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Cambodia's Skill Gap: An Anatomy of Issues and Policy Options

Srinivasa MADHUR



Children at work, making Cambodia's future

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Phnom Penh, August 2014

The author is director of research at the Cambodia Development Resource Institute (CDRI). The author thanks Chhom Theavy and Va Vanda, research associates at CDRI, for their excellent research assistance and discussion of issues.

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Front cover photos:

1. A classroom in a rural primary school in Dangkor commune in the west of Phnom Penh, November 2013



2. A classroom in an urban primary school in Phnom Penh, January 2014

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List of acronyms

AEC	ASEAN Economic Community
ASEAN	Association of Southeast Asian Nations
CDRI	Cambodia Development Resource Institute
ECD	Early Childhood Development
MOEYS	Ministry of Education, Youth and Sport
MOLVT	Ministry of Labour and Vocational Training
PCD	Policy for Curriculum Development
SSC	School Support Committee
STEM	Science, Technology, Engineering, Mathematics
TVET	Technical and Vocational Education and Training
UNESCO	United Nations Educational, Scientific and Cultural Organization

Executive summary

There is growing consensus that an emerging skill gap could impose human costs and constraints on Cambodia's economic growth and development. The country is facing a shortage of skilled human resources even for low-to-medium skill intensive industries. There is a widening gap between the skills that industries and businesses need and what the education institutions, whether academic or vocational training, are producing. Cambodia's skill gap is emerging at a time when the Association of Southeast Asian Nations (ASEAN) is preparing to launch the ASEAN Economic Community (AEC) in 2015. The AEC will allow a freer movement of certain kinds of skilled labour across national borders. That could put further pressure on the country's growing but inadequately skilled young workforce.

Cambodia's emerging skill gap can be seen as the sum of two educational gaps: a schooling gap and a learning gap. The schooling gap is mostly about numbers—low enrollment rates, high dropout rates and low completion rates at various levels of education. The learning gap is about the quality of education—students may not be learning enough even if they go to school, stay there, and complete their respective grades and college degrees. Simply put, the schooling gap arises because not enough children are getting to school and staying there to complete the required grades, while the learning gap arises because students are not learning enough workplace skills that are demanded by the labour market.

Cambodia's youth is thus in need of not just more schooling but also better learning while in school and college if the country is to narrow the skill gap. No doubt, in the last two decades Cambodia has made huge strides in improving its education system. Government efforts to strengthen the education system have aimed at both stimulating the demand for education and augmenting the supply-side of the education system. Supply-side measures have focused on reconstructing educational hardware—school buildings, classrooms, textbooks and other school supplies, and infrastructure facilities connecting schools to homes, as well as rebuilding the software—improving the curriculum, and hiring and training a large number of teachers.

Despite the rebuilding of the education system, many constraints on the learning environment and quality of teaching need to be overcome. This paper identifies the shortage of trained teachers at all levels of education but particularly at the primary level as the single most important constraint on narrowing the country's skill gap. The teacher shortage problem has persistently plagued the country's education system. The clearest and perhaps the single most important indicator of teacher shortage in Cambodia is the very high pupil-teacher ratios in schools, especially at the primary level.

Cambodia's pupil-teacher ratio for primary schools is the highest among ASEAN countries; at 46.2, the ratio is close to twice that of Laos (27) and Myanmar (28), and two and half times that of Vietnam (20). Indeed, Cambodia's primary pupil-teacher ratio is the 16th highest in the world and the highest among countries outside of Africa. Moreover, Cambodia belongs to a short list of 26 countries in the world with a primary teacher ratio of more than 40, the upper limit beyond which the United Nations Educational, Scientific and Cultural Organization (UNESCO) says the quality of education suffers; and 23 of these are from Africa. Added to the shortage of numbers, inadequate educational qualifications and lack of teacher training seem to cut across the country's entire education system. That, in turn, translates into significant learning gaps for students.

The shortage of trained teachers is a self-perpetuating problem, resulting in a vicious circle of poor education over generations—today’s students are poor because today’s teachers are poor, and tomorrow’s teachers are poor because today’s poor students become tomorrow’s teachers, and so on. Inadequately trained teachers in primary and secondary schools also lead to a poor student pool entering higher education resulting in inadequately equipped graduates coming out of higher education institutions. That subsequently leads to the next batch of poor primary and secondary school teachers and another generation of poor students entering higher education institutions. The sooner Cambodia breaks this vicious circle of poor education, the better equipped youth will be to both contribute to and benefit from the country’s growth and development.

The country, therefore, needs not only more but also better teachers. There is merit in the country implementing a strategy of teacher development that has three interconnected elements—prepare them well (quality pre-service and in-service training), pay them well (better remuneration package), and ensure they perform well (better teaching and learning). Many countries that have been successful in developing a solid education system have followed such a PPP teacher development strategy. This is a kind of “conditional teacher preparation and pay” model. The long run objective should be one of having a teacher cadre that is drawn from the top echelons of the workforce. Given the lack of qualified teacher trainers in the country, importing well-qualified teacher trainers from abroad would be crucial for the success of the PPP teacher development strategy.

To enhance the effectiveness of the teacher development strategy in providing quality education, there is huge merit in pursuing a set of complementary measures that ensure children are adequately prepared for schooling, continuous review and update of the curriculum, continuous improvement of the teaching pedagogy, and local community involvement especially parent involvement in school management. As all these reforms would take time and the country cannot delay tackling its emerging skill gap, a well-designed and effectively implemented technical and vocational education training (TVET) programme could be the medium-term bridge builder for skill development. A significant shaping up and scaling up of the country’s fragmented TVET system would be required to enable it to play that role.

True, education is a culture—highly path-dependent and slow to change. Yet, it can be nurtured and shaped, as proven by countries as apart in culture, distance and initial conditions as Finland in Europe and South Korea or Singapore in Asia. It is also true that building a skilled workforce is a shared responsibility between government, education institutions, development partners, private sector firms and employees, training providers, students and parents. But such expectations cannot be realised without significant increases in spending on education, whether public or private. Moreover, success in re-calibrating the country’s education culture depends on strong political leadership. Without clear vision and direction, it would be impossible to bring about the mindset change needed to create conditions for the education culture that is envisaged and to mobilise the resources required for financing the kind of education reforms that are badly needed.

The cost of not prioritising education reforms—for tackling the skill gaps and empowering its youth through productive employment and decent jobs—would be prohibitively high. Cambodia is still experiencing a youth bulge in its population. Crucial to converting the youth bulge into a skill bulge is more schooling (narrow the schooling gap) and better learning (narrow the learning gap). This window of demographic dividend will gradually close as the population

ages. Unless the country acts now, today's education gap will simply become tomorrow's skill gap, just as the past gaps in education now show up as a major skill gap.

It took almost two decades to make some significant amends to the education system under Prime Minister Hun Sen's strategy of "people with low education teach the ones with no education and people with high education teach the ones with low education", a major departure from the Khmer Rouge regime's slogan of "Study is not important. What's important is work and revolution". Despite the significant achievements of the past two decades, a major skill-gap is now emerging in the country. Cambodia's own experience surely highlights the fact that putting education to work—to enable it to close the skill gap—is a long-term project. Most initiatives taken now will not yield immediate results, producing tangible benefits only after many years. This is another major reason why the time to act is now and not much farther in the future.

There is no reason why Cambodia should not be able to build a modern education system that can provide high-quality education to Cambodian children and youth. It is equally clear that a business-as-usual approach that would only involve some tinkering of policies here and there is not an option. In rethinking the country's education system, it is equally important to follow through with the institutional changes required for timely and effective implementation of the reforms necessary for accomplishing that feat. Political commitment at the highest level would be the *sine qua non* for that. "We cannot solve our problems with the same thinking we used when we created them" (Albert Einstein).

1. Emerging skill gap

Cambodia has achieved strong growth in the past two decades and the country is now on the verge of graduating to a middle-income status. As the country traverses its middle-income path, several factors could constrain growth and development; there is thus the possibility of the economy getting stuck in the well-known middle-income trap (CDRI 2013, 2014; Madhur, 2014). An emerging skill gap is one such factor. This paper places Cambodia's skill gap in a global and regional context (this section), outlines the anatomy of the country's skill gap and its twin components—the schooling gap and the learning gap (section 2), documents past policy initiatives aimed at narrowing the skill gap and identifies the remaining tasks and challenges (section 3), examines future policy options for a sustainable narrowing of the country's skill gap, with a special emphasis on tackling the shortage of trained teachers (section 4), and underscores the need for political commitment at the highest level for skilling the country's youth through cultivating an “education culture”(section 5).

This paper is the first of a series of policy research studies by the Cambodia Development Resource Institute (CDRI) that (i) analyses the potential for anchoring Cambodia's education for employment of its youth and the empowerment of its people, and (ii) identifies the strategic priorities and policy options crucial for realising that potential. It is part of a new multi-year programme, Skill Development and Education Reforms for a Middle-Income Cambodia, which will involve research, dissemination and policy dialogue. The programme will come up with a comprehensive study on anchoring Cambodia's education system for employment and empowerment of its people by the end of 2014, and a series of in-depth research products on specific aspects of Cambodia's skill gap and education reforms in subsequent year. It will be implemented in consultation and engagement with ministries and departments, educational institutions, private sector representatives, and Cambodia's development partners.

Cambodia is facing a shortage of skilled human resources even for low- and medium-skill-intensive industries. There is a growing gap between the skills that industries and businesses need and what the education institutions, whether academic or vocational training, are producing (CDRI 2013; 2014). In recent surveys, 73 percent of employers reported that university graduates do not have the right skills for the jobs for which they are applying; about 22 percent of the foreign firms in Cambodia identified skills as a “severe” or a “very severe” constraint on their business (World Bank 2012a); and three-quarters of establishments (covering a range of sectors) reported difficulties in filling vacancies because of a lack of qualified workers (Bruni, Luch and Somean 2013). Despite about a quarter-million youth entering the labour market every year, there are huge human capability deficits even for low-skill workers in sectors such as garments, hospitality, tourism and construction, not to mention the shortages for the more skill-intensive sectors like automobile assembly, electronics, and information and communications technology (Bruni, Luch and Somean 2013; NEA 2013; World Bank 2013a).

A recent study estimated that if Cambodia wants to attract foreign direct investment in the range of, say, 6-8 percent of GDP between now and 2020, it would need about 35,000 engineers and another 46,000 technicians by 2018 (JICA 2012). On current trends, the projected supply of these personnel would fall far short of these figures. Lack of technical skills is only part of the human resource problem; even soft skills seem to be in short supply in such service sectors as hotels, hospitality and tourism, where Cambodian businesses face difficulties finding qualified tour guides, receptionists and other hospitality staff.

