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Article

Four Decades of Teacher Development: Teacher Preparation and Teacher Upgrading Programs in Cambodia from 1979 to 2018

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Abstract

It is universally accepted that teachers' education and performance greatly influence students' learning and growth. Accordingly, the Cambodian government has identified teacher quality as the most significant factor in improving the education system in order to transform the country into an upper middle-income country by 2030 and a high - income country by 2050. Early efforts to implement Teacher Policy Action Plan (TPAP 2015) and other related education reforms resulted in better teacher salaries, increased numbers of potential teacher candidates, improved teacher preparation and teacher upgrading programs and more conducive working environments for teachers. Despite the reform efforts, more than 70,000 teachers still do not have bachelor's degrees and the country's education system faces the challenges to ensure that new teachers meet the bachelor's degree standard. Using cumulative case study grounded in published research and interviews of key informants involved in reform efforts, this paper describes how Cambodian teachers and teacher educators have been prepared and upgraded since the fall of the Khmer Rouge. We identify key challenges to implementing teacher reforms that would improve practices in the system of Cambodian education. Lastly, to channel limited resources into the most effective means for preparing and upgrading the teaching force, we propose three strategies: (1) continue with efforts to upgrade current teacher educators and hold scholarship

recipients accountable; (2) recruit and retrain master degree holders to become teacher educators; and (3) recruit and train new BA/B.Ed. graduates to become teacher educators.

Keywords: Cambodian education; teacher preparation; teacher training education reform

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Introduction:

Since its re-establishment in 1979, Cambodian education system has been through many positive changes. Ever since, the nationwide reforms of curriculum, instruction, assessment, and school leadership and management have resulted in a vast expansion in access, specifically in the basic 9-year education, and a gradual enhancement of quality in teaching and learning in every level of education (MoEYS, 2017). Provided this steady progresses, future of education in Cambodia is likely to journey in the same path of constant growth. This paper is examining this likelihood in details. As acknowledged by the Minister of Education Youth and Sport (MoEYS) in his forewords in the curriculum framework of general education and technical education, strong education system is essential for Cambodian government to realize her plans of being an upper middle-income country by 2030 and a high income country by 2050 (MoEYS, 2016). With this vision in mind, the government has increased the education budget allocation (which is reported to be US$848 million for 2018; Ben, 2017) and issued the industrial development plan to realize the 2050 economic goals (Council of Ministries, 2015). Through increased education expenditures and reforms, the government hopes to produce engaged, productive, responsible, global citizens who can respond to the social, political, and economic needs of the future (Cambodian Industrial Development Policy, 2015). With better education, the next generation of students must be well-prepared for the challenges it takes to materialize the 2030 and 2050 goals. It is generally agreed that the quality of student learning is largely dependent on teacher quality. Darling-Hammond (2006) has found that, among all education resources, teachers' abilities are the most significant contribution to students' learning achievement. High quality teachers

use effective practices to help students acquire relevant knowledge, skills and valued attitudes (Klecka, Odell, Houston, & McBee, 2009; Darling-Hammond, 1999). The development of these skills requires supported practice and mentorship (Darling-Hammond, 2014).

Methodology

The present study is an exploratory one. It begins with cumulative case studies of Cambodian teacher preparation and teacher upgrading from 1979 to the present. Sources for the cumulative case studies are primarily previous studies and reports from government agencies (i.e., MoEYS, 2015, 2016; Chhinh, Khieu, Chey, & Sot, 2016; Tandon and Fukao, 2015). We augmented published data with additional interviews of key informants through personal communications. We decided to keep the names of these key informants confidential to focus on the points they made which could be sensitive for a few. These key informants served as member checks for the published studies. They also provided additional updated details not available in the previous studies which in qualitatively presented in the paper to support points made. The goals of the cumulative case studies are to illustrate how Cambodian teachers and teacher educators have been prepared and upgraded since early 1980s and to identify challenges of reform efforts. By examining the successes and failures of past practices, we aim to identify the prime key weaknesses in the system so that limited resources available can be strategically channelled to improve the practices in the system of Cambodian education. Particularly, the paper is framed by the following questions: (1) How have Cambodian teachers and teacher educators been prepared and upgraded since the re-establishment of the education system? (2) What challenges has the education system faced?; and (3) What model of teacher education should be considered for more effective teacher education?

Results and Findings

Current State of the Cambodian Teaching Force

Presently, the Cambodian teaching force is arguably inadequate both in terms of numbers and quality as pointed by Tandon and Fukao (2015) in which they posit that Cambodia has one of the highest teacher-student ratios in Southeast Asia. With an annual growth rate of 1.52%, the country has the fastest growing population in Southeast Asia. While the numbers of students entering school each year rises, the supply of new teachers remains static. National data mask the severity of the teacher shortage because there is a large disparity in urban and rural

teacher supply (MoEYS, 2017). MoEYS (2017) also revealed that rural schools have 50% more students per teacher than urban ones. Given that 79% of Cambodia's population is rural, this means most Cambodian children are learning in over-crowded classrooms (World Bank, 2016). In addition to supply and demand issues, Cambodia also faces a critical shortage of highly trained teachers. Before 1997, teachers only needed to attain the grade level they taught (Ayers, 2000). Since the 1980s, the duration and quality of teacher training has gradually increased. For example, previous teacher training schemes have included four months training, seven months training, grade 3 plus one-year training, grade 4 plus one-year training, grade 5 plus three years training, grade 7 plus one-year training, grade 8 plus one-year training, grade 7 plus three years training, grade 10 plus three years training, grade 10 plus four years training, and grade 11 plus one-year training (Chhinh, et al., 2016).

