, local labour market information is already being collected by the government, but it is generally fragmented and is incomplete information. Companies like JobKred are coming in to help these countries to look at their existing data, not just from government related sources, but from external private sector sources as well, and aggregate this data to generate labour market information. This data can then be applied in AI system localised and customised to the country, to help guide citizens, educations, employers and government and speed up their transformation experience.

Singapore Big Data and AI usage examples

Singapore stakeholders in the education and workforce development ecosystem use Big Data and AI to speed up the workforce development process. Singapore developed national jobs and training platforms that aggregate job postings and training offerings for citizens to access (myskillsfuture.sg and mycareersfuture.sg). Labour market information and AI is used in these portals to match citizens to the job most suitable for their skills, as well as the training most necessary based on their skills gaps. Educators, such as Nanyang Technological University, use an AI trained on labour market information to provide digital career guidance to guide their students to the right careers. Policy makers use big data from labour market information to develop, refine and keep agile their national skills frameworks. Finally, industry specific agencies in Singapore work with companies like JobKred to utilise AI in helping companies transform their workforce. AI is used to recommend to employees suitable career paths, and suggest personalised training to close skills gaps, so that employees can empower themselves with self-directed career development.

https://www.straitstimes.com/business/economy/better-matching-more-listings-on-government-job-portal

Source: JobKred

3.5. Demand for skills in the key growth sectors of the economy

Myanmar was opened up to a wealth of economic opportunities across two of the most dynamic regions of the world, South Asia and South-East Asia, when it joined South Asia Subregional Economic Cooperation (SASEC) in 2017. The main areas of opportunity and thus likely drivers for economic growth include the key export products of Myanmar: pulses and beans, rice and fishery products; textiles and garments; tourism; energy; information and communications technology (ICT) and maritime transport.

Since 2017 Myanmar has become a major destination for FDI. The Directorate of Investment and Company Administration (DICA) of Myanmar reported that as of March 2019, FDI proposals approved totalled US$81 billion. The largest projects were in the oil and gas sector ($22 billion), power ($21 billion), manufacturing ($10 billion), transport and communications ($9.9 billion), real estate ($5.3 billion), and hotels and tourism ($3 billion). The details of these investments and the number of permitted enterprises – about 1,744 companies – are given in Tables 3.2 and 3.3.

Domestic private investment also rose dramatically. As of March 2019, DICA information (see Table 3.3) shows that in the previous year, around 1,220 Myanmar companies invested about $8.9 billion, with the biggest portfolios in real estate, manufacturing, transportation and communications, hotel, construction, power and mining, and livestock and fisheries.

DICA also reported that over the year to March 2019 about thirty new government projects were listed as major investments in three main sectors: power development, industry and city development, and transportation. Under transportation, five seaports will be developed: Kachin, Mandlaya, Magway, and two in Chin State, which will all be completed by 2021. In addition, two airports will be constructed in Rakhine State. Two railway projects will be upgraded and constructed. In terms of industrial and city development, a new city development is underway in Yangon and Mandalay, as well as new cement factories, integrated refinery and petrochemical complex, and an industrial waste water project. Five new power-generation projects involving solar energy, hydropower and wind energy are to be developed.

The growth of these sectors means that demand for new skills related to manufacturing, agro-processing, sales, technology and maritime will increase dramatically as the economy picks up new steam.

Table 3.2. ***Foreign direct investment of permitted enterprises as at 31 March 2019***

Investment Category	Number Enterprises	Approved Amount (in US $ Million)	Percent of Total
Oil and gas	154	22,421	28.4
Power	20	21,113	26.7
Manufacturing	996	10,553	13.4
Transport and communications	58	9,935	12.6
Real Estate	54	5,310	6.7
Hotel and tourism	77	3,043	3.8
Mining	71	2,905	3.7
Livestock and fisheries	57	633	0.8
Agriculture	31	406	0.5
Industrial estate	6	272	0.3
Construction	2	38	0.1
Other services	115	2,363	2.9
Enterprises under Foreign Investment Law (FIL), total	1,641	78,991	100.0
Enterprises under Special Economic Zone (SEZ) Law, total	103	1,589	1.9
Grand Total	**1,744**	**80,581**	

Source: Directorate of Investment and Company Administration (DICA), Myanmar (2019)[2]

2 https://www.dica.gov.mm/en/topic/myanmar-citizen-investment-sector

Table 3.3. ***Myanmar domestic investment of existing enterprises, March 2019***

Investment Category	Number of Enterprises	Amount of Investment (in US $ Million)	Percent of Total
Real estate development	75	1,189	24.5
Manufacturing	602	2,329	16.6
Transport and communications	44	2,016	14.8
Hotel and tourism	155	599	10.4
Industrial estate	10	82	5.2
Construction	56	349	5.2
Power	18	323	3.0
Mining	54	115	1.2
Livestock and fisheries	72	137	0.9
Agriculture	10	51	0.3
Others	124	1,693	17.9
Total	**1,220**	**8,885**	**100.0**

Source: Directorate of Investment and Company Administration (DICA), Myanmar (2019).

3.6. Conclusion

The projected growth in jobs and thus demand for new skills will intensify. It is clear that new kinds of jobs are being created as a result of the new drivers of growth, particularly in the energy sector, construction sector, manufacturing, tourism and ICT. The levels of FDI and domestic investment are now at an all-time high, and it is likely that the competition for skilled workers will increase. Myanmar's ability to improve the matching of demand and supply of labour would be enhanced through the use of new technology. As proposed in this study, the use of big data and artificial intelligence in matching demand and supply for labour and skills could complement existing methods. Myanmar's new jobsites, the near-universal use of mobile phones and high penetration of the internet can make these possible.

Chapter 4. General overview of the education system

This section provides an overview of the education system in Myanmar. It presents the overall structure of the education system, and reviews key indicators related to system performance.

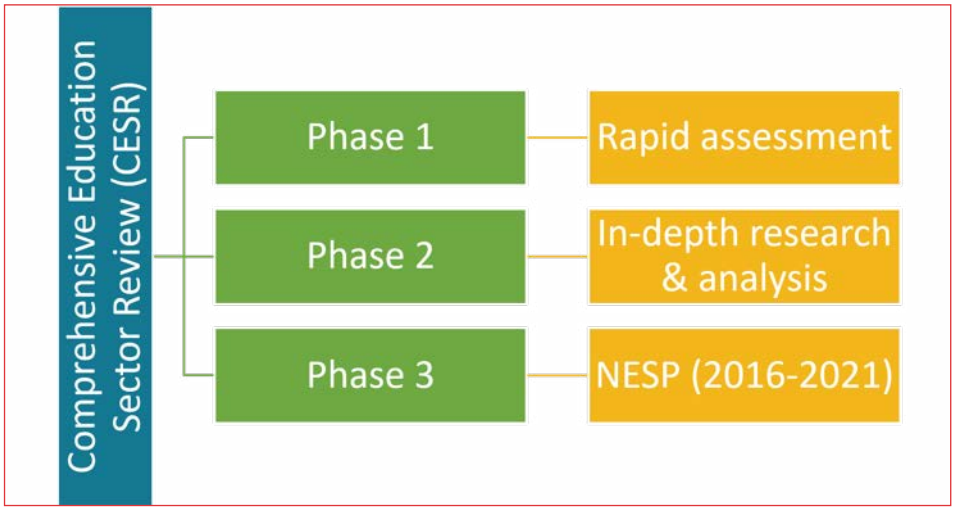
4.1. Recent reform of the national education system

The Government of Myanmar has made enormous efforts to improve access to quality education for all citizens after the civilian government took over the governing of the country in 2011. In 2014 the National Education Law (NEL) was approved by the Parliament, and the NEL amendment was established in 2015.

A Comprehensive Education Sector Review (CESR) was conducted by MoE with the support of relevant ministries and development partners including UNESCO, ADB, the World Bank and the Japan International Cooperation Agency (JICA). The CESR was launched in 2012 and developed through a series of consultation meetings with all stakeholders including parents, teachers, the private sector, ethnic groups, religious organizations, civil society organizations, local and international non-government organizations (NGOs) over three and a half years in three phases.

The three phases of CESR can be seen in Figure 4.1. Phase 3 of CESR developed a *National Education Strategic Plan (NESP 2016–21)* (MoE, 2016), which is a comprehensive, widely owned and evidence-based roadmap intended to reform the entire education sector over the five years from 2016 to 2021.

Figure 4.1. ***Review of Myanmar's current education system***



MoE published *Annual Performance Review Reports* for 2016–17 and 2017–18 which provide a comprehensive overall review of what it has achieved towards the NESP. They indicated that it is making good progress towards the achieving the NESP goals of establishing an accessible, equitable and quality national education system which helps all the students and learners to discover their talents, realize their full potential and develop a passion for learning that lasts them throughout their lives.

4.2. Education and key policy documents

4.2.1 National Education Law

The National Education Law[3] and its subsector laws, such as the Private Education Law and TVET Law, regulate the education system in Myanmar. The National Education Law guides the implementation of a national education system which includes formal, non-formal and personal education.

Formal education refers to a system of school-based education which designates learners' age, period of study, location, grade, a system of evaluation and a specific curriculum. The formal education is divided into basic education, TVET and higher (tertiary) education. Basic education is further divided into preschool, primary, middle and high school education.

Non-formal education refers to education conducted outside the formal school system, based on a curriculum for upgrading learners' education, and which organizes and instructs learners through flexible methods. Personal education is defined as education that individuals establish and pursue for themselves based on personal needs and interests.

National Education Policy Commission needs to be formed to guide the implementation of national education objectives and guidelines. The chairperson of National Education Policy Commission must be appointed by the government, with the approval of the Parliament. Members can be from MoE, other relevant ministries and scholars from the ethnic groups.

4.2.2 National Education Strategic Plan (NESP)

NESP (2016–2021) was the first national policy instrument to provide a five-year plan for education reform in Myanmar. This strategic plan was developed by MoE and other relevant ministries with the engagement of a wide range of stakeholders, including the private sector, civil society organizations and international development partners. This instrument was rooted in Phase 3 of CESR.

The NESP outlines nine transformation shifts, which are high-level vision statements that describe a desired state of the particular part of the education sector in 2021. These shifts cover all education sectors including preschool and kindergarten education, basic education, TVET, higher education and alternative education (which provides learners with access to quality-assured, certified and nationally credentialled alternative education programmes to achieve their learning and career aspirations). The relevant departments under MoE are responsible for implementing a series of complementary strategies and programmes in a well-coordinated manner across all subsectors.

The basic education sector has two transformation shifts: first, ensuring that all children have access to, progress through and successfully complete quality basic education; and second, upgrading the basic education curriculum so that all school children develop knowledge, skills, attitudes and competencies that are relevant to their lives and to the socio-economic development needs of twenty-first-century Myanmar.

The TVET sector has the transformation shift of 'More learners can access TVET and graduate from quality-assured and labour market-responsive TVET programmes under a more effective TVET management system' (MoE, 2016, p. 22) There are three or four strategies under each transformation shift, and the strategies for the TVET sector are listed in Table 4.1.

3 National Education Law, 2014, www.moe.gov.mm/en/?q=law

Table 4.1. ***Strategies for the TVET sector***

TVET transformation shift	**More learners can access TVET and graduate from quality-assured and labour market-responsive TVET programmes under a more effective TVET management system.**
Strategy 1 **Strategy 2** **Strategy 3**	**Expanding access to TVET for various target groups including disadvantaged populations and people with disabilities** **Strengthening the quality and relevance of TVET** **Strengthening TVET management**

4.3. Education and the Myanmar Sustainable Development Plan (MSDP)

The Government of Myanmar developed the Myanmar Sustainable Development Plan (MSDP) 2018–2030 (Ministry of Planning and Finance, 2018) based on the existing strategic documents, sectoral, ministerial and subnational plans, policies and priorities. The MSDP provides an overall framework for coordination and cooperation across all ministries, and all states and regions, to forge a common path towards the emergence of a prosperous, peaceful and democratic Myanmar. In addition, the MSDP action plans are aligned with the Sustainable Development Goals (SDGs).

Of particular interest for education is Strategy 4.1 under Goal 4: 'Human resources and social development for a 21st-century society'. This strategy is to 'Improve equitable access to high quality lifelong educational opportunities'. It includes ten action plans, each of which gives guidelines to the line ministries, including MoE, to expand access to education and develop a twenty-first-century curriculum that aligns with the existing and emerging economy.

This aligns with the TVET transformation shift under NESP: 'More learners can access TVET and graduate from quality-assured and labour market-responsive TVET programmes under a more effective TVET management system'. DTVET under MoE has been making the progress towards the goals of NESP and MSDP.

4.4. Education structure

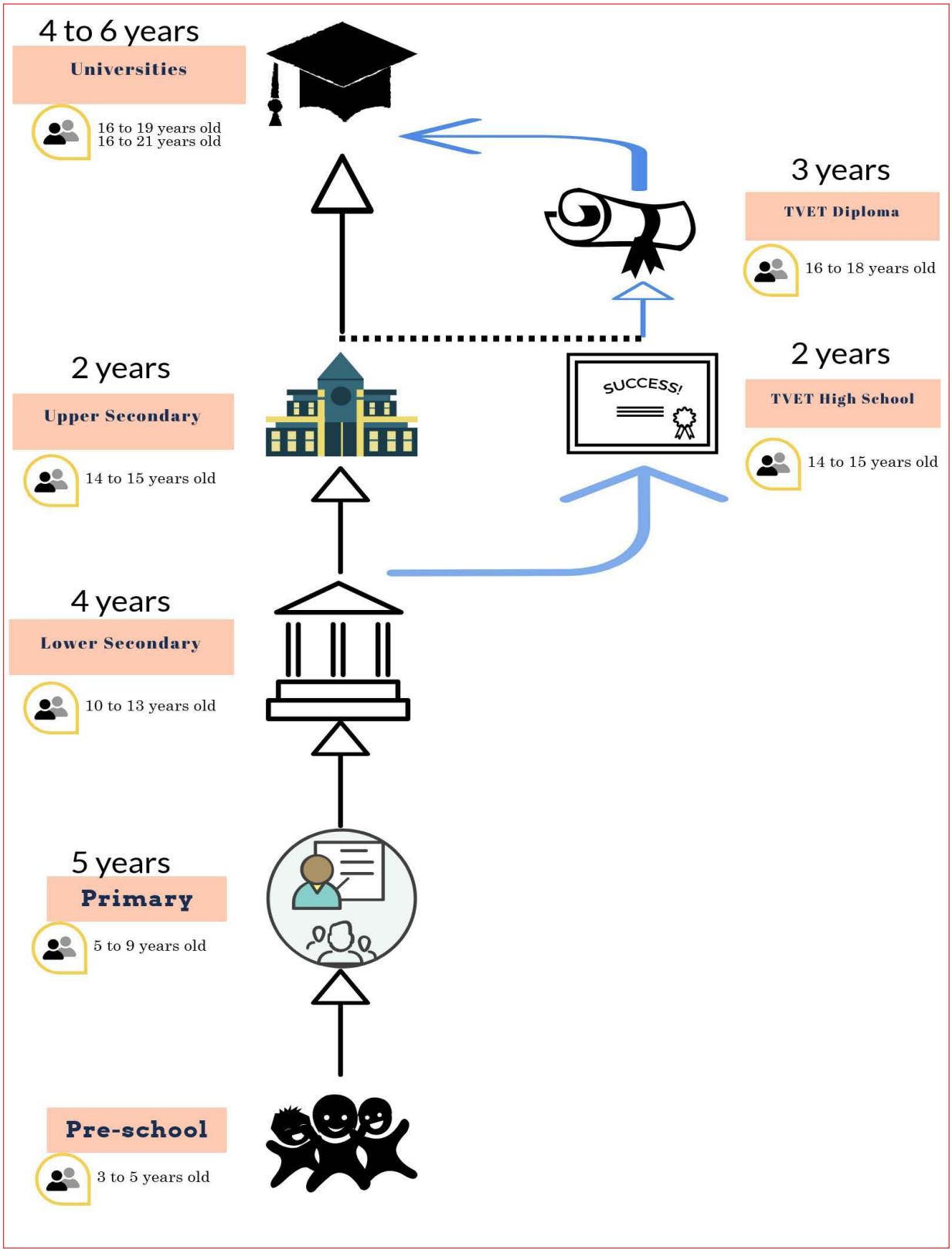
The Myanmar education system is currently undergoing explicit reform. In the existing system (see Figure 4.2), preschool is offered from ages 3 to 5, then primary schooling including Kindergarten starts at the age of 5. After five years in primary school, children move on to four years of lower secondary school, followed by two years of upper secondary school, for students aged from around 14 to 15 or 16.

Upon completing middle school (lower secondary), students can choose TVET high schools. However, currently there is only one type of TVET high school in Myanmar. These are the government technical high schools (GTHSs) under MoE.

At the moment, there are only thirty-five GTHSs, and these schools offer only engineering-related courses. As a result only a very small percentage of students choose to go to GTHSs. For instance, there were only 7,350 GTHS students in the 2017/18 academic year compared with 1,049,444 students in general high schools. TVET high schools and the diploma programme are described in detail in Chapter 5.

At the end of high school, students sit a national examination known as the Matriculation Examination, in March each year. Entrance to tertiary education and the TVET diploma programme is mainly decided by the combined merits obtained in the Matriculation Exam.

Figure 4.2. ***Myanmar's education system (existing system)***

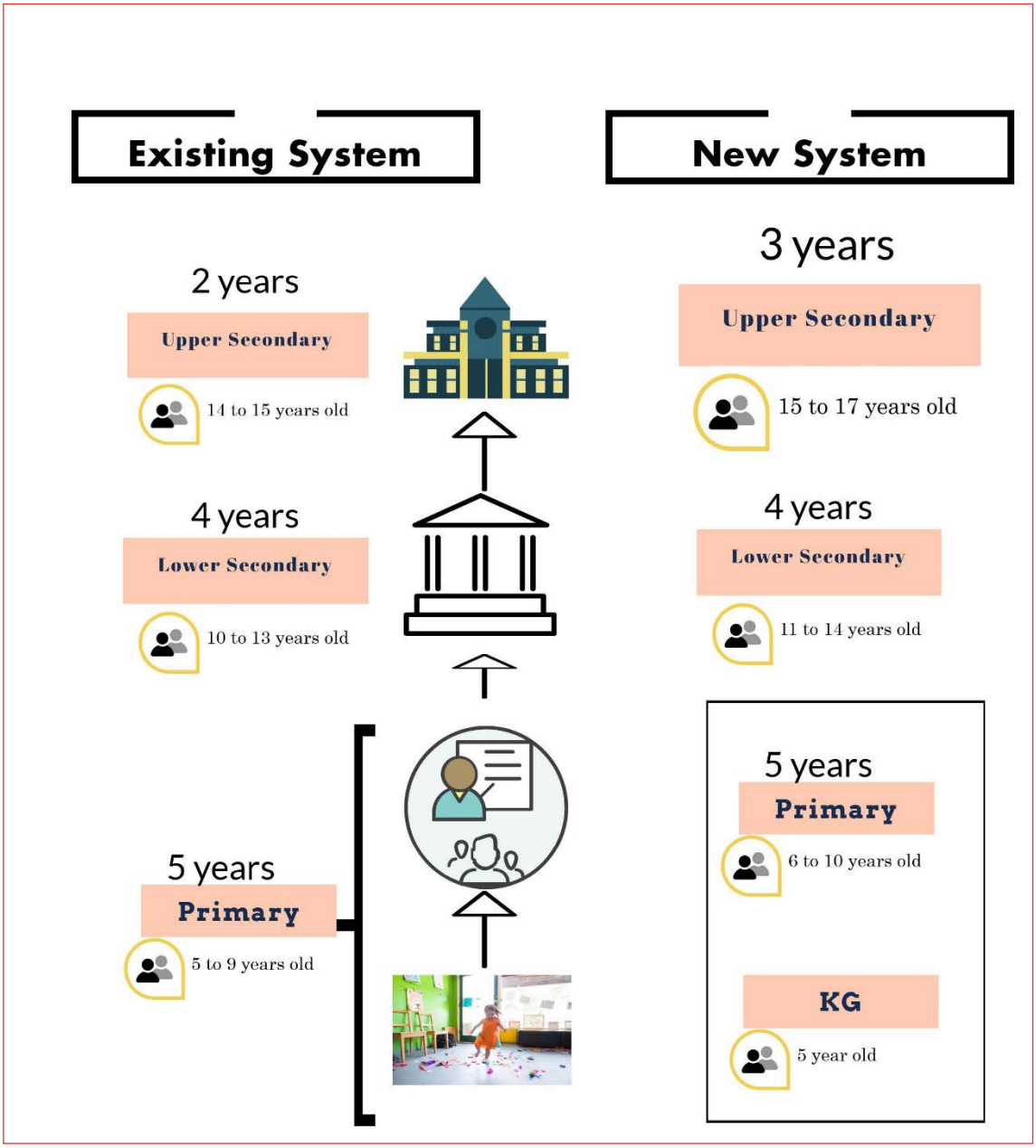


4.4.1 Basic (general) education

The current basic education system in Myanmar consists of five years of primary education, four years of lower secondary education, and two years of upper secondary education. Basic education in Myanmar is free, and primary education is compulsory for all children.

The existing 5 + 4 + 2 system is under transition to the new KG + 12 (KG + 5 + 4 + 3) system. The new system of KG + 12 was first introduced in 2016, and the system is being replaced phase by phase. The new system will be fully in place for the academic year 2022/23. Figure 4.3 compares the old existing system and the new system that is being introduced.

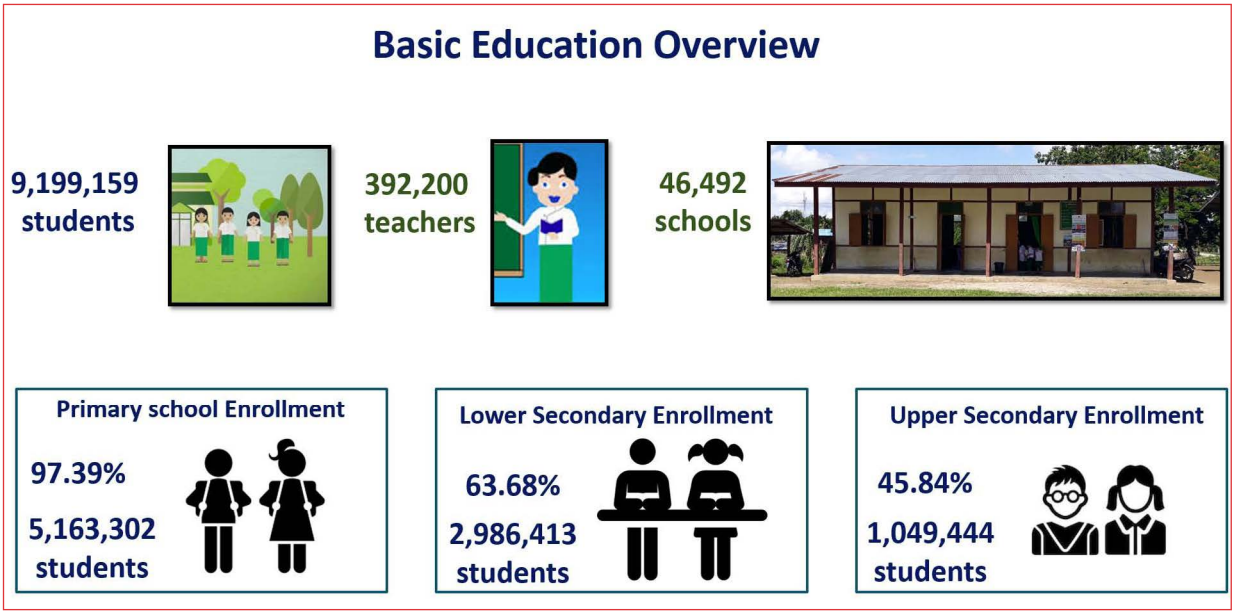
Figure 4.3. ***Comparison between the old and new systems***



In the new KG + 12 System, Kindergarten at the age of 5 is not compulsory, but primary education starting at age 6 is compulsory for all citizens. NEL indicates that compulsory education should be further extended to lower and upper secondary.