Although the types of job-relevant skills that employers look for in potential employees differ vastly across sectors, the skills and qualities they value can be categorised into five broad sets: (i) problem-solving skills, or the capacity to think critically and analyse technical issues, (ii) learning skills, the ability to distill lessons from experience and apply them in the workplace, (iii) communication skills, including the ability to communicate with others verbally and in writing, (iv) personal skills for decision-making and self-management, and (v) social skills required for teamwork, leadership and building relationships with clients. These job-relevant skills are a combination of technical and soft skills (World Bank 2010, 14).

A country's education system is expected to impart job-relevant skills to its youth. Note, however, that employers will still be required to impart job-specific skills—skills that are unique to a particular firm or the industry in which the firm is operating—to their employees through both pre-employment and in-service training and orientation. When employers highlight the skill gap among young job seekers, the common understanding is that they are referring to a lack of job-relevant skills, as they, and not the education system, are responsible for providing job-specific skills.

A recent study to examine the potential role of the private sector in many countries identified several workable interventions that can enable quality participation by the private sector, either unilaterally or in partnership with governments and donors, in skills development (Dunbar 2013). Some of Cambodia's business leaders also recognise the private sector's role in the country's skill development. In the *Phnom Penh Post* of 1 March 2013, Rami Sharaf, CEO of RMA Group Cambodia, was quoted as saying:

The private sector in Cambodia should not sit on the fence waiting for the right tailored competencies to show up. We should be proactive and we should go the extra mile and we should play our part in building the Cambodian work force ... Delegate to them [the workers] a certain level of authority, but give them some amount of mandate to make mistakes, but make sure they learn from the mistakes. You have to go the extra mile and you have to invest in order to harvest.

The lack of job-relevant skills among young people is not peculiar to Cambodia. It is a global phenomenon, cutting across countries and continents. Both high-income countries and poor nations face skill shortages. A 2012 report by McKinsey pointed out that across the nine countries covered by that study (Brazil, Germany, India, Mexico, Turkey, Saudi Arabia, the United Kingdom and the United States), only 43 percent of the employers surveyed could find enough skilled entry-level workers. Further, even as employers complained about significant skill shortages, more and more youth worldwide were either unemployed or underemployed, pointing to large skill mismatches between educated youth and labour market needs (McKinsey & Company 2012, 11). What is even more important, another report cautioned that the worldwide problem of skill shortage and mismatch is likely to get much worse in the next decade (McKinsey Global Institute 2012).

Similar conclusions emerge from other work on education. Indeed, recent studies show how the neglect of educational quality has led to a global learning—and hence a skill acquisition—crisis (CGD 2013; Malone 2013; UNESCO 2014a). One expert summarised the predicament well: “Schooling is the means to the goal of education. Are children around the world emerging from the schooling they get with the education they need? No ... Schoolin’ just ain’t learnin’” (Pritchett 2013, 14). Education experts around the world are now in agreement that as the 2015 Millennium Development Goals Agenda comes to an end, we should move beyond the target of universal schooling to universal learning. A recent study by the World Economic Forum

(Bloom et al. 2014, 10) underscores the "... need to take a leap to an entirely new order of education that is being facilitated by the advent of the digital age and much more interactivity than the classrooms of the past." The emerging theme is that nothing short of a "global education revolution" will be needed to address the worldwide skill gaps and mismatches (McKinsey Global Institute 2012, 57).

While developed countries face shortages at the high-skills end of the spectrum, less developed countries face shortages at the opposite end. For example, the United States has a shortage of qualified talent particularly in high-tech and knowledge-intensive industries and businesses driving innovation, whereas less developed countries such as Cambodia and Vietnam are experiencing shortages of lower-skilled labour. Moreover, the underlying causes of the skill gaps vary hugely, not only between developed and developing countries but also between countries at similar stages of development (World Bank 2012b; McKinsey & Company 2012). A report by the World Bank (2013b, 51) noted:

... many Vietnamese firms report a shortage of workers with adequate skills as a significant obstacle to their activity. ... Over 60 percent of international firms view the availability of labor with the right skills as an obstacle to their activity, and nearly half of these firms view it as a major obstacle. Nearly 40 percent of international firms see the general education of workers as an obstacle, and nearly 46 percent see vocational education as an obstacle.

The report (p. 54) went on to say, "Employers' concerns on skill constraints are mirrored by worker's view that their skills limit their ability to advance in the workplace." Similarly, another World Bank study on 12 Eurasian countries highlighted, "Firms are unhappy about poor skill ... Many students have outdated specialities ... Many job seekers lack the required soft skills" (Gill et al. 2014, 249-251).

It is thus not surprising that surveys for other developing countries in East Asia show similar employer and employee perceptions of the skill gap; yet, the nature and causes of the skill gap can differ vastly across countries (World Bank 2012b). In some countries, education hardware may be a major constraint on skill development, while skill gaps in other countries could be caused by shortages of well-trained teachers, inadequate student enrollments, or inadequate education curricula, and so on. Take, once again, another key finding of the World Bank (2013b) study on Vietnam. The study concluded that the numbers and the quality of teachers is not a major constraint on skill development in that country but a host of other factors are. The relative importance of factors behind the skill gap in one country could be exactly the opposite for many other countries. Thus, although the skill gap is emerging as a global phenomenon, the exact nature of that gap and the policy options for addressing it could vary significantly between countries.

Typical of a country about to graduate to the lower-middle income category, Cambodia's skill gap is mostly for low- and medium-skill-intensive non-farm sectors. What is noteworthy is that this non-farm skill gap is emerging even as the country's agricultural sector (and the rural economy) has substantial surplus labour. Thus the "farm-to-factories" transfer of surplus rural labour that characterises industrial development still has a long way to go. There are many factors behind this development conundrum of significant non-farm labour shortage in the face of substantial labour surplus in the farm sector. Yet, one glaring reason is the failure of the country's education system to impart the right kind of education to its youth so that they are prepared with the right skills and knowledge for work.

Cambodia's skill gap is emerging at a time when the ten-country Association of Southeast Asian Nations (ASEAN), of which Cambodia is a member, is close to launching the ASEAN Economic Community (AEC). As is true of most regional integration projects, the AEC will bring both opportunities and challenges for its member countries (Das et al. 2013). The AEC's provision for a freer movement of skilled labour in eight broad areas of expertise—medical doctors, dentists, nurses, engineers, architects, accountants, surveyors, and tourism industry professionals—is likely to have substantial implications for Cambodia's skill gap and the educational reforms.

In general, ASEAN member countries could benefit from this freer movement of skilled labour, as they can bridge their national-level skill gaps and mismatches by more easily importing skills from and exporting surplus labour to other member countries. Cambodia could benefit because it will be easier to import skilled professionals to fill gaps in some of the areas in which it currently has a big shortage. However, without the necessary reforms to improve the country's education system and strengthen the skills base of its young workforce, such a policy could make the country perennially dependent on imported skills. Dependence on importing skills rather than producing them domestically could become a barrier to employment of large numbers of domestic youth and under-skilled workers who are inadequately equipped to compete with imported skilled labour. The persistence of youth unemployment and underemployment could lead to social unrest. That, in turn, has the potential to cause political and socio-economic instabilities. To minimise such potential socio-economic consequences, bringing in comprehensive education reforms to narrow skill gaps and reduce skill mismatches over the long term, even as the country relies on skill imports in the medium term, would be crucial.

2. Cambodia's skills shortage: A tale of two gaps

Cambodia's emerging skill gap can be seen as the sum of two educational gaps: a schooling gap and a learning gap. The schooling gap is mostly about numbers; it is the result of low enrollment rates, high dropout rates and low completion rates at various levels of education. Simply put, the schooling gap arises because not enough children are getting to school and staying there to complete the required grades. The learning gap concerns the quality of education, and arises because students may not be learning enough even if they go to school, stay there and complete the required grades.

2.1. The schooling gap

Cambodia has done well in closing the schooling gap at primary level. With a net primary enrollment rate of 97 percent and a completion rate of about 90 percent, the country is now expected to achieve universal primary education before 2018 (MOEYS 2014). As a result, the proportion of Cambodian adults (25 years and above) having a primary education has increased, from 32 percent in 2004 (21 percent for women and 46 percent for men) to about 41 percent in 2012 (31 percent for women and 53 percent for men). Access to primary education is more or less equally distributed among rich, poor and middle-income families, between boys and girls, and across rural and urban areas (Lun and Roth 2014; Tong and Phay 2014). The record in secondary and higher education is less impressive, however.

Net enrollment rates at lower secondary and upper secondary levels are a lowly 38 percent and 18 percent, respectively; only 41 percent of children enrolled in lower secondary school and 27 percent of those enrolled in upper secondary school complete the necessary grades. Indeed, due to an increase in the dropout rate, completion rates at lower secondary level have declined from 49 percent in 2008 to 41 percent in 2012. Although the proportion of adults (25 years and above) with secondary education has increased from less than 12 percent in 2004 (7.1 percent for women and 17 percent for men) to 16 percent in 2012 (11 percent for women and 22 percent for men), Cambodia has the lowest percentage of adults with secondary education among ASEAN countries, even lower than in Laos and Myanmar (CDRI 2013).

Low enrollment and high dropout rates in both lower and upper secondary schools plague the performance of Cambodia's secondary education system. As a result, low numbers of adults have finished secondary school: only 11 percent have a lower secondary education (8 percent of women and 14.6 percent of men), and an even lower 5 percent (3 percent of women and 7.3 percent of men) have an upper secondary education. The low enrollment and high dropout rates at the lower secondary level constrain the role of education in imparting basic skills to young people even through technical and vocational education and training (TVET); for entry to most TVET courses, students must have completed lower secondary education. Moreover, unlike for primary education, there are noticeable inequalities in access to opportunities at secondary education level between rich, poor and middle-income families and across rural and urban areas (Lun and Roth 2014). Part of the reason for this inequality seems to be differences in the progressivity (distribution of the benefits) of public spending on education. The benefits of public spending on primary education accrue more to poorer households than to richer ones, whereas the benefits of public spending on secondary education seem to accrue more or less equally across poorer and richer households (Tong and Phay 2014).

The government plans to boost enrollment rates and reduce dropout rates at both the lower and upper secondary levels. The Education Strategic Plan (ESP) 2014-18 aims to increase gross enrollment rates, from about 53 percent to 87 percent for lower secondary level and from 27 percent to 45 percent for upper secondary. Coupled with plans for a significant reduction in dropout rates, these increases in enrollments are expected to raise lower and upper secondary completion rates in the next five years.