After 1997, significant changes in policy on teacher education have been observed. For instance, all newly recruited teachers have been required to pass grade 12 except those who teach in rural schools. Nevertheless, rural primary teachers have only been required to pass grade 9 before undertaking two years of teacher training (9 + 2). At the same time, lower secondary teachers and urban primary teachers must complete grade 12 before studying for two years at a teacher training centre (12 + 2). In this policy change, only upper secondary teachers are required to complete a bachelor's degree and a one-year post-graduate program (BA + 1) at the National Institute of Education (NIE). As part of the MoEYS latest reform efforts (TPAP, 2015), Cambodia's first two teacher education colleges (TECs), one in Phnom Penh and the other in Battambang, will pilot a new Bachelor level training program for teachers of grades 1 through 9 in 2018 or 2019. As for preschool education, the country's only preschool teacher training centre operates a two-year training program that prospective teachers enter after completing grade 12. The price of so many teacher training formulas is that most teachers possess so many varying levels of qualification, usually lower than the demands for quality education (See Table 1).

Table 1: Teachers' qualifications and places of employment

Place of employment	**Educational Attainment**						
	Primary	Lower Secondary	Upper Secondary	BA/Ed	MA/Ed	Ph.D.	Total
Pre-school level	181	1,662	2,814	218	2	0	4,659
Primary level	1,104	12,521	28,701	3,585	95	3	46,009
Secondary Level	494	5,084	20,305	14,231	995	12	41,121
Total	1,779	19,267	51,820	18,034	1092	15	92,007
Need to upgrade to BA		**79% Yes (72,866)**			**21% No (19,141)**		

Source: MoEYS's EMIS, 2017

Unfortunately, for various reasons including economic and geographic, among all the teacher graduates, the most qualified ones prefer to station in large cities and towns pushing less qualified teachers to rural areas. Not only are older teachers exempt from the new requirements, some have been teaching above the grade level they attained. For example, some teachers have only a grade 9 teaching certificate but are teaching upper secondary classes. Teachers who lack understanding of the content they teach have resorted to didactic approaches that emphasize on teacher control and rote learning. Even when these teachers receive training and support to implement student-centred pedagogies, they have been found to be unable to effectively use these strategies in their teaching (Nith, Wright, Hor, Bredenberg, & Singh, 2010; Dickinson, 2016). Exacerbating problems stemming from lack of training is the low quality of students recruited into the teaching corps (Tandon & Fukao, 2015; MoEYS, 2015). Most teacher trainees only earn grades C, D, or E on the grade 12 national exam (Tandon & Fukao, 2015; MoEYS, 2015). In the past, the poor remuneration, bad working conditions, and low social status of teachers made the profession unattractive to top graduates who opted for more lucrative career paths with greater opportunities for professional growth in Non-Government Organizations (NGOs), Development Partners (DPs)

or private sector (Tandon & Fukao, 2015). The exodus of top performing students into other careers left very few entering the teaching professions, so most teacher candidates were lower quality graduates and rural candidates whose options for other occupations were slim (Tandon & Fukao, 2015).

Conversely, the popularity of teaching profession has significantly grown over the last five years (i.e., 2013-2018). Increasing salary and continuous efforts by MoEYS and relevant stakeholders to ensure preferable working environments and on-going professional supports for teachers are seen as the most influential factors of this change. The number of upper secondary school and university graduates applying to become teachers is observed to be growing annually. With the no cheating policy reinforced in the national exam, the quality of students among those candidates is expected to be higher. In the 2017-2018 academic year, roughly 8,000 BA/Ed applicants applied for the approximately 1,000 upper secondary teacher training spots at the NIE, 30,000 high school graduates applied for the 600 lower secondary teacher training spots at Regional Teacher Training Centers (RTTCs) and 40,000 high school graduates applied for the 1000 spots at Provincial Teacher Training Centers. Given the increasing salary for teachers and other reforms actions, it is highly likely that the number and quality of future teacher trainees will remain constant or even higher. The situation calls for actions to be taken so that previously graduated teacher trainees could catch up with the current trend.

Current Conditions of Teacher Training Centres

Dickinson (2015) unearthed that Cambodia's teacher training facilities were far from being adequate both in terms of facilities and capacity. She also added that the National Institute for Education (NIE) is solely responsible for training upper secondary teachers and is considered one of the best teacher training facilities in Cambodia. Aside from the newly-built building, NIE's classes and administrative buildings are converted from an old secondary school. The Japanese International Cooperation Agency (JICA) converted three NIE classrooms into science laboratory classrooms. However, within a few years after the completion of the program, the laboratory classrooms fell into such disrepair they were deemed unsafe for uses (Dickinson, 2015). Despite having laboratory facilities most NIE science classes meet in traditional classrooms and are taught using teacher-centred and passive-learning methods (Dickinson, 2015).

Extensive high-quality field experiences that align closely with theoretical coursework and include mentoring by experienced teachers and university supervisors are keys to developing successful teachers (Darling-Hammond, 2014). NIE officials indicated that the practice upper secondary school or Anuwat School located on NIE's campus is used by the institute for field experiences, but the field experience only lasts one month which is far less than recommended by research (Darling-Hammond, 2014). Moreover, Anuwat teachers rely primarily on lectures (76.5%) or students working independently at their desks (11.8%) (Dickinson, 2015). Dickinson (2015) also observed that NIE science instructors primarily taught high school level science concepts as opposed to strategies to teach those concepts. Given that NIE is the premier teacher training centre in Cambodia, the way instruction is provided at NIE could be improved in many ways. For example, the emphasis should not be too much on low-level content, but instead pedagogy. Also, there should be actions taken regarding the lack of field experiences for NIE students. Similarly, Tandon and Fukao (2015) observed that the "teaching and learning environment in the average TTC is teacher-centred and far from interactive, raising concerns about instruction quality" (p. 57). The concerns were also raised by MoEYS (2015) and Chhinh, et al. (2016). Both reports called for improving quality of teaching and learning at Cambodia's teacher training centres.