There are currently 46,492 basic education schools in Myanmar reaching approximately 9.2 million students, according to the data provided by MoE in the Annual Performance Review Report 2017–18. The number of schools, teachers and students in basic education under MoE for the 2017/18 academic year can be seen in Figure 4.4. These schools are managed by the Department of Basic Education within MoE.

Figure 4.4. ***Overview of basic education***



Source: MoE, Annual Performance Review Report 2017–18.

In addition, a significant percentage of students access basic education through monastic, private, community and other types of school. As of March 2018, there were 730 private schools (585 high schools, 66 middle schools and 79 primary schools) providing basic (general) education to 97,741 high school students, 36,970 middle school students and 44,472 primary students (source: MoE).

The net enrolment rates steadily increased from 2007/08 to 2017/18. The net enrolment rate in primary education increased steadily from 83.63 per cent in 2007/08 to 97.39 per cent in 2017/18. Similarly, the net enrolment rate for lower secondary education increased from 45.07 per cent to 63.68 per cent between 2007/08 and 2017/18. However, a different pattern can be observed at the upper secondary level: there was a decrease of 7 per cent from 30.60 per cent in 2007/08 to 23.13 per cent in 2012/13, and then a gradual rise to 45.84 per cent in 2017/18. The age range for calculating the net enrolment rate will be changed when the new system is completely replaced in the academic year 2022/23, and accordingly the gross and net enrolment rates will change.

The student–teacher ratio has also been improved, with some fluctuations over the 10 years to 2018, from 1:29 to 1:20 at the primary school level, 1: 36 to 1:29 at the secondary school level and 1:28 to 1:24 at the upper secondary level.

4.4.2 TVET within the education system

Entry to TVET may occur upon completion of lower secondary education, and entry to higher-level TVET may occur upon completion of upper secondary education (see Figure 4.2).

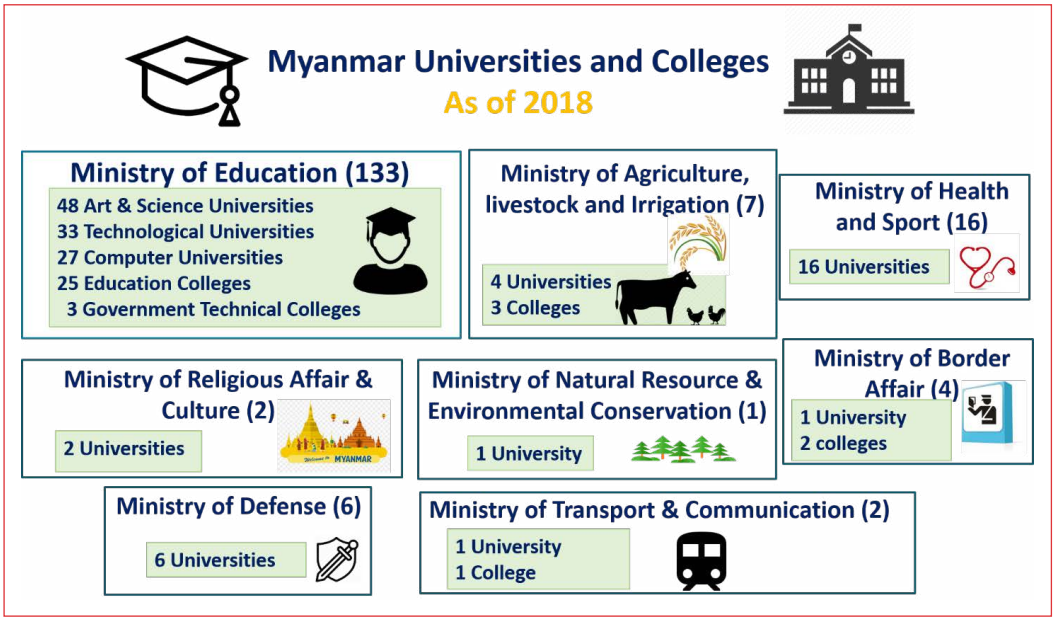
MoE is the largest of the public TVET providers in formal TVET education. It manages a national network of GTIs, GTHSs and vocational schools offering diplomas, technical high school qualifications and short courses. Other ministries, together with an increasing number of private-sector providers, also conduct TVET programmes, but these are more likely to focus on short-term training skills related to areas of specialist technical need.

The number of students enrolled in TVET is very small compared with the students in basic education. Chapter 5 gives details of the Myanmar TVET system.

4.4.3 Higher education

In the higher education sector, in March 2018 there were 173 public universities, colleges and institutes under eight different ministries. All these universities, colleges and institutes are state-financed and offer a variety of programmes at undergraduate, postgraduate diploma, master's degree and doctorate levels. Figure 4.5 summarizes the number of universities and colleges under different ministries.

Figure 4.5. ***Universities under different line ministries***



Note: most universities are specialized under the different ministries

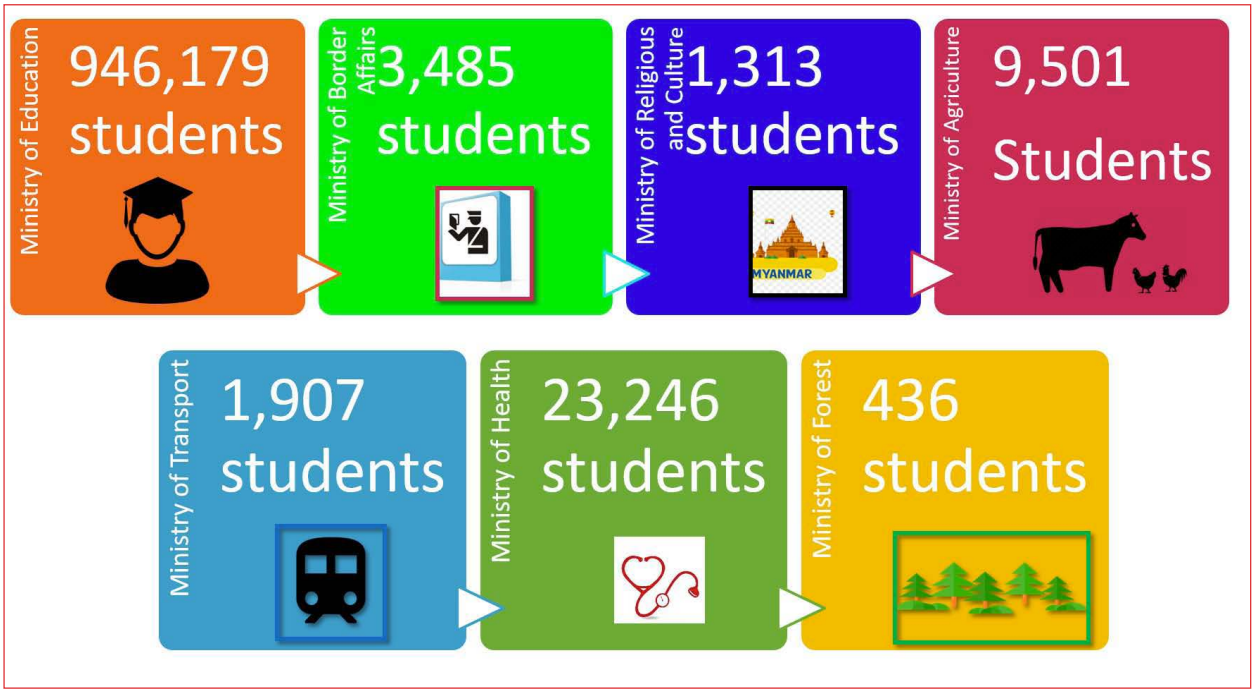
Most of the universities are highly specialized, for example in economics, teacher education, foreign languages, engineering, computer studies, maritime studies, agriculture, forestry, medicine, nursing and veterinary science, and run by the relevant ministries: for instance, medical universities are managed by the Ministry of Health, and agriculture and livestock-related universities are run by the Ministry of Agriculture, Livestock and Irrigation (MoALI).

Similarly, the Ministry of Natural Resource and Environmental Conversation manages the Forest University and the Ministry of Defense manages military training universities such as the Defense Service Academy (DSA), Defense Services Technological Academy (DSTA) and Defense Services Medical Academy. MoE is the only ministry that oversees a large range of universities: specialized universities such as engineering and computer universities, education colleges that offer teaching training for basic education teachers, and art and science universities that offer a range of art and science degree in physics, chemistry, zoology and so on.

Access to universities is mainly decided by the accumulated marks obtained in the Matriculation Examinations. Graduates from TVET high schools do not have access to these universities unless they repeat Grade 10 in general high schools and retake the Matriculation Examination.

In general, students with higher education accumulated marks go to the medical or engineering universities. As a result, access to these universities is very limited and competitive owing to the limited space available in the universities and high interest. For instance, as can be seen in Figure 4.6, only 23,246 students are accepted for all sixteen medical universities, including nursing and traditional medicine under the Ministry of Health and Sport.

Figure 4.6. ***Number of students enrolled into universities under different ministries, academic year 2017/18***



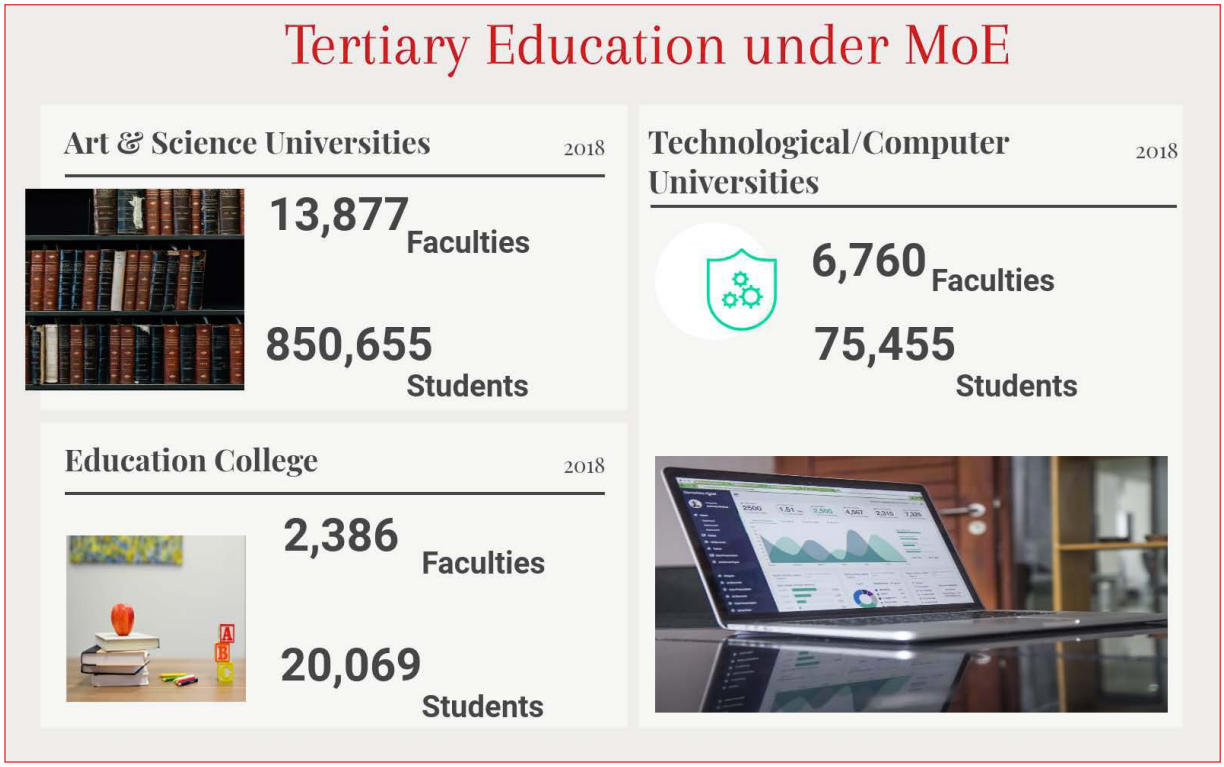
Source: Department of Higher Education, MoE.

The students who have obtained lower Matriculation Examination marks and who cannot afford private education typically choose a university of distance education (UDE) under MoE. The UDE programme offers a range of art and science degrees at minimum cost, and students can study through the state-owned media without having to leave their homes and jobs.[4] The students have to come to the universities only for the practical classes and intensive short training before the year-end final examination.

From Figure 4.6 it can be observed that the MoE is the leading ministry, and its 135 universities, colleges and institutes account for the biggest percentage (about 96 per cent) of enrolment in tertiary education. (There is no data available for Ministry of Defense.) Figure 4.7 gives a further breakdown on the enrolment of students into the universities under MoE.

4 According to Dr Tin Maung Hla, rector, Yangon University of Distance Education.

Figure 4.7. ***Statistics for universities under MoE***



Source: MoE, Annual Performance Report 2017–18.

4.5. Conclusion

The Government of Myanmar is actively reforming the national education system with a view to adapting it to meet the lifelong learning and career aspirations of the students, new development challenges of the country and international trends. NESP set key directions for the government, education stakeholders and citizens, with a 'roadmap' for sector-wide education reforms and expected targets over five years.

At the moment, the education system is still facing some challenges and going through the major transformation. The basic education system is being transformed into the KG + 12 system, and a new curriculum featuring twenty-first-century skills is being developed. The existing system is being replaced by the new development phase by phase.

Significant achievements of the major education reforms until now include an increase in the budget for education, the increase of net enrolment rate in basic education and the launching of new schools, teaching the ethnic languages in basic education schools, recruiting new teachers and upgrading the teacher qualification. With the new KG + 12 system introduced in the 2016/17 academic year, the net enrolment rate for primary education increased to 97.39 per cent.

Given that effective reforms take time to be successfully accomplished, many challenges including teachers' salaries, the size of higher education and post-secondary TVET institutes, the level of qualifications and the learning pathways for TVET learners are yet to be addressed. The universities and institutes under higher education and TVET education are limited, and with the increased enrolment and completion rate in basic education, the size of these institutes needs to be increased. In addition, new TVET programmes need to be launched in these institutes in order to meet the higher expectations of the today's learners and to align with the economic development of Myanmar.

The next chapter focuses specifically on TVET in Myanmar, considering governance, access, equity, quality and relevance to industry, and its recent development and challenges in meeting the lifelong learning and career aspirations from students, and changing labour demand from economic development and international trends.

Chapter 5. TVET systems

This section provides a review of the current state of TVET in Myanmar.

5.1. TVET in the Myanmar education system

The Government of Myanmar provides formal TVET at upper secondary and post-secondary levels as a part of the national education system. The upper-secondary TVET is offered as a two-year programme in GTHSs under MoE. Post-secondary-level TVET takes place in specialized training institutes under MoE and MoALI.

The formal TVET programme enables learners to progress to higher-level TVET qualifications, but access to higher-level TVET is limited. In addition, it is difficult for learners, once on a TVET pathway, to move across to the academic pathways.

Non-formal TVET programmes are offered by thirteen different line ministries such as MoLIP, MoE, MoALI and private providers. There are no articulated learning pathways for these non-formal programmes at the moment.

5.2. Overall governance of TVET

At present, like other education sectors, TVET is governed by the National Education Law (NEL) 2014 and NEL amendment 2015, and the reform in the TVET system is guided by the *NESP (2016–21).*

5.2.1 TVET Law

The first TVET Law was drafted in 2014, and outlines the formation of a TVET Committee with thirty members, chaired by the minister of education and with members from relevant ministries, private industries and TVET experts. This committee will be the highest policy-making body for TVET, and its role and responsibilities include, but are not limited to, setting TVET policies, planning qualifications, accreditation and regulating both government and TVET providers.5

The law (in draft) is now under the review of the Union Attorney General Office (UAGO) and DTVET is assisting UAGO to refine the draft. Once the UAGO agrees it, the law has to be submitted for approval in the Parliament.

5.2.2 Employment and Skills Development Law

The Employment and Skills Development Law[6] (ESDL) was established in 2013 by the Government of Myanmar. This law regulates in-service training for those already in employment and pre-service training for those who are seeking employment.

One of the Clause under the Law mentioned about establishing a workers' skill development fund for upgrading the occupational skills. This is to ensure sustainable funding of demand-oriented training by industry. According to the ESDL, industrial and service enterprises are expected to pay a minimum of 0.5 per cent of the total wages or salaries of all workers (supervisors and below) to the fund on a monthly basis.

However, enterprises in sectors such as garment-making have stated that meeting the law has been a challenge for them, as 80 per cent of the workforce are below supervisory level. As a result, this law, especially the clause on the amount of the development fund, is being discussed and there is a high potential for amendment on the amount or giving exemptions to labour-intensive industries such as garment-making.[7]

5 Information from DTVET.

6 see www.mol.gov.mm/en/wp-content/uploads/2016/10/ESD-Law-Eng.pdf

7 Source: Dr Khin Mar Aye, director, NSSA.

5.2.3 National Qualifications Framework (NQF)

Recently a draft NQF has been revised and discussed among key stakeholders in Myanmar. The NQF for Myanmar Education is a working document, and the proposed NQF covers all subsectors of education: higher, basic and TVET. The unpublished version of the Myanmar NQF, MNQF-2016 can be seen in Table 5.1.

Table 5.1. ***Myanmar's National Qualification Framework (Draft)***

Level	Level Label	Qualification	TVET
8	Tertiary Education	Doctoral Degree	
7		Master's Degree	
6		Bachelor's Degree	
5		Diploma, Advanced Diploma (not more than 2 Years for High-Level Skills)	
4	Post Secondary Non-Tertiary Education	Certificate (Not more than 1 Year for Skills)	
3	Secondary Education and TVET	High School Completion Certificate (Skills)	Vocational 3
			Vocational 2
			Vocational 1
2	Secondary Education	Secondary School Completion Certificate	
1	Primary Education	Primary School Completion Certificate	

Source: Department of Higher Education, MoE.

- The students who complete Level 3 can directly join the Level 6 or Level 5 or they can choose to join Level 4, followed by Level 5 or Level 6.
- The students who complete the primary education but do not complete the middle schools (lower secondary) have access to the Non-formal middle school education (NFMSE) and Level 2 TVET training.
- The students who complete the middle school education have access to both high school (upper secondary) and Level 3 TVET training.
- The students who do not complete the primary education have access to the basic literacy program and Level 1 (basic) TVET training.

The Myanmar NQF provides descriptions of each education level, but the pathways for both vocational and academic qualifications and the relationships between these qualifications are not yet mentioned. The better linkage between the vocational and technical skills certificates at Levels 1–4 in the NQF and the National Skill Standard Authority (NSSA) is under discussion between NAQAC and NSSA. The Myanmar NQF is a developing tool and evolving at the moment.

5.2.4 National Skill Standards

NSSA was first set up under MoLIP in 2007 to provide standards in terms of level of qualification and expected learner skill set on completion of training. NSSA was chaired by the deputy minister of MoLIP, and the members included the directors-general from relevant ministries such as the Ministry of Science and Technology (now MoE), Ministry of Industry (MoI), MoALI, and the private sector.

After the ESD Law is established, NSSA became an independent body that develops skill standards, assessment and certification for skilled labor. There are 15 sectorial committees (Metal and Engineering Industry, Construction, Woodworking Industry, Agricultural, Livestock and Fishery , Transport Industry, Mining Industry, Information Technology, Health services, Social Welfare Services, Manufacturing industry, Commercial and Business services, Hotel and Tourism, Oil and Natural Gas, Electrical Engineering) that includes the experts from both private and public organizations: companies, associations and relevant Ministries. NSSA has so far developed the 4 level national competency framework, known as NSSA Level 1 to 4. As of March 2019, NSSA has prepared 173 competency standard, mainly for Level 1 and 2, in selected occupational areas, such as Engineering, Hospitality and Tourism. (Source: NSSA).[8]

NSSA was established in 2007, with representatives of various stakeholders (government ministries and private organizations) as part of the ASEAN Skills Recognition Project within ASEAN countries towards the implementation of the ASEAN Economic Community (AEC). Since then, MoLIP has been acting as a focal ministry to further strengthen NSSA with the aim to establish a National Unified Skills Development, Recognition and Certification System as a provision for skilled labour movement within ASEAN, principally revolving around mutual recognition of skills (MRS).

As a regulatory body stipulated in ESDL, NSSA was formed with four main committees: an Assessment and Certification Committee (ACC) chaired by Ministry of Industry, a Training Committee chaired by DTVET/MoE, and a Competency Development Sectorial Committee with fifteen subcommittees chaired by appropriate ministry and private sector representatives.

NSSA focuses on four qualification levels (semi-skilled worker, Level 1; skilled worker, Level 2; advanced skilled worker, Level 3; supervisor/technician, Level 4) with reference to the Myanmar NQF. It offers services with the following priorities: (i) introducing recognition of prior learning (RPL)-based relevant approaches and methods in occupational skills assessment and certification for Myanmar workers; (ii) promoting National Occupational Competency Standards (NOCS) in demanded trade areas according to the four qualification levels; (iii) strengthening NSSA committees for their effective contribution to the skills development in collaboration with the private sector; (iv) enhancing the quality and quantity of NOCS-based skills assessment and training, considering social and ethical standards, safety and health standards in the workplace.

In recent years, skills development has also played an ever-increasing role in the labour market in Myanmar, and promoting a skills recognition system is thus vital to help address various labour market challenges and bring substantial benefits, such as better job matching and improved employee performance. NSSA has therefore piloted a Skills Recognition programme in 2014 with the support of the German development agency GIZ's TVET programme, and introduced appropriate approaches and methods as workforce development tools. As of January 2019, over 10,000 NSSA certifications, mainly at Levels 1 and 2 for those who are in the workforce and have acquired their occupational skills through experience and learning on the job, have been awarded in over thirty occupational areas. As of December 2018, there were ninety-two accredited assessment centres in the regions and states for RPL skills assessment. These are accredited by the Assessment and Certification Committee (ACC) and approved by NSSA.

Moreover, NSSA has recently established and implemented a Quality Management System (QMS), and ISO 9001:2015 certification was awarded in February 2019. Along with this QMS, NSSA is currently facing challenges to increase NOCS-based short-term reskilling training as well as RPL-based assessment for workers in selected priority occupations, and a continuous quality improvement of its services through collaboration with industries and employers. Various development partners such as GIZ, SwissContact, JICA, ADB and Lux Development Agency, and the Aung Muint Mhu programme funded by Lift have been supporting the institutional development of NSSA and its services for better fulfilling its role as regulatory body for skilled workforce development as envisaged in the 2013 ESDL.

8 Source: NSSA documents.

5.3. TVET providers and programmes

In Myanmar, TVET is provided by relevant departments under thirteen line ministries and private organizations (Figure 5.1).