Another aspect of the schooling gap in Cambodia concerns the number of hours students spend in school. Primary and secondary school children spend only 3 hours and 20 minutes a day in the classroom (4 hours a day with a 40 minute break). This figure marks a stark contrast to the international benchmark of 6 to 8 instructional hours that students should receive (CDRI 2013). At first sight, shorter instructional hours of this magnitude may appear to be a minor schooling gap. However, it could make a big dent in children's learning capabilities as they proceed to higher levels of education. Reporting on the skill gap in Vietnam, a World Bank report (2013c, 1) noted, "Enhancing cognitive skills among Vietnam's next generation will require that they spend more time in school." This perhaps is even truer for Cambodia. In addition to affecting children's cognitive development, insufficient instructional time during the school years (ages 6 to 18) could affect their subsequent performance and learning in the workplace. Encouragingly, the government intends to introduce full-day teaching and learning in primary schools beginning in 2014 (MOEYS 2014).

Cambodia's performance in tertiary/higher education has been much less impressive than in primary and secondary education. Although the tertiary gross enrollment rate has increased

from about 1 percent in the early 1990s to 14 percent now, Cambodia has the lowest tertiary enrollment rate among ASEAN countries, lagging behind even Laos and Myanmar (CDRI 2013, 36). True, tertiary enrollments are higher in richer countries than in poorer ones. Yet even after adjusting tertiary enrollment rates to per capita income levels, Cambodia's tertiary enrollments are below both the global and the East Asian benchmarks (World Bank 2012b).

Most of the students who enroll in tertiary education in the country do so in bachelor's programmes, for either a two-year associate's degree or a four-year bachelor's degree. The gross enrollment ratio for bachelor's programmes is about 13 percent, higher than in Laos (6 percent) but lower than in the other ASEAN countries. What is more important is that due to high dropout rates, the gross graduation ratio for bachelor's degrees is much lower at about 5 percent, lower than in Laos (7 percent), Myanmar (11 percent) and Vietnam (13 percent) (UNESCO 2014b, 18). Not surprisingly, the country's socio-economic surveys show that by 2012 only about 5 percent of Cambodian adults (3 percent of women and 7.3 percent of men) had completed post-secondary education, up slightly from 3.8 percent in 2004 (2 percent of women and 6.2 percent of men).

2.2. The learning gap

Cambodia's learning gap (the difference between the actual level of performance and the desired learning goal) is more difficult to assess than the schooling gap. This is partly because the quality of any education system is always more difficult to measure than the quantity of schooling. Added to that, Cambodia has not yet participated in international student assessment tests such as the Programme for International Student Assessment (PISA). That makes it difficult to place the country's learning gap in a comparative international perspective. However, recent learning assessments conducted by the Ministry of Education, Youth and Sport (MOEYS) indicate that schoolchildren in different grades are not acquiring the basic language and mathematical skills expected of them.

A nationwide learning assessment of Grade 3 students in 2006 showed that the average score of children's Khmer language skills (reading and writing) was about 40 percent; the average score was very similar in basic mathematics—about 37 percent in numeracy, 39 percent in measurement and 43 percent in geometry (MOEYS 2006). A similar test conducted three years later showed that the average scores had improved in both Khmer language (by about 9 percentage points) and mathematics (by about 8 percentage points) (MOEYS 2010, 13 and 22). Within this national picture, the average test scores in Khmer language and mathematics were higher in urban centres than in rural areas. For example, in 2009 the average score in Khmer language in urban Cambodia was about 17 percentage points higher than in rural areas (60 percent versus 43 percent), and the average urban score in mathematics was higher than the rural figure by about 7 percentage points (48 percent versus 41 percent).

Learning assessment tests were conducted for Grade 6 students in 2008 and Grade 9 students in 2009. The 2008 test found that while Grade 6 students scored a relatively high average score of 68 percent in Khmer language (reading and writing combined), the average score in mathematics (numeracy, algebra, geometry and statistics) was lower at about 53 percent (MOEYS 2008). Once again, the average score in urban areas was higher than in the countryside by 5-6 percentage points (72 percent versus 66 percent in Khmer language and 56 percent versus 50 percent in mathematics). The 2009 test results for Grade 9 students found that the students scored an average of 65 percent in Khmer language but did less well in mathematics, with

an average score of 34 percent (MOEYS 2009). Once again, Grade 9 students in urban areas scored higher than children in the rest of the country, by about 3 percentage points in Khmer language (67 percent versus 64 percent) and by about 7 percentage points in mathematics (38 percent versus 31 percent).

It is difficult to derive firm conclusions about Cambodia's learning gap from these tests since one does not know what average test score should be used as a benchmark (high or low) for judging student achievement. However, these results are indicative of significant learning gaps. For one thing, they show that "Student knowledge of the official curriculum is low. This result is fairly uniform across subjects, cognitive skills, and content areas" (Hang 2014, 20). Moreover, the test results indicate that while students are gaining significant Khmer language proficiency, they are lagging behind in acquiring basic mathematics skills. Even in Khmer language, students exhibit lower skills in writing than in reading.

The 2009 Grade 3 learning assessment report (MOEYS 2010, 67) summed this up well: "The average grade three student is now clearly better prepared than before, but a sizable proportion of students continue to struggle with the content of the grade three curriculum. This is especially true in mathematics and in Khmer writing." The Grade 6 and Grade 9 learning assessment reports reached similar conclusions. Indeed, the report on the ninth grade (MOEYS 2009, 36) lamented, "The low scores on open-ended writing activities strongly suggest that students are being asked to do very little writing in their day to day work. In mathematics the overall average of roughly 40 percent demonstrates that students are failing to grasp a considerable portion of the official curriculum."

Learning gaps in higher education are even more difficult to assess since learning assessments of the type done for primary and secondary education do not exist for higher education. However, the continued concerns expressed by prospective employers about skill shortages do point to significant learning gaps in higher education too. Although Cambodia's higher education system has expanded rapidly in the last decade or so, its quality does not seem to have kept pace (Damico 2010). For example, as Phoak Kung noted in a *Cambodia Daily* article on 4 June 2014, "... most universities in Cambodia do not have a library that would meet all their student needs. Many books are out of date or no longer practical. The problem is even worse for science and technology students since changes in these fields are happening at an unprecedented speed."

Education Minister Hang Chuon Naron (2014, 22) highlighted the inadequate quality of education: "The quality of education at all academic levels has declined and professional training does not correspond to match the need of the development of the country." It is thus not surprising that although Cambodia has more than 100 higher education institutions, not one of them has made it to the list of the top 300 Asian universities while 43 higher education institutions from other ASEAN countries have, including two Vietnamese universities listed in the top 200 (Quacquarelli Symonds 2013). Quality research, the bedrock of any higher education system, is in its infancy at Cambodian universities (Wilson 2014). A study of five prestigious Cambodian higher education institutions found that "almost 90 percent of the lecturers have never published any papers" (Chen, Sok P. and Sok K. 2007, 141). Anecdotal evidence also points towards notable learning gaps in higher education. Some private sector employees lament that a Cambodian graduate with a degree in engineering, on average, possesses skills equivalent to that of a first year college student at best (CDRI 2014).

Added to the inadequate learning, there is also a mismatch between the skills acquired by most higher education students and what the labour market demands. To some extent, skill mismatches of this kind are almost unavoidable in most education systems, as “not all degrees are created equal” (McKinsey Global Institute 2012, 48). However, the order of the mismatch seems to be especially large in Cambodia. More than 70 percent of college graduates specialise in liberal arts and foreign languages including business management and marketing (22 percent), finance and accounting (16 percent), foreign languages (15 percent), economics (6 percent), sociology (6 percent) and law (5 percent). In comparison, the proportion of college graduates specialising in science, technology, engineering and mathematics (STEM subjects), for which there is a growing demand from a rapidly industrialising and modernising economy, is less than 20 percent (Damico 2010; Kuoch 2014).

In an article titled “How Universities Can Help Improve the Quality of Education” published in the *Cambodia Daily* on 4 June 2014, Phoak Kung explains the main cause of higher education’s poor record in STEM fields: “... offering science, technology and engineering degrees is extremely expensive. Only a handful of universities manage to teach some of these courses with financial support and technical assistance from the government, partner institutions and foreign countries.” This is not the first time that the Cambodian education system has ended up producing too many graduates in liberal arts to be absorbed productively by the country’s labour market. After a decade and half of independence from France, Cambodia’s education system was “... dominated by schooling in liberal arts ... Students’ perceptions of their future, created by the very nature of the education system, were incompatible with the social and economic capacity of the country to absorb their capacities” (Ayres 2003, 63-64). The skill mismatch of the country’s education system today is reminiscent of the situation back then in the 1950s and 1960s.

As a result, many educated young people are unable to find productive jobs at the same time as employers are facing shortages of skilled workers. More education does not necessarily mean more employment. If it is to empower youth, education has to be of the right kind that has demand from the labour market; otherwise, more education will simply result in higher youth unemployment or underemployment. In 2012, among the educated-youth unemployment rates, that for college- and university-educated youth was the highest at more than 20 percent (Kuoch 2014). In addition, a significant proportion of university graduates with a degree in liberal arts were underemployed in low-paid, low-productivity jobs that require much lower educational qualifications. Cognisant of the severity of the problem, while the government intends to almost double the tertiary enrollment rate to 23 percent by 2018, it is also putting a special emphasis on increasing the numbers of students graduating in STEM subjects. A substantial increase in the share of public spending for higher education (from 4 percent now to 20 percent by 2018) and an increase in the proportion of higher education students covered by scholarships (from 5 percent now to 15 percent by 2018) are planned for fulfilling this objective (MOEYS 2014).

3. Narrowing the twin gaps: Past initiatives and remaining challenges

Overall, if the country is to narrow the skill gap, Cambodia’s youth is in need of not just more schooling but also better learning while at school. Strengthening the country’s education system is crucial for achieving that. No doubt, in the last two decades Cambodia has made

huge strides in improving its education system. Government efforts to strengthen the education system have aimed at both stimulating demand for education in specific population groups and augmenting the supply of education goods and services. Supply-side measures have focused on reconstructing education hardware such as school buildings, classrooms, textbooks and other school resources, and infrastructure facilities connecting schools to homes, as well as rebuilding education software by improving curricula, and above all hiring and training large numbers of teachers.

3.1. Enticing children to school

Experience from developing countries around the world shows that reducing the cost of schooling for children from poorer families does entice more children to attend school more regularly (OECD 2012a; Krishnaratne, White and Carpenter 2013). Drawing on this global experience, Cambodia has introduced several measures to attract children to school. The objective of these demand-side measures has been to reduce the net cost of sending children to school, enable them to stay there and complete their schooling. Twelve years of schooling in public schools (six years of primary and six years of secondary) is now free of charge for all students, and all children are expected to receive at least nine years of basic schooling (six years of primary plus three years of lower secondary).