In addition to underperforming infrastructure, NIE's training facilities personnel and budget were found to be limited to meet increasing needs for new teachers. Each year around 10,000 students apply to NIE for about 1,000 available slots. With a 1.52% annual growth rate, the numbers of secondary teachers is predicted to grow accordingly. Currently, lower secondary student dropout rates at grades 6 and 9 keep the demand for upper secondary teachers low. However, if the MoEYS achieves its objective of keeping students in the system longer, the 1000 new upper secondary teachers produced annually by NIE will be insufficient to meet demands of growing enrolment. Similar to other countries in Oganization Economic Cooperation and Development (OECD), Cambodia is desperately in need of enough teachers who are capable of developing expertise, sharpening transference or teaching delivery skills, exercising creativity and enhancing versatility to meet individual students' needs and achieve the institutional goals (Schleicher, 2012). There is growing empirical evidence showing that teachers who have vast knowledge of teaching and learning are more effective with students, specifically with work demanding higher order thinking and problem solving (Darling-Hammond, 1999). Darling-Hammond (2000) advocated that better prepared teachers have more confidence and success than those who have no preparation or are ill-prepared. At this time, the greatest challenges to Cambodian teacher quality are to ensure transparent and fair selection processes at teacher training institutions, to strengthen the ability of Cambodia's teacher education

providers to provide good quality of training for new teachers, and to support and develop teachers well once they work in the system.

Recent Educational Reforms

It is evident that the current teacher training requirements are undeniably lower than other countries in the region and poorer than other professions in the country (Tandon & Fukao, 2015). The consequences of inadequate teacher preparation on student achievement are glaring. Students from primary and lower secondary levels perform poorly in important subjects such as Khmer, Mathematics and Physics (See Table 2). Moreover, only about 50% of grade 12 students passed the national exam from 2014 to 2016 (MoEYS, 2016).

Table 2. Results of student assessments in grades 3, 6, 8 and 12 nation-wide.

Subject	Year	Grade	Percentage of Correct Answers
Khmer	2015	6	43.4
Khmer Reading	2016	3	42.5
Khmer Reading	2015	8	73.8
Khmer Writing	2015	8	28.3
Mathematics	2015	8	44.0
Mathematics	2015	6	41.0
Physics	2015	8	52.8
Grade 12 Exam	2014 – 2016		50.8

Source: MoEYS-EQAD, 2015, MoEYS, 2014-2016

In 2010, MoEYS adopted teacher standards that included four domains: teacher content knowledge, teacher practice, professional learning and ethics. Yet in 2015 nearly one third of RTTC teacher trainers and over 50 per cent of Provincial PTTC teacher trainers were unaware of these standards (Tandon & Fukao, 2015). Not surprisingly, less than 10 per cent of RTTC and PTTC trainers indicated that they used the national teacher standards in their lessons. Tandon and Fukao (2015) noted that, “There is a major disconnect between the MoEYS teacher training

goals, the stated curricular guidelines, and what is happening in TTC classrooms" (p. 50). In 2016 the MoEYS developed a new curriculum framework that emphasizes on higher order thinking rather than rote memorization (MoEYS, 2016). This requires teachers to have greater content knowledge as well as increased pedagogical skills. This new curriculum framework imbues students with eight core competencies: (1) literacy and numeracy, (2) foreign languages, (3) information and communication technology, (4) communication and teamwork, (5) analysis and creativity, (6) applying knowledge and skills, (7) personal, family and social development, and (8) entrepreneurship and leadership. The goal of the framework is to bring the quality of Cambodian education up to the standards of other ASEAN countries, so Cambodia can compete economically in the region. Given the past failures of meeting the required teaching and learning standards, concerns that teachers will continue to lack the skills necessary to implement the new curriculum remain (Benveniste, Marshall, & Araujo, 2008; Tandon & Fukao, 2015; MoEYS, 2015).

Reforms Targeting Teacher Quality

Teacher quality is the key driver for student learning. Several research studies both in international and local contexts have already suggested that the increase in teacher education and experience results in a significant growth in students learning achievement (Darling-Hammond, 2002; Schleicher, 2012; Tandon & Fukao, 2015; Chhinh, at, al. 2016). To improve the quality of teaching and learning at schools, MoEYS has planned to upgrade many basic education teachers to new higher standards that require a minimum of a grade 12 certificate plus four years of training (12 + 4) or a BA plus one year for lower secondary teachers to a BA/B.Ed. plus two years or MA plus one year for secondary teachers (MoEYS, 2015). Presently, 72 ,866 teachers (79 % of the teaching force) hold qualifications below a BA equivalency (MoEYS, 2017) (See Table 3).

The current increase of teachers completing the BA slightly exceeds 2% annually, signifying that without a strong policy intervention, the number of teachers with BA qualifications will reach only 28% by 2020. Compounding the problem, for each year the MoEYS fails to implement a 12+4 training requirement for teachers at all levels, the number of teachers who lack BA/B.Ed. degrees will increase by around 1500 annually. Therefore, ensuring opportunities for as many teachers as possible to obtain a BA equivalency is one of the most urgent mandates for pre-service and in-service training (MoEYS, 2015). Cambodian teachers are hired centrally and assigned to schools by the MoYES. Over 90,000 teachers presently work in the system, among which approximately 5% teach in pre-schools, 50% teach at primary schools, and 45% teach at lower and upper secondary schools

(MoEYS, 2017). Annually more than 2,000 teachers leave the profession and only 5000 teachers are recruited and trained to work for the system (MoEYS, 2015). The net gain of teachers is not nearly enough to serve a young population that is rapidly growing.