5.3.1 TVET provision under line ministries

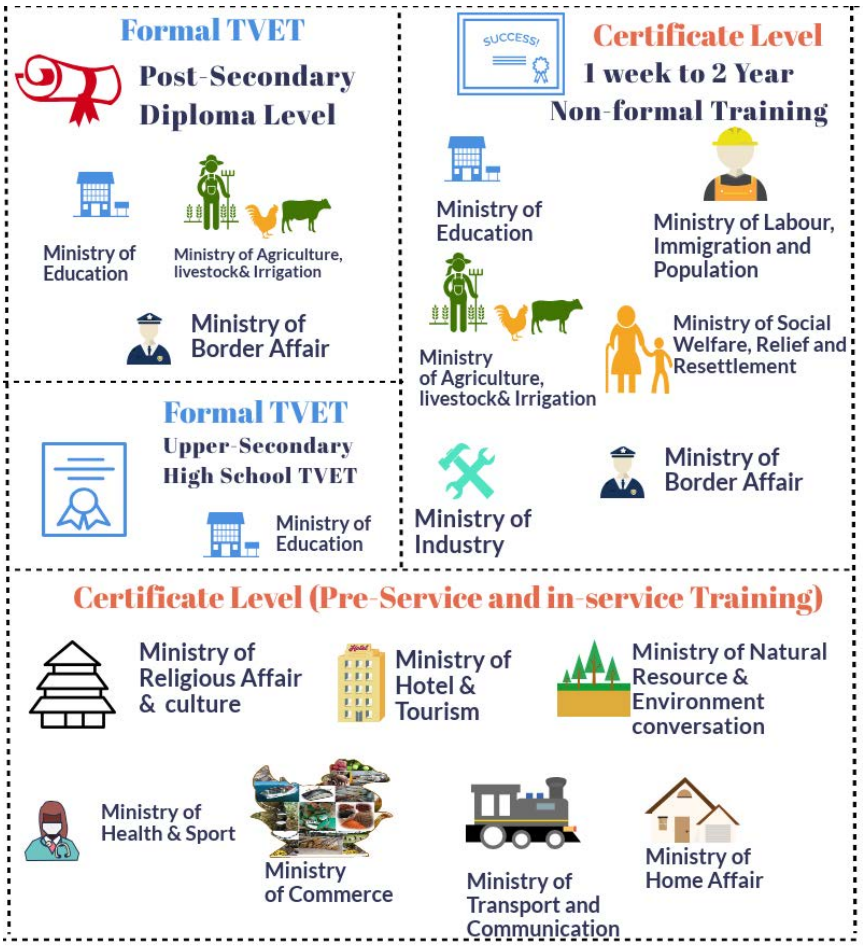
The Ministries providing TVET in terms of both formal and non-formal training, include Ministry of Education, Ministry of Agriculture, Livestock and Irrigation, Ministry of Labor, Immigration and Population, Ministry of Industry, Ministry of Border Affairs and Ministry of Social Welfare, Relief and Resettlement.

The two leading Ministries that provide the TVET in terms of both formal as an institution-based training and non-formal training are the Ministry of Education and Ministry of Agriculture, Livestock and Irrigation (MoALI). The Ministry of Education offers both post-secondary level diploma programme in Government Technical Institutes (GTI) and upper secondary TVET in Technical high schools. The MoALI offers post-secondary level diploma TVET in Agriculture. Please note that GTI Programs provided by the Ministry of Education are also offered in the Institutes under the Ministry of Border Affairs.

Six Ministries including Education, Industry, Labor and Agriculture also offer non-formal TVET training for the different target group of youths and workers. For instance, MoALI, MoI, MoLIP offers the non-formal training for the pre-employment and upgrading the skills of labour. The Ministry of social welfare offers the TVET training for vulnerable youths and adults whereas the Ministry of Border affairs focus on the ethnic minority groups and women. The duration of the training programme can vary from 1 week to 2 year.

Other 7 ministries including the Ministry of Health and Sport, Ministry of Hotel and Tourism, provide in-service and pre-service training for their staff. Figure 8 summarizes the line Ministries and the number of schools and the types of the TVET programme that these Ministries are offering.

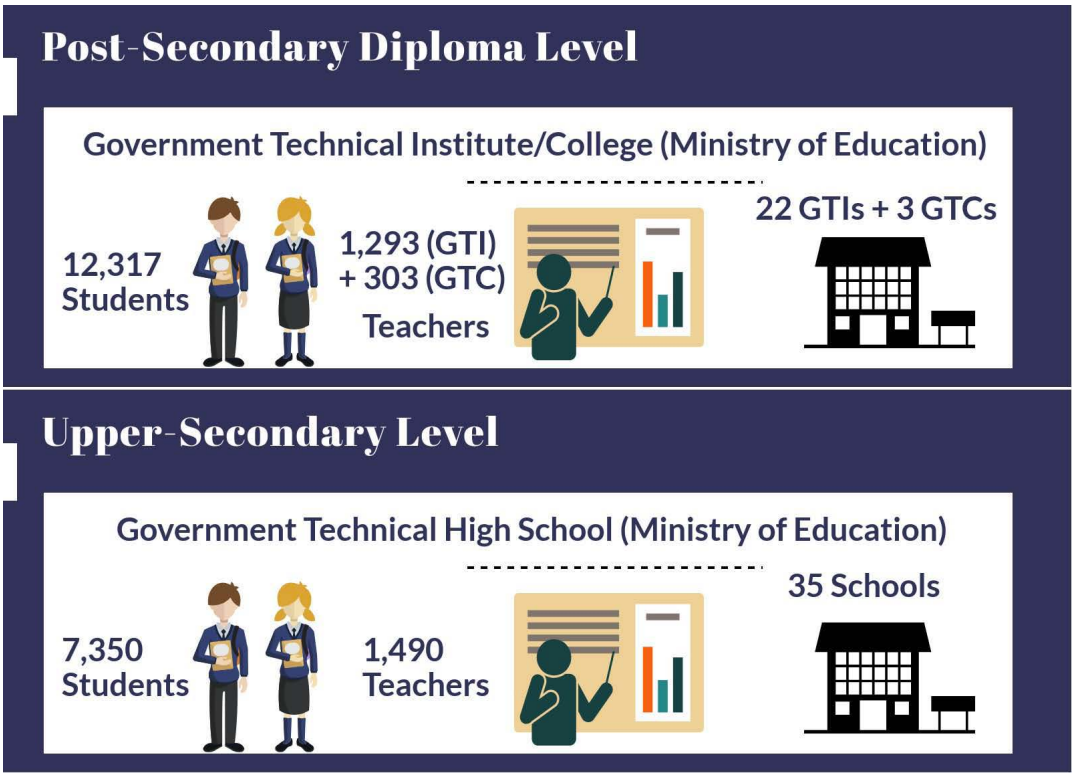
Figure 5.1. ***Line ministries and the types of TVET programme they offer***



5.3.2. TVET provision under Ministry of Education

Under MoE, DTVET is the responsible department for TVET. As of March 2018, DTVET is providing TVET under the formal programme in thirty-five Government technical high schools (at upper secondary level) and twenty-two GTIs and three government technological colleges (GTCs) for the post-secondary diploma level. Details of schools and students in formal TVET programmes under MoE are shown in Figure 5.2.

Figure 5.2. ***Formal TVET schools under MoE: the numbers are for academic year 2017–18***



Source: DEVET, MoE

There is a heavy focus on engineering-related courses in formal TVET under MoE. The courses offered at these formal TVET schools mainly focus on the engineering-related field as can be seen in Figures 5.3 and 5.4, but the department is now in the process of expanding to other courses such as hospitality and services.

The limited choices of courses, the poor learning pathway and the lower perception of TVET than other forms of education in Myanmar have led to these TVET schools, especially at upper secondary level, being perceived as inferior to other formal learning pathways such as basic education. This has hindered the participation of female students in TVET because female students, in general, perform better in the academic environment at basic education.

Figure 5.3 gives the total number of students (female and male) learning in different engineering courses offered at GTHSs. Though the number of students in some of the courses is very small, it does not really indicate the demand from students, but because some of the courses are only offered in selected schools owing to the limited capacity of the institutes. For instance, though building technology, electronics, electrical, auto mechanics and machining are offered in all thirty-five GTHS schools, metal processing (MPT) is offered only in one school ,whereas the refrigeration and air-conditioning course is offered in four schools and IT courses are only offered in seven schools.

Figure 5.3. ***Number of students on different courses at GTHSs for academic year 2017/18***

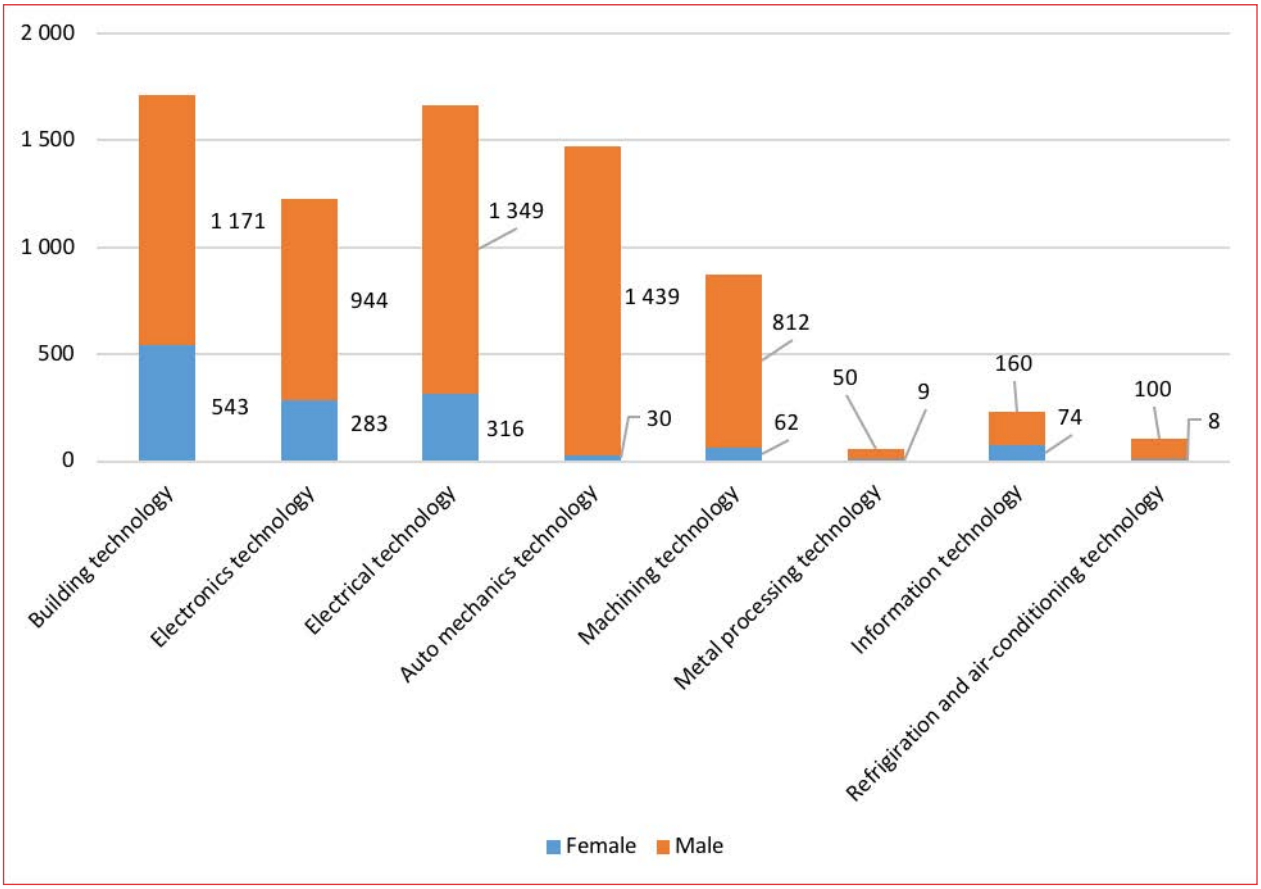
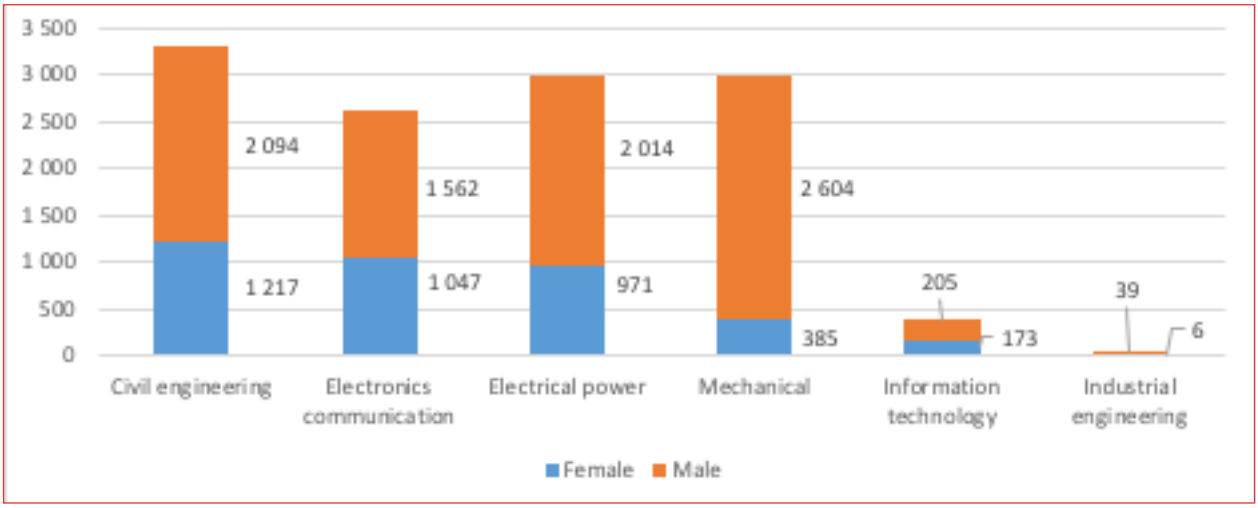


Figure 5.4. ***Number of students on different courses in GTIs and GTCs for academic year 2017/18***



Source: DEVET, MoE

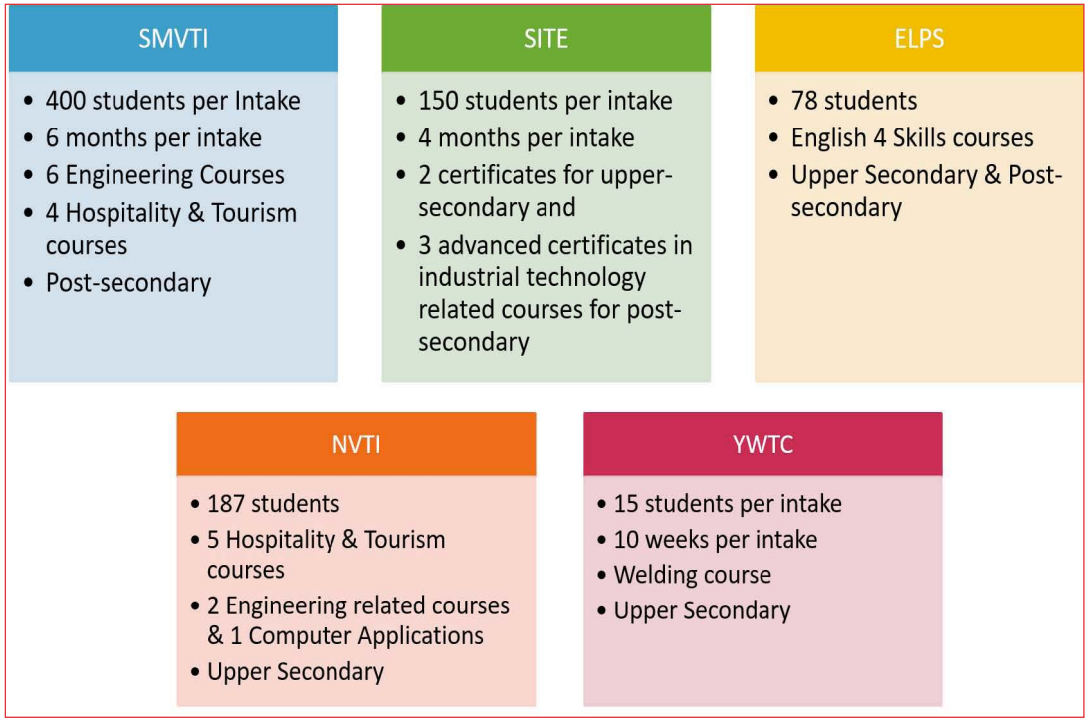
Similarly, for GTIs and GTCs (refer to Figure 5.4), although courses such as civil, electronic, electrical and mechanical engineering are offered in all GTIs and GTCs, the IT course is only offered in eight GTIs and industrial engineering is offered in only two. As a result, the numbers of students for IT and industrial engineering are low compared with other courses.

TVET specialized courses in both engineering and other fields such as hospitality and tourism are offered in five specialized vocational institutes. DTVET also provides competency-based short course training to young

people and adults who are looking for jobs. Under this programme, there are five training institutes: Singapore Myanmar Vocational Training Institute (SMVTI), Nyaungshwe Vocational Training Institute (NVTI), School of Industrial Training and Education (SITE), English Language Proficiency School (ELPS) and Yadanar Welding Training Center (YWTC) which specialize in providing short courses.

These institutes were mainly set up with local and international collaboration, and typically run from three-month to one-year courses. They target post-secondary and upper-secondary students. The courses offered and the curriculum differ from the formal TVET courses offered at GTIs and GTHSs. For instance, SMVTI was set up in collaboration with the Government of Singapore and the curricula were adopted from the Institute of Technical Education, Singapore. An overview of these five institutes can be seen in Figure 5.5.

Figure 5.5. Summary of specialized vocational schools and institutes under MoE



Short courses are also offered in formal TVET schools such as GTIs and GTHSs. GTHSs and GTIs, collaborating with international and local NGOs, also offer short courses as evening or summer programmes, in parallel to the long courses. These short courses can be divided into three groups: courses funded by international NGOs, courses organized by the institutes, and competency-based short courses (CBSC) under the Equipping Youth for Employment (EYE) Project managed by ADB.

The international NGOs providing support to DTVET include ADRA Myanmar, ACTED (Agency for Cooperative and Technical Education Development), FRC (Finnish Refugees Council), NRC (Norwegian Refugee Council), SwissContact and AVSI (Association for Volunteer Service International). With the support of these NGOs, DTVET trained 10,230 students on fifty-one different job-specific courses from 2014 to 2017, mostly related to engineering fields such as electrical, computer, mechanical, welding and construction. Some schools and the development partners also offers courses in garment-making, personal care and tourism.[9]

According to the ADB project completion report (ADB, 2018b) the EYE project trained 747 males and 84 females on eight different engineering-related short courses during the project period of 2014 to 2017.

The short courses organized by the institutes comprise a continuous effort by the institutes and DTVET. Enrolment data are collected every three months, and from October to December 2018 420 students were trained on engineering-related short courses, mainly electrical wiring and welding.

9 Information from DTVET.

However, it is important to highlight that the duration, training capacity and quality of these courses are not yet standardized. Moreover, the short-course training does not yet neatly correspond to any existing school curriculum or education and qualification level.

5.3.3. TVET provision under other ministries

Table 5.2 summarizes the types of school and programme offered by TVET providers under MoALI, MoLIP, MoI, Ministry of Border Affairs and Ministry of Social Welfare, Relief and Resettlement. These ministries offer certificate-level TVET courses in the specialized institutes under their governance. These training courses range in duration from one week on topics such as computer literacy to a one-year certificate programme for engineering-related topics.

MoI focuses on training young people and adults who are seeking employment, whereas MoLIP focuses on reskilling and upskilling existing employees. The Ministry of Social Welfare focuses on vulnerable young people (in particular, those coming from broken families and orphans) between the ages of 8 and 18, whereas the Ministry of Border Affairs focuses on young people from ethnic minorities.

Another seven ministries (as shown in Figure 5.1), including the Ministry of Health and Sport, and Ministry of Transportation, offer non-formal TVET programmes to their staff for pre-service and in-service training. For instance, the Department of Human Resources for Health (DHRH) within the Ministry of Health and Sport oversees the pre-service training of all health workers in Myanmar. As of 2018, it managed twenty-five nursing schools, twenty-two midwifery training schools and three other schools: a Nursing-Related Field Practice Training Center, Central Domiciliary Midwifery Training Center and Lady Health Visitor Training School.

Most of these schools are located in the states and regions, and aim to retain the health workers in rural areas. These schools and two nursing universities train about 2,000 nurses and midwives every year. However, the Myanmar Human Resources for Health Strategy highlighted that the intake is not sufficient and more health workers are needed in the country (Ministry of Health and Sport and ICF, 2017).

Table 5.2. ***TVET provided by five line ministries (as of 2018)***

Ministry	Names and Types	Number	Target
MoALI	Agricultural Institutes Lacquarware Technical College Cooperative Training Schools Weaving and Vocational Schools Fishery Schools Vocational Schools (Livestock) Livestock Training School	15 1 7 14 3 14 1	Post-sec (Formal) Post-sec (Formal) Post-sec (Non-formal) Pre-Employment Workers Workers Workers
MoI	Industrial Training Centers	6	Pre-employment
MoLIP	Training Centers	6	Re-skilling
Ministry of Social Welfare	Early Child Care and Development Resource Center (ECCD Resource Center) Vocational Training Schools for Adults with disability Home Science Schools Vocational Training School for Women Sign Language Supporter Training Elderly caregiver training center	1 1 1 11 4 1 1	Pre-Primary School Teachers /Early childhood care givers Persons with Disability Vulnerable Adults Community People Vulnerable Women People who support to hearing impaired persons / Community People
Ministry of Border Affairs	Vocational (Home Science Schools) Technical Schools Vocational Training Center	42 9 1	Women Ethnic Young people Ethnic Young people

Note: another seven ministries provide TVET for pre-service and in-service for their staff.

5.3.4. TVET provision by the private sector

The non-formal TVET provided by international and local NGOs is generally targeted at vulnerable groups: the unemployed, underemployed, the illiterate, women, young people (particularly those who did not have access to or did not complete lower secondary education) and ethnic young people from border and conflict areas.

These organizations, including but not limited to ADRA Myanmar, FRC, ACTED, NRC, SwissContact and AVSI (Association for Volunteer Service International), work closely with different ministries such as MoE, the ministries of Social Welfare, Border Affairs and Agriculture. The training duration varies from one week to two years, and the curriculum and quality of the teachers can be very different even for the same course running at the same place.

Work-based learning and pre-service training take place in some industries such as garment-making. The pre-service training might be provided by the industry, by a private industrial association or in collaboration with the government.

5.4. TVET teacher training

There are two TVET teacher training centres under MoE: the Technical Promotion Training Centre (TPTC) at Baelin, near Mandalay and the TVET Teacher Training Institute (TTTI) in Yangon. TTPC offers pre-service and in-service training to upgrade the quality of teachers in both pedagogy and technical skills. The courses usually last from four to ten weeks, and are offered on an ad-hoc basic. However, TTTI was established only a few months ago and is not yet fully operational. Both institutes provide training only for TVET trainers under MoE, and the TVET providers under different ministries provide teacher training in their own capacity. Private TVET providers such as international organizations have their own in-house training, and there is no standardization of teacher training among TVET providers. Some of the TVET trainers from other line Ministries also join the TVET training programme under MoE based on the request at the working level.

The teachers of TVET under MoE are predominantly (86 per cent) female. One reason is that most of the teachers in GTIs and GTHSs were specially trained as engineers and appointed as teachers during the previous military government. An almost equal number of male teachers were appointed during that time, but they generally left teaching on account of the lower salary than is available for engineering jobs. Female teachers continued in post owing to the perceived difficulty of their finding engineering jobs, and traditional thinking that teaching is a prestigious female occupation.

The pre-service training and in-service training for TVET teachers, especially TVET trainers under the Ministry of Education, are provided by the Technical Promotion Training Centre (TPTC). In addition, the specialized training institutes such as SMVTI and SITE in Yangon have close collaboration with industries and have developed industrial attachment programmes for their TVET trainers.

MoE is aware that training of TVET teachers needs to be linked to industry, but the less industrialized regions and states such as Kachin, Kayah and Chin have little support from local industry.

