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THE SITUATIONAL ANALYSIS OF NURSING EDUCATION AND WORKFORCE IN INDONESIA

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ABSTRACT

Background: The Indonesian nursing workforce plays an important role in the nation's health development. However, the Ministry of Health of Indonesia acknowledges that there is a shortage in the nursing cadre. This situation is at odds with the current large-scale production of nurses occurring in Indonesia.

Aim: This article aims to analyse the latest situation of nursing education and nursing workforce in Indonesia and the challenges faced by the profession.

Methods: This study is literature review emphasizing the policy issues and responses on education and workforce. Data were collected from various sources, including the Ministry of Health, other relevant stakeholders and journals. Document extraction and review was conducted from December 2015 to January 2017.

Results and conclusion: Results indicated that there is a chronic shortage of nurses in certain regions of Indonesia. Current shortages could easily be aggravated by the disequilibrium between supply and demand. Meanwhile, the overproduction of the nursing workforce in various regions has contributed to the surplus number of nurses. Policy options must be adopted to reduce shortages and with an offering of temporary surplus of nurses is suggested to solve the current issues.

Keywords: Nursing Education, Nursing Workforce, Indonesian Nurses

INTRODUCTION

In the country's current healthcare landscape, Indonesia started to implement Universal Health Coverage (UHC) from January 2014 (DJSN & MoH, 2012; MoH, 2016b). The execution of UHC needs an adequate and well-performing health workforce as the cornerstone of the nation's health system (Cometto *et al.*, 2013; Kurniati *et al.*, 2015). However, the quality, availability and distribution of Indonesia's health workforce in supporting UHC needs to be enhanced (Efendi *et al.*, 2016). While many countries experience health workforce shortages, Indonesia has been acknowledged as one of the countries suffering

the greatest deficit in Asia (World Health Organization, 2006). The recent data published by the World Health Organization in 2014 shows the availability of human resources for health fall below the minimum recommended threshold (World Health Organization, 2014). The Ministry of Health (MoH) also admitted that there is a shortage of health personnel, including the nursing cadre, to serve the health needs of the entire Indonesian population (MoH, 2016b). Government documents showed that, in 2014, there was a shortage of nurses in public hospitals of 10,370 nurses and 4,213 in community health centres (MoH, 2014a). In addition, the projected shortage will worsen to a

deficiency of 87,618 nurses in public hospitals, 602 nurses in military hospitals and 20,230 nurses in community health centres by 2019 (Kemenkokesra, 2013). As UHC is implemented, the demand for nurses will increase as the government meets its target for the recommended number of nurses in community health centres of six nurses for those without inpatient services and ten nurses for those with inpatient services (MoH, 2014a).

On the other hand, published documents show an overproduction of nursing graduates and unemployment of nurses (Suwandono *et al.*, 2005; Suara Surabaya, 2013; BNP2TKI, 2016). Recent government analysis by The National Board for Placement and Protection of Indonesian Overseas Workers or BNP2TKI revealed that 31,150 Indonesian nurses were without a job (BNP2TKI, 2016). Further, the available data in 2012 showed 12,000 unemployed nurses in East Java province (Suara Surabaya, 2013; Bappeda Jatim, 2012), and previous national data showed 15,000 nurses were unemployed in 2005 (Suwandono *et al.*, 2005). The limited capacity of the public and private health sectors to employ nurses has been reported as one of the constraints(Suwandono *et al.*, 2005; Kurniati & Efendi, 2013). Indonesia is also at risk of having a surplus number of nurses (Spetz, 2011). Available data showed 35,821 and 34,150 graduates of nursing in 2011 and 2012, respectively were produced by nursing institutions (Ministry of Education and Culture, 2014).

Several clear actions have been taken in the past few years, showing the government's strong commitment to tackle the Human Resources for Health (HRH) crisis (MoH, 2014a; Kurniati *et al.*, 2015). However, progress has been slow despite the need for an essential solution. This article reviews the current situation of the nursing workforce and education in Indonesia and identifies challenges faced by profession.