Table 3: Trend of teacher education models

School Teaching level	Teacher Education Model		
	The Past (before 2015)	The present (2015–2020)	The future (after 2020)
Upper secondary	BA/Ed + 1 year at NIE	BA/Ed +1 year at NIE	BA/Ed + 2 years at NIE or MA/Ed + 1 year at NIE
Lower secondary	Grade 12 + 2 years at RTTCs	Grade 12 + 4 years at TECs or Grade 12 + 2 years at RTTCs	Grade 12 + 4 years at TECs or BA/Ed +1 year at TECs/ Universities
Primary	Grade 12 + 2 or 9+2 at PTTCs	Grade 12 + 4 years at TECs or Grade 12 + 2 years at PTTCs or	12+4 or BA/Ed +1 at TECs or BA/Ed +1 year at TECs/ Universities
Pre-school	12+2 or 9+2 at Pre-School TTC	12+2 at Pre-School TTC	12+4 o at TECs or BA/Ed +1 year At TECs/Universities

Source: Authors' projection

Chhinh, et al. (2016) have asserted that to achieve the goal of upgrading teacher qualifications and enhancing the quality of school teachers for the nation, MoEYS first needs to upgrade Teacher Education Colleges and Teacher Training Centres. Accordingly, beginning in 2018 with pilots in Phnom Penh and Battambang, the MoEYS Teacher Policy Action Plan set the goal of upgrading all Teacher Training Centres (TTCs) to become Teacher Education Colleges that will provide four-year teacher education programs by 2020. To address issues of teacher low qualifications, MoEYS has exerted considerable efforts to upgrade educators at all levels in the system. MoEYS has implemented programs to upgrade current teachers to the BA/B.Ed. level and teacher trainers to the MA level.

Efforts to upgrade secondary teachers to the BA level

According to an interview with a key informant from Teacher Training Department (TTD), in 2015 approximately 2,700 upper secondary teachers lacked bachelor's degrees. MoEYS along with the Ministry of Finance and Economics (MoFE) and the Ministry of Civil Services (MoCS) initially proposed a four-year project (2016-2019) to upgrade these teachers to a bachelor level and provide them with a commensurate pay increase. The proposed program would upgrade under-qualified teachers in three cohorts: 700 teachers in the first cohort, 1,000 teachers in the second cohort and 1,000 teachers in the third cohort.

NIE Upgrading Program. In 2016, NIE piloted a fast-track BA upgrading program for the first cohort. Trainees were required to complete roughly 60 credits over two years' period. However, the actual training took place during the three-month school vacations for a total of six months of class time. In order to materialize roughly 60 credits in six months, NIE scheduled back-to-back classes for eight hours per day from Monday through Saturday. This gruelling schedule exhausted both teacher trainers and trainees. Comparatively, it is worth noting that Cambodian university students usually take 15 credits per 16-week semester to attain 30 undergraduate credits per year. Awarding 60 credits in six months of intensive training raises serious concerns about the quality of the program. Even so, 698 out of 700 teachers from the first phase successfully graduated from the NIE program.

Alternative Upgrading Program. In latest development, MoEYS has awarded a five-year contract to RUPP to upgrade 2200 teachers. RUPP has started the upgrading B.Ed programs in six prioritized subjects: Khmer, History, Math, Physics, Chemistry and Biology. Unlike the program offered by NIE, teachers who graduate from the RUPP's upgrading program are not guaranteed salary increases nor changes of civil servant status from B to A. Also, unlike the NIE program, the RUPP program is a highly collaborative one. RUPP's faculties of Education, Science and Humanities, and Social Science, the MoEYS Teacher Upgrading Program (TUP), and the World Bank worked together to design a needs-based program. The first cohort of the target teacher trainees have been trained and the second one is being recruited and trained in early 2019. In Cohort 1, RUPP have been training 215 teachers on campus in Phnom Penh. In Cohort 2, 841 teachers are expected to be trained. The remaining teachers are expected to be trained by both RUPP and TECs. Based on the training proposal, the teacher trainees will need to study 60 credits within 18 months to obtain their BA/B.Ed. from the fast-track program at RUPP and/or TECs. The training is a dual program requiring teacher trainees to teach at their school on weekdays and study at RUPP and/or TECs on weekends. While the workload is high, it is not unmanageable. Time has been carefully planned for digestion and reflection on content taught. Moreover, practicing teachers can implement ideas in their classrooms, reflect on their teaching and receive feedback from their instructors at the same time. This aligns with Darling-Hammond's (2000) recommendation that teacher preparation programs should follow an integrated model of theory and practice similar to medical students' preparation. Integrating field work with coursework allows teacher trainees to enact their training in a supportive environment that provides feedback and the opportunity for revision. This integrated approach, known as a residency model, holds the most promise of producing teachers who are effective in helping students learn and who are more likely to enter and remain in teaching profession

According to the agreed program, RUPP's Faculty of Education is entitled to offer six pedagogical courses for a total of 35% of the program. These courses include peer teaching, field-based assignments, and reflection on practices. The goal is to provide support for teachers to implement new pedagogies, so they develop into reflective practitioners capable of implementing reforms. The Faculty of Education will also teach three research courses that culminate in an action research project (20%). Other faculties in the teacher's content areas will each provide the remaining 45% of the course work. Efforts have been jointly invested to ensure that the program offered by RUPP bring about highest quality in teacher trainees. The success of the pilot program will lead to the sustainability of next B.Ed upgrading program project. However, the large scalability of the future program

