Transforming Education System

Strategy Paper

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I.   INTRODUCTION

10.1   During the Tenth Plan, initiatives were taken to raise the quality of teachers and lecturers, improve student learning, increase access to education from preschool to tertiary levels as well as enhance the education delivery system. In addition, research, development and innovation (R&D&I) in institutions of higher education[1] (IHEs) was strengthened, IHEs were given more autonomy and encouraged to increase intake of international students and faculty. It is crucial to be able to produce talents and retain them to provide new services and to create more high knowledge content industries to become an advanced nation. Hence, the Eleventh Plan will focus on improving student's outcome, empowering governance for schools and public universities, strengthening community support for education, enhancing industry centres of excellence (ICoE), reducing centralised administration and dependency on government funding.

II.   TENTH MALAYSIA PLAN, 2011-2015: PROGRESS

10.2   The Malaysia Education Blueprint 2013-2025 (Preschool to Post-Secondary Education) was launched in 2013 to transform the national education system from preschool to upper secondary level. There are eleven shifts to be implemented in three waves. The First Wave (2013-2015) is on raising teacher quality and improving student literacy, the Second Wave (2016-2020) will focus on accelerating the improvement of the education delivery system and the Third Wave (2021-2025) will be geared towards increasing operational flexibility to cultivate a peer-led culture of professional excellence. At the same time, the development of higher education is guided by Pelan Strategik Pengajian Tinggi Negara (PSPTN) 2007–2020, which encompassed four phases. This plan has been reviewed and replaced by the Malaysia Education Blueprint 2015-2025 (Higher Education) (MEB-HE) in April 2015. MEB-HE outlines ten shifts that will spur continued excellence. The first four shifts focus on talent outcomes and the other six shifts focus on critical enabling components of higher education namely funding, innovation, governance, online learning, global prominence and delivery. Among the salient achievements in higher education during the Tenth Plan included increase in enrolment for public and private universities, improved qualification of public university academics and higher number of publications and citations from researches done by public universities.

10.3   The following sections will highlight the implementation and progress in education at both the school and tertiary levels.

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[1] Institutions of Higher Education (IHEs) are defined under the Universities and Universities Colleges Act 1971 as public universities and as private universities and university colleges in the Private Higher Educational Institutions Act 1996. Community colleges and polytechnics are TVET institutions.

Student Outcomes

10.4   *Enrolment.* One of the Government Transformation Plan (GTP) National Key Results Areas (NKRAs) is increasing Early Childhood Care and Education (ECCE). 83 Pusat Anak PERMATA Negara (PAPN) for children aged four and below were established under the Prime Minister's Department during Tenth Plan period. The PERMATA curriculum, which makes learning fun through play, was adopted by 600 additional childcare centres run by other agencies. This effort benefitted 15,727 children nationwide, especially those from low-income households. In addition, to improve monitoring and regulating childcare centres, measures were undertaken to register more childcare centres under the Department of Social Welfare (DSW). This has increased the number of registered childcare centres from 601 in 2010 to 3,136 in 2013. Meanwhile, the percentage of children aged 4+ and 5+ enrolled in preschools increased from 72.4% in 2010 to 90.7% in 2014. Preschool education is provided by Ministry of Education (MoE), Jabatan Kemajuan Masyarakat (KEMAS), Jabatan Perpaduan Negara dan Integrasi Nasional (JPNIN) and private operators.

10.5   Malaysia has also made significant improvements in terms of enrolment to primary and secondary schools. The primary education enrolment rate improved from 95.7% in 2010 to 97.9% in 2014, while the gap in enrolment rates between girls and boys has been reduced from 1% to 0%. At the secondary school level, the enrolment rate increased from 88.1% in 2010 to 90% in 2014.

10.6   MoE introduced Sekolah Dalam Hospital (SDH) to provide education to students who were hospitalised for a long period of time or who needed continuous treatment. In 2011, ten SDH were established in selected hospitals and 20,000 students benefitted in 2013. A Sekolah Bimbingan Jalinan Kasih (SBJK) was introduced in Wilayah Persekutuan Kuala Lumpur to provide access to formal education for urban street children who had missed or dropped out from the school system. Since its establishment in 2013, the total number of students enrolled in SBJK increased from 79 to 105 in 2014.

10.7   *Academic achievement.* The Literacy and Numeracy Screening (LINUS) programme was introduced in 2010 to identify and improve the language and numeracy proficiency level of students in their first three years of schooling. By the end of Year Three, all students were expected to achieve Bahasa Melayu literacy and numeracy. By 2014, three cohorts of Year One to Year Three primary school students completed the LINUS cycle. The first cohort is from 2010 to 2012, the second cohort from 2011 to 2013 and the third cohort from 2012 to 2014. The programme had successfully helped all the three cohorts of students to achieve 99% in both Bahasa Melayu literacy and numeracy when they reached Year Three. The LINUS 2.0 which included English literacy was introduced in early 2013. This resulted in the increase of English literacy for Year One students, from a baseline of 50.1%, achieved during the first screening in early 2013, to 63.3% at the end of 2013.

10.8   Students' performance in the national examinations, namely Ujian Penilaian Sekolah Rendah (UPSR), Penilaian Menengah Rendah[2] (PMR) and Sijil Pelajaran Malaysia (SPM) showed improvements whereby the score based on the National Grade Average (NGA) has decreased from 2010 to 2013 as shown in *Exhibit 10-1* in Appendix. The NGA for the UPSR assessment reduced from 2.31 in 2010 to 2.27 in 2013, PMR from 2.74 to 2.67 and SPM from 5.19 to 4.93.

10.9   The application of higher order thinking skills (HOTS) or kemahiran berfikir aras tinggi (KBAT) was intensified in the teaching and learning process to inculcate a thinking culture. HOTS enabled students to apply knowledge and skills with critical thinking to solve problems and produce creative solutions. The i-Think programme, which utilises HOTS, was implemented in 2012 in collaboration with Agensi Inovasi Malaysia (AIM) to focus on developing student thinking skills and cultivating lifelong learning. A total of 1,048 schools have implemented the i-Think programme in 2013.

10.10   Another initiative implemented to promote knowledge application and critical thinking among students was the International Baccalaureate (IB) Middle Years Programme. The IB programme, a pedagogical approach which emphasises project-based activities and questioning techniques to develop student capability for higher order thinking skills, was piloted in ten schools in 2013.

10.11   MoE also implemented programmes to nurture students' talent in arts and sports. As of 2014, there were three sekolah seni with 670 students and four sekolah sukan with 1,219 students. In addition, gifted and talented students are identified and selected to study in the Kolej PERMATApintar Negara to further nurture their talents. Kolej PERMATApintar Negara, which was developed in 2011, offers an enriched curriculum in a unique learning ambience to develop students' potentials and improve their academic excellence. In 2014, there were 246 students studying at the Kolej, comprising students in Foundation 1 to Foundation 5.

10.12   *Higher education enrolment.* In the area of higher education, 53.6% or 560,359 students were enrolled in public universities while 46.4% or 484,963 in private universities and university colleges in 2013, as shown in *Exhibit 10-2*. In the first three years of the Plan period, enrolment into public universities increased by 21%, making them the major provider of higher education in the country.

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[2] In 2014, the PMR examination was replaced with the Penilaian Tingkatan 3 (PT3) as an effort to eliminate exam-oriented assessment.

Exhibit 10-2
Enrolment in Public and Private Universities, 2000-2013
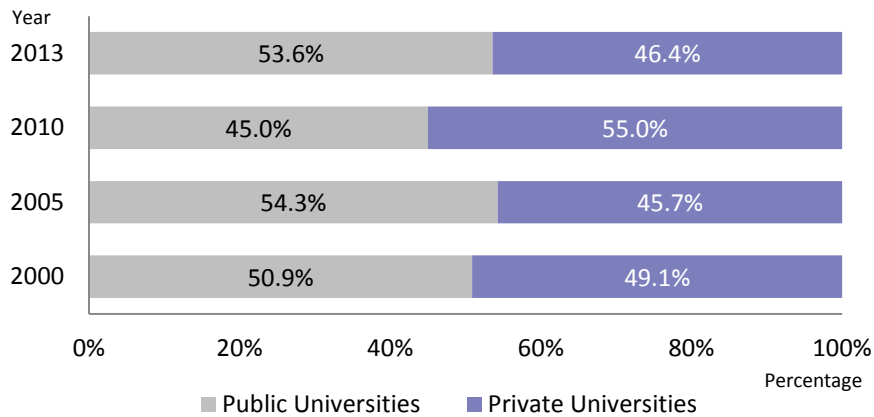
Source: Ministry of Education Malaysia

10.13 *Enrolment by levels of study.* Enrolment by levels of study in public and private universities is shown in *Exhibit 10-3*. The enrolment for PhD level increased by 56.3% from 2010 to 2013 while at the masters' level, enrolment increased by 31.7%. For the bachelors level, enrolment has surpassed the half million mark, which is an increase of 7%. Academic performance for students at bachelors level in public IHEs has improved with 17.5% of graduates attaining Cumulative Grade Point Average (CGPA) scores of 3.49 and above in 2013 as compared to 13.6% in 2010, as shown in *Exhibit 10-4*.