5.5. Recognition and accreditation of TVET learning

5.5.1 Learning pathway

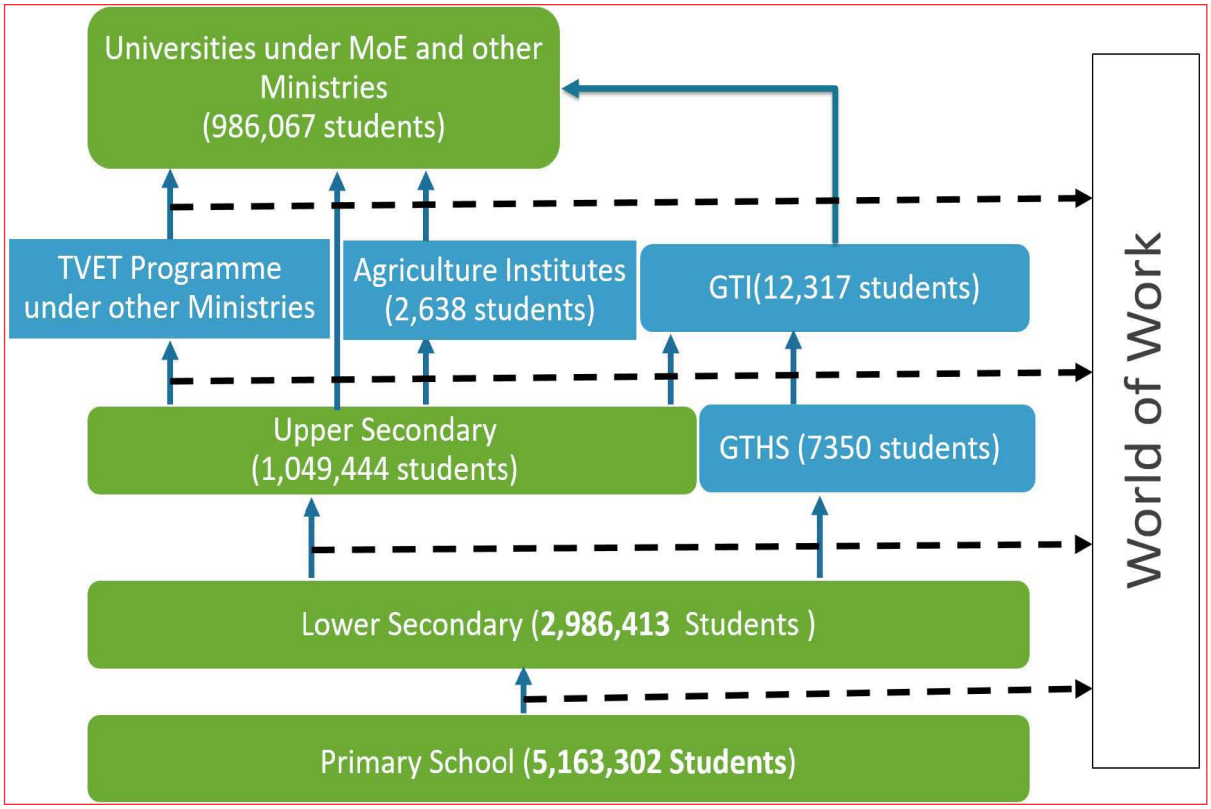
The Myanmar NQF is still a developing tool and does not yet clearly identify progression pathways, even for formal TVET programmes. Figure 5.6 shows the existing learning pathway for students: the numbers were extracted from the *Myanmar Statistics Year Book 2018* (CSO and Ministry of Planning and Finance, 2018) and the MoE *Annual Performance Review Report 2017–18*, and are used here just to demonstrate the access of the TVET learners to both higher TVET and tertiary education.

The outstanding TVET learners in formal education are allowed to progress vertically but have restricted access to academic qualifications at the post-secondary level. A limited number of graduates from GTHSs under MoE can proceed to continue to the post-secondary TVET under MoE but they do not have access to other post-secondary institutes under either MoE or other line ministries.

This is different from many other countries in the Asia-Pacific region, where the articulation of TVET pathways is an emerging theme. Many countries have been attempting to offer multiple entry points to qualifications and to facilitate transitions between academic, formal TVET and non-formal TVET programmes. In Malaysia, the NQF contains eight levels and provides flexible pathways for all learners, allowing both horizontal and vertical movement between qualifications (Grainger et al., 2016). Similarly, Indonesia and the Republic of Korea have increased the permeability from TVET to higher education.

The qualifications offered through non-formal TVET have not yet been incorporated into the NVQ structure. Hence, the majority of this TVET learning is not credited and recognized. Non-formal and informal (personal) learning needs to be institutionalized by accrediting the learning outcomes of programmes based on the national competency standards.

Figure 5.6. ***Progression pathways under the Myanmar education system, academic year 2017/18***



5.5.2 Curricula

In Myanmar, the curricula were developed by the relevant ministries, and there was no organization to oversee the quality of the programme. There is no evidence of industrial relevancy of the courses to the emerging economy of Myanmar. The employment rate for graduates from formal TVET schools is not available as a tracer study was operationalized just a few weeks ago. However, the employment opportunities for graduates from the specialized training institutes such as SMVTI and SITE are rather high, and at least 70 per cent obtain jobs as reported by the schools, but it is not clear if all these graduates are working in their specific professional field.

Under the National Education Law, the National Accreditation and Quality Assurance Committee (NAQAC) and National Curriculum Committee (NCC) are responsible for standardizing and approving the curriculum in the whole education sector including TVET. In recent years, as a part of ongoing reforms, DTVET has been taking a leading role in reviewing and standardizing the TVET courses offered by the line ministries and private organizations. In addition, DTVET is in the process of establishing a curriculum section which will be responsible for developing and updating the curriculum for the courses offered in GTIs and GTHSs under MoE. The department is also discussing conducting a research study into the industry relevance of TVET training and providing twenty-first-century skills such

as communications, problem-solving, independent thinking and teamwork in the curriculum framework. This will make more market-relevant and rounded graduates, and should make TVET schools more appealing to the young people of today.

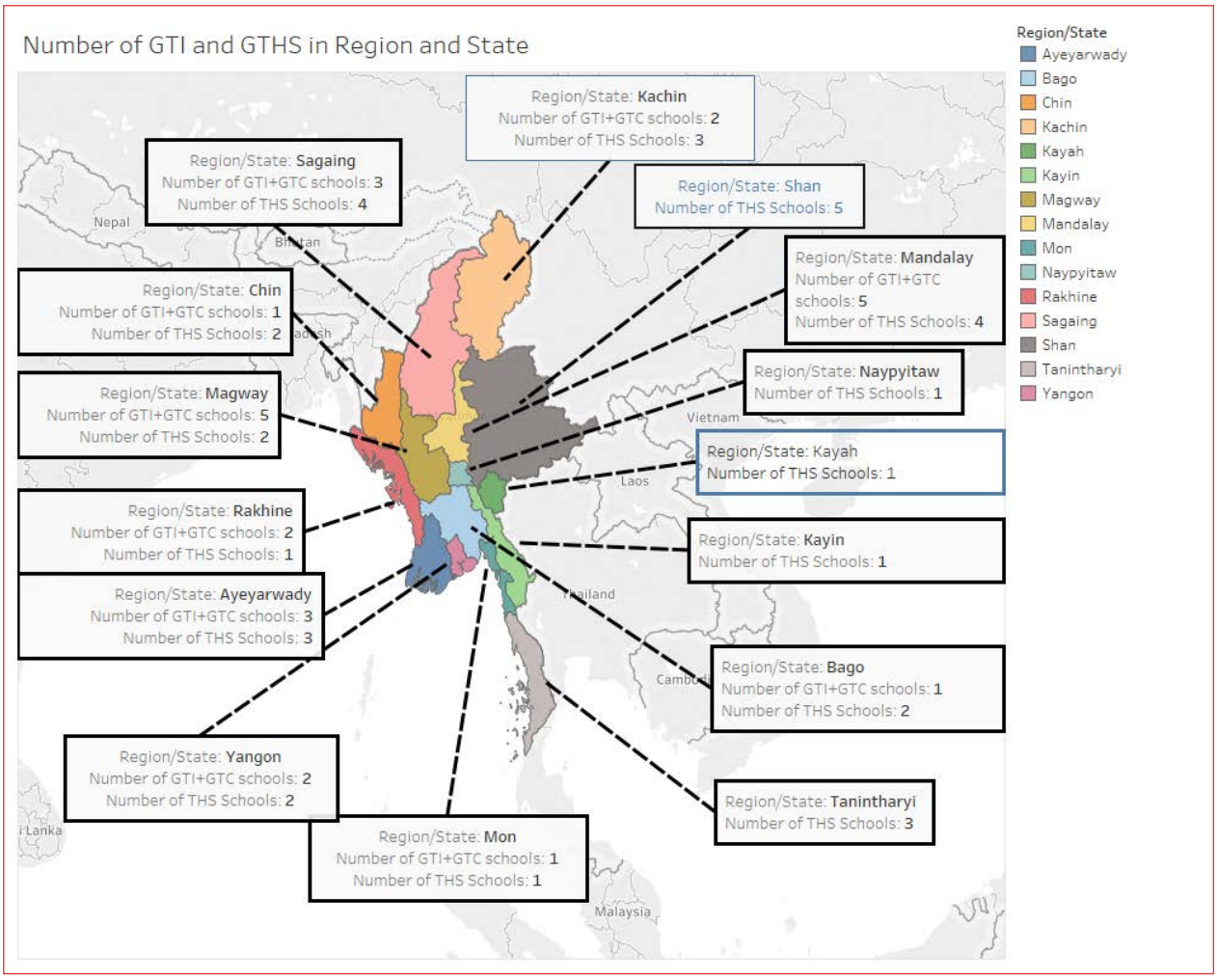
In the hospitality and tourism industry, the private training providers and industries developed the curriculum based on the ASEAN standard (ASEAN, 2013), and these providers also work closely with the Ministry of Hospitality and are involved in developing national skill standards for hospitality professionals.

5.6. Access, participation and equity

Myanmar is a large country with diverse ethnic groups. There are fifteen different states and regions in the country, and MoE and the Ministry of Agriculture, Livestock and Irrigation are trying to establish at least one TVET institute in each region and state. Figure 5.7 shows the number of GTIs, GTCs and GTHSs under MoE in the different regions and states.

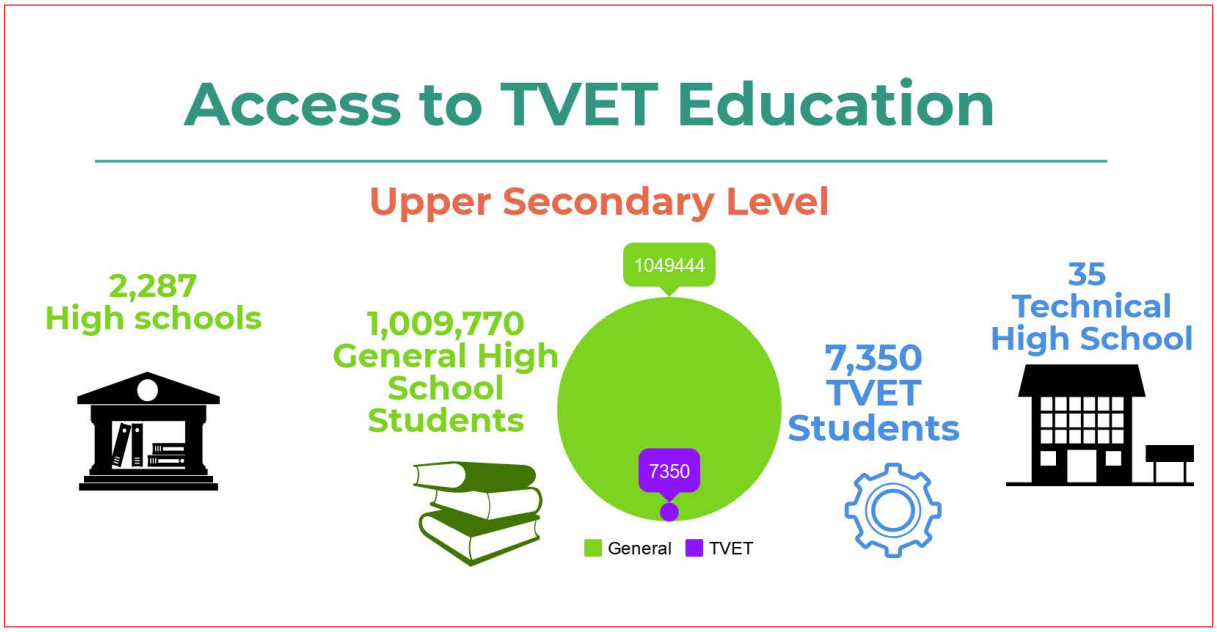
Access to formal TVET starts at upper secondary level but MoE, relevant line ministries, local and international NGOs and civil society organizations provide non-formal TVET courses and non-formal education courses such as literacy and numeracy for students who did not complete primary and lower secondary education. However, the recognition and standardization process for these courses is not in place yet, and there are a limited number of schools, limited infrastructure and inadequate institutional capacity.

*Figure 5.7. **Number of GTI/GTCs and GTHSs under MoE by region and state***



The formal TVET courses at upper secondary level focus only on engineering, and the limited courses and schools, the poor resources, outdated curriculum and inadequate management staff and trainers in these schools have hindered students' participation in TVET. As can be seen in Figure 5.8, fewer than 10 per cent students are enrolled in TVET at upper secondary level.

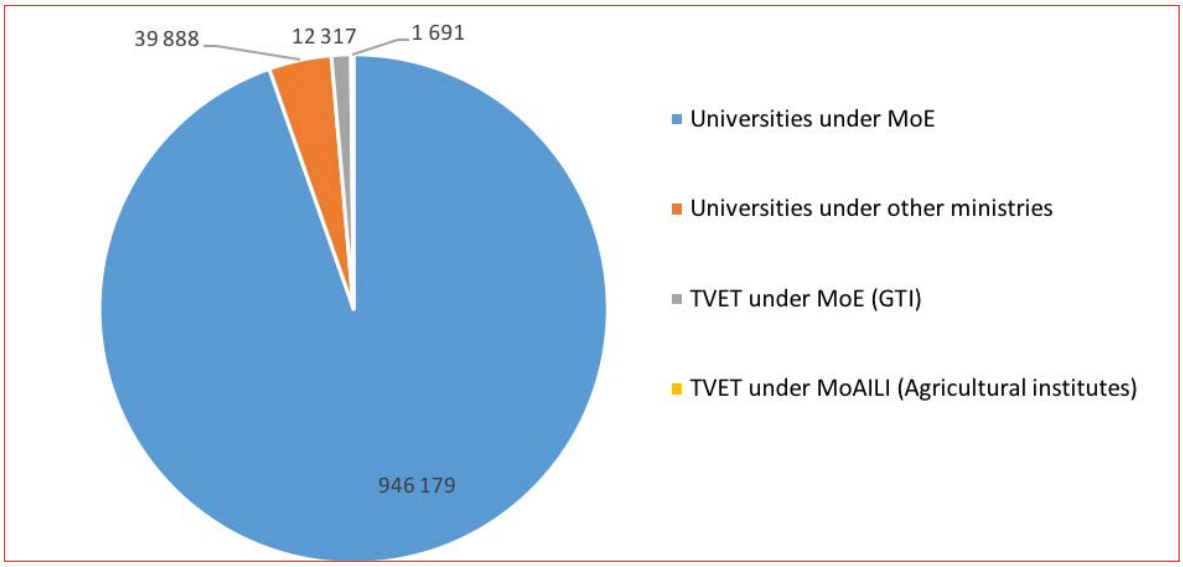
Figure 5.8. ***Access to and participation in upper secondary TVET***



Source: MoE, Annual Performance Report 2017–18.

Though the TVET diploma courses at post-secondary level have high demand, the number of institutes and the places can be offered are limited. As a result, access to post-secondary TVET is limited to the outstanding students from general high schools and TVET high schools. Figure 5.9 shows the numbers of students in the universities and TVET institutes in post-secondary level, and it can be observed that only about 1 per cent of all higher-education students are enrolled in TVET institutes.

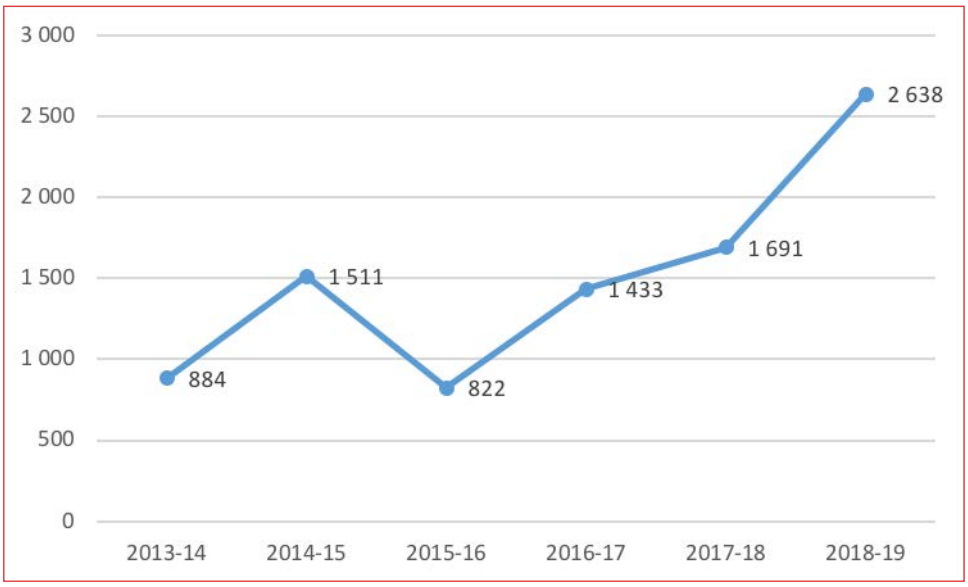
Figure 5.9. ***Access to and participation in post-secondary TVET***
Enrolment of students in post-secondary education



Source: MoE, Annual Performance Report 2017–18.

According to the Department of Agriculture under MoALI, although MoALI has increased the number of students enrolled over the years as shown in Figure 5.10, only about 25 per cent of applicants can be accepted owing to the limited resources in terms of infrastructure and capacity of trainers and management staff.

Figure 5.10. Enrolment in agricultural institutes has increased from 2013/14 to 2018/19
Number of students in agricultural institutes

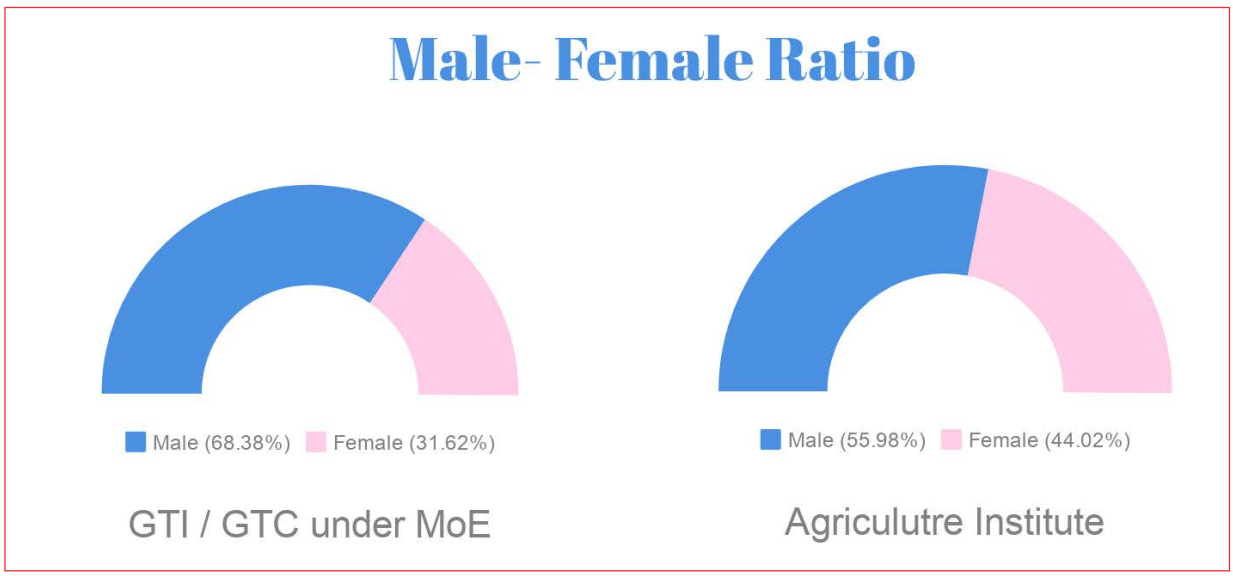


Source: CSO and Ministry of Planning and Finance (2018).

In a similar way to the formal TVET programme, students who have completed upper secondary education have access to one-year vocational training courses offered at industrial training centres (ITC) under MoI. These courses have high demand because the ministry has very strong collaborations with industries and graduates have good employment opportunities. According to the data provided by MoI, 94 per cent of ITC graduates obtain employment. Though the demand has been increased recently, the enrolment is still limited to 1,000 students for all six training centres under MoI, each of which trains about 150–200 students.

Figure 5.11 shows the ratio of female participation in post-secondary TVET. Compared with the upper secondary level (see Figure 5.3) and other short courses offered by MoI and MoLIP, the female participation in post-secondary TVET is higher, though the programmes offered in GTIs and GTCs are still limited to engineering-related topics.

Figure 5.11. Ratio of female participation in formal TVET at post-secondary level



5.7. Conclusions

MoE, in collaboration with development partners such as ADB, the European Union, GIZ, UNESCO and Kiwi, has completed an in-depth review and analysis of education sectors including TVET. The ministry has recognized the lack of relevant skills and the inability of graduates from TVET (from both upper secondary and post-secondary institutes) to use their knowledge and skills in the workplace because many of the courses are too specific.

Since the CESR phase 2 was completed, MoE, with the support of relevant industries, development partners, international organizations and private industries, is making major structural changes in TVET. These changes are still in progress. The changes include the reviewing the industrial relevancy of the courses, analysing and improving the curricula, identifying progress pathways, and building strong relationships with industries.

The TVET Law and Myanmar NQF are being developed but they are still work in progress, and these documents need to be completed to guide the Myanmar TEVET system effectively.

Chapter 6. Digitization

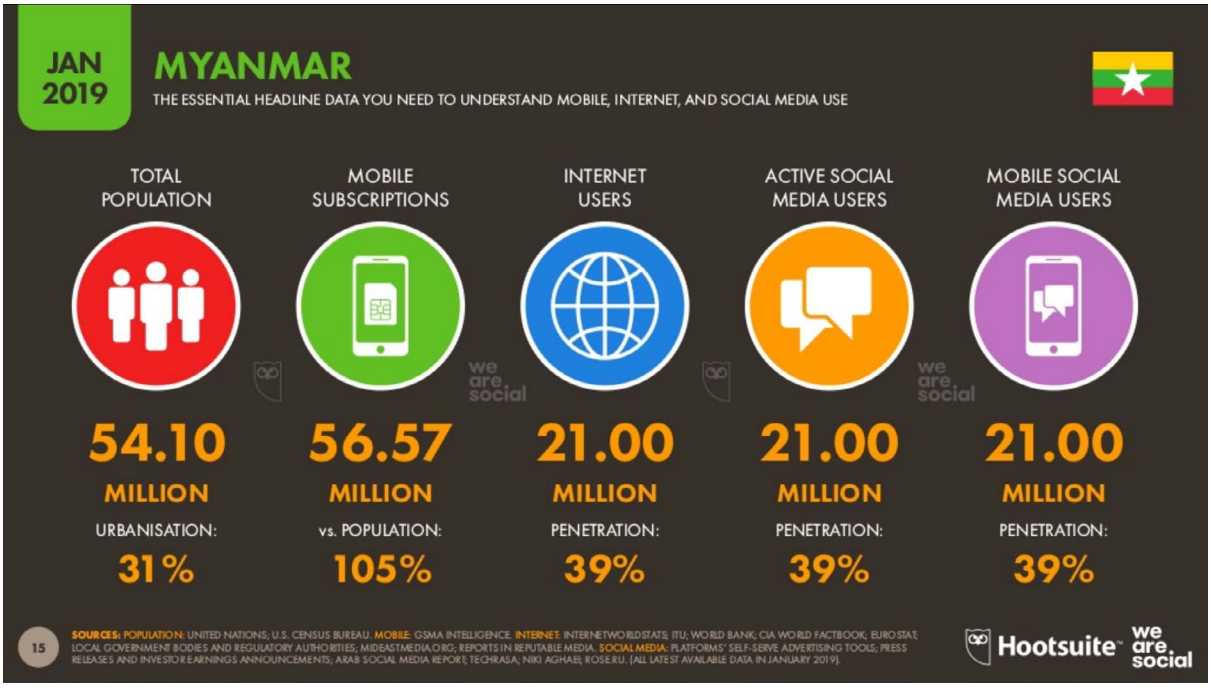
This chapter examines the realities of digitization in Myanmar, paying particular attention to the ways ICT might support and enable TVET, and how TVET needs to respond to the rapid expansion of ICT in the world of work.