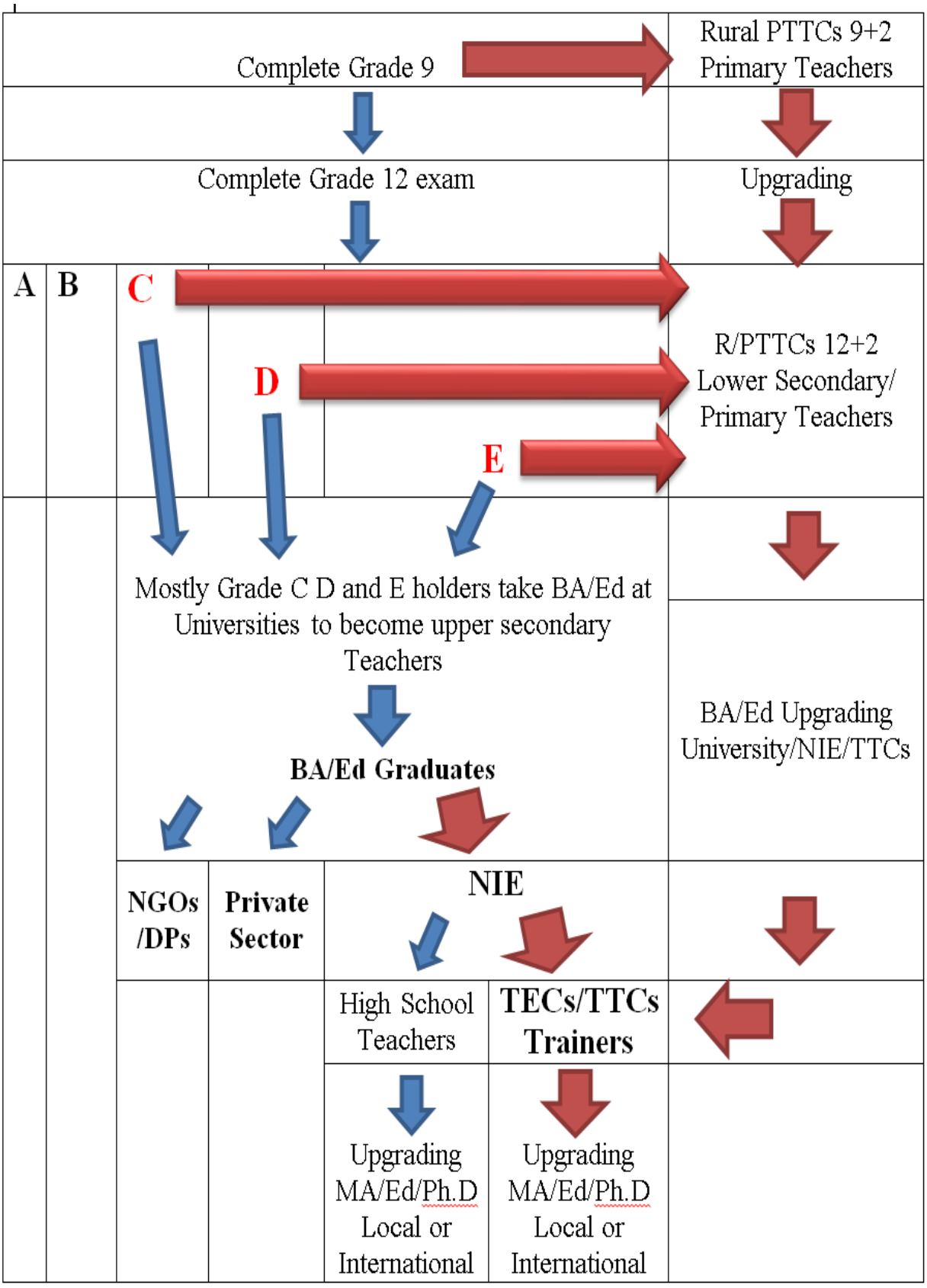
project will be enormous challenges for RUPP alone, given the fact that the three responsible RUPP faculties (Education, Sciences, Social Sciences and Humanities) have to run the existing undergraduate, graduate and post-graduate programs which are highly expected to grow and expand constantly. Besides, the three faculties also have ambitions to represent RUPP to implement other completely innovative programs from bachelor to doctoral levels, not to mention on-demand short courses that research has proved to be most professionally practical.

Consideration is in place for other lower secondary school teachers teaching other subjects. The management teams at TTDs and MoEYS also have a plan to upgrade the teachers in English Language, Moral-Civics, Geography and Earth-Environmental Science. If there is sufficient financial support, approximately 200 teachers from the four subjects can enter fast-track BA programs at the new TECs, NIE, or even RUPP every year. Similar to the upgrading at NIE and RUPP, the teachers will need to successfully acquire around 60 credits from this training regardless of their prior learning recognition. Nevertheless, to date, it is unclear that upgrading program in a planning process will replicate the NIE or RUPP training models or develop an entirely new one. It is worth noting that although a link of a qualification upgrading program to an increase of salary scale is sceptical at the present time, most teachers still express a strong interest to participate in the upgrading program.

MoEYS' plans to upgrade the teaching force rely heavily on qualified teacher educators. However, like the teachers who need upgrading, many teacher educators are under-qualified. As in the case of teacher training, the requirements for teacher educators have increased over the years. Initially some secondary school teacher trainers completed grade 12 and further completed two years of additional training. Some primary teacher trainers completed grade 9 and then completed two additional years of training. Current MoEYS regulations stipulate that teacher educators be master's degree qualified (See Figure 1). Tandon and Fukao (2015) found that the average RTTC trainer completed 16.5 years of schooling and the average PTTC trainer completed 14.7 years. The total number of years of schooling is deceptive because 46.6% of the RTTC trainers and 45% of the PTTC trainers failed to complete high school. Moreover, only 11% of RTTC trainers and 22% of PTTC trainers received training beyond their initial teacher training MoEYS has offered ambitious training programs to upgrade the qualifications of limited numbers of teacher educators. Others have continued their education at their own expense earning a bachelor or master degrees through private institutions. While self-funded study should be rewarded, the quality of the

private training is arguably questionable as there are no credentialing requirements for university programs. RTTC teacher trainers are particularly critical of the quality of their training with only 24% of them ranking their training as "very good" (Tandon & Fukao, 2015). Both RTTC (73%) and PTTC (61%) trainers believe their training is inadequate (Tandon & Fukao, 2015).