Exhibit 10-3
Enrolment by Level of Study in Public and Private Universities, 2000-2013
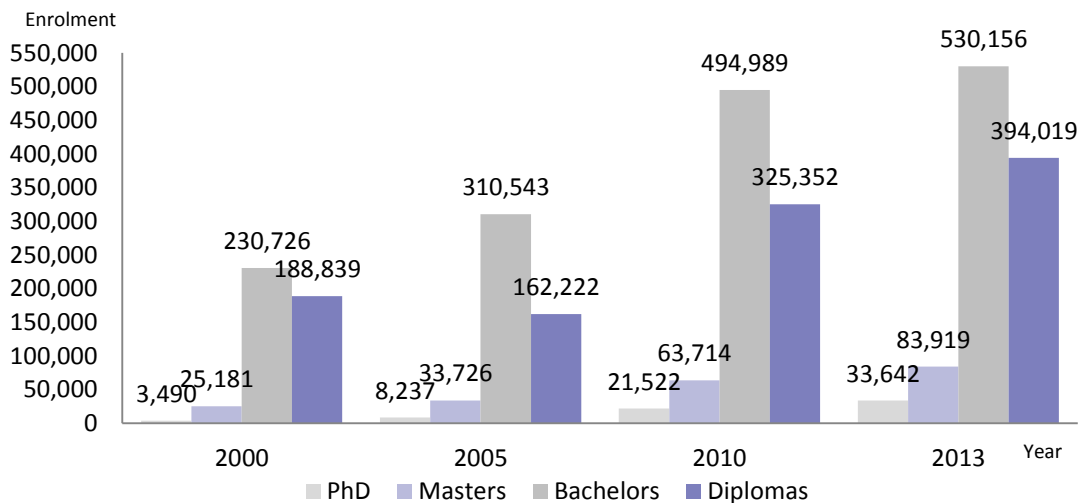
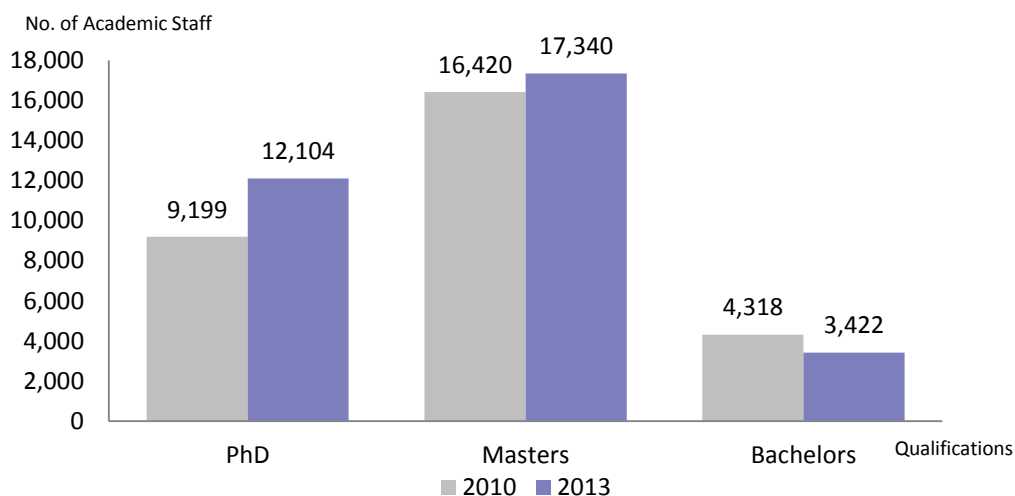Source: Ministry of Education Malaysia

Exhibit 10-4
**Cumulative Grade Point Average (CGPA) of Graduates at Bachelor Level
in Public Universities for 2010 and 2013**
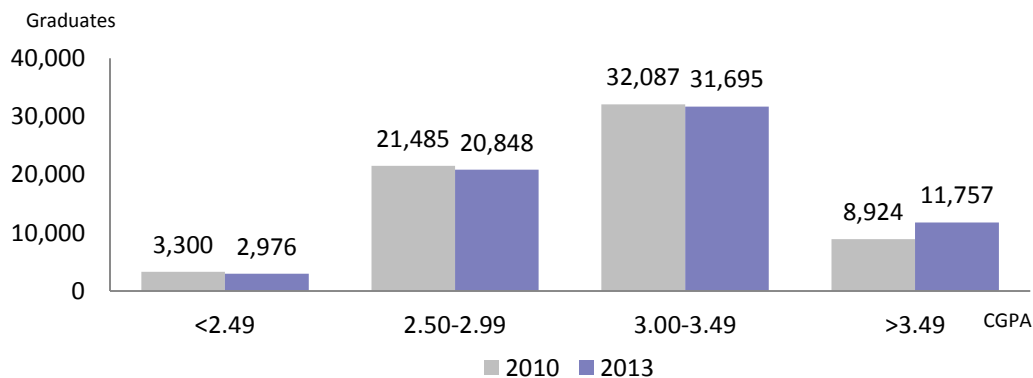
Source: Ministry of Education Malaysia

10.14 *Academic staff.* Total number of academic staff in public universities increased from 26,700 in 2010 to 33,137 in 2013. A higher ratio of academic staff with highest qualification will improve the quality of teaching and contribute to better future ranking of universities. Academic staff with PhD qualification increased from 30% to 36.5%, as shown in *Exhibit 10-5*. In 2013, four out of five research universities (RU), namely *Universiti Malaya* (UM), *Universiti Sains Malaysia* (USM), *Universiti Putra Malaysia* (UPM) and *Universiti Teknologi Malaysia* (UTM) exceeded the 50% target set for academic staff with PhD qualification while seven out of 15 non-research universities (non-RUs) surpassed the 30% target. Programmes under the *Skim Latihan Akademik IPTA* to enable academic staff to improve their qualification included MyBrain15 which benefited 3,150 candidates, MyPhD or PhD Industry which benefited 4,514 candidates and MyMaster which benefited 20,766 candidates from 2011 to 2013.

Exhibit 10-5
Academic Staff in Public Universities by Qualification for 2010 and 2013
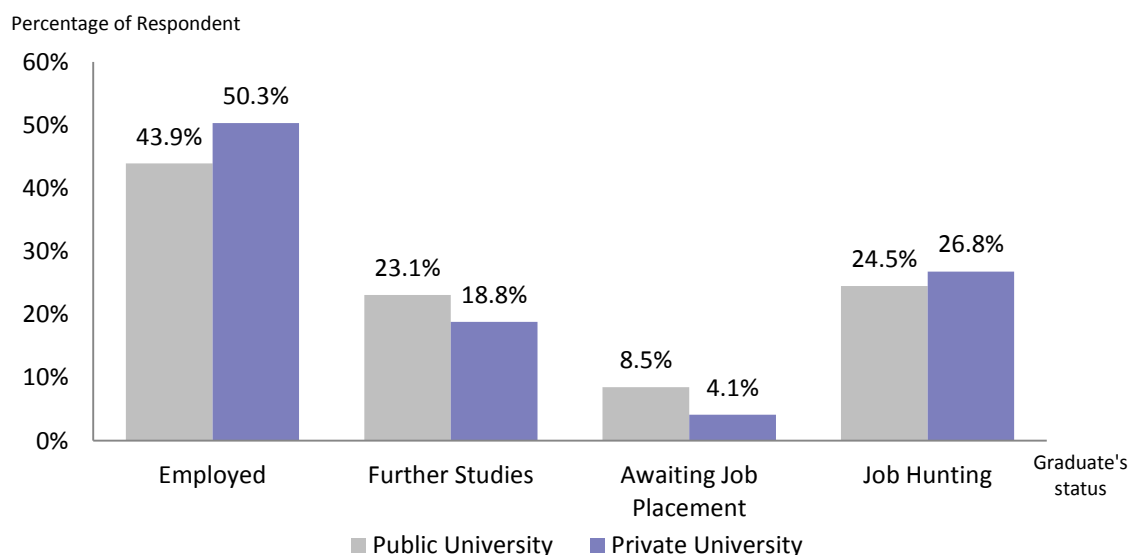

Source: Ministry of Education Malaysia

10.15 *Internationalisation.* With regard to internationalisation, in 2014, the international student population in Malaysia was 107,840 of which 32,840 were enrolled in public IHEs and 75,000 in private IHEs. Malaysia hosted more than 700,000 international students from 2002 to 2013 who contributed approximately RM21 billion to the economy. On average 70% of international students attended private IHEs annually. As of 2014, there were eight branch campuses of internationally renowned universities in the Educity of Iskandar Malaysia.

10.16 *Graduate employability* (GE)*.* Based on The Graduate Employability Tracer Study conducted in 2013, 75.5% of public university graduates and 73.2% of private university graduates had either secured employment or were waiting for job placement or considering further studies, as shown in *Exhibit 10-6*. In addition, 54 GE programmes costing RM36.5 million assisted about 19,300 diploma and degree students in finding employment.

Exhibit 10-6
Graduate Employability Tracer Studies[3] for 2013

Percentage of Respondent

Source: Ministry of Education Malaysia

10.17 *Entrepreneurship education*. In 2013, the revised version of the Entrepreneurship Strategic Plan of Higher Education Institutions was launched to strengthen Entrepreneurship Education. This was to ensure students were taught entrepreneurship in a structured manner. As a result, the rate of students exposed to entrepreneurship education increased from 16.7% in 2011 to 34.6% in 2013.

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[3] Graduate Employability Tracer Study is an annual survey done by MoE to understand the status of employment for graduates within three to six months of graduation. Graduate status is classified into four categories: employed (including self-employed), further study (including upskilling), awaiting job placement and job hunting

10.18 *Malaysia Technical University Network (MTUN).* In line with mainstreaming Technical and Vocational Education and Training (TVET) at the tertiary level, four technology-based universities, namely Universiti Tun Hussein Onn Malaysia (UTHM), Universiti Teknikal Malaysia Melaka (UTeM), Universiti Malaysia Pahang (UMP) and Universiti Malaysia Perlis (UniMAP) formed an alliance called the MTUN. MTUN provided new pathways at the tertiary level for post-secondary and college TVET students aimed at producing professional technologists as per market demand. By 2015, 60% of total student enrolment in MTUN universities will be in technical fields. Programmes offered by MTUN universities are shown in *Exhibit 10-7*.