RESEARCH METHODOLOGY

The article reports the results of an extensive review of literature in the form of electronic and printed material on the nursing education and workforce in Indonesia. We purposely searched and analysed relevant information from Google Scholar, ProQuest and Scopus databases. As a few articles relating to our objective written in English, white papers from the Ministry of Health (MoH), Ministry of Education and Culture (MoEC), Indonesian National Nurses Association (INNA)

website, journals and newspapers written in Bahasa Indonesia were reviewed. Selected articles were collated and appraised among authors to see the relevance. Document extraction and review was conducted from December 2015 to January 2017. A synthesis of policy review information provided structured nursing workforce situation, nursing education, the challenges and the proposal for future agenda.

RESULTS

Nursing in Indonesia has witnessed remarkable advances in the areas of workforce and education. In order to present a comprehensive view of the Indonesian nursing profession, in this section the country's current situation is described in the history of the nursing profession, nursing workforce and nursing education in Indonesia.

Country Situation

Indonesia is a country of more than 17,000 islands, comprised of 34 provinces and has become one of the world's most populous countries (Ministry of State Secretariat of the Republic of Indonesia, 2014). Indonesia's population is 237.6 million, of which, according to the 2010 census, 50% live in urban areas, and 87% are Muslim (BPS *et al.*, 2013). The life expectancy at birth for males are 68.7 years and 72.6 years for females. The current Maternal Mortality Rate is 359 per 100,000 live births, and the Infant Mortality rate is 32 deaths per 1,000 live births. The literacy rate for 15-24 years old was 96.8% in the year 2012 (BPS *et al.*, 2013).

The number of nurses rose significantly between 1995 and 2006; however, inequitable distribution and quality of training issues have been reported in some published documents (AIPNI *et al.*, 2012; Anderson *et al.*, 2014). Nurses on the front line in Indonesia's health system play a critical role in improving the health outcome of the community. According to a World Bank study in 2009, nurses are often the only health staff in remote and hardship are as (Anderson *et al.*, 2014). According to the latest data, an estimated 118.3 million Indonesian live in rural areas (BPS *et al*., 2013) and there are still some community health centresthat remain unattended by doctor (Anderson *et al.*, 2014). Therefore, nurses will take the lead to improve community health status in hardship are as. Specific attention to elevating the impact of the nursing

profession in the UHC era is necessary in supporting Indonesia's health development.

History of the Nursing Profession in Indonesia

The history of nursing in Indonesia cannot easily be tracked as there are no formal published reports on the topic. As stated by a researcher from the Netherlands, the history of healthcare services in Indonesia's colonial era was neglected (Boomgaard, 1993). As resulted, during and post-colonial era in Indonesia was traced back. Some may say that nursing has existed in Indonesia since the establishment of hospitals. Beginning with the Dutch mission to take over Indonesia through economic means, they were set up by the Dutch East India Company (VOC) to provide a facility to enhance the mission, including the building of the hospital in Batavia (later known as Jakarta).One study noted the nursing development during the colonial era, which placed emphasis on males nurse recruitment in the hospital setting, then spreading out to the community services (Cloth *et al.*, 1938). Other published sources mentioned that the first hospital in Batavia was opened on 1 July 1926; it was exclusively for the employees of the company (Cloth *et al.*, 1938). As time went by, the East India Government needed a ward to care for the wounded people. The ward, later known as Stadsverban, was headed by a Dutch doctor with assistance from local people (who probably acted as nurses). The Stadsverban became the blueprint of civil hospitals in the big cities over Java's island (Cloth *et al.*, 1938). One policy which contributed to the improvement of the healthcare services was the ethical policy launched by VOC during the colonial era (Fasseur, 2000).

Various nurse organisations were also initiated, either to enhance the profession itself or for propaganda. During the colonisation period, the Dutch nurses acted as nurse educators to be deployed in several big cities across Indonesia, such as Jakarta, Surabaya and Medan. After independence, Indonesia established various nursing education facilities for elementary school graduates (Sekolah Rakyat) and junior high school graduates. The variation depended on the need of the community, which was more task-oriented,and it was noted that 20 types of nurse cadres were produced at that time (AIPNI *et al.*, 2012). The need for a higher level of nurse education was acknowledged by the Ministry of Health (MoH) when, in 1962, it opened diploma level training. In 1974, at a national meeting on the basic level of nurse education, the Sekolah Perawat Kesehatan (SPK) (senior high school level) was established. SPK was the most popular nursing school in Indonesia until its abolishment in 1998 by the MoH (Ministry of Education and Culture, 2010).