Figure 1: Pathways for preparing and upgrading TEC/TTC teacher educators from 1997 to 2018


Complete Grade 9
Rural PTTCs 9+2 Primary Teachers
Complete Grade 12 exam
Upgrading
A
B
C
D
E
R/PTTCs 12+2 Lower Secondary/ Primary Teachers
Mostly Grade C D and E holders take BA/Ed at Universities to become upper secondary Teachers
BA/Ed Upgrading University/NIE/TTCs
BA/Ed Graduates
NGOs /DPs
Private Sector
NIE
High School Teachers
TECs/TTCs Trainers
Upgrading MA/Ed/Ph.D Local or International
Upgrading MA/Ed/Ph.D Local or International

While many countries recruit their best teachers to work in teacher training colleges, in Cambodia teacher training is viewed as less attractive than teaching. Successful NIE graduates can earn significantly more income teaching at high schools than working as teacher trainers at one of the R/PTTCs because high school teachers can easily tap into the lucrative market for private tutoring. Additionally, the teacher deployment policy tends to favour top performing graduates since it allows them to choose where they teach. Presently, the majority of R/PTCCs teacher educators have bachelor's degrees. Some have managed to earn master's degrees but mostly in different majors from their undergraduate degrees. In order to achieve the MoEYS goal of transforming the Phnom Penh and Battambang teacher training centres into colleges, about 70% of the teacher educators need to be upgraded to a master's level (Chhinh, et al., 2016). It is worth mentioning that the teacher training centres in Phnom Penh and Battambang are known as the best in the country, so this implies a more urgent situation at the other R/PTTCs. The under supply of high quality of teacher educators at teacher education colleges (TECs) and TTCs has led to an overload of instructional and administrative work as well as a high rate of out-of-area teaching (Chhinh, et al., 2016). This can be implied that students' learning needs have not satisfactorily met.

Initial MoEYS Teacher Trainer Upgrading Efforts

In 2015, MoEYS selected Khemarak University (KU) to provide a three-semester master's degree program for RTTC STEM teacher educators. UNICEF sponsored 61 teacher trainers with tuition scholarships and travel stipends. MOEYS selected the participants but did not reveal selection criteria. Supposedly, the participants represented the top teacher trainers in Cambodia. It was later revealed that KU admitted an additional 16 fee-paying students, making the number of teacher to be upgraded to MA stood at 77. Classes met all day on Saturdays and half day on Sundays in a five-story office building that lacked laboratory spaces. The program lecturers largely came from other universities in Phnom Penh. Less than one third of the faculty were listed as KU faculty. Only 6 of the 17 of the program faculty held Ph.Ds. and one was in an area unrelated to the subject taught. As generally observed, nearly half of the faculty worked full-time at RUPP. An early program review by UNICEF found that the program relied entirely on lecture and included no pedagogical training. The content courses focused entirely on theoretical knowledge with little application to real-world problems. At UNICEF's insistence KU added a pedagogy course beginning in the second semester of the program. This course was taught in the last teaching 90-minute slot on Saturday afternoons by an American science education professor

and a translator. Each class included a 5-E model lesson intended to highlight different aspects of inquiry in the content area

Dickinson (2016) identified three issues with the KU program: (a) lack of basic conceptual understandings within content areas, (b) inability to apply memorized facts, and (c) administrator misperceptions of inquiry science. Although students were receiving master's degrees in their content areas, they struggled with grade 7-12 STEM concepts. Participants demonstrated such low levels of prior understanding that class discussions focused on learning the topics rather than understanding the pedagogy. During the third semester of the program, participants worked in teams of two or three to write 5-E lessons using Volunteer Service Overseas (VSO) STEM activities. VSO developed, translated, and field-tested inquiry STEM activities aligned with the Cambodian national curriculum. They have trained over 3000 Cambodian teachers on how to use them. VSO confirmed that none of the teacher trainers had participated in their workshops, so the activities were new to all the participants. Despite breaking the process down into segments with feedback and revision after each one, only two groups successfully produced an inquiry lesson. UNICEF insisted on an attendance requirement for completion of the program. Twenty-two of the 61 UNICEF-sponsored students failed to meet the attendance requirement and should not have completed the program (See Table 4). The high failure rates due to attendance speak to an issue of commitment on the teacher trainees' parts.

Table 4: Attendance rates for teacher trainers in KU Master's program.

	Number of sponsored students failing to meet minimum attendance requirement	Total UNICEF-sponsored students in that field	% sponsored students failing attendance requirement
Biology	3	14	21.4%
Chemistry	7	13	53.8%
Mathematics	5	20	25.0%
Physics	7	14	50.0%

There is no indication that attainment of the master's degree depended on academic qualifications. Since KU students lacked understanding of even the most basic concepts, it is unlikely that course examinations tested for anything other than rote memorization of facts and formulas.