In addition, there are specific programmes that supplement the financial capacities of children from vulnerable population groups: the rural and urban poor, ethnic minorities, people with disability and other disadvantaged families. These assistance programmes have so far catered mostly for the needs of primary school children but are being expanded to cover secondary school students in order to increase Grade 7-9 survival rate and expand enrollment in higher secondary schools (Hang 2014). The programmes provide cash or in-kind transfers and are financed by the government or through aid extended by bilateral and multilateral donors. Cash assistance programmes include conditional cash transfers for targeted households such as means-tested government- or donor-funded school scholarships. In-kind programmes include the provision of free bicycles to schoolchildren, free school uniforms, textbooks and other school supplies, and free food or school feeding programmes. In 2012-13, about 153,000 schoolchildren benefitted from these programmes: around 65,000 received cash transfers of USD45-50 per year and about 88,000 got in-kind transfers, primarily through a World Food Programme initiative that gives eligible schoolchildren 10 kg of rice per month for 10 months in a year (equivalent to about USD50 per year at current prices) (NEP 2014).

Empirical evidence shows that these demand-enhancing measures have contributed to more schooling in that they have led to significantly higher enrollment and lower dropout rates (Hing, Lun and Phann 2014; NEP 2014). Impact evaluations of the World Bank-assisted Scholarship Programme for poor children show that these pilot programmes have led to a 20-30 percent increase in school attendance rates; similar effects on attendance rates were found for merit-based scholarship programmes (Marcus 2013; Barrera-Osorio and Filmer 2013). Despite the increased schooling, however, a significant number of school-age children are not enticed to attend even basic schooling. Socio-economic survey results highlight this phenomenon.

It is estimated that about one in four of the 15 million Cambodians today, or about 3.7 million, are in the age group 6-17 years. A 2012 nationwide socio-economic survey reported that 11 percent of 6-17 year olds gave “being too poor” as the reason for not attending school (down from 16 percent in 2009). Going by the survey results, poverty seems to be keeping about

400,000 children out of school: 29 percent of 6-17 year olds gave the “compulsion to earn to add to family income” as the reason for their not attending school. That is a staggering increase from earlier figures, from about one in eight children in 2004 to about one in five in 2007. Applying this percentage, it is possible that about 1.1 million 6-17 year olds are unable to go to school because they are called on to supplement household income. Another 8 percent of children gave the “need to help with household chores”, as the reason for not attending school, sharply down from about 18 percent in 2004-08. Today, these children would number about 300,000.

The children who gave one of the three family resource-related reasons, “too poor”, “need to supplement family income” and “need to help with household chores”, account for nearly 50 percent of the respondents. It is possible then that about 1.8 million children in the 6-17 year age group are kept out of school for family resource-related reasons. In addition, about 26 percent of the children did not attend school either because they “did not want to attend school” (18 percent) or because they “did not do well in school” (8 percent). These two reasons are perhaps keeping another nearly 1 million children out of school. Although the implications of the survey results for education policy have to be interpreted cautiously, it is important that the design and implementation of measures to augment the demand for schooling take into account the diverse factors affecting regular school attendance.

About 10 percent, or 1.5 million, of Cambodia’s population is in the 18-24 year old age group. This group broadly corresponds to post-secondary, college-age youth. With only about 250,000 students enrolled in general higher education, most of the about 1.25 million college-age youth are out of the fold of the higher education system, although a small percentage are estimated to be engaged in post-secondary TVET courses. How to entice even a small percentage of those who are eligible for higher education (only a small percent would be eligible since many have not attained a high school education) is a key challenge for enhancing the demand for higher education in the country.

3.2. Building the education hardware

Since 1993, the country has substantially expanded the number of schools. The total number of public schools ranging from preschool to high school has more than doubled from 5339 in 1993 to 11,865 in 2013. During the same period, the number of children enrolled in school (from preschool to high school) increased from less than 2 million to more than 3 million (about 48 percent are girls), an increase of just over 50 percent. There are about 62,7000 classrooms, working out to an average of about 48 students per classroom and average classroom space of about 1.2 square metres per student. Within the national average, the number of students per classroom is much higher in Phnom Penh (62), Kampong Speu and Siem Reap (55). With close to three-quarters of the total number of schools, more than 80 percent of the country’s classroom space and schoolchildren located in rural areas, schooling is predominantly a rural activity in Cambodia. If private schools were included, the total number of schools, classrooms and students would all be marginally higher.

Cambodia has also made significant efforts to rebuild its higher education hardware in the last two decades. As a result, there are 101 higher education institutions in the country, with 39 in the public sector and 62 in the private sector. In the 2012/13 academic year, just under 250,000 students were enrolled in higher education—about 60 percent in private educational institutions and 40 percent in public colleges and universities (UNESCO 2014b, 23). Of total

tertiary student enrollments, bachelor's degrees accounted for 88 percent, associate's degrees for 10 percent and postgraduate degrees 2.5 percent; 142 students were pursuing doctorates (Hang 2014). About 41 percent of the higher education students were women, indicating a slight tilt of gender balance in favour of men. Geographically, higher education institutions and students are concentrated in Phnom Penh, Siem Reap, Kampong Cham, Battambang and Sihanoukville.

Due to the big strides that the country has made in reconstructing education hardware, parents rarely mention the non-availability of school as a constraint on schooling their children compared to the situation five to ten years ago (NEP 2014). The 2012 socio-economic survey results also show that the percentage of the country's 6-17 year olds stating "unavailability of suitable schools" as the reason for not attending school has fallen from about 8 percent in 2004 to about 2 percent. The average distance from home to the nearest school is about 2 km for primary schoolchildren, 3.5 km for lower secondary students and 7.4 km for upper secondary students (Roth and Lun 2014). Within these national averages, however, there are areas in the country where the distance to school is much higher. For example, in many rural areas students have to commute 10-11 km to the nearest secondary school (Chhang 2013). Moreover, more than 50 percent of the country's school buildings do not have either good floors (21 percent), or proper roofs (18 percent), or robust walls (13 percent). About 50 percent of the schools do not have a water supply, and more than 33 percent do not have latrines. Lack of these basic facilities could put increasing demands on more and better education hardware for primary and secondary schooling and learning.

In the higher education segment, the growth in the number of higher education institutions has not been matched by expansion in other complementary hardware. One study (Chen, Sok P. and Sok K. 2007, 142) found that "Even though there is a library at each university, books, study materials etc. are not up-to-date and inadequate to facilitate students in doing research." And as Koam and Meyn noted in a *Phnom Penh Post* article on 20 April 2011, "Higher education institutions call themselves as centers of research, but often lack adequate bandwidth, computer terminals, subscription to academic journals, up to date laboratories or any other expensive, but essential, tools for today's top students around the world." It is true that opening up higher education for private investment has helped the country in partially easing the resource constraint on developing the higher education system. But it has also brought in its wake some unique problems.

Most of the private investment in higher education has flowed into institutions that offer post-secondary associate's degrees, bachelor's degrees and diplomas in humanities, business management, commerce, accounting, economics and foreign languages. Because offering higher education in STEM disciplines involves long-term commitment and significant investment in hardware such as laboratories and IT facilities, private investors have generally eschewed institutions specialising in these subjects for which there is growing demand from the country's labour market. Paradoxically, the spurt of private higher education institutions has contributed to a surplus of youth holding post-secondary degrees but without necessarily helping the country to narrow the gaps in high-skill STEM fields. Moreover, the inadequate regulatory and quality assurance regime for private higher education institutions is believed to have led many of them to offer degrees of dubious quality.

3.3. Enhancing the education software

Measures for improving education software have focused mostly on updating and improving the national curriculum for various levels of education, and tackling the country's shortage of trained teachers.

3.3.1 Improving the curriculum

The national curriculum at various stages of education has been revised and improved regularly; the last revision was done in 2004. The objective of these revisions has been to ensure that students leave school as well-rounded individuals with both technical and soft skills (Hang 2014). Nested within the Education for All National Plan 2003-15, the 2004 Policy for Curriculum Development (PCD) specifies the overall objectives of the policy at the various stages of the education system and details the concomitant subjects and the number of hours students are expected to spend studying each subject (MOEYS 2004).

The main objective of the PCD in primary schools (Grades 1-3) is to establish strong foundations for literacy and numeracy acquisition; schoolchildren are expected to receive a minimum of 18 hours of instruction per week, with about half of these devoted to Khmer language, another quarter for mathematics, and the remainder to social studies and physical education. Building on this, in the next three years (Grades 4-6), the PCD reduces the proportion of hours devoted to Khmer language instruction to about one-third to introduce some basic science concepts, while the amount of instruction in mathematics remains more or less unchanged.

In lower secondary schools (Grades 7-9) the minimum number of instruction hours per week increases from 18 to 21, with the two extra hours mostly allocated for foreign language learning. Within the remaining instruction hours, about 16 hours per week are divided equally between four subjects—Khmer language, mathematics, science and social studies—and the remaining time (roughly 3 hours) is allocated for physical education and arts. A similar number of instruction hours and distribution across subjects are continued in upper secondary schools (Grades 10-12).

When students reach Grades 11-12, they have to take a minimum number of compulsory courses per week: Khmer language (6 hours), a foreign language (4 hours), mathematics (4 hours), and physical education and sports (2 hours). In addition, students can choose one of three sets of elective subjects—science, social studies, or a host of other subjects such as information technology, accounting, business management or tourism; they spend about 4 hours a week studying these chosen subjects.

3.3.2 Tackling teacher shortage

The government has over the years developed a robust school curriculum and an instruction modality to teach the curriculum to students. However, a long-standing constraint on using the curriculum and instruction modality to narrow the schooling and learning gaps in the country has been a severe shortage of trained teachers. Shortage of trained teachers is due to lack of teachers (numbers) on the one hand and lack of training (quality) on the other. Recognising this, MOEYS has recruited about 5000 new teachers per year in recent years, and this year the ministry plans to increase that figure to about 6000 (Hang 2014).

At present, there are about 89,000 teachers imparting education to children from preschool to high school. About 45,000 of these (50.5 percent) are primary school teachers, about

39,000 (44.4 percent) are secondary school teachers, and the remaining 4500 (5.1 percent) are preschool teachers. The proportion of women in the teaching profession is about 47 percent, indicating reasonably good gender parity. Within this national average, however, the proportion of women teachers varies from 95 percent in preschool education, 50 percent at primary level to 39 percent at upper secondary level. With nearly three-quarters of the teachers located in rural areas, teaching in Cambodia is predominantly a rural profession.