The first National Health System concept was launched in 1982, mandated professional nurses in healthcare services. This led to the establishment of a bachelor degree programme in nursing in 1985. The bachelor degree in nursing was initiated by the University of Indonesia, as a public university, and then followed by other public universities acrossIndonesia. According to the data from the Ministry of Education and Culture (MoEC), currently, nursing education is at the following levels - diploma, bachelor, master, specialist and doctoral degrees (AIPNI *et al.*, 2012). The higher education section, which was under the MoEC, then transferred to the Ministry of Research, Technology and Higher Education (Kemristekdikti) was formed in 2014.

Nursing Workforce in Indonesia

There is no exact estimate of the number of nurses across Indonesia due to voluntary registration and the lack of human resource information systems in Indonesia (Kurniati & Efendi, 2012). The latest data from the Ministry of Health for 2016 showed that the total number of nurses was 224,035 (MoH, 2016a). However, other data published in 2006 showed that we have 308,306 nurses (MoH, 2007). It must be noted that the data from the MoH may not be complete, as MoH database includes only those government institutions and private hospitals that send a report to the MoH. The incomplete information on available data of nurses over Indonesia may hinder human resource management planning in national level.

Currently, the country has 889 study programmes in nursing, which offer diploma, bachelor, master and doctoral degrees (Ministry of Education and Culture, 2014). This data included schools managed by the Ministry of Health (known as Polytechnics) which operates151 nursing study programmes across Indonesia. Nurses represent the largest proportion (33.12%) of the total health workforce of Indonesia (MoH, 2014b). Even though there is no agreement on the precise ratio of health workers to population, WHO has identified 2.28 per 1000 populations as the

"threshold" density of the three cadres (doctors, nurses, and midwives) with a range from 2.02 to 2.54 (Spey broeck *et al.*, 2006). Particular reference for nurses showed the ratio of nurses to population at 0.2 per 1000 population (20 per 100,000) (World Bank, 1993).

According to the government document, the ratio of nurses to population was 96.2 nurses per 100,000 population (MoH, 2013), meaning that the country is over the threshold by having 0.96 nurses per 1000 population. As noted by the government of Indonesia, the distribution of the health workforce, including nurses, does not follow the distribution of population (MoH, 2013). The distribution of nurses across the provinces in Indonesia varies, with the greatest population per nurse in areas outside of Java/Bali Island (MoH, 2016b). This data may contrast with doctor distribution, who preferred to serve in rather than outside Java/Bali Island (MoH, 2016b). The imbalanced distribution of nurses within provinces may be an impact of the decentralisation system, which allows district government to hire health workforce directly (Kurniati & Efendi, 2009; Kurniati *et al.*, 2015). Due to the lack of data, the number of nurses working in rural and urban areas is not available.

In Indonesia, both the government and the private sector provide healthcare. In each province, the government runs the district hospitals and community health centres. At the village level, there are integrated health posts, village midwife clinics and sub-health centres (Kurniati & Efendi, 2013). In addition, there are private hospitals and other Faith-Based Organisations which provide healthcare services (MoH, 2008). The uniqueness of Indonesia's National Health System (NHS) is the community empowerment pillar. The government views the community itself as a potential asset to be considered in national health development. Health initiatives have been considered as community empowerment in Indonesia, such as *Posyandu*, an Integrated Health Post based on community to provide healthcare services for maternal and infant healthcare services. At the end of April 2015, there were 289,635 *Posyandu across* Indonesia (MoH, 2015). The diploma and bachelor-trained nurses usually work at hospital and community health centres, while postgraduate degree holders are largely involved in higher-education institutions, although a small number work in health facilities. Table 1 depicts the different nursing education

programmes of Indonesia that were registered with the MoEC and their common place of employment.