Exhibit 10-7
Programmes Offered in MTUN Universities

	Engineering Technology	Engineering	Education	ICT	Management / Business	Vocational	Others (B.Sc)
UMP	11	8	6	8	4	4	3
UNIMAP	5	21	0	0	2	0	0
UTHM	11	9	3	1	1	5	4
UTEM	10	18	0	5	3	0	0
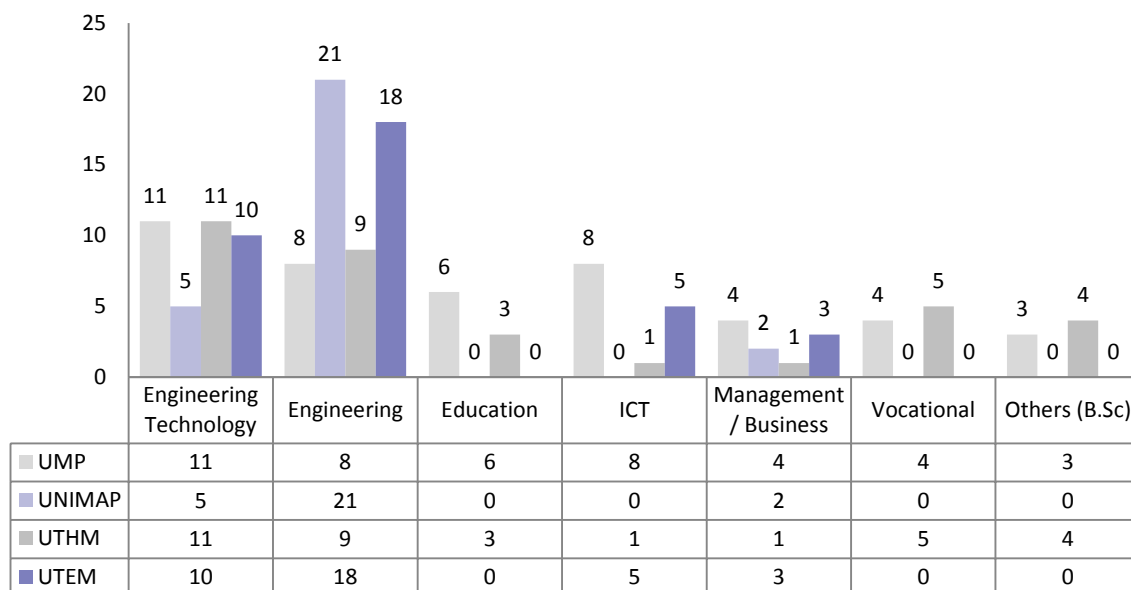
Source: MTUN University Annual Report, 2013

10.19 *Massive open online courses* (MOOCs). Virtual learning environment (VLE) in universities was enhanced through the MOOCs. E-learning initiatives for four compulsory subjects were started, namely for Tamadun Islam & Tamadun Asia, Kesepaduan dan Hubungan Etnik di Malaysia, Introduction to Entrepreneurship and Information Communication Technology (ICT) Competency. This effort benefited 16,000 first year students in the 2014/2015 academic year. In 2015, 15% of learning in public IHEs will adopt the MOOCs.

10.20 *Moratorium.* The MoE introduced temporary prohibition or moratorium on selected programmes and also establishment of new private IHEs to ensure quality of students as well as to match demand and supply. These included moratorium on medical programmes from 1 May 2011 to 30 April 2016, dental programmes from 1 March 2013 to 28 February 2018 and diploma in nursing from 1 July 2010. A moratorium on the establishment of new private IHEs was also imposed from 1 February 2013.

Conduit for Innovation

10.21 *Publications and citations.* Public universities made big strides in *publications* and *citations* in recent years. From 2010 to 2013, total publications increased by 56% and citations by 155%, as shown in *Exhibit 10-8*. A total of 4,030 *patents* were filed by RUs and 314 patents were granted between 2010 and 2013, a huge increase from previous years. The overall increase of patent applications and patent granted is shown in *Exhibit 10-9* and *10-10*. Total patents owned have also increased as shown in *Exhibit 10-11*. In 2013, 75 products have been commercialised as compared to 36 products in 2007.

Exhibit 10-8
Citations and Publications from Research Done by Public Universities For 2010 and 2013
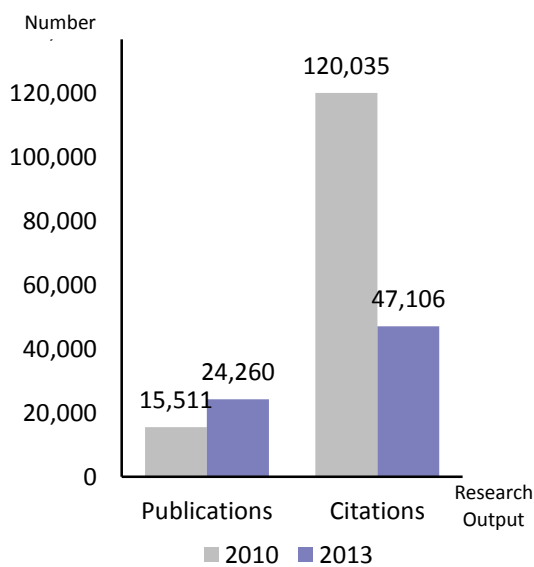
Source: Ministry of Education Malaysia

Exhibit 10-9
Patent Applications by Research Universities For 2001–2013
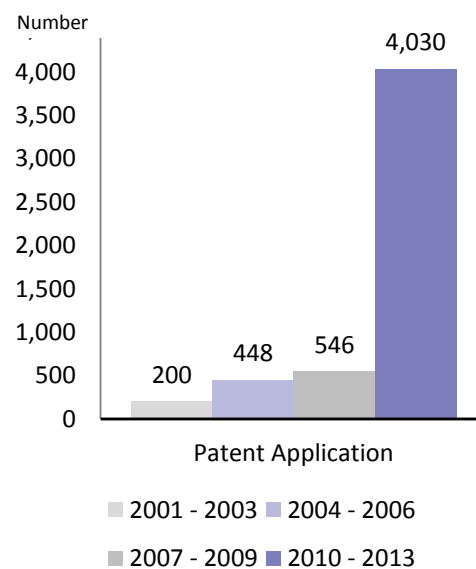
Source: Ministry of Education Malaysia

Exhibit 10-10
**Patents Granted to Research Universities
from 2001–2013**

Number

| Patent Granted |
| 2001 - 2003   2004 - 2006 |
| 2007 - 2009   2010 - 2013 |
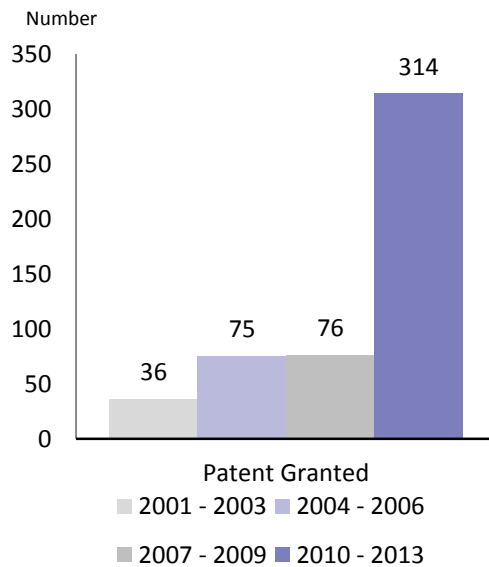
Source: Ministry of Education Malaysia

Exhibit 10-11
**Patents Owned by Research Universities
from 2001-2013**

Number

| Patent Owned |
| 2001 - 2003   2004 - 2006 |
| 2007 - 2009   2010 - 2013 |
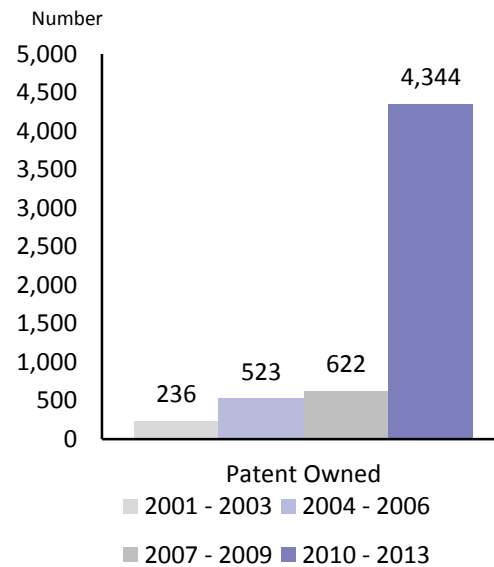
Source: Ministry of Education Malaysia

10.22   *Research, development and innovation programmes*. In 2010, the volume of research publications by Malaysian IHEs surpassed Singapore and Thailand mainly due to the efforts of RUs. R&D&I programmes were intensified through various *research grant schemes as* shown in *Exhibit 10-12*. A total of RM1.3 billion research grants were allocated to 9,688 projects, producing 7,077 postgraduates, 5,025 publications and 235 intellectual properties.