The annual recruitment of teachers in recent years has not been enough to tackle the shortage of teachers, partly because between 2000 and 3500 teachers leave the education system every year due to retirement, transfer, resignation, death, and so on. Teacher shortages continue as a result, forcing most primary and secondary schools across the country to implement a double-shift schedule of shorter instructional hours (Hang 2014, 29). The clearest and perhaps single most important indicator of Cambodia's teacher shortage is the very high pupil-teacher ratios, especially at primary level. At 46.2 Cambodia's pupil-teacher ratio for primary schools is the highest among ASEAN countries; it is nearly twice that of Laos (27) and Myanmar (28), and close to two and half times that of Vietnam (20) (Madhur and Menon 2014). Indeed, Cambodia's primary pupil-teacher ratio is the 16th highest in the world and the highest among countries outside of Africa (NEP 2014, 24). Moreover, Cambodia belongs to a short list of 26 countries in the world with a primary teacher ratio of more than 40—the upper limit beyond which the quality of education really suffers—and 23 of these are from Africa (UNESCO 2014a).

Within the national average of 46 primary pupils per teacher, the average class size in rural areas (50) is larger than in urban centres (32). At the provincial level, the primary pupil-teacher ratio is more than 60 in Ratanakiri, Kampong Cham and Siem Reap. Largely due to the acute teacher shortage, more than three-quarters of primary schools operate a double-shift system, reducing the amount of instructional time. At less than 30 percent for the country as a whole, double-shift secondary schools are less common. Even so, about half of the secondary schools in urban areas operate double shifts. Indeed, in some parts of the country, for example, in Khnar Sanday commune in Siem Reap (NEP 2014, 40), “Teachers in both primary and lower secondary schools often have to teach more than one class at the same time; they begin teaching a class in one room, then leave to go to another room.”

The pupil-teacher ratio (20) in secondary schools is lower than in primary schools, with rural areas having a higher ratio (22) than urban centres (17). Among the country's 24 provinces, Siem Reap has the highest secondary pupil-teacher ratio of about 29 and Kep has the lowest at 12; Prey Veng and Takeo also have secondary pupil-teacher ratios of more than 25. Moreover, lower secondary schools have a higher pupil-teacher ratio than upper secondary schools (Hang 2014). The pupil-teacher ratio in secondary education is less than half that in primary education. Largely reflecting the lower pupil-teacher ratio at secondary level, the percentage of double-shift secondary schools—a little over 25 percent—is lower than for double-shift primary schools. However, enrollment and completion rates at secondary level are also much lower than at primary level. Once these secondary enrollment and completion rates start increasing from their current low levels, the secondary school pupil-teacher ratio will rise. Cambodia's average pupil-teacher ratio in the higher education segment is about 20:1, similar to that in Laos and Thailand but lower than in Vietnam (30) and Myanmar (28) (UNESCO 2014b, 20). Hence, there is not a huge shortage of teachers in the country's higher education institutions.

Inadequate educational qualifications and lack of training seem to cut across the country's entire education system. That in turn, translates into significant learning gaps. True, teacher's educational qualifications have improved over time. As a result, 4 percent of primary school teachers now have a bachelor's degree, 58 percent have upper secondary education, 35 percent have lower secondary education, and only 3 percent have just primary education. Yet primary school teachers in Cambodia are not as well qualified as their counterparts in Vietnam, where the quality of the teacher workforce is fast emerging as a major asset. About 60 percent of Vietnam's primary school teachers hold college or university degrees and less than 10 percent have only lower secondary education, with the remaining teachers (more than 30 percent) having upper secondary education plus two years of teacher training (World Bank 2013b, 102).

At secondary school level, the picture is even less encouraging. Only 27 percent of teachers have a degree, 56 percent upper secondary education and 16 percent just lower secondary education (not to mention the less than 1 percent having only a primary education). The situation is aptly described by the Education Minister, Hang Chuon Naron (2014, 19): "Teacher capacity is generally weak, presenting risk of declining instructional quality and learning outcomes."

Cambodia has recently set out clear qualification criteria, including pre-service training requirements, for teacher recruitment: (i) 12 years of schooling plus 2 years of teacher training for primary school teachers in lowland provinces (and 9 years of schooling plus 2 years of teacher training for primary school teachers in remote and disadvantaged provinces, though this is being gradually phased out), (ii) 12 years of schooling plus 2 years of teacher training for lower secondary teachers, and (iii) a bachelor's degree plus one year of teacher training for upper secondary teachers (Hang 2014). However, the share of teachers who go through pre-service training out of the applicant pool is not known, making it difficult to evaluate the extent to which candidates are competitively selected for teacher positions (World Bank 2011).

Moreover, "it is generally acknowledged that pre-service training focuses too much on knowledge and not enough on pedagogical skills and teaching methodologies" (Hang 2014, 17). Added to that, although new teachers undergo induction programmes after recruitment (and before walking into classrooms), the length of such training is less than 3 months, compared to 18 months in Singapore and 24 months in Japan (World Bank 2011). That implies that there is not enough preparation to facilitate an effective transition of newly recruited teachers into teaching. In-service training is also available to teachers, but is mostly provided through seminars, workshops and some limited on-the-job training, and thus follows a minimalist approach. Recent World Bank reports have highlighted that the quality of teaching in the country's schools has become an issue of grave concern. Cambodia's "teacher training and preparation" is rated as "latent", with only one star out of a maximum of four (World Bank 2011, 1). "The teacher training system is not providing the future teachers with high levels of content mastery or exposure to a student-centred learning environment. Teachers in service do not engage in effective pedagogical techniques, thereby inhibiting student learning" (World Bank 2014, 9).

Inadequate educational qualifications appear to characterise the country's higher education system, too. For example, only about 60 percent of higher education teachers have postgraduate degrees (8 percent hold a doctorate and 52 percent a master's degree) while the rest have only bachelor's degrees (UNESCO 2014b, 34). Although these figures are comparable to those in Vietnam and the Philippines, the very high percentage of teachers with only bachelor's

degrees points towards significant shortfalls in the quality of teaching in higher education. Again, Education Minister Hang Chuon Naron, quoted in the *Phnom Penh Post* of 25 February 2014, pinpoints this aspect of higher education: “The numbers of institutions have increased. Also the numbers of students have increased. But not the numbers of qualified teachers.”

4. Narrowing the skill gap: Policy options

In the last couple of decades, Cambodia has had more schools, more classrooms and more students but perhaps not enough schooling and above all not enough learning. Unless both these gaps—schooling and learning—are narrowed substantially, the country’s emerging skill gap will persist. This is a multifaceted challenge, as there are many factors behind the inadequate schooling, learning and skill acquisition of Cambodian youth. Yet, the shortage of trained teachers at all levels of education but particularly at the primary level is the single most important constraint on learning and skill acquisition. Despite many policy initiatives in the past, the problem of producing better-trained teachers has persistently beset the country’s education system. Take, for example, the commentary on that issue more than two decades ago: “The major obstacle to improving educational quality in Cambodia remained the nation’s teaching corps, who are very poorly trained and poorly remunerated” (Ayres 2003, 143). That assessment holds good for the Cambodian education system even now.

The shortage of trained teachers is a self-perpetuating problem, resulting in a vicious circle of poor education and poor teachers leading to poor students, poor students leading to poor teachers, and the sequence repeating and thus perpetuating poor education over generations. Inadequately trained primary and secondary school teachers lead to a low calibre student pool entering higher education institutions that produce poorly developed, ill-equipped graduates. Some of these graduates then join the teaching profession only to replicate in primary and secondary schools the low quality education they received, leading to students with low educational attainments entering higher education institutions, and so on.

Thus, even as Cambodia makes faster progress in strengthening its education system and attracting more children and youth to attend schools and colleges, tackling the shortage of trained teachers should perhaps take top priority for a sustainable reduction in the country’s skill gap. The sooner this challenge is addressed, the sooner the country can be liberated from the reinforcing cycle of poor teaching and low skills. Global experience overwhelmingly shows “that teacher quality is the main school-based predictor of student achievement, and that several consecutive years of outstanding teaching can offset the learning deficits of disadvantaged students” (World Bank 2011; Chetty, Friedman and Rockoff 2012; OECD 2012a, b; Asia Society 2013; Educational International 2014). “Teachers/educators are the major pillars in the teaching and learning process. Without an appropriate focus on teachers, access, quality and equity of education for all is not feasible” (UNESCO 2014c). Thus, it is not surprising that “One point of broad agreement in education is that teachers matter greatly. Students of certain teachers simply do better in a way that has a marked effect on social and economic outcomes” (EIU 2012, 22). Some global education experts go to the extent of saying “... the single most important input variable [in education] is the quality of teaching” (Robert Swartz, Professor at Harvard University, cited in EIU 2012, 22). Indeed, the culture of education is inextricably linked to the “reward, responsibilities, and respect” a society gives to teachers (Asia Society 2013; Asia Society and Rand Corporation 2012).

From a broader perspective, global labour markets and the skill requirements for industrialisation and modernisation will keep changing continuously and that is something that the Cambodian education system cannot ignore, as other countries have learnt in their own development processes. Take, for example, teaching methods. There is a growing consensus that the method of teaching 21st century youth should move from traditional methods such as “chalk and talk” (focus is on the blackboard and the teacher’s voice) and “read and write” (the teacher reads and writes to convey the lessons to the students) towards “teach to think” (the teacher helps students to develop critical thinking and problem-solving abilities). Inadequately qualified and poorly trained teachers would find it difficult to make such adjustments in their methods of teaching, whatever the curriculum (OECD 2012b).

4.1. Getting more and better teachers

The task of effectively addressing Cambodia’s teacher shortage is a highly challenging one. Take the case of teacher shortage at the primary level. To reduce Cambodia’s average primary pupil-teacher ratio to somewhere close to, say, Vietnam’s level, the number of primary teachers has to double from the current figure of about 45,000. Even if the initial target could be lowered to a ratio below 40:1, a level the United Nations Educational, Scientific and Cultural Organization (UNESCO) considers the practical upper limit, Cambodia would need to hire about 7000 more primary teachers, a 15 percent increase from the current figure. Getting the numbers up is perhaps the easier part of the problem. Enhancing the quality of the teachers through effective training is much more difficult.

4.1.1 Importing teachers versus teacher trainers

One option is to import trained teachers from other countries. The drawback, however, is that the remuneration of imported teachers would be much higher than that of local teachers. Take the case of importing teachers from ASEAN countries such as Malaysia or the Philippines. Teachers from Malaysia, a country close to graduating to high-income status, would be very costly. Even to attract teachers from the Philippines (a middle-income country), Cambodia would have to pay a much higher remuneration package. And even if the additional funding requirement of importing trained teachers were met, in practice it would be difficult to sustain an education system with a significant number of imported teachers earning wages that are much higher than average local salaries. So long as the numbers of imported teachers are small, such a system could perhaps sustain itself. But bringing in significant numbers of imported teachers could lead to jealousy and animosity towards the imported teachers by their local counterparts. Such a backlash would make it difficult to sustain a dual teacher cadre system, especially in public schools.