Nursing program	Eligibility Criteria for Entrance	Training Duration	Examination for qualification	Usually work at
Diploma in Nursing	Completion of 2th grade	3 years 4 years	Indonesian Health Worker Assembly (MTKI) with University	Hospital, community health centre
Bachelor of Nursing	Completion of 12th grade	4 years in academy 1 year in clinical setting	University MTKI with University	Hospital, community health centre, industry
Master of Nursing	Bachelor of Nursing/Registered Nurse	2 years	University	Nursing school, hospital
Specialist in Nursing	Master of Nursing	1 year	University	Nursing school, hospital
Doctoral in Nursing	Master of Nursing	3 years	University	Nursing school

Table 2 shows that the number of nurses is greatest at the Diploma 3 level. In recent years, the number of nursing institutions that provide the bachelor degree has increased. Like a mushroom in the rainy season, nursing education institutions are growing rapidly. The latest data showed that there were 332 nursing institutions offering bachelor degrees and 494 nursing institutions providing Diploma 3 (Ministry of Education and Culture, 2014). One document noted that this situation is the result of different policies between the MoH and MoEC (AIPNI *et al.*, 2012). Acknowledging that nursing education institutions are growing unmanageable and seeking to control the quality of health study programmes, including nursing, in 2011, the Ministry of Education and Culture decided to suspend the opening of a nursing study programme (MoEC, 2011).

Table 2: Number of nursing study programmes in Indonesia

Institution	Number
Diploma 3	494
Diploma 4	43
Bachelor degree	332
Master degree	15
Specialist	4
Doctoral degree	1
Total	**889**

Nursing Education in Indonesia

The impressive growth in the number of schools for nursing over the past decade has created increased opportunity and high interest in a nursing career. Nursing was established as a profession in Indonesia at a national workshop held in the year 1983. More than three decades later, there is a need for reform in this sector (Nursalam & Efendi, 2008). Responding to this, several types of nursing educational institutionswere established. Government act number 60 in the year 1999 indicates that the term 'higher education' refers to Academy, Polytechnic, Sekolah Tinggi (School of Health Science), Institute and University (Government of Indonesia, 1999).

Academy

Nursing academies (Akademi Keperawatan) became the first higher education institution established in Indonesia that provided nursing training. This programme is three years in duration (Diploma 3) and the MoEC database shows that 264 nursing academies have been registered across the nation.

Polytechnic

Health education institutions other than for medical personnel were grouped into two, Health Polytechnic (Poltekkes) and Non-Health Polytechnic (Non-Poltekkes), with ownership by the district government, military/police and either private or foundation. Poltekkes with nursing programmes can take either three years (Diploma 3) or four years (Diploma 4) to complete. As of December 2012, the number of registered Diploma 4 programmes was132, while the number of Diploma 3 programmes was 1,082, which consists of 262 study programmes at 38 Poltekkes and 820 Non-Poltekkes institutions (MoH, 2013). The original purpose of the establishment of Diploma 4 was to train nurse educators in preparation for the bachelor degree program. However, after the project had been completed, the Diploma 4 was allowed to stay open in institutions under the MoH. The Association of Indonesian Nurse Education Centre (AINEC) officially announced that it considered in contrary to the spirit of professionalism in nursing (AIPNI *et al.*, 2012). According to figure 1, nursing study programmes account for 58% of all health study programmes under Poltekkes.
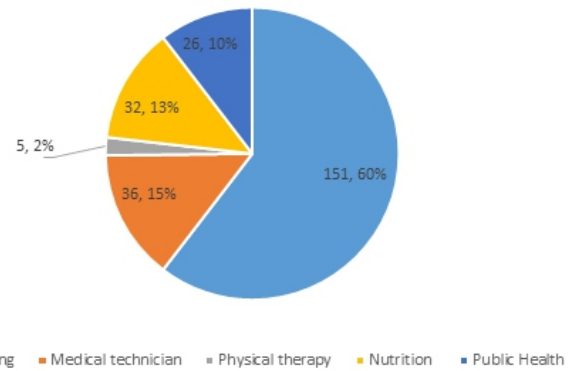
Number of study programme in Poltekkes

Figure 1: Distribution of study programme in Poltekkes (MoH, 2013)

Sekolah Tinggi (School of Health Science)

Sekolah Tinggi refers to School of Health Sciences (STIKES) or School of Nursing Sciences (STIKPER) and includes 135 institutions. This type of nursing institution offers diploma and a bachelor degree in nursing.

Institute

Several institutes have been established to contribute to the national development and these include the Institute of Health Sciences, of which some also provide a nursing major. According to the MoEC database, there is only one institute recorded in their system, and this offers diploma and bachelor nursing programmes.