The first section outlines the ways digitization has profoundly changed Myanmar, highlighting the sudden ubiquity of mobile technology. The second section describes the government's vision for ICT integration into the TVET sector as explained in the *National Education Sector Plan 2016–2021* (MoE, 2016). It is followed by a short section listing MoE's three overarching sectorial priorities for TVET. The final sections explore how digitization can advance each of the three priority areas: access, quality and relevance, and management. Each section contains practical recommendations to help inform and guide potential reforms.

6.1. A new digital reality

By many measures, Myanmar has digitized faster than any country on Earth over the past half-decade. Since the telecom sector opened up to foreign competition in 2013, the country has moved from a mobile penetration rate of just 5–7 per cent (Thomas, 2013) to having more mobile subscriptions than people in early 2019 (GSMA Intelligence, 2019). The Myanmar Telecommunications Ministry projects that over 90 per cent of adults have a mobile phone, and industry observers estimate that upwards of 80 per cent of these phones are smartphones (Loughnane, 2017). Figure 6.1 helps summarize the status of digitization in Myanmar.

***Figure 6.1.* Status of digitization in Myanmar**



Source: Hootsuite (2019).

Mobile devices and services are affordable for most people in Myanmar, including those earning low wages. In January 2019 the organization We Are Social, using data from GSMA Intelligence (2019), gave Myanmar a score of 73 out of 100 for mobile connectivity affordability, making it one of the most affordable markets in Asia relative to incomes (Hootsuite, 2019). This development is a remarkable transformation: just ten years ago, SIM cards in Myanmar were bought and sold for more than US$1,000 (Petulla, 2013).

The country has largely 'leapfrogged' fixed-line internet connections and personal and laptop computers. While less than 1 per cent of the country accesses broadband internet though a wired cable, nearly 40 per cent do so today via a mobile device connected to a mobile network (Hootsuite, 2019) operated by one of four companies: Myanmar Posts and Telecommunication (MPT), Ooredoo, Telecom International Myanmar (Mytel) and Telenor (Xinhua, 2018). The quality and robustness of these networks has improved dramatically year-on-year. In the 12 months from December 2017 to December 2018 the average speed of mobile connections increased 60 per cent. Three out of four people with a mobile connection use fast 3G or 4G networks (GSMA, 2019). Virtually all mobile connections (98 per cent) are pre-paid and 'topped up' with mobile credits purchased from vendors, who are ubiquitous across the country and often located less than a block apart. In light of these changes, Myanmar's new Telecommunications Master Plan envisions the country as a 'mobile-first, digitally connected nation' (ITU, 2017).

Use of social media use has moved in lockstep with internet growth, such that nearly every internet user is also active on social media. Data from January 2019 showed that 21 million people in Myanmar were using Facebook (Hootsuite, 2019), making this platform almost synonymous with internet connectivity.

The dizzying pace of digitization – commonly portrayed as a textbook example of how liberalization of the telecommunications sector can expand access and lower prices – sometimes disguises access and equity gaps. Most troubling are gender divides. The GSMA Connected Women Programme (2017) found a 20 per cent gender gap in mobile device ownership in Myanmar, while research by IREX (2017) showed an even wider divide. IREX found that a woman was 28 per cent less likely to own a mobile phone than a man. It traced this divide to other barriers, including gender gaps in digital skills caused by less extensive usage of ICT, limited availability and affordability of formal and informal skills training, and normative and structural barriers to education in science, technology, engineering and maths (STEM) subjects and ICT industry employment. The organization also observed that women and girls are more likely to fail to enjoy real and perceived benefits from ICT use because of the lack of relevant digital products, services and online content by and for women and girls. Other challenges persist which transcend gender, including connecting rural areas to broadband mobile networks and ensuring relevant digital services in languages people understand. Yet even after accounting for these shortcomings, the data paints a picture of a country that has, in slightly over a half-decade, built a digital infrastructure that reaches huge numbers of people and radically shifted the ways people communicate and access information.

Online job boards in Myanmar are full of listings for people with intermediate and advanced-level digital skills. Job titles that were not even in the lexicon in Myanmar five years ago, like 'front-end developer' and 'e-commerce specialist', are becoming increasingly common. The digital economy, while still in its infancy, is now mature enough to support a constellation of start-up companies that offer everything from on-demand tutoring to food delivery services. These young companies arise out of or are supported by a growing number of accelerator programmes, including Phandeeyar, One to Watch, Impact Hub Yangon and the Samsung Tech Institute, as well as venture capital funds focused on Myanmar such as Luminate, SeedMyanmar, BOD Tech Ventures and Emerging Market Entrepreneurs (Sitt, 2019). These changes extend well beyond the tech sector. The opening of the country has seen the modernization of numerous industries. Mid-skilled employees who were extremely unlikely to encounter a computer before the early 2010s are, in 2019, routinely asked by employers to conduct tasks and manipulate machines and systems through digital screens.

Given the speed of this change, it is unsurprising that sectors are scrambling to respond to new technological and employment realities. This includes the education sector and the wings of government planning, conducting and coordinating TVET (see also Box 6.1, The education vision for ICT integration).

Box 6.1. The education vision for ICT integration

The newness of digitization is reflected in Myanmar's NESP for 2016–21 (MoE, 2016), a plan that was drafted soon after Myanmar liberalized its telecommunications sector in 2013. The word 'digital' appears just five times in the 266-page document and the word 'technology' only ten times. ICT or digitization are mentioned only in relationship to 1) strengthening digital access and digital facilities at educational institutions, including TVET institutions; 2) digitizing assessments, especially high-stakes end-line assessments; and 3) making better use of digital tools to streamline educational management. Conspicuously, ICT is not, at least in the planning document, envisioned as a vehicle to enhance access to education or improve the quality and relevance of teaching and learning.

The NESP places a priority on improving digital access and facilities first in universities. By comparison, improving digital access and facilities in TVET institutions and primary and secondary schools does not seem to be a top-line priority. The plan states that 'While Myanmar is expanding ICT infrastructure, higher education institutions remain poorly served in terms of access to internet resources, advances in electronic libraries and other relevant ICT-related instructional materials' (MoE, 2016, p. 55). It affirms a need to 'increase the use of information and communication technology combined with the establishment of supporting infrastructure and equipment' in higher education institutions (MoE, 2016, p. 50). This vision reflects a concern with infrastructure, and elevates it above digital learning content.

The plan seems to envision reforming and streamlining assessments through ICT, but the focus is tightly limited to testing and does not extend to instruction. It states that 'ICT systems play a vital role in reforms of assessment and examinations systems. Effective ICT systems produce statistical analyses and enable the many administrative processes involved to work efficiently' (MoE, 2016, p. 133). The NESP positions technology as a means to provide superior data about student performance.

The NESP emphasizes that technology should improve educational management. This ranges from specific objectives – 'All databases should be linked with the national Education Management Information System (EMIS) once in place either by integrating them directly or by using global IDs, which can be linked to records in EMIS' (MoE, 2016, p. 133) – to general principles – 'The overall aim of … an integrated package of basic ICT tools – computers, printers, internet access, ICT consumables and ICT service support – [is] to strengthen education management efficiency and effectiveness at all levels of the national education system' (MoE, 2016, p. 218).

The NESP makes very little mention of employer demand for digital skills and competencies. In the sections about TVET, the document notes that 'the growing complexity and technology of industrial production and services will increase the demand for middle- and high-level qualified workers' (MoE, 2016, p. 175), but does not elaborate what specific skills are required of these middle and high-qualified workers. The plan is not connected to Myanmar's larger digitization strategy as it relates to work and employment.

Remarkably for a country where over 90 per cent of the adult population is online, 'distance education' is almost always paper-based. According to the NESP, 'More than half of Myanmar's [higher education] undergraduates are enrolled in distance education' (MoE, 2016, p. 195). The document explains that 'For the foreseeable future expanded access to higher education for more students will only be possible through expansion and improvement of distant education' (MoE, 2016, p. 195), but does not mention digitization of learning materials or mobile-first solutions as possible strategies.

Government conceptions of 'mobile training' and 'mobile learning' are similarly anchored in non-digital methods. Officials from different ministries that provide TVET regularly described mobile learning initiatives as efforts to drive trucks with learning materials and three or four instructors to remote areas to provide time-bound lessons to groups of thirty to fifty learners. A representative from MoI, for example, explained that the ministry sends three trucks, funded by grants from external donors, to under-served areas to provide automotive and electrical training. The trucks are equipped with hardware – such as automotive parts or electrical components – to facilitate technical training. Despite the growing prevalence of mobile phones and connectivity in rural areas, there is no digital aspect; the instruction is purely face-to-face. When the trucks leave a village, the training ends. These examples show that the government is working to expand access to TVET to geographically remote areas and under-served learners, but its repertoire of actions does not yet encompass ICT solutions. For the time being, both mobile and distance learning are understood as non-virtual, non-digital methods of improving access to vocational training.

Ministry officials often said the possibility of delivering learning content through digital platforms was unrealistic, even though they regularly remarked that people, especially young people, are comfortable using connected mobile technology. A director-general for MoLIP noted that the training centres operated by the ministry did not use ICT for learning because 'we're not that developed', but in the same sentence, noted that 'every worker uses Facebook'. The director-general and officials from other ministries tended to quickly acknowledge the learning and training potential offered by mobile devices, but, overall, seemed to believe that formal efforts to operationalize technology in this way would be outside the capacities of the relevant branches of government.

6.2. Government priorities for TVET

The NESP 2016–2021 articulates a strategic direction for TVET. It outlines three core priorities:

1. Dramatically expanding access to TVET.
2. Strengthening the quality and relevance of TVET.
3. Improving TVET management.

Collectively, realization of these priorities will facilitate a transformational shift whereby more learners can access TVET and graduate from quality-assured and labour market-responsive TVET programmes under a more effective TVET management system.

The sections below look at these three priorities through a 'digitization lens'. Section 8.2.4 proposes recommendations related to digitization that the government may wish to consider.

6.3. Expanding access

Central to the NESP strategy is substantially enlarging the number of learners who complete TVET. According to Myanmar census data from 2014, only 60,270 people had finished some form of vocational training, representing just 0.13 per cent of the population over the age of 5. This low engagement rate was corroborated by more recent OECD analysis (2014), which found that just 0.5 per cent of upper secondary students are enrolled in TVET programmes. This low TVET engagement is particularly concerning in light of the large number of young people who drop out of lower and upper secondary school and never return to education or training (World Bank, 2017). Learners are not developing the mid-level technical and vocational skills that are, according to the OECD, 'indispensable' to the industrialization process under way in Myanmar.

DTVET has a plan to make TVET reach as many as 100 times more learners over the next few years. DTVET outlined plans to achieve this exponential growth by expanding traditional models of education delivery: essentially learners enrolled in formal institutions (usually GTIs) working toward certificates or degrees obtained after years of study. The DTEVT director-general described ambitions to add over thirty new TVET institutes and train hundreds of new teachers (mission notes, 2019).

The most significant barrier to realizing these plans is training qualified teachers, according to DTVET. The OECD also called attention to this potential bottleneck, noting that improved access to education needs to be balanced with the country's capacity to train and hire teachers. When Myanmar rapidly expanded the provision of secondary education, it sometimes opened schools before it could recruit well-qualified teachers, thereby enlarging access at the expense of quality (OECD, 2014). DTVET wishes to avoid this outcome, scale up TVET in a sustainable way and ensure the quality of education.

The NESP explains that in order to significantly increase TEVT access, the government working in collaboration with the private sector should implement an 'Integrated TVET Programme (i-TVET)'. While the 'first objective' of the programme is to increase access to formal long-term TVET, it also envisions competency-based modular short-term training courses and mobile training programmes in remote and rural areas. The NESP elaborates this concept:

> Competency-based training and mobile school training will increase access to TVET in areas where long-term programmes cannot be delivered. These courses will help to address basic skills gaps in order to support modernisation in both rural and urban economies …. Competency-based short courses will principally target early school leavers as well as unskilled or low-skilled workers. The modular short courses will be based on skill standards developed and accredited by relevant bodies. When a student has passed one accredited module, then they can choose either to continue and 'build' further competencies, or enter the local labour market (MoE, 2016, p.176).

The NESP does not mention potential for ICT integration in its explanation of i-TVET, but the description above, with its articulation of short, modular courses that can be combined to build competencies, reads like description of online and mobile-phone based learning. Udacity, DuoLingo, Coursera, Khan Academy and other

digital learning platforms have demonstrated that large numbers of people will complete brief, modular learning units on mobile devices. This content, when it is most successful, tends to be dynamic (users are prompted to answer questions regularly) and visually stimulating (users interact with videos, audio, pictures and other images, in addition to text). The content is also clearly aligned with user goals and credentialing needs. It shows learners how they are progressing and establishes daily and weekly targets to motivate study. Educational content of this sort – usually accessed autonomously by learners – has become widely used in India, China and Thailand, demonstrating a regional appetite for self-motivated and self-directed digital learning (Churchill et al., 2018). This has been especially true in the field of language learning, where apps like Qooco, popular in Thailand, have helped learners practise languages like English despite a dearth of highly qualified English language teachers (Bilton, 2018).

6.4. Strengthening quality and relevance

The NESP highlights the importance of assuring the quality and relevance of TVET, and outlines five lines of action to accomplish this objective: (1) Build the capacity of managers in TVET institutions; (2) Train both pre-service and in-service teachers in practical skills and pedagogy; (3) Establish dual training that combines work experience in industries and vocational education classes; (4) Update curricula where necessary; and (5) Establish a quality assurance system.

For the most part, these mechanisms are concerned with the supply of education, rather than demand for it. International organizations – the ILO, OECD, World Bank and UNESCO – have stressed the importance of demand. In its 2014 review of Myanmar's skills development system, the OCED said the 'key challenge' facing TVET is education policies that are supply-driven and unresponsive to the needs of the labour market. It elaborated:

> TVET is also limited in terms of the range of courses on offer: the 'v' for 'vocational' in TVET often appears overlooked and the focus is much more on a narrow definition that emphasises technical training. Furthermore, the technical skills that are taught in the framework of the current TVET system do not seem to be linked to the real needs of the economy (OECD, 2014, p. 32).

The misalignment of TVET and skills demands of employers in Myanmar is likely to be the primary driver of the low demand for this type of education. There was a consensus view that learners do not generally consider TVET to be of high quality or especially relevant to the world of work. According to leaders at Myanmar Education Quality Improvement (My Equip), an independent organization that has worked closely with MoE around TVET provision for years, the sector is characterized by a 'culture of compliance rather than performance'. Even the NESP acknowledges that 'employers have low confidence in TVET graduates' because of problems of quality and relevance. Leaders at the Myanmar Centre for Responsible Business attributed this to insufficient government links to businesses (mission notes, 2019).

To reconcile these challenges and ensure a more demand-driven approach, TVET requires greater agility and stronger connections with industries, including private-sector companies. Institutions need flexibility to meet skills demands that vary from region to region. The TVET needed in the interior of the country is likely to be very different from the TVET needed in Yangon. Ministry officials regularly flagged that certain regions had a shortage of skilled workers in one or two particular industries, such as agriculture, textiles, construction, mining or fishing. Because these worker and skills gaps are geographically concentrated, they require local institutions that can respond to them.

Top-down and national approaches rarely afford institutions the leeway they require to adapt to rapidly changing employment landscapes. This was exemplified by teaching staff at West Yangon Technological University. The school leaders and instructors all expressed a desire for greater autonomy to tailor the curriculum to account for current skills demands in Yangon, noting that technical universities in Singapore enjoy these privileges. Teachers said they used the internet to understand what skills employers demand, and did their best to tilt their instruction to ensure it was relevant to students. Even so, there were few systematic processes to account for how teaching and learning at the institution could be better aligned with the skill needs of industries. Several instructors said the most promising employment prospects for learners were in the telecom sector, due to the concentration of telecom firms in Yangon, but the formal university curriculum did not sufficiently teach the baseline skills and competencies students need to succeed in this fast-changing industry. By and large, teacher efforts to ensure the quality and relevance of their instruction seem to happen in spite of top-down edicts that constrain institutional agility.

Processes for understanding current skills needs, forecasting future needs, and crucially, adapting TVET systems accordingly can be greatly facilitated by ICT. Powerful technology can conduct real-time labour market analysis and facilitate the administration of employer surveys designed to identify and understand skills demands. Interviews with various TVET stakeholders in Myanmar underscored the urgency of improving links between TVET providers and employers. The OECD (2014) found that fewer than 4 per cent of firms with a shortage of skilled workers have attempted to reach out to TVET and other educational institutions in order to secure people with the right skills or to propose curricular changes. Even leaders of the Myanmar Computer Federation, a professional association established by a 1990s law to help ensure skills frameworks and education systems are relevant to industry needs, said they are not approached by TVET institutions about ideas to ensure graduates are ready for employment in the country's nascent ICT firms. By its own account, the Federation is well placed to, among other tasks, articulate ideas and plans to improve ICT skills development, establish and place students in internships/apprenticeships, get industry professionals to speak to and mentor TVET students, and encourage the development of digital learning resources for TEVT. Yet it is not called on to do any of these things, nor is it extended an ability to easily take these actions on its own initiative. Its primary function is instead to respond to top-down requests from the government. Ideally, ideas to improve the quality and relevance of TVET, in line with industry needs, should flow up from industries, not purely down from government.

Technology can facilitate links between TVET providers and employers by enabling formal and informal channels for communication and knowledge-sharing. As an example, digitization has, in many countries, strengthened apprenticeship schemes by better connecting learners with opportunities to foster skills and gain professional experience inside industries. Listing apprenticeship or internship openings on digital platforms also improves transparency and invites a wider pool of applicants to express interest, thereby encouraging meritocratic selection. Ministry officials and school leaders said programmes to place learners inside industries enriched student education and helped bridge the gap between learning and work. They said placements were difficult to arrange, however, because the placements are external to the formal TVET system. In other systems such as those in Switzerland and Germany, the placements are considered a core component of TVET. In countries like India, Thailand and Indonesia, prospective apprentices and interns regularly find placements using digital platforms. These platforms are sometimes operated or facilitated by public entities (a wing of MoE or MoLIP, for example). In other instances, the platforms are run by private third parties that collect fees for facilitating a match or by selling advertising.

6.5. Improving management

The NESP identifies streamlined TVET management as a transversal priority for the sector. According to the plan, 'critical' actions are needed to address the 'current fragmentation of TVET provision across ministries, to enhance sector management and efficiency, to increase access to TVET and to improve quality and relevance relating to shifting labour market demands'. Digitization provides a route to improve coordination across disparate ministries, but most bureaucratic processes remain paper-based and unconsolidated.

Internal and external reviews of Myanmar's TVET system have identified insufficient coordination as a barrier to effective programme delivery. UNESCO-UNEVOC (2018) calls the existing TVET governance structure 'weak', and an ILO (2018) assessment of skills development counted at least thirteen ministries or agencies as being actively engaged in providing TVET, and said this diffusion contributed to poor coordination. The OECD (2014) also identified the lack of an agenda-setting entity as a cause of 'significant inefficiencies and potential misallocations of educational resources'. These findings were corroborated by UNESCO. Even after multiple days of meetings with TVET leaders and stakeholders in different cities in the country in early 2019, UNESCO found it challenging to establish a firm understanding of how the sector was organized and governed. To date, there is not an agreed repository for information about TVET such as an umbrella website. While websites do existing, information about TVET is scattered across different and disconnected sites, often maintained by different ministries.

Challenges related to TVET management have adversely affected oversight and quality, and this has led to low student demand (ILO, 2018). It is has also created confusion about entry points and pathways to TVET, further constraining demand. As explained in the recommendations section 8.2.4, digitization offers potential solutions to some of these challenges.

6.6. Conclusion

Myanmar has moved with dizzying speed into a digital future. Majorities of young people and adults use smartphones and have robust connections to the internet. The TVET sector is just beginning to come to terms with this new connected reality. Increasingly, the MoE and other ministries recognize that digitization presents new employment opportunities as well as avenues to expand access to learning and training, and strengthen its quality and relevance. The next step is to begin acting on these opportunities with pilots and possibly larger-scale deployments and programmes. Stakeholders across the sector are encouraged to approach TVET with a mobile-first outlook towards technology; older paradigms of computer labs filled with expensive and difficult-to-maintain equipment are not relevant in a country where mobile technology is so dominant. There remains a dearth of high-quality mobile learning TVET content, and this is where government resources should be directed in the near and intermediate term. Chapter 8.2.4 puts forward a number of specific recommendations to better harness the potentials offered by digitization.

Chapter 7. Financing of TVET

7.1. Myanmar's TVET financing structure: reforming the non-integrated approach

The current financing of TVET in Myanmar is not based on an integrated approach; the thirteen different ministries that conduct one form or another of TVET programme are independently allocated their budgets by the Ministry of National Planning, based largely on the previous year's budgets. These are based on human resource needs translated into budget requirements for the relevant government ministries involved in TVET. These budgets are not allocated based on changing industrial needs, are not aligned to changing needs of the market, and do not reflect government priorities in new investment areas. In other words, the current approach to funding is based on labour planning models and is reflective of the needs of the end-user agencies. There are no unit cost models for training, and thus the various training courses and learning programmes cannot be compared.

Over the last five years or so, there have been many policy discussions on how to reform the system to create a more integrated structure to deliver the TVET training needs of the nation, and ensure synergies across different providers in the public and private sectors. The discussions focused on what would be the most appropriate strategies, but are stalled since the government needs to choose the policy framework to adopt.

Two competing options have been laid out for discussion in respect to the creation of a 'national training fund' for TVET. The first is a an integrated national training fund where revenue fund sources are pooled from (a) the national government budgets that are used to support TVET providers, (b) funds from a levy on employers, (c) donor support for TVET and skills development, and (d) revenues from fees charged by the system. In this option, the responsibility of the execution would be through a secretariat which reports to a national training council, with a composition that reflects ministries that benefit from the fund, employers, and representatives from civil society. In this scenario the disbursement of funds should reflect priority areas defined by the strategic framework of TVET and skills development, and thus funding windows such as formal TVET, skills development, SMEs, the informal sector and even youth employment.

The second framework option which is under consideration envisions two funding mechanisms: funding for formal skills training and separate funding for workplace skills development. The mechanisms for workplace skills development, including governance and management, have already been spelled out under EDSA 2013. In this Act, employers are required to contribute between 0.5 per cent and 2.0 per cent of payroll, and the main beneficiaries are current employees and the unemployed. This law has not yet been implemented, and there are limited guidelines on how the levy would be collected, managed or disbursed. The rules of the game are still subject to various interpretations, especially on how the funds would be managed.

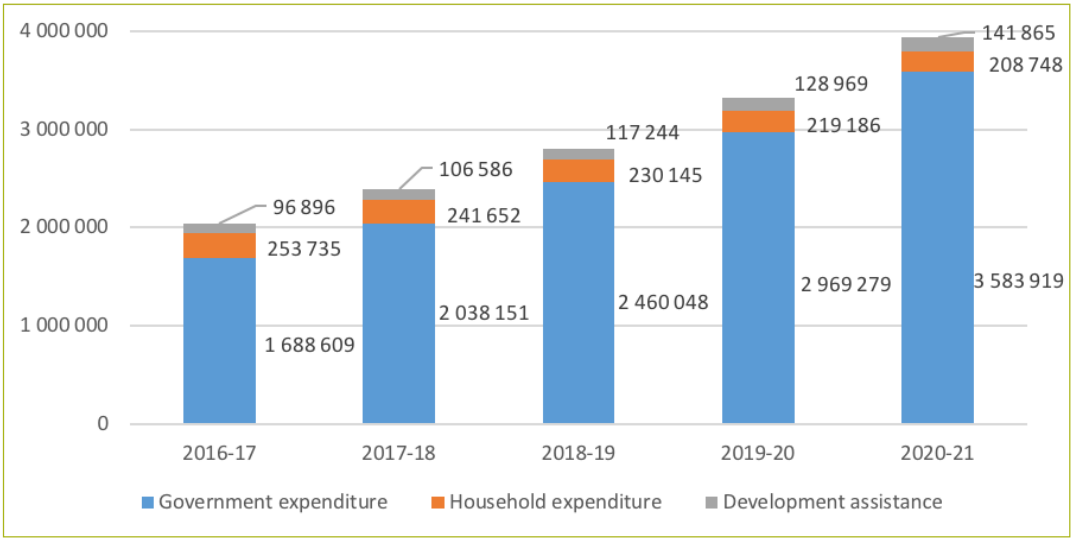
The key recommendation is for the government to convene the various stakeholders and continue dialogue and consultation on the funding model to be followed. The second option is already backed partly by legislation, but its implementation presents new issues as employers seem to resist implementation of the new levy. The choice of whether to have one funding system or two needs to be acted upon by policy-makers, and reforms must be implemented in steps. Decisions need to be made by government. The government should be able to benefit from experiences from countries worldwide on how these transitions are managed.