More importantly, an education system with large numbers of imported teachers would run the risk of the country perennially depending on the import of teacher skills, unless competition from imported teachers puts pressure on local teachers thus leading to indirect transfer of teacher skills to the domestic population. The argument here is very similar to the one often made against a poor country relying on large-scale import of final consumer goods—a strategy that runs the risk of continued import dependence without the country ever industrialising itself. An alternative strategy that has been favoured in such cases is to import capital goods (and other skill-intensive goods, especially certain intermediate goods) and use them to produce consumer goods domestically. This both minimises the risks of import-dependence and de-industrialisation and enables innovation for self-sustaining industrialisation. Applying this

analogy to the education system, an alternative option for tackling Cambodia's trained teacher shortage would be to import quality teacher trainers (rather than teachers) to instruct a pool of teacher trainees in Cambodia. Over time, such a teacher-development strategy would break the cycle of low educational outcomes.

Under this strategy, there are two options: send Cambodia's teachers for training abroad, or bring qualified teacher trainers from abroad to train teachers in Cambodia. In general, the second option seems much more practical; it would combat language problems and could be more cost-effective. Such a teacher development strategy would minimise the risk of import-dependence on teacher skills and enable Cambodia to develop a new cadre of qualified teachers. The most urgent need seems to be for more and better primary teachers. Hence, recruiting qualified foreign trainers to train Cambodia's primary teachers seems to be an obvious starting point and either simultaneously or subsequently hiring teacher trainers for secondary and tertiary education, including TVET. The programme for teacher training should focus on both pre-service and in-service training. After all, teachers are at the centre of improvement efforts; for effective learning, they need to be lifelong learners themselves.

4.1.2 Paying teachers better and monitoring their performance

Global experience shows that teacher training is only one, although the major, component of an overall strategy for developing a committed and capable cadre of teaching professionals. A holistic strategy requires at least two more ingredients—attracting the best people to the teaching profession, and implementing clear goals and effective supervision for teachers (EIU 2012, 23-25). To attract the best to the teaching profession, teachers' pay matters quite a lot. Hardly any country has developed a qualified teaching profession and quality education system without a robust remuneration package for the teachers. There is now increasing evidence that teacher pay matters significantly for attracting potential candidates from the top echelons of the labour force to the teaching profession (Asia Society 2013).

Encouragingly, the government has initiated a process to raise teacher salaries in recent years. The financial incentive scheme for the teaching profession is slowly improving as a result. For example, the starting pay of a primary teacher in Cambodia was about 40 percent of per capita income only a few years ago, compared to 117 percent in Korea, about 80 percent in Japan, Finland and Chile (Benveniste, Marshall and Araujo 2008; World Bank 2011). At about USD120 per month in 2014, the entry-level remuneration of a primary teacher is, if anything, above per capita income. With the 21 August 2014 announcement of an upward adjustment of teachers' basic pay, this could increase to about USD140-150 by April 2015. Even with this adjustment, it is unlikely that the country can attract highly talented youth into the teaching profession. Take the case of a single-earner teacher family with four or five members. The USD140-150 a month remuneration is hardly enough for such a family to live reasonably comfortably. Based on anecdotal evidence, in urban areas such as Phnom Penh, the entry-level salary of an automobile driver, or similar workers in other fields, with no more than primary education would be close to that figure.

In addition, the teaching profession in Cambodia has a flat salary structure—both vertically and horizontally. Teacher salaries at higher levels of education are only marginally higher than that of a primary teacher: an entry-level lower secondary teacher earns only USD10 per month more than a primary teacher, an upper secondary teacher earns only about USD35 more than a lower secondary teacher, and a college/university lecturer earns only about

USD15 per month more than an upper secondary teacher. Similarly, the monthly salary of a primary school teacher with more than 16 years of service in 2014 is only about USD13 higher than that of an entry-level primary teacher. The horizontal salary increases for teachers in the higher education segments are only marginally better than that of a primary school teacher. Not surprisingly, even those who take up the teaching profession either quit after only a few years or, if they remain in the profession, look for other avenues of supplementing their family earnings (CITA 2010).

Many teachers thus prefer to work double-shifts to earn more. Many others engage in “multiple-jobbing”, taking up other paid jobs to supplement their salary. About 70 percent of primary and 50 percent of lower secondary school teachers have at least one other job (Benveniste, Marshall and Araujo 2008; CITA 2010). “After school hours, many female teachers often sell snacks and phone cards on school campus, while male teachers work as motorbike taxi drivers or other jobs in order to supplement their incomes” (blog from *Education Policy Talk*, 4 Nov 2013). More often than not, the teaching is overshadowed by the second job, leading to low teacher effort and high teacher absenteeism. This is on top of the very low hours teachers are officially reported to be working—about 1000 hours per year, compared to almost double that in countries such as Japan and Korea (World Bank 2011). Some teachers, who have few opportunities to take on other paid jobs, as is often the case in rural areas and remote villages, collect various forms of unofficial payments from their students. Further, there is anecdotal evidence that some teachers take bribes from students in return for allowing them to cheat in examinations (Banyan Blog 23 Dec 2013). Similarly, many teachers resort to private tutoring for additional income; in private tutoring, some teachers provide answers to the examination questions in order to attract more students to pay them. As a result, students who cannot afford private tutoring are made to fail or drop out of school (blog from *Education Policy Talk*, 4 Nov 2013).

Building on its recent initiatives, the government should review the overall remuneration package for the teaching profession with a view to adjusting it over time to levels that would attract and retain top young talent. Otherwise, just providing better training will not necessarily result in either better teaching or better learning. To motivate trained teachers to commit to continued professional development and to perform well, they will need to be properly compensated. The interconnected issues of low pay, poor living standards, and low social status accorded Cambodian teachers have been studied and documented extensively (Benveniste, Marshall and Araujo 2008; CITA 2010). Just one statistic summarises the situation well. In successive socio-economic surveys, respondents listed “poor living standard of teachers” as the single most important factor leading to the poor quality of schooling and education in the country. That said, it is difficult to determine the extra pay rises that may be required in the coming years. A few years ago, the Cambodia Independent Teachers Association (CITA 2010) suggested that entry-level basic salaries should be increased to about USD250 a month by 2015; they have reiterated their position this year too. That would mean a substantial further increase in teacher salaries.

Effective training and better pay for teachers will have to be accompanied by clear performance targets for teachers and effective monitoring of those performance targets. Overall, it is important to reorient the perception of government, labour market and society to regard teachers as highly qualified professionals on par with engineers, scientists, doctors and lawyers. As in other professions, setting clear expectations and monitoring performance are integral to achieving and maintaining high quality outcomes. In Cambodia, there are clear expectations

and well-established performance goals for teachers: “Expectations for the tasks that teachers are supposed to do are explicitly laid out in legal regulations, and teachers are guided by performance goals” (World Bank 2011: 3). In practice, however, these performance standards and goals have hardly been implemented effectively let alone monitored.

Overall, there is merit in the country implementing a strategy of teacher development that has three interconnected components: preparation through quality pre-service and in-service training, pay that properly reflects their value to society through a better remuneration package, and performance setting and monitoring to ensure the best outcomes in better teaching and student performance. Many countries that have been successful in developing a solid education system have followed such a PPP teacher development strategy (Asia Society 2013; Asia Society and Rand Corporation 2012). This is a kind of “conditional teacher preparation and pay” model. The long run objective should be one of having a teacher cadre that is drawn from the top echelons of the labour force. Closer to Cambodia, South Korea and Singapore exemplify such a strategy. For example, teachers in Singapore are drawn from the top one-third of professionals, and command a remuneration equivalent to that of engineers and similar professionals. Once they are hired, they go through a rigorous, well-rounded two-year training programme at the Singapore Teacher Training Institute. Under the country’s “Thinking Teacher Program”, training of teachers happens regularly and emphasises lifelong learning, interschool collaborations, and international exposure and participation (Ng 2013).

4.2. Supporting with complementary measures

A few complementary measures would enhance the effectiveness of the teacher development strategy in providing quality education to the country’s youth. Key among this set of measures are: adequate preparation of children for schooling, regular updating and revision of the curriculum, continuous improvement of the teaching pedagogy, and local community involvement especially parent involvement in school management. As all these reforms would take time and the country cannot delay tackling the skills challenge, a well-designed and effectively implemented TVET programme could serve as a medium-term bridge builder for skill development. A detailed exploration of these issues is beyond the scope of this paper and thus what is attempted here is to sketch the basic issues involved in each of these areas of complementary measures.

4.2.1 Preparing children through early learning

About two to three decades ago, it was commonly believed worldwide that formal schooling and learning (and hence education) began when children entered primary school. That is no longer the case. Learning now begins at a much younger age. Quality pre-schooling is considered to be as crucial for a child’s overall education as the latter stages of schooling and learning. Further, there is mounting empirical evidence that for pre-schooling to be effective, children should be nurtured from conception, as the first 1000 days (conception to 24 months) are considered crucial for building the cognitive capabilities that support later child development and learning ability.

Cognitive capabilities get better developed for children whose mothers are well nourished during pregnancy and infants who are better fed than for children born to undernourished mothers and/or underfed infants. This intricate nexus between maternal and child health on the one hand and education on the other is now increasingly recognised the world over. As a result,

there is growing evidence that early childhood development (ECD) in the first 1000 days of a child followed by high-quality pre-schooling in the subsequent 1000 days make a significant difference to the future development and learning of individuals over their lifetime (Britto and Goksel 2014). Children who have robust health and attend pre-school regularly during early childhood are significantly more likely to get a head start in education than those who do not. There is thus increasing evidence that “nutritional stunting” in early childhood is a precursor to “educational stunting” in youth.