University

Universities offer study programmes in health sciences, including nursing programmes. This type of higher education provides diploma, bachelor, master, specialist and even doctoral degrees in nursing. There are 92 universities which offer a nursing major.

Challenges in Nursing Education in Indonesia

The Indonesian nursing profession faces a complex situation in the post-Millennium Development Goals era. The rollout of UHC in Indonesia allowed nurses to offer an excellent service to clients. Current challenges will focus on the number and quality of Indonesian nurses.

Excess Nursing Education

High unemployment of nurses has been reported within the country, and this situation has been worsened by the low salary of nurses (Efendi, 2005). Published reports from East Java province showed that the largest number of unemployed white-collar workers is nurses. The number has reached 12,000 nurses, of which the private labour market only absorbed 10% with just 1% absorbed in the government employee sector (Kurniati & Effendi, 2012). As a result, some have turned to overseas or nurse migration (Efendi *et al.*, 2013; Kurniati *et al.*, 2017). Other published data in 2005 showed that there were annual surpluses of more than 15,000 nurses. At that time, the absorption capacity of public providers was 3,000 nurses per year and an additional 2,000 nurses in the private sector. It must be noted that the exact surplus of nurses is unclear due to the lack of reliable human resources information systems. The challenge on data is not a new issue for Indonesia after implementation of the decentralized system (Kurniati *et al.*, 2014). Under decentralization system, the local government do not feel obligated to send the latest data to the central level. In addition, lack of awareness of local government regarding sharing of data and information to the central might become the problem. An absence of integrated system between ministries and the job market contributed to the chaos in human resource information system. The substantial surpluses will distort health service delivery and the national health system. In terms of prosperity, nurses are also neglected, as their salaries vary from 50 USD per month to 300 USD per month (Wage Indicator Foundation, 2012). This situation may lead to social conflict in the near future if not addressed properly.

Overall, nurses in Indonesia are employed by either the government or the private sector. The government can recruit them as a civil servant, contract worker or special assignment. The nurse can also be employed in private sector as a permanent worker or contract staff. Indonesia is acknowledged as a country having a crisis in the health workforce, including the number and quality of the workforce (World Health Organization, 2006). The MoH underlined this crisis in a white paper which forecast that, by 2014, they would need 60,022 nursing cadre to be deployed in Indonesia's hospitals and 240,515 nursing personnel to be deployed in Indonesia's community health centres. However, the limited capacity of government recruitment should be considered. There were more nurses than vacant positions. As a result, nurses were underpaid and the

situation was made worse by inadequate enforcement of the minimum regional wage regulation. It is difficult to track valid data of nurses' unemployment in Indonesia. The authors assume that, in East Java Province, there are 108 nursing institutions, if the number of graduates per institution averages 100 per annum; there would be 10,800 nursing graduates per year in one province alone.

Various levels of education preparation with different quality

The quality of training varies between institutions. The output of each level of education (from diploma 3 and 4 i.e from bachelor degree to specialist) needs to be managed properly in facing the future challenges. Moreover, the lack of infrastructure and low level of education of nursing faculty hinders progress. The critical problem is a lack of qualified nursing lecturers. In Figure 2, we can see that the majority of teaching staff have a bachelor degree which is the same level as the students they are teaching. This situation may worsen in clinical settings, as most of the clinical instructors have either a diploma or bachelor degree. Instead of pursuing higher education, nurse educators need to be updated by joining seminars or conferences in clinical and community settings. Other problems are the variety of nursing graduates' quality, particularly in less-developed regions. The place of practice is limited by poor infrastructure and lack of professional lecturers. This situation may exist in certain provinces due to the development gap between provinces. The focus of nursing at community and hospital settings will attract more clinical nurse specialists to support the health development. In 2011 there were only 43 hospitals across the country, recognised as established teaching hospital (MoEC, 2011), which limits the ability of students to practice in the hospital.
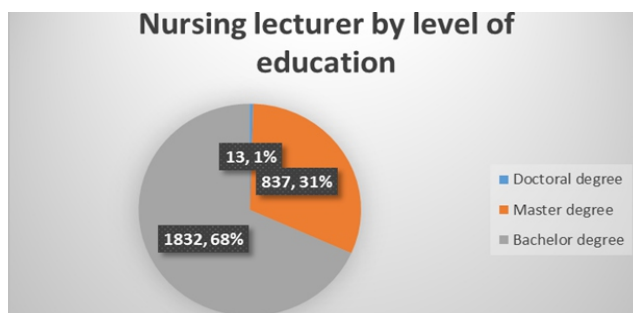