Exhibit 10-12

Research Grants and Programmes Available in Public Universities for 2011-2013

No.	Research Programme	Objective	Allocation (RM million)	No. of Projects	Achievement		
					Production of Postgraduates	Publications	Intellectual Property (IP)
1	Fundamental Research Grant Scheme (FRGS) a. Single Disciplinary Project b. The Best FRGS Project	FRGS was intended to propel the creation of new theory, concepts and ideas to catalyse new research findings that are capable of pushing the frontier of knowledge and innovative invention	539.9	5,505	4,192	3,214	57
2	Exploratory Research Grant Scheme (ERGS)	ERGS sought to inculcate inquisitive mindset, encourage exploration of new ideas and concepts to catalyse new findings and innovative creativity that pushed the frontier of knowledge	143.1	1,647	2,024	1,137	35
3	Trans Disciplinary Research Grant Scheme (TRGS)	Introduced since 2013. TRGS is trans disciplinary and promotes consolidated cooperation across various research clusters in order to affirm Malaysia's position in global cluster-based fundamental research	16.76	15	Not Applicable	Not Applicable	Not Applicable
4	Long Term Research Grant Scheme (LRGS)	LRGS aims to enhance excellence in new theory and idea generation besides innovative invention in strategic niche areas for the purpose of pushing the frontier of knowledge	177.3	42	504	378	10

No.	Research Programme	Objective	Allocation (RM million)	No. of Projects	Achievement		
					Production of Postgraduates	Publications	Intellectual Property (IP)
5	Prototype Development Research Grant Scheme (PRGS)	PRGS reduces the gap between research findings and commercialisation, paving towards new technology and findings-creation that is in line with the requirement of K-economy and New Economy Model implementation	56.8	299	218	234	128
6	Research Inculcation Grant Scheme (RAGS)	RAGS provides seed financial support to inculcate research practice among young researchers in non-RUs, public IHEs to improve their research performance and remain competitive	88.4	1654	Not Applicable	Not Applicable	Not Applicable
7	Research Acculturation Collaborative Effort (RACE)	RACE is an initiative to assist non-RUs to enhance research culture by the mentor-mentee approach that contributes towards increasing research output	9.99*	373	139	62	5
8	*Geran Sanjungan Penyelidikan Kementerian Pendidikan Malaysia (GSP-KPM)*	The higher education sector of the MoE strives towards enhancing the capacity of local IHEs to gain grants from industry and international players. As such, the MoE through GSP-KPM provides incentive to the universities which have successfully received these collaborative grants	57.9	62	Not Applicable	Not Applicable	Not Applicable

No.	Research Programme	Objective	Allocation (RM million)	No. of Projects	Achievement		
					Production of Postgraduates	Publications	Intellectual Property (IP)
9	Niche Research Grant Scheme-Ministry of Education (NRGS-KPM)	NRGS-KPM is a special grant aimed at leveraging and developing niche research areas in each Public IHEs with the status of Comprehensive University (CU) and Focused University (FU). This enables each Public IHEs to be unique based on their strength and advantage	52.4	11	Not Applicable	Not Applicable	Not Applicable
10	Higher Education Policy Study (HEPS)	HEPS finances any study related to national higher education policy which provides the cornerstone for national higher education policy design and development	25.45	80	Not Applicable	Not Applicable	Not Applicable
11	Research Equipment-Higher Education Development Section	Supply of equipment	132	Not Applicable	Not Applicable	Not Applicable	Not Applicable
	Total		1,300	9,688	7,077	5,025	235

Note: *Out of this amount, RM7.96million are from Research Universities

10.23 *High impact research programme* (HIR). The HIR is high quality research leading to Tier 1 publications in the International Scientific Indexing (ISI) or Web of Science (WoS) Journal which resulted in significant impact on citation index. From 2011-2013, a total of 1,369 HIR comprising 1,093 Tier 1 projects, 174 Bright Spark projects and 102 Academic Icon projects were carried out as shown in *Exhibit 10-13*.

Exhibit 10-13
High Impact Research (HIR) Projects and Achievements

Year	No. of Projects	Tier 1			Bright Spark			Academic Icon		
		Target	Achievement	%	Target	Achievement	%	Target	Achievement	%
2011	73	1,168	768	65.8	316	109	34.5	62	63	101.6
2012	53	330	152	46.1	46	27	58.7	11	15	136.4
2013	65	439	173	39.4	128	38	29.7	17	24	141.2
Total	**191**	**1,937**	**1,093**	**56.4**	**490**	**174**	**35.5**	**90**	**102**	**113.3**

Source: University of Malaya

10.24 *Knowledge transfer programmes* (KTP). KTP and community engagement, are platforms introduced during the Plan period, to translate research output into functional and economic properties, such as tangible or intangible intellectual property (IP), expertise, and skills. A total of 1,409 KTP applications were submitted by IHEs of which 316 projects worth RM43.9 million were approved. From the approved projects, 186 were industry-related and 130 were community-related. Up to 2014, 254 KTP projects worth RM35.6 million were launched with RM8 million from the industry. In addition, the University Community Transformation Centres (UCTCs), a touch point between academia and communities implemented 43 community projects worth RM5 million.

10.25 *Malaysian Research Assessment System*. The Malaysian Research Assessment System or MyRA, an online self-evaluation system, enabled the tracking of R&D output by IHEs in terms of quantity of Research and Development (R&D) projects, production of post graduates, professional consultancy services, commercialisation, innovation, publication and citation, national and international recognitions as well as research infrastructure and facilities. This ensured ethical, responsible and accountable disbursement of research funds.

10.26 *Industry centre of excellence* (ICoE) *and High-end industry graduate internship programme* (HEIGIP). Efforts were undertaken by the MoE to promote IHE-Industry collaboration in R&D, graduate and academia industry attachment training through ICoE and HEIGIP. As of 2013, ten ICoEs were set up in IHEs, benefitting 19,342 students and 732 academicians. In addition, 205 students were attached to 18 companies through the HEIGIP

programme. The ICoE had also managed to get industry to financially support about 43% of their operational cost.

Governance

10.27   The key achievements of the education sector in the Tenth Plan period based on the initiatives outlined in the Malaysia Education Blueprint 2013-2025 (Preschool to Post-Secondary Education) are highlighted in *Exhibit 10-14* in Appendix.

10.28   *Empower JPNs and PPDs*. The roles of state education departments (JPNs) and district education offices (PPDs) were enhanced to help accelerate improvement in schools through systematic and district-led support. Greater autonomy was given to JPNs and PPDs to tailor contextualised solutions to schools in order to produce better student outcomes. Among the initiatives were enhancement of the roles of School Improvement Specialist Coaches (SISC+) and School Improvement Partners (SIPartner+) as full-time officers at PPDs. In 2012, a total of 352 SISC+ were deployed to PPD in Kedah and Sabah to support and mentor Mathematics, Bahasa Melayu and English teachers. Concurrently, 71 SIPartner+ were deployed to support school administrative functions and ensure rapid school improvement. By 2015, a total number of 2,500 SISC+ and SIPartner+ are expected to be deployed nationwide.

10.29   *Program Pensiswazahan Guru*. The Program Pensiswazahan Guru (PPG) was launched in 2011, with the aim to upgrade qualification of non-graduate or diploma teachers to degree. This was in line with efforts to equip teachers with the most current knowledge and skills to enable more effective teaching and learning. A total of 51,890 teachers enrolled in this programme and 17,495 completed their studies as of March 2015, as shown in *Exhibit 10-15* in Appendix.

10.30   *Virtual learning environment.* In order to enhance teaching and learning through the use of digital resources, a network infrastructure and VLE was provided by MoE. During the Tenth Plan, almost all primary and secondary schools were equipped with internet access and a virtual learning platform for teachers and principals to access various learning resources to help improve their practices. At the same time, access to wider range of educational materials that were more engaging and interactive were made available to students. By 2015, all teachers will be trained to use VLE and equip them with the necessary skills and knowledge to integrate ICT in education.

10.31   *School leaders*. The Institute Aminuddin Baki (IAB) developed modules and provided training to enhance the competencies of school leaders. IAB developed 14 new professional development modules for educational leadership to cater for school leaders with different levels of skills and competencies. Candidates aspiring to be school leaders were trained

through the National Professional Qualification for Headship (NPQH) and National Professional Qualification for Educational Leaders (NPQEL) programme to enhance their leadership quality. During the Tenth Plan, IAB created a pool of 3,518 NPQH and NPQEL graduates. In addition, a school leader's alert system, Modul Penggantian Pemimpin Sekolah (MPPS), was developed to track vacancies, selection, placements and transfers.

10.32 *Quality of Institutions of higher education*. The Malaysia Qualification Agency (MQA) and MoE devised Sistem Penarafan Institusi Pengajian Tinggi Malaysia (SETARA) and D-SETARA to assess the quality of IHEs with industry experts. The results of SETARA and D-SETARA rankings are published in the MQA website annually. SETARA is a rating system ranking from Tier 6 as outstanding, Tier 5 as excellent, Tier 4 as very good, Tier 3 as good, Tier 2 as satisfactory and Tier 1 as weak for IHEs in Malaysia. Complementing SETARA is a discipline-based rating known as D-SETARA. One important aspect measured is the quality of teaching and learning for undergraduate programmes in four clusters of discipline, which are engineering; medicine, dentistry and pharmacy; health sciences; and hospitality and tourism.

10.33 The Malaysian Quality Evaluation System for Private Colleges (MyQUEST) is a quality rating system specifically for private colleges. Based on MyQUEST 2013 results, out of 209 colleges that participated, 105 were rated below 3 stars as compared to 127 out of 210 colleges in 2011/2012. The highest rating is 6 stars which means outstanding, 5 stars as excellent, 4 stars as very good, 3 stars as good, 2 stars as satisfactory and 1 star as poor.