Recent World Bank reports send a strong message about the social benefits of investing in early childhood development:

Failing to invest in ECD is costly, if not impossible, to compensate for later in life... The skills developed in early childhood – from birth to primary school entry – form the basis of future learning and labor market success... A failure to develop these skills can lead to long-term and often irreversible effects on education, health, and productive earnings, imposing significant costs for both individuals and societies. (World Bank 2010, 5)

Skills development starts with birth and continues through early childhood education and general primary and secondary education all the way to vocational and tertiary education and on-the-job training ... skills development strategy should, therefore, take a holistic approach and look at how better to equip individuals with relevant skills and knowledge along an individual's life cycle. (World Bank 2013b, 13)

The 2014 Human Development Report echoes the same message:

By providing basic health care, adequate nutrition, and nurturing and stimulation in a caring environment, interventions in early childhood development help ensure children's progress in primary school, continuation through secondary school and successful entry into adulthood and engagement in the workforce. (UNDP 2014, 57)

In Cambodia, about 60 percent of 5-year old children, 21 percent of 3 to 4 year olds, and only 3 percent of under-3 year olds access some form of early childhood education (MOEYS 2014). A primary constraint on expanding early childhood education is parents' lack of awareness about the importance of pre-schooling for lifelong learning and of maternal and child nutrition for the development of cognitive capabilities (Chhea, Nou and Ros 2014). A second constraint is the inadequate educational hardware—school space, teaching materials and distance from home, to name a few. Third, as the Education Strategic Plan points out, there is no quality assurance framework for preschool education and only limited training has been provided to community preschool teachers and “core mothers” for the Home Based Care Program. Finally, early childhood education lacks integration of daycare and education for pre-school age children, which would better meet the childcare needs of working parents.

Early childhood education and pre-schooling is one of the three priority areas for the education reforms set out in the Education Strategic Plan 2014-18. To overcome the constraints outlined above, the Plan proposes a holistic approach. Through medium-term initiatives and continuous review of experience, the provision of care and education for young children's development must be central to reform plans because it is early learning that lays strong foundations for lifelong learning and development. Integral to education reforms, the habit and culture of reading books should be encouraged and developed from an early age.

Although there are not many studies on the reading habits of Cambodians, available evidence and anecdotal observations point towards inadequate reading by children in particular and by the people more generally. A 2010 early grade reading assessment of primary school children

found that 33 percent of them could not read and 47 percent of them could not comprehend what they read (World Bank 2014, 9). Similarly, a group of experts in a forum organised by the National Library of Cambodia and the Australian Embassy in 2010 almost unanimously concluded that Cambodia lacks a reading culture; one expert lamented “Young people, even academic students, they do not read much” (Heng Sreang, RUPP lecturer, quoted in the *Cambodia Daily*, 27 August 2010). Another Asian country that is taking up the challenge of children’s reading is India. The Read India programme, a low-cost high-impact intervention organised by Pratham, a leading non-governmental organisation, is producing impressive results. In 2008-09 alone, the programme helped more than 33 million children nationwide to improve their reading skills. Although Read India focuses on children aged 6-14 years, Cambodia could consider experimenting with a similar intervention for pre-school children and continue it through their primary schooling.

4.2.2 Modernising the curriculum

Cambodia has come a long way in developing a modern education curriculum in the last decade and a half. Even so, the pace of global and regional change means that curriculum development, including monitoring and evaluation, should be a continuous process. The launching of the AEC next year could be an important milestone for curriculum development in Cambodia. Visionary planning is called for. Speaking on behalf of business leaders, as quoted in the *Phnom Penh Post* of 1 March 2013, Rami Sharaf, CEO of RMA Cambodia, cautioned, “We need to upgrade these guys [Cambodian workers] because once the market becomes one big open border, if we don’t do it, in 2015 you will have whoever from whatever other country. They can come to take the jobs of our local labor force.” As an initial step towards commitment under the AEC to a freer movement of eight categories of skilled labour, Cambodia has signed the ASEAN Mutual Recognition Arrangements. Under these arrangements, the different AEC bodies (of which Cambodia’s national body is a member) are developing the ASEAN Regional Qualifications Framework, which will stipulate the minimum educational requirements that member countries will have to adhere to in each of the eight skill categories.

The objective of a region-wide qualifications framework is to classify competencies and qualifications and their credibility, and establish minimum standards and reliable certification across countries for both individuals and the labour market. Thus ASEAN defines the higher education landscape and compels countries to align their education systems and national curricula with the ASEAN minimum qualifications framework. The first order implication would be for national curriculum revision in the eight areas of specialisation. But that is only the first order effect. The ripple effects will work through the various levels of education, from higher education to high school down to primary schools and perhaps even down to pre-schools. For example, if the curriculum for a master’s degree in engineering has to be revised to cover more advanced topics, the basic mathematics and physics taught at secondary and primary school level would have to be updated as well.

It would be to Cambodia’s advantage to examine the implications of the ripple effects of the AEC for its education system as a whole, not just for its higher education segment. Continuous review and revision of the curriculum across the education system will be central in adjusting the country’s skill sets towards the regional ASEAN qualifications and benchmarks. In the process, closer consultation between education institutions and the private sector would be of immense benefit as the education system could then impart the right mix of skills to both help create a bridge from school to work for youth and address the skills-mismatch in the labour

market. In an article titled “Call for Private Sector to Train Cambodians for 2015”, published in the *Phnom Penh Post* of 1 March 2013, Rami Sharaf is quoted as saying: “We need to have an open channel between the academics and the real life employers and it should be a long term joint plan where the academics will channel the demand of the talents.” Moreover, adjusting to ASEAN and the AEC will be the immediate challenge. From a broader long-term perspective, in continuously updating and revising the education curriculum, Cambodia will also have to strike the right balance between standardisation and customisation in teaching and learning.

At present, there is no consensus on whether the curriculum should be standardised (a common set of learning requirements that at times may suppress student creativity) or customised to meet the needs of diverse learners (conducive to creativity but lowers the extent of learning). Countries intending to implement education reforms are struggling to find a balance between these two somewhat conflicting objectives. As a result, some countries (China, for example) are moving away from highly standardised curricula and examination systems to more customisation while others (the United States, for example) are moving in the opposite direction (Malone 2013; Zhao 2013). Cambodia will have to find its own model that is both globally connected and locally grounded. This is the challenge facing Cambodia’s education leadership, policy and practices.

4.2.3 Strengthening education governance

Cambodia’s educational governance structure differs vastly between the public sector and the private sector segments. The institutional framework and governance structure for the public education system is highly centralised and regimented while that for private education providers is deregulated to the point of being inadequately governed. In many respects, the governance structure of the public sector resembles what Pritchett (2013, 5) refers to as a “spider” system while that of the private sector is similar to a “starfish” system.

As in the typical spider system, Cambodia’s public schooling and higher education system is a top-down, centrally controlled system. In sharp contrast, private education institutions, which are mostly in the higher education segment and have mushroomed in the last decade or so, are left almost uncoordinated with no single overarching regulatory body. This conundrum of education governance needs to be addressed. Once again, as in many areas of governance, the framework for governing the education sector on paper has a better balance between centralisation and decentralisation than in practice. For example, there are elaborate systems and procedures on paper for a highly decentralised and participatory management of public schools just as there are a whole set of guidelines and coordination mechanisms to guide the private sector education sector. However, the implementation of that governance framework is uneven and patchy, giving rise to the governance conundrum in practice (World Bank and Asia Foundation 2013).

A good example is the role of the School Support Committees (SSCs) in managing public schools at the commune level. Based on the official guidelines issued by MOEYS in 2002, public schools are attached to an SSC and the SSCs are supposed to have various roles and responsibilities in managing the schools, ranging from school budget management to ensuring the quality of education. Since the approximately 10 members of each SSC are drawn from almost all segments of the local community, including commune chiefs, school principals, parents of schoolchildren, other villagers and schoolchildren, this is as ideal a mechanism as

one could perhaps envisage for an effective decentralised and participatory school management. Yet, in practice, a recent study of six communes found:

While the committee members in these communes usually include individuals who are trusted by the local community, and are perceived to have relatively reliable opinions on the activities of the school ... there is no direct citizen or parent participation in the SSC – villagers do not have the ability to change the committee's composition or express their views through the committee. (World Bank and Asia Foundation 2013, 32)

The study went on to say:

Although community participation is encouraged in the policy, direct parental and community engagement in school matters – as is seen through the explanation of the roles of the SSC – limited to being informed about key school events and activities and making financial contributions for school improvements. (World Bank and Asia Foundation 2013, 34)

This kind of disconnect between framework and practice is seen in many other layers of public school governance, making it resemble a spider system with limited decentralisation and community participation. In a similar vein, public higher education institutions also feel the lack of freedom in managing themselves:

Cambodian higher education has been analyzed by different educational experts as 'a cause for concern,' 'plagued with difficulty,' and 'in a ferment of concern.' It reflects a number of problems with higher learning institutions: they are centrally supervised by the government ministries; they operate with limited financial resources and are fraught with political interference without transparency of academic recruitment, university leader appointment, and program approval." (Sam, Zain and Jamil 2012, 234)

Take the case of curriculum development for higher education. The current practice gives very little freedom for public universities in their curriculum development (Tuoch, Mak and You 2013). As Phoak Kung noted in a *Cambodia Daily* article on 4 June 2014, "The problem with the ministry dictating curriculum is that it simply ignores different constraints facing each university." Again the spider system is at work here.

In stark contrast, private education institutions are inadequately regulated. Again, there are guidelines and a regulatory framework in place on paper. Yet private education institutions have mushroomed in the last fifteen years. While some of them have certainly contributed to increasing the number of college graduates, they have not necessarily helped the country to narrow the skill gap. Some have been characterised as degree-producing factories in liberal arts subjects. The unregulated growth of private education institutions has been largely because of a hands-off approach to their governance. As a first step to tackle the problem, government has suspended issuance of licences for setting up new universities that focus on liberal arts but not for those intending to provide education in STEM subjects. This is a welcome initial measure so that the government can rethink its regulatory and other policies for the development of a vibrant but credible private higher education sector. In a similar vein, the nationwide tightening of the invigilation system for the August 2014 bachelor's degree examinations is another significant step in the right direction to minimise examination malpractices by students from both public and private higher education institutions (such as copying and other forms of cheating).

Building on these initial initiatives, the long-run objective of higher education reforms should be one of consolidating the many higher education institutions, whether public or private, into fewer high quality flagship institutions that can impart the right kind of education to youth. For achieving that goal, further strengthening of education governance is crucial. There is merit

in striving for a more decentralised public sector and a better regulated private sector. Put another way the public sector spider segment should perhaps be moved gradually towards the starfish mode and the private sector starfish components towards the spider mode. Striking the right balance between these two modes of governance for the country's education system is a challenging task but would pay rich dividends in terms of delivering better education. Some have also pointed out the urgent need for better coordination among the fourteen government ministries and departments that share the responsibility of higher education governance (Sen and Ros 2013). The need for interministerial coordination is the greatest between MOEYS and the Ministry of Labour and Vocational Training (MOLVT) since most of the higher education institutions come under their purview (Lonn and Madhur 2014).