RUPP Teacher Trainer Upgrade Master's Program. RUPP has been currently working to design content-specific master's programs that target the specific needs of teacher educators. Noting that many teacher educators still have weak understandings of basic content, master's students will be required to complete the required courses in their disciplines. These courses will emphasize on deepening the knowledge of the concepts in the national curriculum and will include laboratory components. The remaining education courses will prepare them to be curricular leaders. These courses include foundation of educationn, curriculum design, assessment, action research, and applied research. In keeping with research findings on effective programs, the RUPP program will include supervised teaching opportunities. Masters students will engage in peer teaching in their content classes as well as field-based teaching experiences in their education classes. The purpose of field-based teaching is to provide teacher trainers with supervised experiences that they missed in their own training while also providing training for classroom teachers who observe the teacher trainers in the field. RUPP anticipates recruiting the first cohorts in by mid-2019.

Implication for Policy and Planning

Since 2014 MoEYS has undertaken an ambitious agenda to address the daunting shortcomings of the educational system. Those efforts include strict supervision to eliminate cheating on the national grade 12 exam, improving school infrastructure and facilities, increasing teacher salaries, recruiting and training new management teams, revising the national curriculum, developing a strategic plan, upgrading teachers and upgrading teacher trainers. While MoEYS has made impressive progress on its strategic plan, much remains to be done. The lack of highly qualified trainers is crippling MoEYS efforts to build a competent teaching force which in turn is hampering efforts to improve the quality of education for Cambodia's children. Therefore, MoEYS should focus its attention on developing sufficient numbers of teacher educators through quality graduate programs so that teacher training centres can be converted to teacher education colleges that can award undergraduate degrees. Currently NIE and RUPP lack sufficient staff to offer enough slots for both initial certification and retraining efforts. As the student

population grows, the limited slots for initial teacher training and retraining becomes ever more critical. We propose three strategies to efficiently respond to the pressing demands of Cambodia's teacher education reforms: (1) continue with efforts to upgrade current teacher educators and hold scholarship recipients accountable; (2) recruit and retrain master degree holders to become teacher educators; and (3) recruit and train new BA/B.Ed. graduates to become teacher educators.

Continue Teacher Educators Upgrading Efforts and Hold Scholarship Recipients Accountable

In the past MoEYS has exempted practicing teacher educators from new requirements. While some have undertaken self-funded training at private, non-credentialed universities, most have relied on paid programs sponsored by MoEYS and NGOs. While most trainers lack the required degrees, many have degrees with little meaning to it. Generally, the degrees were obtained from universities whose programs were of questionable quality. We believe three strategies are necessary to address these problems: (1) make continued employment at TTCs and TECs contingent upon obtaining a Master's degree in a relevant subject from an accredited program; (2) provide financial and logistical supports for teacher educators to obtain quality graduate degrees; and (3) require universities providing graduate teacher educator programs to show evidence of curricular coherence and relevance, practical and meaningful field experiences, and research-based instructional practices that enhance student learning. While it is laudable that MoEYS has honoured the efforts of under-qualified teacher educators, it is time to enforce the current requirements. The national education budget is insufficient for supporting non-productive personnel in leadership positions. Teacher trainers who lack proper credentials hamper reform efforts and take spots that could be filled by more competent personnel who are better able to make significant contributions to MoEYS teacher reforms.

However, without fiscal and logistical support from MoEYS and relevant stakeholders, teacher educators will face serious challenges to completing quality graduate degrees. Most teacher educators are unable to fund their own studies. MoEYS need to offer sufficient scholarships and stipends to teacher educators so completion of the graduate programs is feasible. Likewise, during their study, some of their teaching workload and administrative tasks need to be appropriately reduced to provide adequate time for their studies. By so doing, the quality of learning can be enhanced, and teacher educators will view their training more positively. In the past, there was no accountability for teacher educators who

received scholarships. MoEYS should demand that scholarship recipients apply themselves to their studies and make continued support contingent upon attendance and grades at the end of each semester. Students failing to attend class and/or receiving failing grades should have their financial support rescinded and they should be dropped from the graduate program. Moreover, those students who have financial support rescinded should be ineligible for future government scholarships. MoEYS should also attend to the quality of graduate programs targeting teacher educators. Only local educational institutions that have already been accredited by Teacher Education Provider Standard (TEPS) or prestigious public universities that have been actively involved in the process of designing upgrading schemes with MoEYS should be entitled to offer the 60-credit master's program for teacher educators. MoEYS should review programs to ensure that faculty are qualified to teach the content and pedagogy courses and to ensure that programs enact best practices for teacher training.

TEC and RTTCs should identify the most talented teacher educators for graduate study abroad. Having some foreign-trained teacher educators at each campus will greatly enhance the chances for in-house professional development as new ideas and methods are brought back from abroad and contextualized. MoEYS should seek financial support from development partners and other government ministries to offer scholarships for graduate study abroad. These scholarships should be offered on a competitive basis with clear selection criteria based on individual merit and motivation. Selection process for scholarship must also reflect key principles of transparency, equity and fairness. It is vital that any graduate degree program for teacher educators be customized for their needs regardless where it happens. Simply put, teacher educators need to acquire knowledge, skills and experiences that are contextualized to Cambodian setting. For example, some part of the coursework should focus on how to provide student-centred lessons in under-resourced schools, how to identify and help special needs students, and how to help students who are under-prepared. Teacher educators should be strongly encouraged to express their thoughts about the applicability of graduate coursework to the Cambodian context.