10.34 *World university ranking.* In the QS World University Rankings (2014/2015) report, UM was ranked 151 and rated as a five-star, which is generally described as a university of world class in a broad range of areas, enjoys a high reputation and has cutting edge facilities and internationally renowned research and teaching faculty. Universiti Kebangsaan Malaysia (UKM) and UTM were ranked 259 and 294 while USM and UPM were 309 and 376. As for the QS World University Rankings by subject, in 2014, USM ranked 31 in Environmental Studies, while UM, UKM and UPM were ranked within 51-100 for various subjects.

10.35 *Autonomy*. In 2012, for the first time, autonomous status were accorded to five RUs namely UM, UKM, USM, UPM and UTM. These universities are empowered to manage student intake directly involving intake announcement, receiving and processing applications, student selection and appeals. In 2013, three more universities, namely Universiti Utara Malaysia (UUM), International Islamic University Malaysia (UIAM) and Universiti Malaysia Sarawak (UNIMAS) became autonomous. As of 2014, a total of 12 public universities are autonomous with Universiti Teknologi Mara (UiTM), UTeM, Universiti Sains Islam Malaysia (USIM) and Universiti Malaysia Terengganu (UMT) being added.

III. ISSUES AND CHALLENGES

10.36   The issues and challenges for education are clustered into three areas, namely student outcomes, conduit for innovation and governance.

Student Outcomes

10.37   *Enrolment rate*. In 2013, the enrolment rate for preschool was 81.7%. There is a need to further increase the enrolment rate for preschool to provide a level playing field and stronger foundation before embarking on primary schooling. In addition, the enrolment rate for primary school at 96.6% and for secondary school at 91.1% in 2013 will also need to be increased.

10.38   *National examinations*. The percentage of students who do not achieve minimum competencies in national examinations is still a concern, as shown in Exhibit 10-1. From 2010 to 2013, about 3% or 15,000 of UPSR candidates did not achieve the minimum competency level in all subjects taken. For the PMR examination, about 0.1% or 400 candidates scored below the minimum competency level for all subjects taken. The percentage of low achievers was even higher at the SPM level where approximately 5% or 21,000 candidates achieved low grades for all subjects.

10.39   *International assessments*. Students overall performance at lower secondary level in two international assessments, namely Trend In International Mathematics and Science Assessment (TIMSS) and Programme for International Student Assessment (PISA), was below international average. The 2011 TIMSS result for Mathematics was 440 points and Science 426 points as compared to the international average of 500 points for both subjects. In 2012, the PISA result among 74 participating countries, ranked Malaysian students at the bottom third for Reading, Mathematics and Science. The results indicate that knowledge application and reasoning are lacking among lower secondary students.

10.40   *Teaching and learning*. In 2011, findings from a research by the Higher Education Leadership Academy (AKEPT) conducted on 41 schools indicated that 50% of the lessons delivered did not sufficiently engage students and relied on a more passive lecture format of content delivery. The focus was more to prepare students for summative assessment purposes, instead of cultivating higher-order thinking skills.

10.41   *Parental and community involvement*. Although the role of parents is important to improve student learning, many schools have difficulties to reach out to parents, especially in under privileged communities. In 2013, MoE conducted an online national survey on

levels of parental and community involvement in education. The outcome of the survey showed that only 54% of parents are actively engaged in various school activities.

10.42 *Graduate employability.* Graduate employability (GE) at 75.5% in 2013 achieved the overall target set by the MoE of 75%. However, 13 out of 20 public universities did not attain this target. Feedback from industry on graduate unemployablity pointed out that graduates do not meet employer requirements in terms of the right attitude, attribute, skills, motivation, the ability to 'think outside the box', problem solving and communication skills, and also the ability to work both as part of a team and independently. In addition, the command of English is also cited as one of the weaknesses among graduates.

10.43 *Information gap*. There is an information gap between employers and IHEs related to required quantity of workers needed, attributes of graduates and curriculum content. This has resulted in IHEs not being able to produce the right graduates which meet employer's need despite the MoE having specific guidelines on attributes of graduates.

10.44 *Entrepreneurship mindset*. The involvement of graduates in business has increased to 2% in 2013, as compared to 1.4% in 2012. The 2013 Global Entrepreneurship Monitor (GEM) reported that only 41.8% of Malaysian respondents perceived entrepreneurship as a good career of choice. This can be attributed to preference for salaried employment and lack of entrepreneurship mindset. In addition, there is also lack of entrepreneurship education in curriculum as well as insufficient duration for industrial training, entrepreneur apprenticeship and entrepreneurial development programmes.

10.45 *Academic staff*. The number of academic staff with PhD qualification and their quality are imperative for improving student outcomes, commercialisation of R&D as well as world university rankings. Currently the composition of PhD holders among academic staff in most IHEs is still below 50%. In addition, the academic staff lack retraining or reskilling in the latest technology, knowledge and expertise relevant to the industry.

10.46 *Digitalise teaching and learning*. Efforts to digitalise teaching and learning content are impeded by fragmented initiatives by different IHEs and their lack of sharing of resources and content. Some IHEs still lack the infrastructure to enable efficient online teaching and learning. Inadequate content and lack of skills on the part of subject matter experts in terms of digitising and content management has further aggravated the situation.

10.47 *Moratorium.* While the moratorium on the expansion of existing medical, dental, nursing and law programmes has enabled the affected IHEs to strengthen their quality, service delivery as well as management and financial sustainability, the number of small and weak private education establishments still remains high. Voluntary convergence and consolidation of private education establishment is still slow and minimal.

10.48   *International students*. Malaysia is one of the popular destinations for international students. However, the growth of international students has slowed down. Moreover competition for students is stiffer as more countries are offering places for international students. International students are more interested in post graduate studies in specialised and niche areas, which are still limited in Malaysian IHEs.

Conduit for Innovation

10.49   *Research*. Despite showing marked increase in research output, such as publications, intellectual property and production of postgraduates, IHEs are not focusing on the utilisation of R&D output. This has limited innovation and business opportunities for small and medium enterprise (SMEs).

10.50   The ecosystem of R&D in IHEs from ideation to product commercialisation is fragmented. Researchers face various inhibiting rules, resulting in loss of interest in R&D and commercialisation, prolonging duration of R&D and incurring cost overrun.

10.51   *Industry collaboration*. Institution of Higher Education-Industry Collaboration is inadequate. This is due to academic staff in IHEs lacking entrepreneurial mind set and not reaching out to industry to market their ideas, innovation and products. Likewise, the industry also failed to leverage the capabilities, expertise and research resources, such as laboratories and equipment of existing ICoEs to ensure that research has application value to both industry and the community.

10.52   *Average citation per publication*. The publication and citation rates are key measures for international university rankings as in the QS World University Rankings. The six criteria used to determine ranking, is shown in *Exhibit 10-11*. Although the total number of publications increased by 56% and citations by 155% from 2010 to 2013, the average citation per publication still remains low. The average citation per publication in 2014 for papers published in 2011 was only 2.45 for Malaysia as compared to Thailand at 3.53 and Singapore at 6.47. This indicates that Malaysian academicians and researchers will need to further enhance the quality of their publications.

Exhibit 10-16
Malaysia Research Universities Scores in QS World University Rankings, 2014
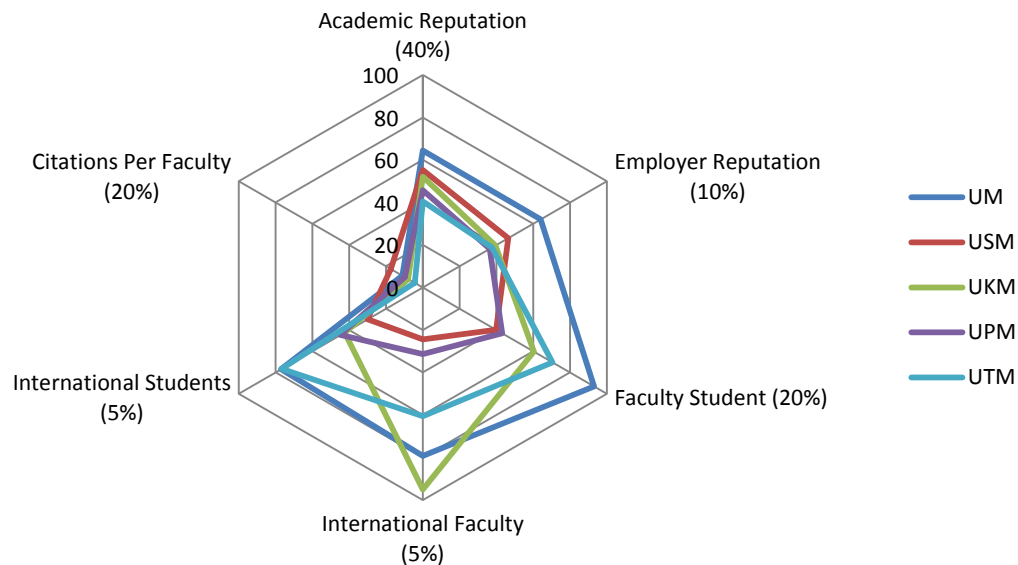
Source: QS World University Rankings

10.53 *University ranking.* Different *world university ranking systems* provide different weightage to different aspects of criteria. The QS World and Asian University Rankings for instance, look at academic reputation while the Times Higher Education World University Rankings and the Shanghai Jiaotong Academic Ranking of Universities both view citations and papers indexed in the science and social sciences as being more important. Incomplete data gathering to prove fulfilment of all aspects of criteria to the evaluation authorities influences the rankings of Malaysian IHEs.