4.2.4 Shaping up and scaling up technical and vocational education and training

Wide-ranging reforms of the entire general education system, while highly desirable, will take considerable time both to undertake and to yield results in closing the country's skill gap. In the interim, shaping up and scaling up technical and vocational education and training (TVET) could help the country in tackling the skill gap in the medium term. Most of the TVET institutions and courses come under the jurisdiction of the MOLVT. In addition, the Department of Vocational Orientation under MOEYS provides TVET in upper secondary schools, and some NGOs and private sector institutions also provide a few TVET courses.

The programmes offered by vocational training centres around the country can be classified into five levels: (i) short courses running from a few weeks to less than a year delivered in provincial centres, leading to a certificate; (ii) post-grade 9 courses offered in provincial centres, leading to a one-, two- or three-year diploma; (iii) post-grade 12 courses of two years that lead to a higher diploma; (iv) post-grade 12 four-year (4.5 years for engineering) or, following a TVET higher diploma, two-year courses (2.5 years for engineering) in engineering, technology and business administration leading to a bachelor's degree; and (v) postgraduate two-year courses after a TVET bachelor's degree. Nationwide, about 75,000 students were enrolled in these TVET courses in 2013, the latest year for which TVET data is available. About 68 percent of these students (about 51,000) were enrolled in certificate courses, about 9 percent in diploma courses, and the remaining 23 percent in higher diploma, bachelor's and postgraduate TVET courses. Of the certificate-level courses, about 60 percent were in agriculture-related subjects and the rest were in a variety of areas including sewing, cooking and mechanics (Kuoch 2014).

UNESCO (2013) has conducted a comprehensive review of the country's TVET system. The study identified a diffused governance structure, lack of clarity and coordination among the many stakeholders running TVET courses (many of them being supply-driven initiatives that have least relevance either for the youth or the labour market), weak links between employers (industries) and TVET courses, and poor information dissemination and career guidance about labour market demand and TVET courses as the major factors that constrain the development of a vibrant TVET sector in the country. A fundamental shift is needed whereby government and private training providers work together to expeditiously address these constraints to enable TVET to be the medium-term bridge builder for narrowing the skill gap and improving youth employability.

Recently, industrial liaison units have been set up in the provincial training centres to interact more effectively with a variety of employers and training providers. The aim is to identify emerging skill needs and ensure the relevance of training by channeling TVET providers to

areas where there is a growing demand for skills. While this is a welcome initiative, there is a growing need for employer associations and chambers of commerce and industry to play a much bigger role than they do at present. The challenge here is to draw in medium- and small-scale enterprises to engage more with the existing and prospective TVET providers. Encouragingly, MOEYS is experimenting with the idea of “vocalionalising” secondary education in a few provinces. If successful, this could give a big boost to TVET, as industry-training providers are less likely to locate themselves in smaller towns and cities.

As the UNESCO study highlighted, a major challenge is to develop what it calls “flexible pathways”: a TVET system that imparts skills specific to the plentiful job opportunities that exist but at the same time ensures that the youth acquire broader skills that they can use in a wide range of job opportunities that will be available in the future as the economy goes through both cyclical and structural changes. In many countries, TVET focuses mainly on the first objective; sooner or later, this approach results in an excess supply of youth who are highly skilled within narrowly defined areas of practice. The typical short-term TVET courses in IT provided in India are a good example: at the height of the country’s IT boom, there was a huge demand for IT skills and large numbers of youth went for such courses only to be unemployed when lay-offs began with the downturn in the IT sector. Learning from similar experiences, there is a need to strike a balance between developing TVET courses that meet the immediate skill shortages in specific sectors and promoting longer TVET courses that prepare individuals for a wider range of jobs.

Going by global experience, only a few select countries in the world have been able to develop a TVET sector that could meet the needs of a rapidly industrialising and modernising economy (McKinsey & Company 2012). Shaping up Cambodia’s highly fragmented and loosely organised TVET sector with its surfeit of small service providers would be a hugely challenging task. Even more challenging would be to scale it up, or increase the size of the sector, to a level that would be needed for it to be able to tackle the skill gap on a sustainable basis. There are inherent problems in scaling up TVET to a level for it to be a long-term solution to the skill gap; except for a very few countries, TVET has mostly provided a helping hand for countries to tackle their skill gap over the short-to-medium term horizon (McKinsey & Company 2012). Experience overwhelmingly shows that while many countries may have succeeded in showcasing the development of a couple of “boutique” TVET institutions of excellence, very few countries have been able to replicate those experiences on the scale needed to tackle the growing numbers of inadequately skilled youth (McKinsey & Company 2012).

In Cambodia, only about 30 percent of TVET enrollments are for long-term courses of more than one year. Even leaving aside the questionable quality of these TVET courses, enrollment numbers are far below the annual labour market demand for technically trained youth. Moreover, the socio-cultural stigma attached to TVET in Cambodia and the associated reluctance to go for TVET courses rather than general college education could be another major deterrent to scaling up TVET, though there are signs that this socio-cultural barrier is slowly breaking. Implementing a carefully designed TVET strategy that is well integrated with the country’s general education system could address many of the problems surrounding vocational training. But, even to do that effectively, a set of qualified and well-trained teachers would be crucial. Relying on today’s poorly educated and inadequately trained teachers to teach and train TVET students would simply extend the low quality of education from the general education system to technical and vocational training too.

5. Strong political commitment – a *sine qua non*

Overall, it is important to recognise that education is a culture and that a cadre of capable teachers is a crucial ingredient for cultivating that culture. Like socio-economic culture, education culture is highly path-dependent and slow to change, but it is not pre-ordained. Countries as diverse and as far apart from each other as Finland in Europe and South Korea in Asia have cultures that emphasise the value of education. Within ASEAN, Singapore has elevated the status of teaching and learning. More recently, Vietnam has taken several significant initiatives to change its education culture with promising results: 12-15 year old school children in Vietnam now have higher PISA scores in mathematics than their counterparts in Indonesia, Malaysia and Thailand; and Vietnam has the second highest PISA test score in ASEAN, behind only Singapore. China is also making huge strides in education; Shanghai's 12-15 year old school children now top the PISA test scores in the world. Thus, there is much hope that Cambodia can also calibrate its education culture to close the skill gap.

This paper has underscored the need for more and better teachers as the single most important ingredient for cultivating an education culture in Cambodia, although other complementary policies will be important to enhance the effect of a cadre of capable and committed teachers on both the quantity and quality of education. It is important to keep in mind that “building a highly skilled workforce is a shared responsibility between the government, education and training providers, employers and students and parents” (World Bank 2013c, 25). Improving the quality and relevance of education and training does not come cheap. Substantial increase in expenditure on education will be required. Mobilising the resources to finance the needed increase in education expenditure will be the joint responsibility of the government, private sector and external donors.

Strong political leadership is crucial for calibrating the country's education culture. Without clear vision and direction, it would be impossible to bring about the required change in society's mindset to cultivate a culture of education and learning. Equally importantly, political leadership will be critical in mobilising the public resources required for financing the kind of education reforms that are badly needed. At present, public spending on education is about 2.6 percent of GDP, higher than only in Laos and Myanmar among ASEAN countries but much lower than Vietnam's figure of about 6.6 percent. While there is significant potential to get more out of existing public expenditure through efficiency-enhancing institutional reforms, higher expenditure will also be required to make big strides in improving the education system. Even to gradually raise public spending on education to, say, UNESCO's international benchmark of about 5 percent of GDP would require huge political commitment.

The cost of not prioritising education reforms for Cambodia—for tackling the skill gaps and empowering its youth through productive employment and decent jobs—would be prohibitively high. Cambodia is experiencing a youth bulge in its population: 53 percent of the population is less than 24 years, 45 percent below 20 years, 30 percent below 15 years, 22 percent below 10 years, and 11 percent below 5 years. The country thus has a large potential skill pool. It is large because the numbers of youth are large as a percentage of the population. Crucial to converting the potential skill pool into an actual skill pool is more schooling (narrow the schooling gap) and better schooling (narrow the learning gap). Not providing young people with quality education and skills appropriate for the country's labour market could amount to forgoing the demographic dividend.

This window of demographic dividend will gradually close as the population ages. For example, the National Institute of Statistics predicts that the share of youth (below 14 years) in the total population is likely to fall to 41 percent by 2030 and to 34 percent by 2050; similarly, the share of children below the age of 15 years is likely to decline to about 25 percent by 2030 and to about 20 percent by 2050 (Kuoich 2014). Moreover, the Cambodian children now entering primary school will be in the country's labour force beginning around 2030 and almost until 2080. That is why the sooner the country acts on education reforms the better it will be for future generations. Otherwise, today's education gap will simply become tomorrow's skill gap, just as the past gaps in education now show up as a major skill gap.

Take for example an assessment of Cambodia's education system as it was in the late 1990s:

By any reasonable measure of educational quality, the education system of Cambodia ... was in a parlous state and had certainly not improved since the 1991 Paris Peace Agreement. There remained an abundance of unqualified teachers, the absence of a national curriculum, and high student repetition and drop-out rates. (Ayres 2003: 179)

Another expert, an Australian education advisor to Cambodia at the time, echoed similar sentiments about the country's education system:

The curriculum was basic in nature. Math consisted of a one-page list of topics per class, each topic to be completed in a week.... The schools were bare. Hardly a book or a poster to be seen and other equipment no more than a dream. Teachers... were usually two months behind in salary, often missed out completely, and rarely got their full entitlement. Ministry offices were no better. No funds were available for paper, pens, water supply, electricity or fuel.... (Ayres 2003, 179)

It took almost two decades to make some significant amends to the education system. Through Prime Minister Hun Sen's strategy of "people with low education teach the ones with no education and people with high education teach the ones with low education", Cambodia has made significant progress in reconstructing the country's education system since it was destroyed by the Khmer Rouge regime under the slogan "Study is not important. What's important is work and revolution" (Sam, Zain and Jamil 2012, 230-241). Despite the achievements of the past two decades, a major skill-gap is emerging as the country is on the cusp of rapid industrialisation and economic modernisation. Thus, Cambodia's own experience surely highlights the fact that putting education to work—to enable it to close the skill gap—is a long-term project. Most initiatives taken now will not yield immediate results, producing tangible benefits only after many years. This long gestation lag in the education sector is another reason to act swiftly and decisively.

There is no reason why Cambodia should not be able to build a modern education system that can provide high-quality education to Cambodian children and youth. It is also clear that a business-as-usual approach that would only involve some tinkering of policies here and there is not an option. In rethinking the approach to Cambodia's education reforms, it is equally important to follow through with the administrative and institutional changes required for their timely and effective implementation. Political commitment at the highest level would be the *sine qua non* for that. "We cannot solve our problems with the same thinking we used when we created them" (Einstein).

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