7.2. Sources of financing of Myanmar's TVET

There are four main sources of financing of TVET in Myanmar: (1) public financing through budgets for TVET training in a large number of ministries; (2) household financing through expenditure on education and materials; (3) development partner assistance from major multilateral and bilateral organizations; and (4) public–private partnerships which involve contributions from the private sector in equipping and providing training in public TVET institutions.

The NESP 2016–21 outlines sources of financing as shown in Table 7.1: predominantly from the public treasury, accounting for 90 per cent of all financing, followed by households which contribute 5 per cent, development partner organizations 4 per cent, and finally 1 per cent from the private sector.

Table 7.1. ***Sources of financing for education (in million MMK)***



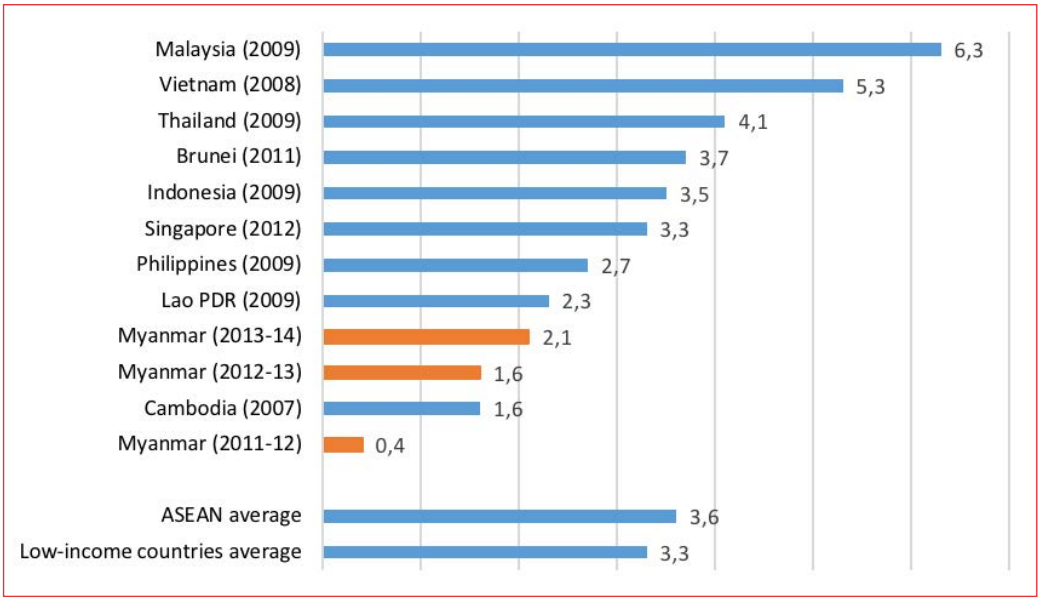
Source: MoE (2016).

The main source of public financing of TVET in Myanmar is the national budget. As discussed in this report, TVET programmes and courses are provided separately by some thirteen ministries and agencies. The majority of programmes are formally provided by MoE through DTVET, the Ministry of Science and Technology, MoLIP and the Ministry of Industry. But many other ministries offer non-formal training and short courses, including the ministries of Commerce, Health, Agriculture and Irrigation, Livestock and Fisheries, Transport, Religious Affairs, Environmental Conservation and Forestry, Defense, Border Affairs, and Social Welfare.

Household financing of education includes household expenditures for student boarding, transportation, school fees, contribution to schools, textbooks, school stationery and private tutoring.

Historically, public expenditure for education in Myanmar as a percentage of the total national budget is way below the average even for the ASEAN countries (Figure 7.1). In the 2011/12 academic year, Myanmar devoted only about 0.7 per cent of its budget to education, but this increased to 2.4 per cent in 2016/17, and NESP 2016–2021 projects an increase to 3.0 per cent, which is closer to the 3.3 per cent average for the ASEAN low-income countries.

Figure 7.1. ***Public financing of education, as a percentage of the national budget***

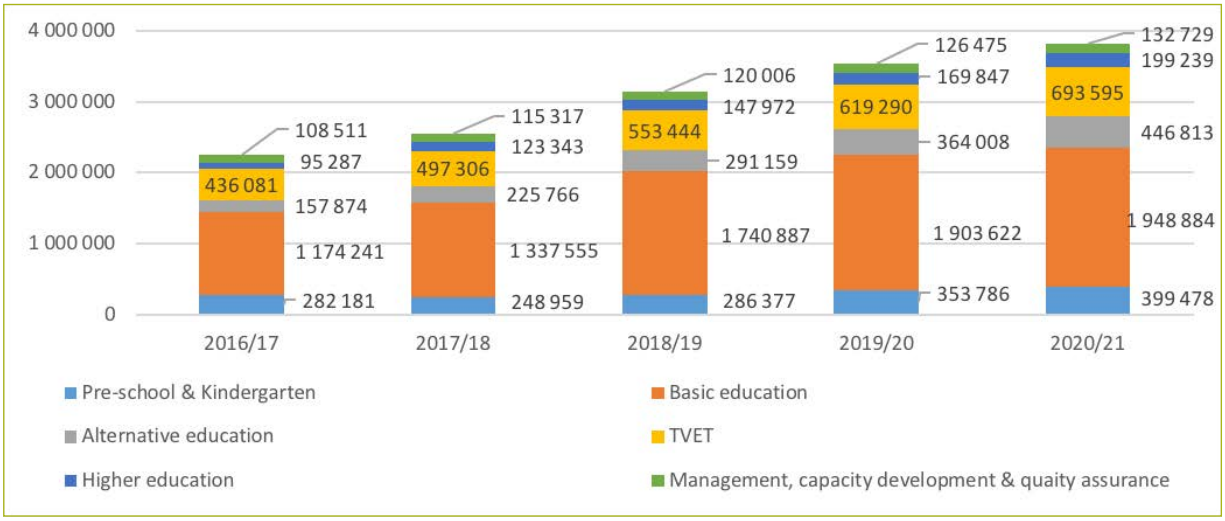


Source: ADB (2015).

7.3. Financing of TVET within the Ministry of Education

Among the thirteen ministries where formal and non-formal TVET is offered, MoE through DTVET has the largest budget. The NESP 2016–21 budget allocations for the six major expenditure categories are given in Table 7.2. They indicate a high priority for TVET: while basic education has the largest share of the budget, the TVET sector has the second-highest percentage at 18.2 per cent over the aggregated five-year plan period.

Table 7.2. ***Budgets for the National Education Strategic Plan 2016–21 (million MMK)***

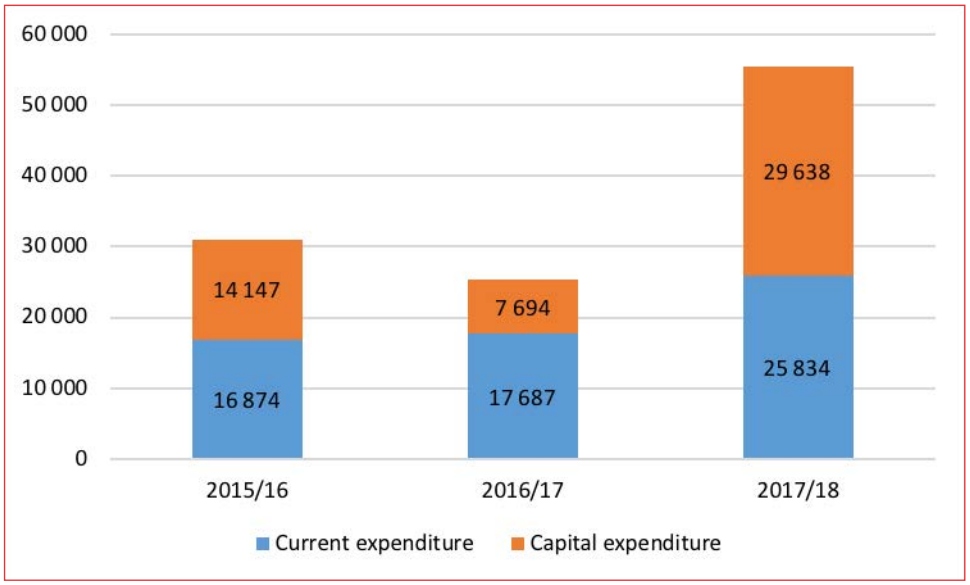


Source: MoE (2016).

Actual expenditure based on the *Annual Performance Review 2017–18* indicates rising budgets for TVET, with a strong emphasis on expanding access to TVET for various target groups, strengthening the quality and relevance of TVET, strengthening TVET management, expansion of stipends and scholarships to disadvantaged students, capacity-development of TVET managers and staff, teacher professional development and skills training pre-service and in-service, establishment of a strengthened TVET governance system to enhance efficiency, quality and relevance, and establishment of public–private partnerships to expand access to quality TVET services.

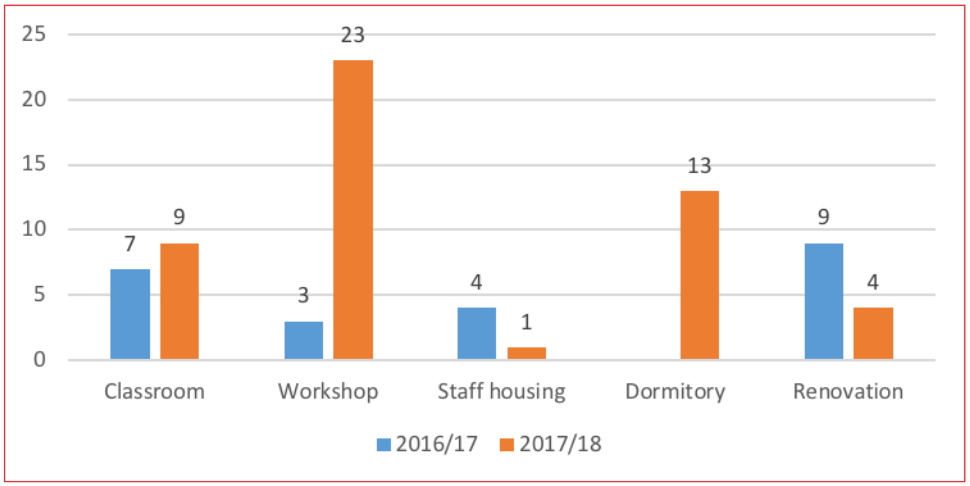
The actual annual expenditure for TVET within MoE budgets shows a rising trend particularly for the 2017/18 academic year. Capital expenditure doubled from 2016 to 2018 with the construction of new facilities, expansion of centres of excellence, and renovation of classrooms, workshops and staff housing (Figures 7.2 and 7.3). The expansion of physical facilities increased most especially in the 2017–18 period.

Figure 7.2. ***Budgeted and actual expenditure on TVET (MMK millions)***



Source: MoE Annual Performance Reviews 2019.

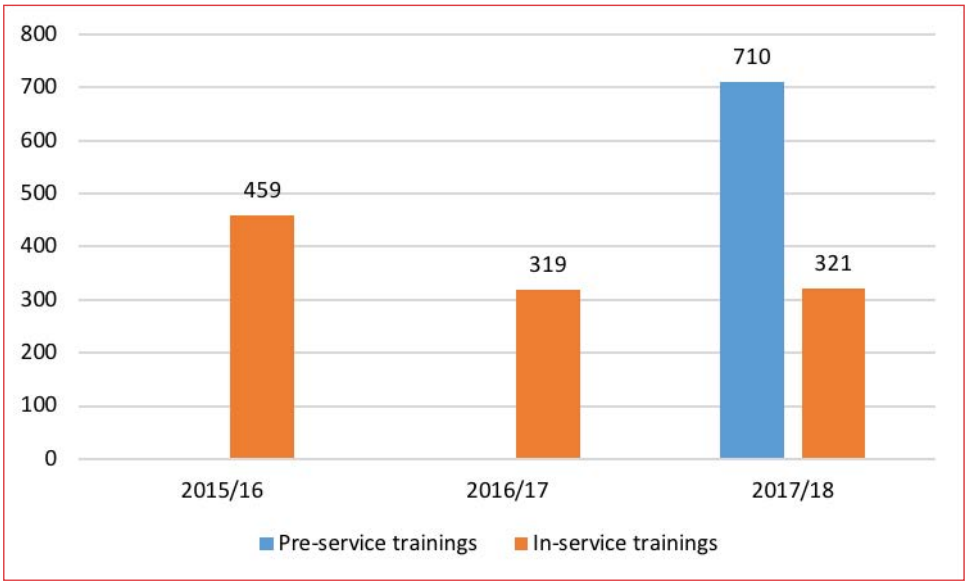
Figure 7.3. ***Construction and renovation of classrooms, workshops and staff housing, 2016–18***



Source: MoE Annual Performance Reviews 2019.

Actual expenditure to improve quality rose over the period in terms of training and professional development of staff. Figure 7.4 shows that in-service training of teachers occurred every year since 2015, and pre-service training got a boost in the 2017/18 period, indicating a high priority given to improving the quality of the teaching force. A number of training courses were held overseas, sponsored by development partners.

Figure 7.4. ***Total number of teachers and staff who attended training courses, 2015–18***



Source: MoE (2019).

7.4. Financing from development partners

The development partners providing grants, loans and technical assistance to the TVET sector in Myanmar include multilateral institutions and bilateral agencies. ADB has provided concessional loans amounting to US$ 98.5 million for the period of 2017–22 to support the reforms in TVET sector. Together with financing from other partners, this should help meet the hard and soft skills demands of the modern economy. The ADB EYE Project will support system-level interventions designed to shift to industry-demand-driven and competency-based approaches, expand competency-based modular short courses (CBMSCs), and roll out needs-based stipends, dormitories, and other support for young people and unskilled workers. In addition to this facility, ADB is providing a series of technical assistances (TAs) to support education sector planning.

The other development partners involved in TVET include the European Union, Swiss Development Agency, the German GIZ, German KFW, JICA, Japan Fund for Poverty Reduction, DANIDA, Finland, ILO, the Norwegian Refugee Council and the Government of Singapore. The various partners are active in specific regions and locations, with most providing technical assistance, seed funding or scholarships for targeted groups. There is a coordination mechanism which ties these development partners together in dialogue with their government counterparts through regular consultations.

7.5. Conclusion

In an effort to reform financing and governance of the TVET sector, the government is in active consultation to identify a more sustainable financing path. The current system where there is no coordinated planning and financing of TVET provision is cost-ineffective and cannot respond to the changing needs of the labour force. Whether the government chooses the path of a common integrated national training fund where all sources of financing from the public sector, from levies on the private sector, and from development partners are pooled and disbursed, or a path where there are two separate financing flows to the formal TVET providers, and to the workplace skills development, is key to enabling the sector to move forward to contribute to the national economic agenda. Through increases in the budgets for TVET within the *NESP*, the sector has attained some gains in access and quality in the last two to three years. However, the needs for skills in a modernizing and growing economy require a sustainable financing mechanism to meet demand.

Chapter 8. Strategic priorities and policy options

8.1. Key findings

This policy review provides a diagnostic of skills development in Myanmar, and seeks to understand the levels of human capital that the country possesses and requires in order to resume economic growth, which has stalled in recent years. The review looks at the barriers to skills development, and current worker supply compared with needs. A number of recommendations are proposed to address the challenges and provide a future direction for TVET policy.

8.1.1. Social and economic development

Myanmar is on a continuing path of transformation. A sustained focus on implementing broad-based reforms through the difficult transition years led to a growing and stable economy dependent on agriculture as the major growth engine and main source of livelihood for 49 per cent of the labour force. Economic gains translated to a significant decline in poverty from a high of 48.2 per cent in 2004/05 down to 32.1 per cent in 2015. Human development outcomes improved, posting measurable results in increased life expectancy, improved maternal mortality and more years of schooling. Securing peace and stability in conflict-affected areas and finding sustainable solutions remain critically important as the foundation for bringing about inclusive and sustainable development.

8.1.2. Labour market structure

Myanmar has a favourable demographic profile conducive for economic growth. Its population is projected to grow -- the highest increase will be among the large youth population and prime-age workers. New jobs will be needed to absorb the expansion of the labour force, and improvements in labour market conditions will be essential to support increased productivity and competitiveness. However, Myanmar's workforce is largely unskilled with low educational attainment, and the poor quality and relevance of education adds an important challenge that needs to be addressed. Currently it is producing a labour pool with insufficient knowledge and skills which is ill-prepared to provide the skills sets required by the labour market that is becoming more sophisticated compared to the farm-based employment. A skill-deficient graduate has poor employability and reduced potential for increased earnings in the future especially in industry and services sector.

8.1.3. Skills needs in the labour market

Six out of ten workers in Myanmar work in informal jobs or run their own micro-business. Particularly in the rural areas, the seasonality of output and employment drives farm workers to seek alternative income sources, typically in low-paid and informal jobs. The projected growth in jobs and thus demand for new skills will intensify with the ongoing transitions of the economy to high value added goods and services in industry and service sectors. It is clear that new kinds of jobs are forthcoming as a result of the new drivers of growth particularly in the energy sector, construction sector, manufacturing, tourism and ICT. The levels of FDI and domestic investment are now at an all-time high, and it is likely that the competition for skilled workers will increase.

8.1.4. The education system

The government has been reforming the national education system with a view to adapting it to meet the lifelong learning and career aspirations of the students, new development challenges of the country and international trends. The *National Education Strategic Plan 2016–2021* set key directions for the government, education stakeholders and citizens, with a 'roadmap' for sector-wide education reforms and expected targets over five years. The education system is still facing some challenges and going through a major transformation. The basic education system is being transformed into the KG + 12 system, and a new curriculum which is designed to foster twentieth-century skills is being developed. The existing system is being replaced by the new developments in phases. Achievements of the education reforms include an increase in the budget for education, an increase in net enrolment rate in basic education and the launching of new schools, teaching the ethnic languages in basic education schools, recruiting new teachers and upgrading teacher qualifications.

8.1.5. The TVET system

Provision: The government provides TVET at upper secondary and post-secondary levels as a part of the national education system. TVET programmes are also provided by thirteen different line ministries and by private organizations. The two leading ministries that provide TVET are MoE and MoALI. MoE is the largest of the public providers of formal TVET. It manages a national network of GTIs, GTHSs and vocational schools offering diplomas, technical high school qualifications and short courses. Other ministries, together with an increasing number of private-sector providers, also conduct TVET programmes, but these are more likely to focus on short-term training skills related to areas of specialist technical need.

The limited choices of courses, the poor learning pathway and the lower perception of TVET than of general education in Myanmar have caused these TVET schools, especially at the upper secondary level (GTHS), to be perceived as inferior to other formal learning pathways such as general education. The access to post-secondary TVET (at GTIs) is limited to the outstanding students from general high schools and GTHSs.

Teacher training: There are two TVET teacher training centres under the Ministry of Education. The teaching profession in TVET is predominantly (86 per cent) female. Since the teachers start working in that capacity immediately upon completing their first degree (typically bachelor of engineering) from the technological universities, most of the teachers have little industrial experience and practical skills.

Qualifications and certificates: Based on the Employment and Skills Development (ESD) Law, NSSA has developed skill standards, assessment and certification for skilled labour. There are about fifteen technical sectorial committees comprised of experts from both private and public organizations: companies, associations and relevant ministries. NSSA has so far developed a four-level national competency framework, known as NSSA Levels 1 to 4. As of March 2019, NSSA had prepared 173 competency standards, mainly for Level 1 and 2, in selected occupational areas such as engineering, hospitality and tourism. The Myanmar NQF provides descriptions of each education level, but the pathways for both vocational and academic qualifications and the relationships between these qualifications are not yet mentioned. The link between the vocational and technical skills certificates at Levels 1–4 in the NQF and the National Skill Standards developed by the NSSA are not finalized yet.

Curricula: TVET curricula are developed by the relevant ministries and there is currently no organization to oversee the quality of the programmes. There is no evidence that relevancy of the courses to the emerging economy of Myanmar has been considered.

Financing: In an effort to reform financing and governance of the TVET sector, the government is in active consultation over the more sustainable financing path. The current system where there is no coordinated planning and financing of TVET provision is cost-ineffective and cannot respond to the changing needs of the labour force. The current financing of TVET in Myanmar is not currently based on an integrated approach, and the public bodies that conduct various TVET programmes are independently allocated their budgets by the Ministry of Planning and Finance based largely on the previous year's budgets. The forthcoming TVET law will clarify and provide guidance to these issues.

If the government opts to separate funding for formal skills training from that for workplace skills training, it can use the mechanism for the latter which is already specified in the EDSA Act 2013, under which employers are required to contribute between 0.2 percent and 2.0 per cent of payroll to a training fund, and the main beneficiaries are current

employees and the unemployed. To date this law has not been implemented, and government needs to make a decision on its execution, especially on how funds would be managed. A dialogue with the private sector is important to get this resolved.

Digitization: Myanmar has moved with dizzying speed into a digital future. Most young people and adults now use smartphones and have robust connections to the internet. The TVET sector is just beginning to come to terms with this new connected reality. Increasingly, MoE and other ministries recognize that digitization presents new employment opportunities, as well as avenues to expand access to learning and training, and strengthen its quality and relevance. The next step is to begin acting on these opportunities with pilots and possibly larger-scale deployments and programmes. Stakeholders across the sector are encouraged to approach TVET with a mobile-first outlook on technology; older paradigms of computer labs filled with expensive and difficult-to-maintain equipment are not relevant in a country where mobile technology is so dominant. There remains a dearth of high-quality mobile learning TVET content, and this is where government resources should be directed in the near and intermediate term.

8.2. Strategic priorities and policy options

8.2.1. Strengthening the governance of TVET system to ensure its relevance

TVET is an instrument to modernize the economy and increase the competitiveness of enterprises in the face of liberalization and globalization. The primary objective of TVET is to respond to the needs articulated by enterprises and by skills needs in the labour market, which would be different by region and by state in Myanmar and also by different needs of individuals (e.g. to support the readiness for employment targeting people with disabilities, ethnic minorities, etc.). The draft TVET law has been under preparation, which defines rules and regulation on all aspects and types of TVET in Myanmar, including the harmonization and coordination on TVET policies and provision across multiple ministries and both public and private entities (at the moment there are 13 line ministries providing formal TVET programmes in Myanmar). The new TVET law will also ensure the autonomy of states and regions on TVET provision. While waiting for the enactment of TVET law, public and private entities develop and deliver their non-formal TVET programmes in line with the standards set by the National Skills Standard Authority (NSSA), which was set up under MoLIP as a regulatory body, aiming to promote of Competency Based Skills Trainings, Recognitions and Certification as urgently needed in the current labour market. However, a defined TVET strategy does not exist in Myanmar. A comprehensive and overarching national TVET strategy, encompassing not only formal TVET programmes, but also non-formal and informal TVET provided by non-governmental and private entities, will need to be developed and implemented with the engagement of multiple relevant ministries and the relevant private sector, paying attention to specific demands for skills in each region and state in Myanmar. Engagement of the private sector and industrial bodies in the design and provision of TVET should be further encouraged.