Governance

10.54 *Overlapping functions*. There are overlaps in the functions of MoE, JPNs and PPDs. There is also a need to improve focus and specialisation of these organisations. In addition, JPNs and PPDs are not empowered to undertake critical decisions, which can enhance school and student performance in their respective districts.

10.55 *University development*. In serving the higher education needs of the nation, Malaysian public universities have been classified into RU, focus university (FU) and comprehensive university (CU) to enable them to focus in their respective areas. However, some public universities have not aligned their development according to their classification. For instance, instead of focusing on post graduate programmes and intensifying R&D in critical areas, RUs have continued to increase their intake of undergraduates, impacting their own mission and intake of undergraduates in other universities. Likewise, FU, such as MTUN universities, have digressed from their objectives

of providing technologist and TVET programmes at the tertiary level to providing conventional STEM programmes.

10.56 *University operation*. The autonomy status granted to 12 public IHEs has not resulted in marked improvement in their operations, management and financial sustainability. The governing boards of most of these universities still lack representation by professionals and captains of industries. At the same time, all IHEs continue to be reliant on government funds and have had poor returns from investment. Hence, these have impeded the efficiency, innovativeness and responsiveness of IHEs.

IV.   ELEVENTH MALAYSIA PLAN, 2016-2020: WAY FORWARD

10.57 Strategies to address issues related to the education system are clustered under basic education and higher education as below.

Basic education:
- Improving student outcomes for basic education
- Enhancing governance of schooling system
- Strengthening community support for education

Higher Education:
- Enhancing Programme Effectiveness and the Quality of Students in Higher Education
- Strengthening Research and Innovation for Better Outcome
- Attaining excellence in IHE governance

These strategies are reflected by 12 initiatives in the strategy canvas in *Exhibit 10-17*.

Exhibit 10-17
Strategy Canvas for Education
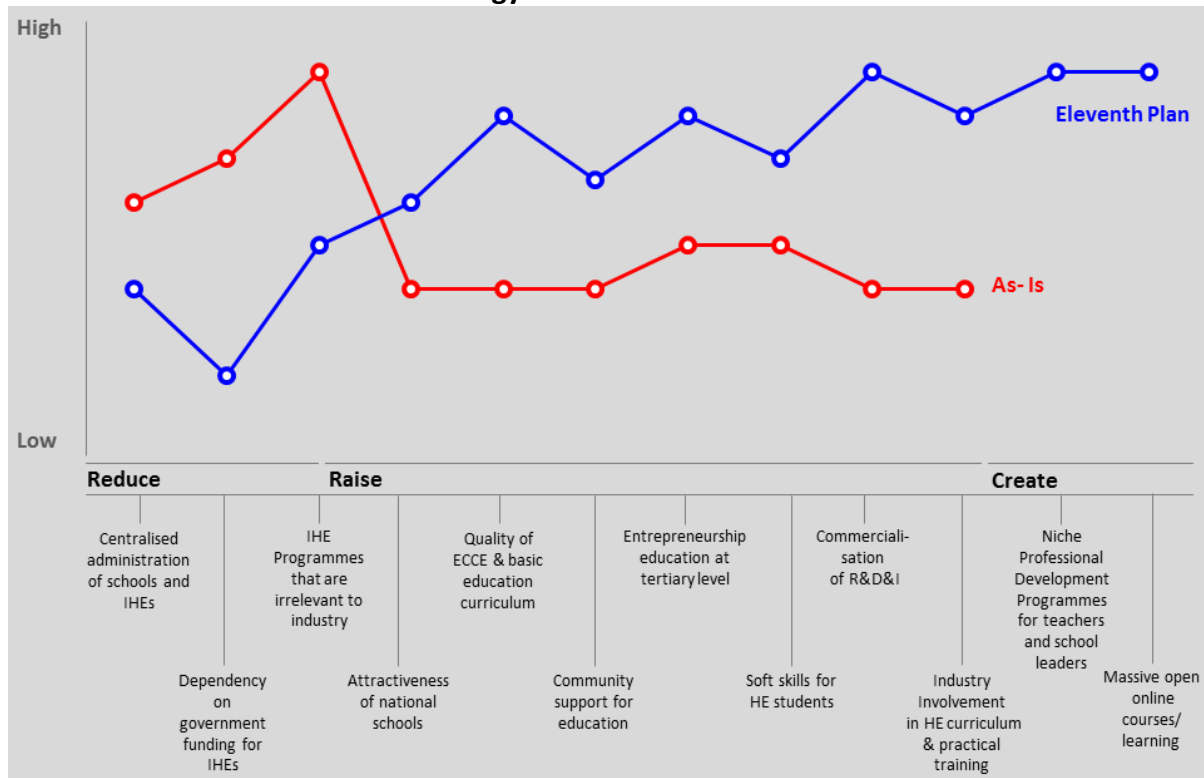
Improving Student Outcomes for Basic Education

Raising the Quality of Early Childhood Care and Education and Basic Education Curriculum

10.58 *Early Childhood Care and Education*. In order to provide holistic development for children, strategies to improve ECCE will focus on quality, reliability, affordability and accessibility to childcare centres. Competency of teachers and care givers will be enhanced through specialised and professional training. Collaboration among childcare centres, namely home based, institution based, community-based and workplace based will be enhanced to share best practices. Policies and regulations relating to the establishment of childcare centres will be reviewed. The role of the National Child Development Research Centre (NCDRC) will be expanded to undertake impact research, identify gifted and smart children, integrate database related to children as well as provide training and development.

10.59 *School curriculum*. The school curriculum will prioritise STEM, embedding knowledge and skills that are relevant to the 21st century. Teaching and learning will incorporate inquiry, logical reasoning, collaboration and exploration to develop students with the ability to apply their knowledge and skills. STEM learning environment will be expanded beyond schools through partnership with other educational centres, such as Petrosains and the National Science Centre. These efforts will support Malaysia's aim to be at least at par with the international average of PISA and TIMSS assessments. In addition, MoE will extend TIMSS assessment to primary school students for early intervention to improve student outcomes.

10.60 The curriculum will also focus on strengthening student proficiency in Bahasa Melayu and English, and students will be encouraged to learn a third language. The expanded LINUS 2.0 programme will continue to be emphasised to provide a stronger foundation in Bahasa Melayu literacy, English literacy and numeracy to students in their first three years of schooling. Students who are at risk of falling behind will be identified and given remedial coaching until they are able to return to mainstream curriculum and achieve at least the minimum standard in Bahasa Melayu and English literacy. By 2020, all students must pass the English language paper at the UPSR level with a minimum grade of C. At the secondary level, the English language curriculum will be modular based and by 2016, a pass in English will be compulsory in the Sijil Pelajaran Malaysia examination.

10.61 Higher order thinking skills will be intensified in the curriculum of all subjects. This will ensure students become more innovative and able to compete globally. By 2016, HOTS questions will comprise at least 40% of questions in UPSR and 50% in SPM. In addition, school-based assessment will incorporate HOTS. This is to enable the shift from rote learning to critical thinking and knowledge application.

Strengthening Open Online Learning

10.62 *Virtual learning environment*. The Government will strengthen the VLE in schools through utilisation of digital learning resources on shared learning platforms, such as Learning Objects, Laman Pembelajaran, Digital Textbook, e-Bahan and EduWebTV to encourage students to become more independent and explorative learners. In addition to the 24,000 available resources, the MoE will continue to update and upload more digital materials to the 1BestariNet VLE platform. A digital content development roadmap will be developed to ensure the education curriculum, from preschool to secondary, is digitised to enable virtual interactive learning. Collaboration with Malaysian Communication and Multimedia Commission will also be undertaken to ensure better access to virtual learning. Online learning programmes will be introduced, including virtual delivery of lessons and online adaptive learning tools, especially for students with specific needs, such as those in under-enrolled schools, rural and gifted students.

Creating Niche Professional Development Programmes for Teachers and School Leaders

10.63 *Professional development programme*. A comprehensive competency-based professional development programme will be rolled out for in-service teachers and school leaders by deploying a pool of highly-skilled master trainers to upgrade their managerial, pedagogical and soft skills. These programmes will be conducted in selected Institutes of Teacher Education (ITEs) and pusat latihan guru dalam perkhidmatan (PLGDP), based on the needs of teachers and schools. In addition, each PLGDP will specialise in specific areas, namely STEM for PLGDP Northern Zone, educational technology for PLGDP Central Zone, language and life-long learning for PLGDP Eastern Zone, and social science and humanities for PLGDP Southern Zone. Each of these selected ITE and PLGDP will focus on training, research, development and innovation in their niche areas. In addition, the quality of lecturers and curriculum in ITE will be continuously enhanced to equip new teachers with the necessary skills to teach effectively.

Enhancing Governance of Schooling System

Reducing Centralised Administration of Schools in State and District Level

10.64 The Government will reduce centralised administration of schools to improve delivery efficiency. JPNs and PPDs will be empowered to move beyond operational functions. JPN will focus on school administration, planning and coordinating curriculum implementation, while the PPDs will support the implementation of programmes. PPD will coach, mentor, and monitor performance regularly to ensure that all schools move up to better bands and no schools remain in Band 6 or 7[4], improving student outcomes.