Recruit and Retrain Master's Degree Holders to Become Teacher Educators. There are many master's degree holders with expertise related to education. Annually, the Royal University of Phnom Penh produces more than 100 MA/Ed graduates and many more Cambodians obtain master's degrees from other universities. Some of these graduates also have formal training from NIE and/or a few years working experiences as school teachers or university lecturers. While many of these graduates have developed strong content knowledge, they still have limited pedagogical knowledge and require further training. Darling-Hammond

(2000) pointed out that even the top performing graduates who are passionate for teaching do not easily succeed in teaching without thorough and adequate preparation. We recommend bringing these graduates up to speed with a one-year clinical residency program that combines field work, mentorship, and concurrent coursework. Education courses should include foundation of education, curriculum development, content-specific pedagogical methods, individualizing instruction for special needs, and classroom assessment. Each student needs to be assigned to work with a highly qualified teaching mentor. These mentors should be recruited and trained by university faculty, so the field experience aligns with coursework in terms of pedagogical paradigms and learning theories. Working as an observer and later as a teacher at schools for the first semester gives residents enough time to learn about school culture, student characteristics and the actual working environment of school teachers. During the second semester, residents assume full teaching duties. Mentors and university faculty observe residents' lessons and provide constructive feedback. They also encourage residents to develop habits of reflection on student learning. Residents compile exemplars of lesson plans, student work, personal reflections and feedback into a portfolio which serves as the final assessment for the program. This one-year program for master's degree-holders to become teacher educators is less expensive and can be done in a shorter time than many of the upgrading schemes for current teacher educators. While a one-year residency is insufficient to develop full expertise in pedagogical content knowledge, this program could fill a desperate need for teacher educators with strong content knowledge. Moreover, teacher educators with strong content knowledge and pedagogical training are more likely to be able to develop student-centred teaching materials than those with weak content knowledge.

Recruit and Prepare New BA/B.Ed. Graduates to Become Teacher Educators. Among the three solutions suggested, recruiting and preparing new BA/B.Ed. graduates to become teacher educators is the most likely to ensure the sufficient number of high quality teacher educators. Every year thousands of BA/B.Ed. graduates are interested in becoming upper secondary teachers. We envision recruiting 100 BA/Ed graduates annually into a highly competitive, three-year master's program. The program will be structured as three stepping stones namely, getting a teaching license (in stage/year 1), earning a master's degree (in stage/year 2) and a supervised internship as teacher educators at a TEC or TTC (in stage/year 3). The teacher licensure segment of this program will follow the same residency model as the one proposed for master's degree holders. The second year of this program will offer more advanced coursework in pedagogy, curriculum design, and working with diverse learners. Master's level courses will include field work so that students can further develop practical expertise by applying the theories and

strategies they are learning in real-world contexts. During their third year, students will intern at one of the TECs or TTCs. During their internship, students will co-teach with experienced teacher educators and will learn observational and management skills from their mentors. Throughout this training program, candidates will develop their four main competencies: (1) pedagogical content knowledge, (2) general pedagogical knowledge (3) 21st century skills and (4) research skills. This longer and more rigorous training is the most effective method to increase teacher confidence and efficacy as well as increasing the likelihood that they enter and stay in their teaching career (Darling-Hammond, Chung & Frelow, 2002).

In contrast with previous upgrading attempts, rigor is necessary for all of these three recommended strategies. Candidates should not receive passing marks because they signed up for a course or even because they attended classes. Success or failure should depend on the work produced by the candidate. Consequently, some will fail. The three-step approach allows unsuccessful students to exit with some benefits. Those students who fail to meet requirements to continue on to year two, exit the program with a teaching license. Those who fail to meet the standard for an internship at a TEC may receive a master's degree. Those who fail to successfully complete their internship also fail to gain civil servant status needed for full employment at the TECs.

Concluding Thoughts

The above three solutions can ensure sufficient numbers of qualified teacher educators at each of the TECs and TTCs. Increasing capacity of the TECs and TTCs is essential for MoEYS efforts to upgrade the more than 70,000 teacher who lack the current credentialing requirements. The ministry cannot afford to support these teachers travel to a few select cities to upgrade their training. Nor is it practical for these seasoned teachers to leave their homes for extended training. Additionally, NIE lack the capacity to add enough slots to fill initial teacher training needs. TTCs and TECs with qualified staff are desperately needed to fill the gap in initial teacher training. Without sufficient numbers of these qualified teacher educators it is impossible to enact the new 12 + 4 initial teacher training requirements in the near future. Each of the proposed strategies has pros and cons. Continuing the MoEYS efforts to upgrade current teacher trainers taps into a pool of experienced teacher educators. This strategy gives the most continuity at TTCs and TECs by maintaining and improving the existing staff. However, given the wide range of qualifications and limited leadership experience of the existing staff, this method fails to tap into a larger talent pool. It is also very difficult to ensure the quality of upgraded teacher trainers because many lack requisite content

knowledge to capitalize on the training opportunities. Recruiting existing master's degree students is the least expensive option and only requires one year but many will still be novice teachers at the completion of their training. Recruiting BA/B.Ed. graduates holds great promise because these students are competent in their subject areas and the program is structured so that the strongest candidates to rise to the top level, but less qualified candidates still earn marketable credentials. The longer training period allows candidates to develop more expertise but also requires more commitment and funding. This route is also the most administratively complex because it requires coordination between universities, TECs/TTCs, schools, MoEYS and the Ministry of Civil Servants.

All of these proposed solutions require strong commitment from all parties. Potential teacher candidates are being held to much higher standards. To retain these more highly qualified professionals requires transparent recruitment and promotion, competitive salaries, functional, progressive and supportive working conditions and improved social status. Research indicates that many teaching professionals are willing to work for lower salaries than industry provides if their working conditions are good. There is a high risk that well-trained teacher educators will leave the profession if working conditions become unfavourable (Darling-Hammond, Chung & Frelow, 2002). Given the large investment in upgrading teachers and teacher educators, MoEYS should also consider implementing an accountability system for administrators. MoEYS has already accomplished important reforms. In a country with such limited resources, we believe that recruiting and training additional qualified teacher educators is the most strategic use of those resources. With highly trained and committed teacher educators, Cambodia can improve the education for all Cambodian children. This will expand economic growth so more Cambodians can benefit socially, and the 2030 and 2050 goals can be materialized.

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