Although the National Accreditation and Quality Assurance Committee (NAQAC) and the Teacher Professional Training Centre (TPTC) are the executive arms for quality development and assurance on TVET under MoE, NAQAC is still not well known among TVET stakeholders in Myanmar ; however, the progress has been made in order to coordinate with NSSA. The functions of NAQAC and TPTC, which are critical to ensure the quality of TVET, need to be further strengthened and operationalized. For example, rewarding an incentive for compliance of the quality assurance set by NAQAC by TVET institutions can be taken into account.

The roles and functions of GTHSs and GTIs will need to be re-examined in view of the entire spectrum of TVET and all types of training for employment provided by thirteen different ministries and by non-governmental and private entities in Myanmar. In particular, in order to meet the demands for skills by employers quickly, provision of short-term courses (e.g. those provided by polytechnics) will need to be expanded quickly while the expansion of longer-term TVET programmes will also be needed to meet the goals of economic, social and sustainable development of Myanmar.

Moreover, effective learning pathways for learners will need to be established in order to ensure lifelong learning and training of individuals, in particular, the pathways between TVET institutions and higher-level of education and training institutions, and the provision of education and training opportunities for those who are employed and/or self-employed in the labour market for their upskilling.

In order to ensure the sustainability of TVET system in Myanmar and to meet various demands for skills in each state and region in an inclusive manner, efforts to mobilize necessary and predictable resources for TVET will need to be continued. A sustainable financing mechanism on TVET will need to be established by both public and private sectors, such as the expansion of the allocation of governmental budget to training and the introduction of the system to mobilize financial resources from employers for training, to meet the changing skills demands of a modernizing and growing economy in a timely manner. At the same time, support should be provided to encourage the provision of TVET programme by non-governmental and private entities and strengthen their leadership.

8.2.2. Use of labour market information and intelligence for TVET policies

Overall, collection and analysis of labour market information (LMI) is weak at national, economic sector and local (TVET institutions) levels, and the impact of the available information has so far been relatively small. The government has undertaken a strategic prioritization and (apparently) a sector-by-sector approach to improving the competitiveness of enterprises. Yet there is no common information base, and institutional responsibilities for LMI collection and analysis are insufficient. There is no evidence of cooperation among ministries or the harmonization of information methodologies (including across technical and financial partners). At the same time, the political context of the past decades has made information collection at local levels difficult. Data on informal, seasonal and contractual workers, as well as on learners in non-formal and informal training programmes have not been systematically collected and analysed. Besides, data on the availability of job opportunities by region and state and skills supply data (e.g. enrolments, dropouts and graduates) from public and private TVET institutions have not been systematically collected and analysed for the use of TVET policy and decision makers. There is no evidence of tracer studies or other forms of monitoring labour market outcomes.

The sector approach to TVET as a whole (initial and continuing training) can help prioritization and coordination between the different subsystems. Other forms or scope of prioritization can be envisaged, including regional prioritization and targeting groups such as out-of-school youth and adults (for instance a youth certificate is envisaged). However, at present attention of collecting relevant LMI seems to be given to urban TVET institutions; the only evidence of serving rural young people is the MoI mobile unit.

A complementary approach is a methodology presented in this report which tracks the demand for jobs and employment in urban Myanmar using big data from jobsites whereas the traditional LMI (such as labour force surveys, which may take time and may be costly) has targeted nationwide. This demonstrates the power of new media, and the opportunity for Myanmar to leapfrog unto a new system where the friction in the labour market is minimized through near-real-time information on available jobs and people seeking jobs. The biggest jobsite in the country, JobNet.com.mm, for instance has seen its number of users double every few months, and now reaches over 450,000 users. These trends can provide new information on occupations which could be quantified in a granular way to help training providers in TVET and in the modern sector of Myanmar, especially in the urban areas, in customizing courses, and provide information to the job-seekers on the trending kinds of skills that employers want. The methodology employs big data science and artificial intelligence (the methodology is given in *Annex 2*).

Box 8.1. Recommendations for future actions on big data

Further Labour Market Information Research

JobKred and JobNet's big data research was able to generate comprehensive and detailed insights into labour market skills demand, in a short time span of a few weeks. However, the limitations are that the data is relatively focused on formal hiring and the major cities of Yangon and Mandalay.

Future actions could be to conduct research into data from the informal hiring sector and from the provincial areas, to provide a more comprehensive overview of labour market skills demand, and also to analyze skills supply with worker skills profiling and assessments.

The recommendation would be to work with companies with a track record of using technology to conduct the research, in the form of digital surveys, skills profiling, focus groups, interviews, so as to speed up data collection, and tie the research to a common skills taxonomy used for TVET in Myanmar.

Skills Framework Development

With the labour market data gathered from the TVET System Review, an update and refresh of Myanmar's Skills Frameworks under DTVET can be carried out. The comprehensive data collected would also allow for analysis into the job and industry trends, to help inform on the strategy of which industry to focus on for development.

Recommendations would be to use additional data sources from other developing and developed nations, such as Skills Frameworks and labour market data from other countries, to predict the needs of Myanmar 5-10 years forwards.

Curriculum Adaptation and Teacher Training

Curriculum would need to be updated, based on the latest labour market information, and also following the national skills frameworks as a certification and qualification system for training providers. Teachers would also need to be trained to be able to address the learning needs identified.

Recommendations would be to use modern tools and methodologies for education, curriculum adaptation and teacher training. For example, Singapore encourages TVET schools to digitize their curriculum and use online platforms to help students manage their courses, thereby allowing for agility in the delivery of education to meet the changing needs of the industry. Teacher training is also delivered via online learning and competency management systems, to standardize the training and track outcomes.

Skills and Career Development Guidance

With the labour market information collected, agile and dynamic career guidance and skills gap analysis can be carried out for the stakeholders in the economy – students, parents, employees and employers.

The recommendation is to provide a nationalized system of career guidance, centered around identifying career goals, using labour market information, and identifying skills gaps so as to allow the individual to make informed choices on taking up education and training. An online platform with mobile app could be the main delivery mechanism, to allow citizens from every part of the country and every education or development level, to access this guidance, and with AI to personalize the guidance to the individual.

Training Providers

Skills demand identified from the industry should be mapped to the education and curriculum being provided. If there are gaps, steps should be taken to find quality training providers to close the gaps.

The recommendation is to consider alternative methods of providing relevant training to workers and students, rather than going through the formal review of curriculum in the formal education sector.

Industry collaborations can be created, for private sector to develop the necessary training to upskill their workers, and at the same time offer courses to aspiring workers. For example, the hotel sector in Yangon is already building training centers for their staff, and opening it to students. In Africa, China Power has created multiple training academies in various countries of Africa, to ensure the supply and quality of talent they need.

Another alterative is to work with external training providers from other countries or online MOOCs, to provide the quality training and courses that Myanmar cannot currently provider. For example, Singapore's polytechnics and hospitality association does partner with other nations to bring the Singapore curriculum to other countries, and train-the-trainers to transfer knowledge to local trainers.

Employment, Employees and Employers

With Industry 4.0 and the changing future of work, even the current working population has to be re-skilled and upskilled. Students also need a clear pathway and channel to employment both during and after their studies.

The recommendation is to start with better industry and school collaborations, to institutionalize an apprenticeship or internship system for students to gain valuable work experience, and for employers to identify quality talent. A national platform can be provided to all tertiary institutions to manage the matching of students to employers for pre and post graduation work opportunities.

Employers should also be incentivized and guided in the skills development and digitization of their own workforce. Grants and training subsidies can effectively encourage employers to send their workers for training. Online platforms can also administer and guide employers in their employee training. For example, JobKred in Singapore works with both private and public sector institutions to utilize an AI-powered workforce transformation platform in guiding the workforce development of civil servants and private sector employees, reducing the time and cost spent in workforce transformation, and allowing for easier administration of training grants and subsidies.

Source: JobKred

8.2.3. Development of occupational standards, qualifications and quality assurance frameworks

The government is developing a national qualifications framework (NQF). There is a system of levels of occupational certification (from Level 1 to 4). There is therefore a framework in place. There is at present more focus on quality assurance of the process rather than quality management of the system. Much investment has been put into oversight institutions such as NSSA with the support of various development partners since 2013. The work is conducted via fifteen sector committees. The engine for developing occupational standards exists nationally or is beyond the design stage and the framework is established, but the system serves only a tiny proportion of the prospective clients. The establishment of competences and the necessary capacity to evaluate them in or out of the workplace has started in some sectors but remains at initial stage. Data on certification results have collected and disseminated by NSSA technical offices, however digitization method should be further improved in order to reach intended stakeholders, and not yet used to provide feedback to individual learners (for instance in relation to their competence development process, their strengths and weaknesses, and their careers); to the TVET providers (for instance, in relation to the design and organization of the certification process, and also on other processes such as their pedagogical and didactical approach); and at system level (for example, in relation to learning-outcomes-based standards, labour market outcomes, requirements for teachers and assessors, and stakeholder involvement). Moreover, certificates can be better linked to skills needs in the labour market in Myanmar as certificates are based occupational competency standard and the assessment plan jointly developed by the respective sectorial committee members which includes employers, professional associations and TVET public -private providers, and supported by concerned development partners. There is also a question of how to improve responsibility of the 15 sectorial committees for communicating with their concerned enterprises and economic sector.

The Burma Standard Classification of Occupations listed occupations (936) since 1972. With a list of (1401) occupations, the revised version with information on the new occupations was compiled by Ministry of Labour Immigration and Population (MOLIP) published in 2003, with the technical cooperation of the ILO/ UNDP. Considering experience gained from National Skills Standard Authority (NSSA) activities, there is a need to review and revise the 2003 version by incorporating new occupations and reflecting shifts in the relative importance of occupational groups for competency standard development and related skills assessments and trainings demanded by the industries.

The outstanding policy issue is the timescale (and resource base) for establishing a credible structure to certify learning and competence outcomes for initial TVET. NAQAC has not yet started on the TVET subsector, whereas the quality of the content and pedagogy of TVET programmes requires attention at the point of delivery. For the public-sector TVET institutions, both autonomy and marketing capacity are at a lower level. There is room for improvements on the quality in MoE TVET institutions (GTI and GTHS) ; the curriculum and textbooks are not fully implemented because of a lack of infrastructure, equipment and a qualified teachers, while standardized curricula developed by MoE has been used for GTI and GTHS and efforts to harmonize curricula across different TVET programmes has been ongoing.

For all stakeholders, 'quality' of training provision is considered important. However, despite an apparent preoccupation, 'quality' indicators tend to be input-based (courses run, numbers of students, assessment conducted) rather than outcomes-based. Training for TVET teachers and instructors should respond to the skills needs in the labour market. Quality of pre-service and in-service teacher training, continuous professional development and industry experiences to upgrade the skills of TVET teachers and instructors, which will all be defined by the new TVET law, should also be assured. A course for self-assessment of the quality of teaching will need to be developed and provided to TVET teachers and instructors. Recognition of prior learning needs to be further expanded and ensured to recognize individuals' skills acquired by informal and non-formal training.

School development plans (SDPs) should eventually play an important role in putting TVET institutions in a quality loop. The SDPs should include more performance-based indicators such as reducing the number of drop-outs, success rates, employment after graduation, and the number of learners placed in internships.

8.2.4. Digitization

a) For expanding access

DTVET and other ministries and agencies responsible for providing technical training to learners should consider developing online, mobile-first learning content to facilitate implementation of i-TVET. This online content is scalable in a way that brick and motor institutions are not. Once units, modules and courses are built for digital consumption, they can reach hundreds, thousands or tens of thousands of learners with only modest price increases.

Blended learning solutions provide Myanmar with a means to quickly enlarge TVET enrolments, while training an appropriate number of teachers. If students complete some of their learning through mobile technology, this gives teachers an ability to interface with more pupils. Efforts should be made to 'flip' TVET classes, so that students study concepts outside of classrooms and then apply knowledge in classrooms or training facilitates. Sessions could be 'phased' so that two or more groups of students can use training equipment, such welding machines, which can be scarce and expensive. Blending learning solutions can also be used to expand TVET teacher development programmes. UNESCO recently launched a project to use online and offline education to enlarge and improve the quality of teacher education for primary and secondary school instructors in Myanmar. This work may provide models for the TVET sector.

Promising vehicles to build and test the viability of mobile-friendly, online learning content are the TVET centres of excellence (COE) in Yangon and Mandalay. As described in the *NESP*, the COEs should 'demonstrate best practices for TVET institutes in Myanmar and [to] undertake research and innovation in TVET provision' (MoE, 2016, p. 176). These centres aim to 'provide high-quality training in all trades and be equipped with the latest technology and equipment to support quality training and learning', while developing and testing new approaches to trades training. In light of this mandate, the COEs should begin immediate experimentation with digital learning content, targeting specific trades and aligning curricula with the NQF. A simple first step might be to digitize one or more distance learning programmes that currently rely exclusively on paper and ink materials. Following successful pilots, mobile-technology-facilitated TVET should be scaled up, increasing the supply of TVET in line with national goals. Early lessons can be drawn from attempts led by the Ministry of Higher Education to provide online learning portals to law students and those studying computer science.

Beyond expanding access to education, efforts to develop and deploy digital learning content have a peripheral benefit: strengthening the digital skills of learners. Students who interface with educational content through digital portals gain confidence using electronic hardware and software. This confidence often inspires learners to leverage technology in other ways, for mobile banking or other purposes. The digital skills gained through online learning help prepare people to excel in workplaces that require the use of digital technology and platforms.

Overall, government efforts should prioritize high-quality learning content above infrastructure, a reversal of current priorities. The market and private-sector actors are filling infrastructural gaps much faster than the education sector, but digital learning content for TVET is not yet widely available and very few private companies are providing it. TVET digitization initiatives should be exclusively mobile-first in light of the technology and connectivity available in the country. Ministries should reinvest money earmarked for expensive and difficult-to-maintain TVET computer labs into stipends and grants to help low-income students purchase relatively inexpensive mobile technology. Options that allow learners to own technology that can be used at any time and anywhere are preferable to options that let students use technology irregularly in centralized locations for limited periods. The government should further consider using universal service funds (USF) to expand mobile coverage and electricity so that mobile content is accessible to all. If USF investments are insufficient, MoE and other ministries providing TVET should work closely with the national telecommunications regulator to incentivize operators to bring mobile networks to under-served areas. For example, new or expanded licences can be granted to mobile network operators on condition that they build networks in zones lacking reasonable-quality 3G or 4G connectivity.

The government should work with an assumption that learners will find strong digital learning content that helps them enter jobs and trades, just as millions of people have found and use digital communication platforms like Facebook and WhatsApp. This content should have limited or no barriers to entry. The ILO (2018) has noted that TVET growth is constrained by programmes for which entry requires success in the Matriculation Exam at the end of Grade 11. In a country where a majority of young people do not complete middle school, onerous entrance requirements for TVET have denied training and learning opportunities to under-privileged young people and adults as well as those living in rural areas where the quality of education is often poor (ILO, 2018). Digital platforms could give learners who do not meet minimum entrance qualifications alternative pathways to access TVET at a low cost, or even no cost. Learners who successfully complete digital learning modules – and verify their educational achievements at testing centres – could, for example, be admitted to bricks and mortar TVET institutions. The idea is to establish a low-touch, low-cost pathway for learners who might have dropped out of school to re-enter education and training, and develop technical and vocational skills.

Digital learning content should also be considered for teachers. MoE and other ministry officials regularly identified insufficient teacher capacity and qualifications as a significant barrier to high-quality TVET (mission notes, 2019). The *NESP* envisions a top-down approach to improve teacher development: 'Capacity-building training will be delivered to principals, department heads and managers. Firstly, master trainers will be trained and then cascade training courses implemented. These training courses will produce more effective managers able to improve the quality of TVET provided by their schools' (MoE, 2016, p. 178). Mobile solutions give the government alternative, bottom-up ways to reach pre-service and in-service TVET instructors in their present locations. Work by UNESCO (2012) highlighted the potential of mobile learning to build the capacities of educators, including those serving students in very low-resource contexts. Such solutions are also relatively easy to scale up. As part of a project conducted from 2013 to 2014, UNESCO developed mobile content to support English language teachers in Nigeria. The content was published on a widely used mobile platform called Nokia Life. At the end of the two-year project, the learning service – ostensibly aimed at a relatively narrow group of teachers (English language instructors of primary schools students) – was being accessed regularly by over 70,000 people, far more than UNESCO had anticipated (UNESCO, 2017). The project demonstrated the way mobile learning solutions can reach large numbers of people in short spans of time.

b) For strengthening quality and relevance

To ensure the quality and relevance of education, TVET institutions need to become more up to date with changing skills demands. Data is central to this process, and the sector should establish digital systems to observe where employment and unemployment is concentrated, how salaries differ within and across sectors, how skills demands in Myanmar vary geographically, and how they compare with other countries. This information will help the country to not only respond to current skills needs but also strategically position TVET programmes to facilitate national development goals. For example, if Myanmar plans to move up the value chain in industries like textiles, it needs to develop worker skills beyond those in immediate demand. Ideally, the ICT systems that support intelligence about skills demands will enable strategic as well as reactive decision-making in the TVET sector.

The current ICT systems have been designed based on existing data collection forms that encompass TVET and are managed by MoE. Currently, the database Education Management Information System (EMIS) includes student details information, staff details information, school data, and information on tracer studies. However, the information on tracer studies could be added or modified further in order to meet additional requirements. The system can easily produce the

data on several indicators at the national, regional, local, and individual institution level to use for analytical purposes. The current database EMIS system is a web-based application, which users can access easily and remotely through different user levels and permissions. According to MoE officials, the EMIS system currently in use has not been developed with options to establish links to labour studies. For EMIS data and other data repositories to be useful, they must be manageable and accommodate analysis and visualizations that support evidence-based policy-making. Ideally, data-gathering systems will support the quality and relevance of TVET by helping decision makers at various levels – nationally, regionally, locally, and at the level of individual institutions – to search, see and act on information that is relevant to them, especially as it relates to skills demands.

The *NESP* proposes the establishment of a research centre to 'conduct studies on skill types, localised employment needs, teacher requirements, teaching aids and pedagogies, and updated vocational subjects' (MoE, 2016, p. 180). It notes that the 'center will also estimate the required supply from TVET providers using labour market surveys' (p. 180). While this centre would represent an important step toward becoming more aware of and reactive to skills demands, it reflects a centralized approach. Individual TVET institutions should be encouraged to understand the skills needs in their areas and adjust training accordingly. Skills demands are too varied, too fast-changing and too geographically specific to 'see' from a single research centre; they require a multifaceted approach with institutions sending information and intelligence *upstream*, in addition to receiving *downstream* instructions.

The OECD (2014) and other organizations have found a mismatch between skills needed by employers and the skills being developed in formal TVET programmes. For example, findings from the *Myanmar Business Survey* (2014) show that firms identify computer and ICT skills and technical skills as 'the most commonly lacking skills' across almost all occupation groups. According to the OECD (2014), 'for skilled workers specifically, more than a quarter of firms report skills gaps in: computer and ICT, management and leadership, technical skills, and creativity and initiative'. Yet, despite these findings, TVET in Myanmar continues to be characterized by a narrow focus on mastery of highly technical skills which rarely incorporate ICT. From interviews and field visits conducted by UNESCO, very few TVET programmes appear to integrate digital technologies or aspire to strengthen learners' ICT skills. This illustrates that programmes are not as relevant as they could be, based on current knowledge of labour market needs.

Making use of digital tools to better account for – and accommodate through training – shifting skills demands should be a top-line priority to improve the quality and relevance of education. This process will clarify other quality assurance efforts such as better management of TVET institutions, strengthened teacher training programmes and the establishment of well-recognized skills standards and an NQF.

c) For improving management

Digital tools carry a potential to strengthen the coordination of complex systems. Appropriate software, although far from a panacea for organizational and management challenges, can help different stakeholders – even those with only basic digital skills – make sense of and navigate bureaucracies to achieve objectives. A government web portal that mapped the Myanmar TVET system visually would be a major step toward improved transparency. On top of this, it would help policy-makers see options for consolidation. The OECD (2014) has recommended that 'only one ministry' be responsible for the provision and quality of TVET and other education. To realize a reform of this scale requires comprehending and accounting for the scattered branches and sub-branches that currently comprise the TVET system. Digital technologies can facilitate this mapping and comprehension, often in ways paper and ink cannot, using hyperlinks, zooming functions and expandable menus.

Relatedly, UNESCO-UNEVOC (2018) observed that the current TVET system 'does not have many pathways between streams', and advised the government to 'establish a more integrated system that bridges programmes, including TVET to higher education' (p. 14). Here again the necessity of 'seeing' a system in its complex entirety comes into focus. Mapping is necessary to help take stock of existing pathways and forge new ones, in line with government goals. Many governments build and share digital maps of TVET systems, and Myanmar should strive to do the same, updating the map following system changes. This fosters shared understandings of how the sector works, how disparate parts fit together and who plays what role. It is foundational to coherent coordination.

The process of digitally mapping the TVET system would have a parallel benefit of building the ICT capacities of ministry staff, thereby facilitating, even if in only a small way, the broader government transition to digitization.

Powerful digital management tools would also help policy-makers model how decisions are likely to affect individual TVET institutions. Currently, there do not seem to be systems in place to enable forecasting of this sort. This was particularly

apparent when UNESCO researchers visited West Yangon Technological University. Teachers at the institution noted that MoE had recently instituted a rule that entrants must first pass a difficult and nationally administered entrance exam. Previously the university admitted students with lower qualifications, and students who could not or did not wish to finish a 4+ year bachelor's degree programme entered a general technical institution (GTI) track. The decision to insist on a higher entrance requirement caused enrolments at the technical university to plummet by a factor of 10. Between the 2016/17 and 2018/19 academic years, enrolments dropped from nearly 300 to just 31 (mission notes, 2019). Surprisingly, the teachers and school leaders stated that this sudden decrease in student numbers did not trigger concurrent faculty changes; teacher and administrator numbers have remained constant. The experience of West Yangon Technological University illustrates the way top-down decisions – including those that may be strategic at a national level – can result in actions that do not make sense at the level of individual institutions. Digital systems can help policy-makers working at a national level model how changes to entrance requirements or other policy shifts will 'play out' closer to the ground, and plan accordingly.

Finally, web-based solutions can create single and well-organized points of entry for learners, teachers and other TVET stakeholders. Currently, information about TVET in Myanmar is scattered across ministries, paper files, websites and other resources that may or may not be digitally available. Digitization provides the government with an opportunity to move this material onto a single website. Learners could find information and content targeted to them, and so could teachers, school leaders and policy-makers. The Republic of Estonia's www.hm.ee/en/vocational-education website provides an example of this consolidation in practice. This web portal developed by TVET authorities in the Estonia Ministry of Education and Research introduces the sector and its organization, curricula, administration and institutions in a readable and visually attractive way. It helps those inside and outside TVET in Estonia understand how the country's system works. Myanmar should consider the creation of similar 'one-stop shop' for information about TVET, thereby establishing a shared understanding of the sector among its many stakeholders, laying foundations for reforms and establishing channels for effective communication. The site could also link to external websites containing learning content relevant to TVET.