Raising the Attractiveness of National Schools

10.65 *Greater access to education.* The Government will provide greater access to education for all children to learn in the most conducive environment. The K9 school concept, where primary education and the first three years of secondary education is offered under one roof, will be expanded to help raise enrolment, especially among Orang Asli children. Under K9, school facilities and curriculum will be enhanced where teaching and learning of the Integrated Living Skills and Basic Vocational Education subject will be emphasised to provide students with greater hands-on experience. More schools will be equipped with facilities to cater for students with special needs. Kelas Aliran Agama (KAA) will be expanded in primary and secondary schools to attract more parents to send their

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[4]School Bands denote the categories of performance of schools between the range of one to seven, with Band 1 being the best. These categories are based on methodologies comprising Standard Kompetensi Pendidikan Malaysia (SKPM) and Gred Purata Sekolah (GPS).

children to national schools. The number of registered Sekolah Agama Bantuan Kerajaan (SABK) will be increased, targeting registration of at least 10 private and state religious schools every year within the Plan period.

10.66 *Instilling values,attitudes and behaviour.* Besides academic achievement, the importance of instilling the right set of values, attitudes and behaviour among students will be continuously emphasised. The Rancangan Integrasi Murid Untuk Perpaduan (RIMUP) programme will be intensified to enable every school to participate in at least two inter-school activities every year, allowing better student interaction across all public and private schools. The RIMUP programme will focus on activities, such as sports, arts and community service, which foster friendships and stronger ties among different groups and communities. Schools will ensure all students participate in at least one sport, one club and one uniformed body for wider exposure and experiences. The pedagogy for Islamic Education and Moral Education will also be revised to incorporate more role playing, simulations, class discussions and group work to inculcate good values and reinforce personal development among students. Programmes related to awareness on dangerous drugs and substance abuse will be strengthened.

Strengthening Community Support for Education

10.67 *Raising community support.* Schools will identify programmes, which need community support and the Parent-Teacher Association (PTA) will drive school-level engagements with the broader community, private sector, non-governmental organisation and education training providers and help enhance the programme effectiveness in areas, such as funding, manpower and expertise. This will pave the way to create a wholesome ecosystem, which will support student learning and ensure 100% enrolment from preschool to upper secondary by 2020. The Trust School concept, public-private collaboration, will be expanded to 90 schools by 2020. In addition, MOE will adopt the Trust School governance and training methods to improve teaching and learning in selected schools.

10.68 *Establish collaborative efforts to increase enrolment.* The Government will collaborate with other relevant agencies and communities to implement an integrated approach to reduce dropout rates from preschool to upper secondary to ensure 100% enrolment by 2020. Preschool education will be made compulsory for children aged 5+ and the curriculum will be strengthened to improve its quality. Collaborative efforts will be established with local authorities and community leaders to trace children who have never attended school or who have dropped out. Intervention programmes to bring back students who have dropped out and retain them in school will be executed. In addition, students who are at risk of dropping out will be identified and initiatives will be taken to retain them in the school system.

Enhancing Programme Effectiveness and the Quality of Students in Higher Education

Raising Soft Skills for Higher Education Students

10.69 *English proficiency and soft skills*. English proficiency will continue to be strengthened by increasing its usage. Students will be required to attain a higher band than that obtained at entry level in Malaysian University English Test (MUET) in order to graduate. MoE and IHEs will develop a standardised and objective method to assess students' soft skills competencies including in psychomotor[5], communication, English language command, leadership, ethics, spirituality and emotional intelligence. All IHEs will incorporate programme learning outcomes to evaluate students' attainments.

Creating Higher Education Massive Open Online Courses

10.70 *Massive Open Online Courses.* A roadmap for MOOCs will be established to set a clear direction and coordinate actions to ensure compliance with the Globalised Online Learning (GOL) ecosystem. This initiative will increase access to higher education and lifelong learning. IHEs will create more content, which will be constantly updated. Teaching techniques, materials and aid will be changed to be more interactive and entertaining. In addition, more flexible modular programmes will be introduced where learning can be done independently, anytime and anywhere.

Raising Entrepreneurship Education at Tertiary Level

10.71 *Entrepreneurship education*. Entrepreneurship education will be embedded as an essential component across all tertiary curriculums to inculcate entrepreneurial mindset and equip students with business skills. This will also include professional courses, such as engineering, architecture, pharmacy and medicine. At the same time, IHEs will create a conducive entrepreneurial environment for students. This will be done through the introduction of a green lane policy for students to run businesses within the campus. This will develop students' interest in business as well as their organisational and business skills.

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[5] Psychomotor learning is demonstrated by physical skills, such as coordination, dexterity, manipulation, grace, strength, speed; actions which demonstrate fine motor skills, such as use of precision instruments or tools; or actions which demonstrate gross motor skills, such as the use of the body in dance or athletic performance.

Raising Industry Involvement in Higher Education Curriculum Development And Practical Training

10.72   *Entrepreneurship education curriculum*. The entrepreneurship education curriculum will be revamped by having the right balance between theory and practical components. The new curriculum will include real life case studies, opportunities to learn hands-on from industry masters and be involved in business activities. In addition, industry experts will be sought, including from the network of alumni, to participate in formulating curriculum as well as teach in IHEs.

10.73   *Practical training*. Practical training will be strengthened to cover all fields of study and also by lengthening the training duration. Supervisors at work place and from IHEs will ensure the outcome of such attachments is achieved. An Academia-Industry Graduate Development Centre (AIGDC) will be established in every IHE to enable students to obtain work environment experience. In addition, more IHE-industry partnerships will be established.

10.74   *Continuous professional development* (CPD). Academics will be facilitated by IHEs to acquire and further strengthen their entrepreneurial skills through internship, sabbatical, secondments or public-private sector cross-fertilization programmes in the relevant industries pertaining to the subjects they are lecturing on. A structured Academia CPD and Academia Attachment Framework (AAF) will be developed to enable all academic staff to be updated with skills and knowledge to teach more effectively.

10.75   *Industry professionals*. Industry professionals will be recruited into IHEs to enrich and strengthen the academic reputation of IHEs. Flexibility will be allowed to harness current talent in industries through new scheme of service where industry professionals will join the academic fraternity. Through this initiative, Malaysian IHEs will be able to leverage global talent and hence gain recognition from professional bodies and industry locally and abroad. This will also result in higher quality of graduates from Malaysian IHEs.

10.76   *Graduate employability*. GE will be raised to more than 80% by 2020. This will be achieved by raising entrepreneurship education and incubation support, industry involvement in curriculum development, increase practical training and enhancing soft skills for tertiary level students. This will also enable local graduates to secure employment in both the domestic and international labour markets or become successful entrepreneurs.

Reducing Higher Education Programmes that are Undersubscribed or Irrelevant to Industry

10.77 *Academic programme and curriculum review*. All IHEs will review their programmes periodically to eliminate redundancy and phase out programmes, which are irrelevant to industries and undersubscribed. These continuous quality upgrading efforts will be institutionalised and introduction of new programmes will undergo stringent evaluation to ensure its relevance to market needs, content superiority and other added value. In addition, to curb over supply of programmes by discipline, approval of new programmes will be limited. Meanwhile, redeployment or exit plan for academics will be undertaken to ensure quality in the delivery of higher education and eliminate complacency. Temporary prohibition or moratorium, especially for some professional programmes will be imposed while more effective intervention will be implemented to phase out nonperforming IHEs.

Strengthening Research and Innovation for Better Outcome

Raising Commercialisation of Research and Development and Innovation

10.78 *Research and Development and Innovation*. Industry-based learning approaches will enable direct links between IHEs and industry experts. Such a link will create opportunities for R&D&I collaboration, business and technical expertise and consultation for business solutions as well as new business and investment ventures. Building on this platform, R&D&I will be strengthened through the quadruple helix framework during the Eleventh Plan period. There will be more integrated government, IHE, industry and community participation and collaboration for market driven projects resulting in higher rates of commercialisation as well as increased funding and investment from the industry for R&D&I. The information gap will be addressed when industry indicate their priorities in market demand research; share expertise, equipment and facilities with IHEs. Input from these quadruple partners will ultimately contribute towards more effective planning and development of human capital. The MoE will facilitate to ensure success of the quadruple helix framework.

10.79 Research and Development and Innovation will be demand-based and prioritised according to the following principles:

- Focus research on incremental innovation for process improvements, increasing manufacturing productivity with returns in less than 10 years
- Each IHE to concentrate in not more than four research areas to create critical mass of resources
- Research must be linked to national priorities
- R&D&I with private sector funding locally and internationally

10.80 *Average citation per publication.* The number of publications will be increased. In order to raise the rate of average citation per publication to 9.0 for the RUs and 5.0 for Malaysia, the quality of publications will be improved.

10.81 *Managerial competencies*. Managerial competencies of researchers in IHEs will be enhanced to enable them to be more proactive and effective in engagement with industry and community as well as to foster entrepreneurship and enhance stewardship. This will be achieved through CPD and AAF.

Enhancement of Industry Centre of Excellence

10.82 *Industry Centre of Excellence.* Demand-driven ICoE programmes will be expanded in nine National Key Economic Areas (NKEA), namely electric and electronics, wholesale and retail, oil and gas, biotechnology, automotive, ICT, construction, healthcare, and hospitality and tourism. Efforts will focus on getting anchor companies in these areas to engage lCoEs of local IHEs to conduct contract R&D&I for them instead of outsourcing it abroad.

10.83 *Allocation of government budget*. A portion of the direct block grant for R&D&I to IHEs will be converted into R&D&I voucher scheme for the industry to outsource their R&D&I to ICoEs of IHEs. The ICoEs will have to pitch for the R&D&I grants from the government and industry. ICoEs will have to be performance and outcome orientated and able to deliver the best value for money for them to win the bidding of R&D&I vouchers from their clienteles. Such competition will drive excellence culture in all ICoEs. Recognition in terms of awards, rewards and return on investment will motivate IHE and industry, thus encouraging more commercialisation of R&D&I by IHEs.