Figure 2: Numbers and proportion of nursing lecturer by level of education (MoEC, 2011)

Curriculum-Based Competency has enriched the curriculum of nursing education in Indonesia since 2008. Currently, the curriculum of bachelor degree consists of 60% core curriculum (87 credits), 20% institutional curriculum (28-29 credits) with the rest being local content; in total, the students have to achieve144-160 credits (Nursalam & Efendi, 2008). The curriculum accommodates the development of a basic professional foundation in nursing, the local content as excellence programme in each institution and a global curriculum. However, in facing the current migration challenges, there may be needing to redesign the curriculum to meet the needs of international recruiters.

The Way Forward

The need for good planning for harmonising the supply and demand of Human Resources for Health (HRH) is urgent. HRH planning in Indonesia has been driven by a simple, normatively determined nurse-to-population ratio. MoH and MoEC have no legal obligation to consult and coordinate; therefore, the possibility for a mismatch between planning and production remains. Harmonisation between these two stakeholders may strengthen the future supply and demand of the nursing workforce.

One of the biggest challenges faced by government is the shortage of consistent and reliable data. Forecasting future needs requires comprehensive data on the current supply of nurses across the country. There is a contradiction in the current data, which shows that on an average of 32,461 nurses graduate each year, but, at the same time, there is only a small annual increase in the stock of nurses. It is evident that the current information does not record accurately where the nurses go after graduation, whether they serve in the public or private sectors, rural or urban, or any other vital data. The government should give high priority to improving the quality and accuracy of this data in the near future. The role of regulatory bodies in capturing this information through the registration process is important.

International mobility of the nursing cadre from Indonesia is becoming a promising agenda to tackle the domestic situation (Efendi *et al.*, 2017, Efendi *et al.*, 2016). As such, the authors suggest that feasible solution for unemployed or underemployed urses is forcing them to migrate to foreign country. Comprehensive migration management starting from the pre-departure stage, immigrations stage and post-migration stage should be accommodated in policy structure. Moreover, we do have a temporary surplus of nurse's supply, as reported on the production side. Proper management of international nurse migration by designated stakeholders will lead to strengthening the country's health system.

Universal Health Coverage (UHC) was launched on the first day of 2014 and has become an important agenda in Indonesia's development. The need of a responsive HRH by providing a sufficient and qualified number of nurses was noted by the government(MoH, 2012). Several studies mention that an adequate number of health workforce is necessary to achieve the UHC (Campbell *et al.*, 2013). The shortage of nurses in relation to the current supply and demand, as reported by Indonesia's government, needs to be reviewed carefully. In considering the existing surplus of nurses within the country, several clear actions must be consideredin the near future. The MoEC must make the admission process more stringent for any new nursing study programme along with the establishment of anIndependent Accreditation Institution to support the visibility of nursing scholars from Indonesia. The MoH must take a leading role to ensure accurate, reliable and timely demand and supply data, carry out comprehensive resources planning, establish a centralised mechanism to collect and store health personnel data, and implement short-term planning in managing the current migration, if possible, to mitigate the future impact of migration on Indonesia's health system. The limitation of current study is a lack of the most updated number of nursing graduates in Indonesia as well as the absence of data regarding the availability of nurses in the job market.

CONCLUSION

Indonesian nursing education produces more graduates than the industry can absorb, leading to oversupply and unemployment. Meanwhile, nurse shortages will continue to have a potential negative impact on the healthcare delivery to meet the target of UHC. The entry point to solve these problems is stabilising the supply and demand side through an innovative programme, such as upgrading the skills of current supply for exportation. In addition, working with district government to employ nurses under a decentralised scheme would be a clear option to reduce unemployment issues. Urgent policy intervention is needed to improve the data collection by the human

resources in nursing to obtain a clear view of supply and demand. Comprehensive assessment of the Indonesian nurses and labour markets need to be considered in the absence of robust and complete data.

Beyond the shortage and surplus issue, education which is the first criteria to create a competent nursing workforce, must be improved with the primary goal of competing in global labour markets.

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