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Annex 1. List of organisations consulted

1. Government

- Ministry of Education
  - Department of TVET (DTVET)
  - Administrative Section
  - Curriculum Section
  - Planning Section
  - Department of Basic Education
  - Department of Higher Education
  - Department of Information Technology
  - Shwe Pyi Thar GTI
  - Ywarma GTHS
  - SMVTI (Singapore Myanmar Vocational Training Institute)
  - SITE
  - Technical Promotion Training Center (TPTC) (Baelin)
  - Mandalay GTI
- National Accreditation and Quality Assurance Committee
- National Curriculum Committee
- National Skills Standards Authority (NSSA)
- Ministry of Agriculture, Livestock and Irrigation
  - Department of Agriculture
  - Department of Cooperative
  - Department of Small Scale Industry Development
  - Department of Fisheries
  - Department of Livestock and Veterinarian
  - Institute of Fishery
- Ministry of Industry
  - Directorate of Industrial Collaboration
  - Department of Training Center Supervision
  - Department of Technological Development
- Ministry of Investment and Foreign Economic Relations
  - Directorate of Investment and Company Administration (DICA)
- Ministry of Border Affairs
  - Department of Education and Training
  - Nationalities Youth Resource Development Degree Colleges
- Ministry of Construction
  - Central Training Center (Thuwana)
- Ministry of Hotel and Tourism
  - Hospitality and Tourism Institute
- Ministry of Labour, Immigration and Population
  - Department of Labour
  - Labour Exchange Offices
- Ministry of Planning and Finance
  - Central Statistics Office
  - Myanmar Economic Bank, Loan and Supervision Department
- Ministry of Social Welfare, Relief and Resettlement
  - Department of Social Welfare)
- Ministry of Transport and Communication
  - Department of Transport, Meikhtila)

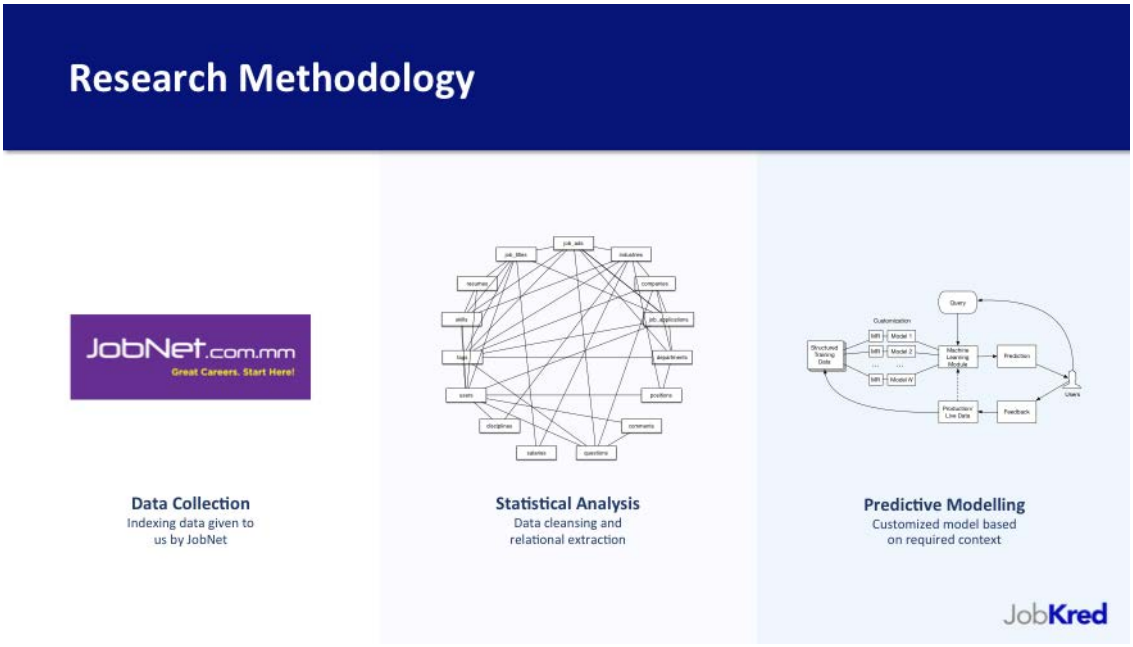
2. Other public and private entities

- Chate Sat
- Coursecom (UMG)
- Dagon Glory Co.Ltd
- JobNet.com.mm
- Maple Trading Co.Ltd, Garment Manufacturing
- Myanmar Center for Responsible Business
- Myanmar Computer Federation
- Myanmar Development Institute
- Myanmar Education Quality Improvement Program (My-EQIP)
- Myanmar Industries Association
- Myanmar Small and Medium Industrial Development Bank
- My World (recruitment agency)
- Phandeeya
- Thilawa Special Economic Zone
- Union of Myanmar Federation of Chambers of Commerce and Industry (UMFCCA)
- Yangon West Technological University

3. Development partners

- ACTED
- Asian Development Bank (ADB)
- Center for Vocational Training (CVT) Myanmar
- Finnish Refugee Council
- Gesellschaft für Internationale Zusammenarbeit (GIZ)
- Norwegian Refugee Council (NRC)
- International Labour Organization (ILO)
- Japan International Cooperation Agency (JICA)
- Kreditanstalt für Wiederaufbau (KfW)
- LuxDev
- Swiss Embassy-Swiss Agency for Development and Cooperation (SDC)
- Swisscontact

Annex 2. Methodology for predicting jobs and skills demand using data science and AI



Over 20,000 data points from the JobNet.com site were obtained and cleaned. The job titles were mapped to appropriate ones within the JobKred taxonomy (see www.jobkred.com). An initial analysis was carried out using the mapped job titles to understand employer demand from the labour market, with the frequency of job title as indicator. In turn, job descriptions were processed by the JobKred predictive engine to identify skills relevant to the job titles. The employer demand for skills was once again calculated using frequency of occurrence as the indicator.

The taxonomy is JobKred's Jobs and Skills taxonomy derived from global data analysis, where it gathers data from sources like job boards and resume sites, to build a taxonomy of job titles, skills relevancy to those job titles, and other data such as years of experience. O*NET (in the United States) was the initial reference. JobKred now has 10,000 job titles and 30,000 skills being updated in the taxonomy. It uses statistical analysis, mathematical modelling, natural language processing and machine learning to continue to refine and cluster the skills and job titles.

Annex 3. Development partners' support to TVET in Myanmar

	TVET Access				
	Establish an integrated TVET system that strengthens all TVET pathways	Increase the capacity and upgrade existing long-term TVET programmes	Undertake competency-based modular short courses	Establish TVET Centres of Excellence (COEs)	Expand stipends and scholarships for disadvantaged students
ADB	x		x	x	x
JICA/Japan	x	x		x	
GIZ/KfW	x	x	x	x	
LuxDev			x		
SDC			x	x	
LIFT*	x	x	x		x
LIFT and ILO	x	x	x		x
European Union (including with ADB)	x	x	x	x	

	TVET Quality and Relevance				
	Undertake capacity development training for TVET managers/ management staff	Provide pedagogical and specific training for pre-service and in-service TVET teachers	Establish dual training systems at training institutions and industry workplaces	Develop/ upgrade TVET curricula	Establish quality assurance system
ADB	x	x		x	x
JICA/Japan	x	x		x	x
GIZ/KfW	x	x	x	x	x
LuxDev				x	
LIFT*	x				
LIFT and ILO	x	x	x	x	x
European Union (including with ADB)	x	x		x	x

	TVET Management					
	Establish a strengthened TVET governance system	**Establish duties and functions of a TVET Council and local TVET advisory boards**	**Establish a TVET financial management and monitoring system**	**Establish an information management system**	**Conduct TVET research**	**Establish public-private partnerships (PPPs)**
ADB	x	x	x	x	x	x
JICA/Japan	x	x	x	x	x	x
GIZ/KfW	x	x			x	x
LIFT*	x	x	x		x	x
LIFT and ILO	x	x	x	x	x	x
European Union (including with ADB)	x	x	x	x		x

Note:

* *LIFT:* Livelihoods and Food Security Fund: A multi-donor fund established to improve the lives and prospects of smallholder farmers and landless people in rural Myanmar, managed by United Nations Office for Project Services (UNOPS) and financially supported by Australia, Denmark, the European Union, France, Ireland, Italy, Luxembourg, the Netherlands, New Zealand, Sweden, Switzerland, the United Kingdom and the United States of America, as well as by the Mitsubishi Corporation.

Annex 4. Technical inputs provided for capacity development session on skills assessment

1. UNESCO TVET review and Capacity development session

Camille Courchesne

Introduction

The objectives of the session on 10-11 July 2019 were to assess the existing status of labour market information in the country and to deliver presentations at the capacity building workshop which was an integral part of the workshop.

The capacity building part of the mission was the most important one in terms of involvement. Four presentations were made and the fourth presentation was completed by the development of two mock-models in Excel (Demand model and Supply model) used for capacity building involving the use of existing data.

This report also addresses the most pressing challenges regarding TVET information development for planning and elaborate on the observation system required to support labour market analysis in Myanmar.

Concrete recommendations for future actions conclude the report.

Review of existing data and material

The review of existing data and material regarding the labour market was done in four ways.

First, a Web based research was done to try to identify official data producers in Myanmar. The focus was put on economic and social statistics (The language barrier was an important limitative factor in that process.). Further research will be needed to complete the assessment of the available data; in particular, a review of the content of the published reports will be required as well as contacts with the data producers in each case.

The following table presents results of this Web based research, identifying the data producer, the data this organisation is producing and adding some remarks.

Data producer	Data produced	Remarks
Central Statistical Office (CSO)	Population by urban/rural, sex and single years of age, Union	Latest Census is 2014
	The Union Report: Occupation and Industry-Census Report Volume 2-B	Following 2014 census
	2014 Myanmar Population and Housing Census Thematic Report on Population Projections 2014-2050	Published in 2017 and based on 2014 Population Census
	Myanmar Living Conditions Survey 2017	The sample size is 13 730 households
	Household Income and Expenditure Survey	Produced in 2012 (32 669 households)

	Household Income and Expenditure Survey (HIES 2006)	Produced in 2006 (32 000 households)
	Myanmar Micro, Small, and Medium Enterprises 2018 Qualitative Study	
	Myanmar Micro, Small and Medium Enterprise Survey 2017	A new survey is planned in 2019
	Myanmar Business Survey 2015 (MBS)	An on-the-ground listing operation carried out in 2014 by the Department of Labour in all townships of Myanmar, which recorded all formal and informal businesses with at least one hired worker, was used as the sampling frame. (Sample size is 135 364)
	Myanmar Agricultural Statistics (2016-2017)	Yearly publication in collaboration with Ministry of Agriculture, Livestock and Irrigation, and Ministry of Natural Resources and Environmental Conservation
	Statistical Yearbook 2018	Statistical Yearbook 2018 is a compendium of statistics on: Climate, Territory, Population, Health and Social Welfare, Vital Statistics, Justice and Security, Education, Households and Social Issues, Labour and Employment, National Accounts, Agriculture, Forestry, Industry and Construction, Tourism, Coastal Trade, Foreign Trade and Investment, Transport and Communications, Prices, Public Finance, Banking and Financial Markets.
Ministry of Planning and Finance	Gross domestic product at constant prices by sector of activity	Using SNA 1998 approach
	Integrated Household Living Conditions Assessment survey (IHLCA)	Produced in 2010 (18 660 households) Previous similar survey done in 2005
Ministry of Labour	Myanmar Labour Force Survey-2015	Latest survey available (Sample size in 24 000 households) A new survey 2018 is being processed and should be available by the end of 2019

	Labour force, child labour and school-to-work transition survey (LF-CLSWTS)-2015	In collaboration with CSO (sample size 23 425 households)
	Annual establishment listing	Once a year, the Department of Labour sends a request to all its township-level offices to conduct a listing/survey of all establishments in the respective township. A short one-page questionnaire is administered which records the number, gender and contract modality of a business's workers, as well as some additional information. This survey is to include all establishments with at least one hired worker (i.e. it excludes own-account and family-run businesses). (To be verified if still done)
Ministry of Industry	To be completed	
Ministry of Health and Sports (MoHS)	Myanmar Demographic and Health Survey (MDHS) 2015-16	Focus on women's empowerment (sample size 13 260 households)
Ministry of Education	Indicator for Enrollment Ratio (Gross/ Net) and Adult Literacy Rate	Published on CSO website Information not found in English (to be verified)
Ministry of Immigration	Migration data (both internal and international)	

Regarding TVET statistics, Ministry of Education is producing information for the Formal TVET system (public institutions); but there are 13 ministries involved in the delivery of TVET training. It was impossible to get information regarding the data those ministries are collecting. There is also a private TVET system and other providers for which no information is available.

As for the second way to obtain information regarding the availability of data, before the beginning of the workshop, a list of data required of skills forecast was sent to the Myanmar person in charge of the workshop asking for the status of the information required to build a quantitative skills forecasting model.

The answer received following that information request is presented in annex 5.

As indicated, some data were received, but it is obvious from the filled document retuned following the request regarding the availability of data that if there is to be a follow-up to the workshop in building a LMIS or a skills forecasting model, a more systematic and direct approach with the data producers will have to be done. The answer to the request sent is too limited. However, one conclusion is that to obtain information there will be a need to use a formal request and go through official channels.

The third way to try to obtain information on existing data was to ask directly the workshop participants about the availability of data. That approach was not very successful. Except for Ministry of Labour where the Director, Ms. Yao, was able to give information about the coming Labour Force Survey, other participants were more technical people who did not know much about the data collections activities of their ministry or did not considered themselves as being official

representatives of the ministry enable to comment on that issue. Furthermore, the representative of Ministry of Industry who was attending the workshop told us more about the industrial strategy being put in place than the availability of data.

Finally, **a fourth way** to be informed about the existing data was provided by the data reference content of the Myanmar TVET System Review Report. In particular, the report refers frequently to the World Bank analysis done by Wendy Cunningham and als.

The numerous data sources considered in the Cunningham and als analysis provide interesting information about data availability useful regarding future developments of the project. But it is indirect information and, since it is not the objective of her analysis, Cunningham is not putting much emphasis on the level of details available in the various data sources, the frequency of the updates and the conditions to get access to the data. All this will all have to be verified directly in order to do further work.

Consequently, if there is a follow-up to that workshop and a decision is taken to develop either a first version of a Labour market information system (LMIS) or a first version of a Skills forecasting model, it would be most important to plan an formal mission dedicated to map the available information: producer, detail of the information produced, modalities required to access the information for the eventual focal point of the LMIS or the Skills forecasting model.

Observation on the status of skills anticipation and labour market analysis in Myanmar

The capacity development session has demonstrated that the participants have much interest in improving the policy making process by including those tools in their approaches.

Following the workshop, one can conclude that there is no formal skills anticipation model available in Myanmar. However, regarding future jobs and labour market analysis, there has been work done (see for example the World Bank document made by Cunningham and als, *Myanmar's Future Jobs: Embracing Modernity*). Also, in recent years, both ADB and ILO have produced analytical documents on the labour market situation in Myanmar; those reports are listed in the bibliography of the UNESCO Myanmar TVET System Review.

However, if those documents are useful for policy analysis et their recommendations could be helpful for policy development, they are of less interest for civil society actors (students, parents, businesspeople…). For these actors, a Labour Market Information System, designed to fit their needs, is a better option. It would provide them with practical information about jobs, skills, training programs and centers, regulations, government programs both nationally and in their region.

Most pressing challenges and action plans

The most pressing challenge regarding the labour market in Myanmar is to **improve the general quality of its observation system.**

As was presented in one of the power point presentation, quality is a multidimensional concept. Improving the quality of the labour market observation system means expanding the actual household and business surveys to improve the quality of regional observation; it also means improving the frequency of the surveys on the same topics (the Labour Force Survey by example), making them more up to date, and reducing the delay required to publish estimates. Using administrative data should also be considered to develop information content without putting any burden on respondents.

A second priority should be to start **building a Labour Market Information System** integrating the existing information in a consistent framework. Elements of this information system could be disseminated through an Internet based approach primarily targeting two categories of clients: students and unemployed people. As a by-product of this activity, businesspeople and policy makers should also benefit from information about skills requirement and regional economic activity.

In parallel, works could be initiated to **develop prospective skills demand analysis.** This could first be done by using qualitative methods, as was done in Lebanon as part of the Net-Med Youth Project, complemented by a Big Data approach, moving toward more quantitative approaches when the new Labour Force Survey results are produced by the end of this year.

Concrete recommendations for future actions

1. Put in place a consulting group of Labour market partners (public sector, private sectors, civil society, academics) to act as a consulting body in the development of information regarding the Labour market.
2. In collaboration with Ministry of Labour and Ministry of Education, produce an inventory of existing and projected labour market data, identifying their producers.
3. In collaboration with Ministry of Labour and Ministry of Education, produce an inventory of existing and projected labour market institutional information (programs, training institutions, regulations…).
4. Start integrating the available information within a Labour Market Information System (***focal point to be chosen***), in close collaboration (through official commitment) with the various producers of information.
5. Design and develop an internet disseminating tool (international best practices should be considered) to communicate adapted information package to priority clients (suggested: students).
6. Develop a promotion campaign to ensure that the targeted clients are aware of the existing Labour Market Information System.
7. If enough resources become available, plan an extension of the actual Labour Market Information System in close collaboration with the consulting group referred in point 1.

Data required for Myanmar TVET skills needs quantitative modelling

The following table describes desirable data for the quantitative model exercise in quantitative skills forecasting at the national level in Myanmar. (If some data are not available, adjustments will be made during the workshop to cope with the situation.)

Following a basic framework to be used for developing each component of a model, the table describes the nature of the data required (historical data and forecasts if available), and potential source.

Model component	Data required	Dimensions	Source	Remarks	Availability	
					Yes	No
Preliminary decisions						
		Forecast horizon of the model				
		Number of industries to be used in the model		According to industry classification, data availability and policy needs		
		Number of occupations to be used in the model		According to occupation classification, data availability and policy needs		
Demand side (Jobs Openings)						
	GDP by industry (historical values and forecasts) (Citizenship budget – 3 files)	Categories according to the preliminary decisions	Macroeconomic model or SNA historical data from Statistical agency	Ministry of Finance sometimes has a baseline scenario of industrial production used for preparation of the Budget		
	Employment by industry	For each industry (Total and by occupation)	Labour force survey by Ministry of Labour (labor force survey – 1 file)	Total employment by industry is sometimes available through the macroeconomic model forecasts.		
			Labour productivity analysis	Useful to prepare forecasts		
	Employment by occupation by 5-years cohort		Labour force survey by Ministry of Labour	To be used to estimate replacement demand		
	Retirement data	By occupation and by gender				
	Migration data	By occupation				
	Mortality rates	By age and by gender				

Supply side (Job seekers)						
	Population (census data – 1 file OR http://www.dop.gov.mm/en)	By age and gender	Demographic census			
	Population projections	By age and gender	Demographic projections by Department of Population			
	Enrolment by year (enrolment data – 1 file)	By level of schooling	Education statistics	Primary and secondary levels (forecasts if available)		
	Dropouts by year (enrolment data – 1 file)	By level of schooling	Education statistics	Primary and secondary levels (forecasts if available)		
	Graduates by year (enrolment data – 1 file)	By level of schooling	Education statistics	Primary and secondary levels (forecasts if available)		
	Postsecondary enrolment (enrolment data – 1 file)	By program and by year		Postsecondary training institutions strategic plans if available		
	Post secondary dropouts (enrolment data – 1 file)	By program and by year				
	Post secondary graduates (enrolment data – 1 file)	By program and by year				
	Tracer studies or school to work surveys			Allocation of graduates to occupations		
	Labour force	By age and gender	Labour force survey			
	Participation rates	By age and gender	Labour force survey			
	Unemployment rates	By age and gender	Labour force survey			
	Unemployed	By previous occupation, by age, by field of study or highest level of schooling, by number of years unemployed	Labour force survey			
	Migration data	By field of study and by occupations				

Metadata						
	Industry classification					
	Occupation classification					
	Education/diploma classification					
	Qualification framework					
	Population census questionnaire					
	Labour force survey questionnaire					
	Coding manuals for surveys if microdata is available					
	Weights used in the surveys if available					

2. Manpower and Skills Development Planning

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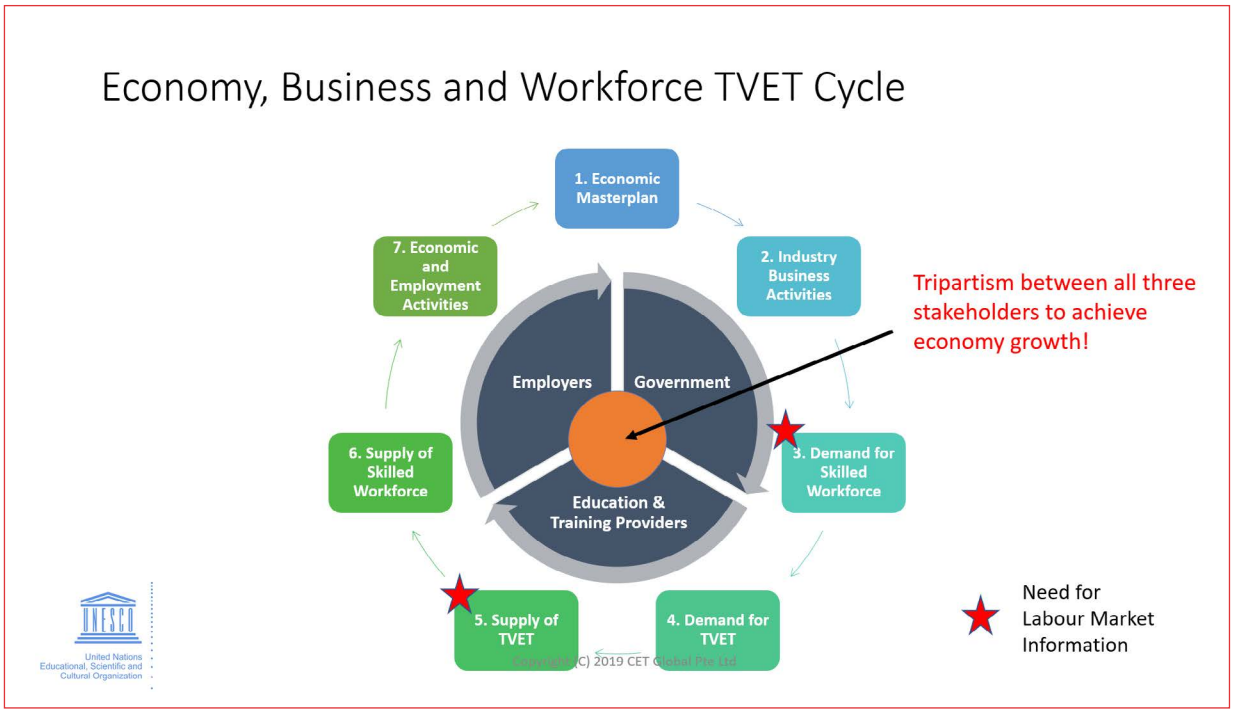
A quality and skilled workforce is essential to help develop, grow and sustain a country's economic growth and transformation. Developing the country's workforce requires multiple stakeholders' involvement and participation and involves delicate balancing on the supply and demand of skills, workers, and career progression opportunities. See Diagram 1 below.

Diagram 1: Ecosystem and Cycle of Economy, Business and Workforce TVET



TVET or workforce development planning always start with the country's economic masterplan agenda. This sets the direction on how industries, businesses and education should be developing. Understanding and forecasting the demand for skilled workforce will inform how the TVET supply should be managed and created. The key aim for TVET supply is to provide job-ready skilled workers needed by the enterprises and industries.

At the national level, a country will to establish a workforce development strategy to guide a country's approach in transforming the manpower and skills development. As illustrated in Diagram 2 below, Singapore's approach in workforce development is driven by 5 key strategic areas:

Diagram 2: Singapore Workforce Development Strategic Areas

It is worth noting that the strategy has to be developed with a national systems perspective, in partnership with employers, enterprises and unions.

Need for Industry Sector Manpower and Skills Development Planning

At the meso level, each industry sector requires a strategic medium (5 years) to long term (10 years) manpower and skills development plan. The objective of this plan is to ensure alignment of TVET activities to meet industry / economic needs and align stakeholders understanding of manpower and TVET skills development plan.

The Industry Sector Manpower and Skills Development Planning provides an overview and the masterplan to develop industry workforce capability to achieve business and economic agenda. It helps to establish the needs for industry workforce capability development, aggregate and analyse the demand and supply of skilled workers needed by industry in 5 to 10 years period. It will also identify and prioritise the competencies required for the targeted occupations needed and recommend the types of training programme or qualifications to address skills gaps and new skills. All these will eventually inform how these training programme or qualifications should be developed and implemented. The key components of an Industry Sector Manpower and Skills Development Planning is shown in diagram 3 below.

Diagram 3: Components of Industry Sector Manpower and Skills Development Plan