10.84 *Small and medium enterprises in research, development and innovation.* ICoE will focus on helping SMEs in R&D&I. This effort includes linking the SMEs with selected IHEs or potential supply chain vendors to expand market share for their products and services. Upscaling the SMEs will in return provide new job opportunities for graduates. In addition, the Public-Private Research Network (PPRN) will simplify processes to enable SMEs to obtain R&D&I and solutions from ICoEs.

10.85 *University-Community Transformation Centres*. Community engagement and collaboration will be intensified to ensure that R&D&I by the IHEs will benefit the people. UCTCs will play a more significant role in implementing knowledge and technology transfer projects aimed at improving the livelihood of communities with the support of corporate social responsibility funds from the industry. This initiative will also serve as a test bed for R&D&I prototypes and output before further development for commercialisation. Malaysia will also enhance its higher education stature through collaboration with the Asia-Pacific Community Engagement Framework (APUCEN).

10.86 *Higher Institution Centres of Excellence* (HiCoE). HiCoE and HIR will intensify collaboration with prominent global IHEs, research institutions and industry leaders in elevating R&D&I quality and opportunities in identified areas. The IHEs will leverage academic expertise abroad to elevate the standard of Malaysian R&D&I and become internationally reputable, referred and recognised centres of excellence.

Attaining Excellence in IHE Governance

Reducing Centralised Administration and Dependency on Government Funding for Public Universities

10.87 *Financially sustainability*. Public universities will diversify their sources of income to be financially sustainable thus reducing their reliance on government. Universities will become more entrepreneurial by creating products and services that generate income while ensuring operation costs remain optimum. New funding mechanisms from the government will no longer be in the form of fixed operating and development budgets or block grants. New mechanisms will link allocation to performance for specific outcomes, such as production of undergraduates and postgraduates, research projects and commercialised products. Thus, the output, outcome and impact of higher education will commensurate with resources allocated, which will be monitored closely. This method will directly stimulate higher productivity and increase accountability of public universities.

10.88 Reform efforts by the Perbadanan Tabung Pendidikan Tinggi Nasional (PTPTN) will be further intensified to address issues of sustainability, equitable disbursement and operation efficiency. All applications and approvals will be checked against the database of household income, e-Kasih and Bantuan Rakyat 1 Malaysia (BR1M). PTPTN will also be managing educational financing services for other agencies to increase revenue and lower its own operational costs.

10.89 *Public university operation*. To further leverage scarce resources and to create critical mass, public universities will plan their future expansion in line with their functional categorisations as RU, FU or CU. The ratio of undergraduates to postgraduates is to at least reach 50:50 in RU, 70:30 in FU and CU. Every public university will build up and strengthen vertically in their specialised and niche areas and avoid redundancy. A study will be conducted to rationalise public and private IHEs to enhance quality and minimise mismatches between supply and demand. In addition, the MQA will enhance enforcement and compliance by all IHEs.

10.90 *Education hub*. Higher education will continue to be another source of foreign exchange earner for the country. Marketing efforts will be targeted at the Southeast Asean region, the Middle East and Central Asia. Malaysia will further strengthen its branding to boost visibility, recognition and distinction in order to expand market share and accelerate its growth. The MoE will network with sponsors, especially foreign governments to attract 200,000 international students by 2020. IHEs will offer more programmes and courses at postgraduate and professional levels in niche areas which are of interests to international students. Malaysian IHEs will hire distinguished foreign scholars as faculty members to make Malaysia a renowned education hub in this region.

10.91 *Public university governance*. To promote excellence in governance, MoE will establish the criteria for the selection of University Board of Directors. In addition, the roles and duties of board of directors will be redefined to invigorate university management and business development. The autonomous status will be leveraged to allow university-led growth for superior student outcomes, prominent academy leadership, governance excellence, increased industry stewardship, quality R&D&I and greater corporate social responsibility towards community.

10.92 *Differentiated career pathways for academics.* Academics will also be allowed to choose new differentiated career pathways such as the tenure track, non-tenure track, and research faculty track in IHEs based on their expertise and specialisation. This initiative will attract and retain talent from local and abroad. The number of PhD holders in RUs is expected to reach at least 75%.

10.93 *University ranking*. Specific targets will be set for individual public universities to attain better rankings in all international ranking systems. By 2020, the target is to have two universities in the top 100 and two in the top 200 in the QS World University rankings.

V.   CONCLUSION

10.94 The Eleventh Plan will bring about significant transformation to the education system with emphasis on quality, equity, access, unity and efficiency. The expected outcomes at the basic education level is to enable every student to acquire knowledge, thinking skills, leadership skills, bilingual proficiency, ethics, spirituality and national identity. At the tertiary level, transformation will lead to a higher rate of GE, excellent quality of R&D&I and commercialisation as well as having Malaysian universities of global repute.

APPENDIX

Exhibit 10-1

National Grade Average of UPSR, PMR, SPM, 2010-2013

UPSR Achievement For MoE Candidates			
Year	Achieve All As	Below Minimum Achievement (achieved all D/E or combination of both)	National Grade Average
2010	10.02%	3.39%	2.31
2011	9.48%	2.88%	2.30
2012	8.94%	3.42%	2.31
2013	9.15%	3.36%	2.27
PMR Achievement For MoE Candidates			
Year	Achieve All As	Below Minimum Achievement (achieved all Es)	National Grade Average
2010	7.02%	0.09%	2.74
2011	7.77%	0.08%	2.71
2012	6.92%	0.05%	2.71
2013	7.33%	0.07%	2.67
SPM Achievement For All Candidates			
Year	Achieve All As (A+, A and A-)	Low Achievers (D, E and G)	National Grade Average*
2010	2.57%	5.66%	5.19
2011	2.97%	4.90%	5.04
2012	3.11%	5.11%	5.08
2013	3.16%	4.85%	4.93

Note: *for MoE's candidates only
Source : Ministry of Education

Exhibit 10-14
Achievements of Malaysia Education Blueprint 2013-2025
(Preschool to Post-Secondary Education)

No.	Initiatives	Achievements
1	Preschool Enrolment	Increase in preschool enrolment. 90.7% of children aged 4+ and 5+ enrolled in preschool in 2014 compared to 72.4% in 2010
2	Vocational Education Transformation	Wider access to vocational education, allowing more students to pursue various fields. 4.6% of post-PMR students now pursue the vocational stream compared to 4% in 2012, including 518 students with special education needs
3	Higher Order Thinking Skills (HOTS)	Improved critical thinking skills in students. HOTS concept developed, i-THINK programme launched in 500 schools and 10 schools were nominated for IB Middle Years Programme.
4	Literacy and Numeracy Screening (LINUS 2.0)	Near universal Bahasa Melayu literacy and numeracy. 99% of Year 3 students achieved Bahasa Melayu literacy and numeracy. English literacy screening was introduced in 2013. English literacy improved to 63% in 4 months, from baseline of 50% for Year 1 students
5	English Language TeacherProficiency (Pro-ELT)	Increased proficiency among English teachers. 76% of English Language teachers who underwent the Pro-ELT increased their proficiency by at least 1 level
6	Transformation of *Institut Pendidikan Guru*/IPG (Institute of Teacher Education)	Raised the bar for entry into Institute of Teacher Education. 42% of latest IPG intakes are students with at least 7As, 70% with at least 5As, compared to 9% of applicants with at least 7As in 2012
7	Principal Charter	Paved the way for selecting the best principals and headmasters to lead schools. New performance based selection criteria approved to replace existing criteria based on duration of service
8	District Transformation Programme (DTP)	Improvements in student outcomes, by empowering District Education Offices (PPD) to provide targeted support to schools. DTP pilot in Kedah and Sabah recorded the best improvements in performance in UPSR, PMR and SPM
9	Inclusive Education	More students with special education needs enrolled in the Inclusive Education Programme. 9.6% of students with special education needs study alongside students in mainstream schools

No.	Initiatives	Achievements
10	*Rancangan Integrasi Murid untuk Perpaduan* (RIMUP)	Increased interaction among students of various races from different school types through inter-school activities 20% of primary schools succeeded in implementing the RIMUP programme
11	MoE Transformation	Ministry restructuring commenced. The SISC+ and SIPartner+ are placed at the PPD and become the single point of contact between the Curriculum Development Division, the Examination Syndicate and teachers
12	Basic Infrastructure	Equipped schools with much needed basic infrastructure to provide conducive environments for learning. 1,693 critical repair projects completed
13	1BestariNet	Improved internet connectivity and access to Virtual Learning Environment (VLE). 91.5% of 9,889 schools connected to 1BestariNet Internet access

Exhibit 10-15
Participants of *Program Pensiswazahan Guru* (PPG)

No.	Intake	Date of Completion	Place of Study			Total
			ITE	Public IHEs	Private IHEs	
1	March 2011	March 2015		10,738	6,757	17,495
2	June 2011	June 2015	8,005			8,005
3	September 2011	September 2015		736	685	1,421
4	February 2012	February 2016	3,935	7,252	5,564	16,751
5	September 2012	September 2016		1,036	2,983	4,019
6	September 2013	September 2017		223	3098	3,321
7	November 2013	December 2017	108			108
8	February 2013	June 2016	628			628
9	March 2014	December 2016	142			142
Total			**12,818**	**19,985**	**19,087**	**51,890**

Source : Ministry of Education