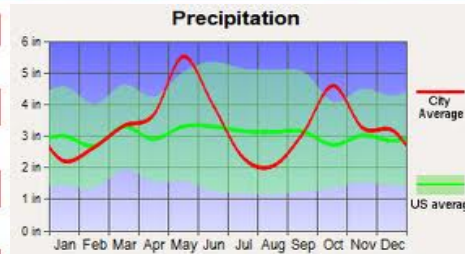
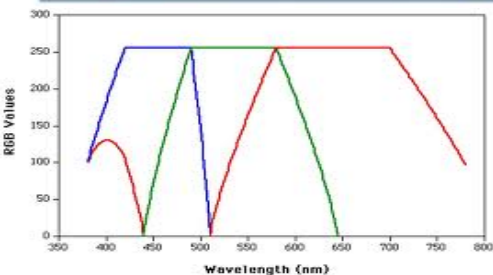


PRINCIPLES OF QUALITY DATA AND STATISTICS VISUALIZATION

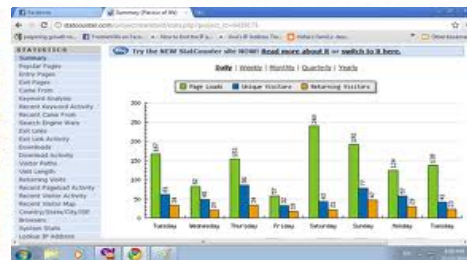
Data for Planners and Policy Makers.

Chiba, Japan

2nd - 6 September , 2013



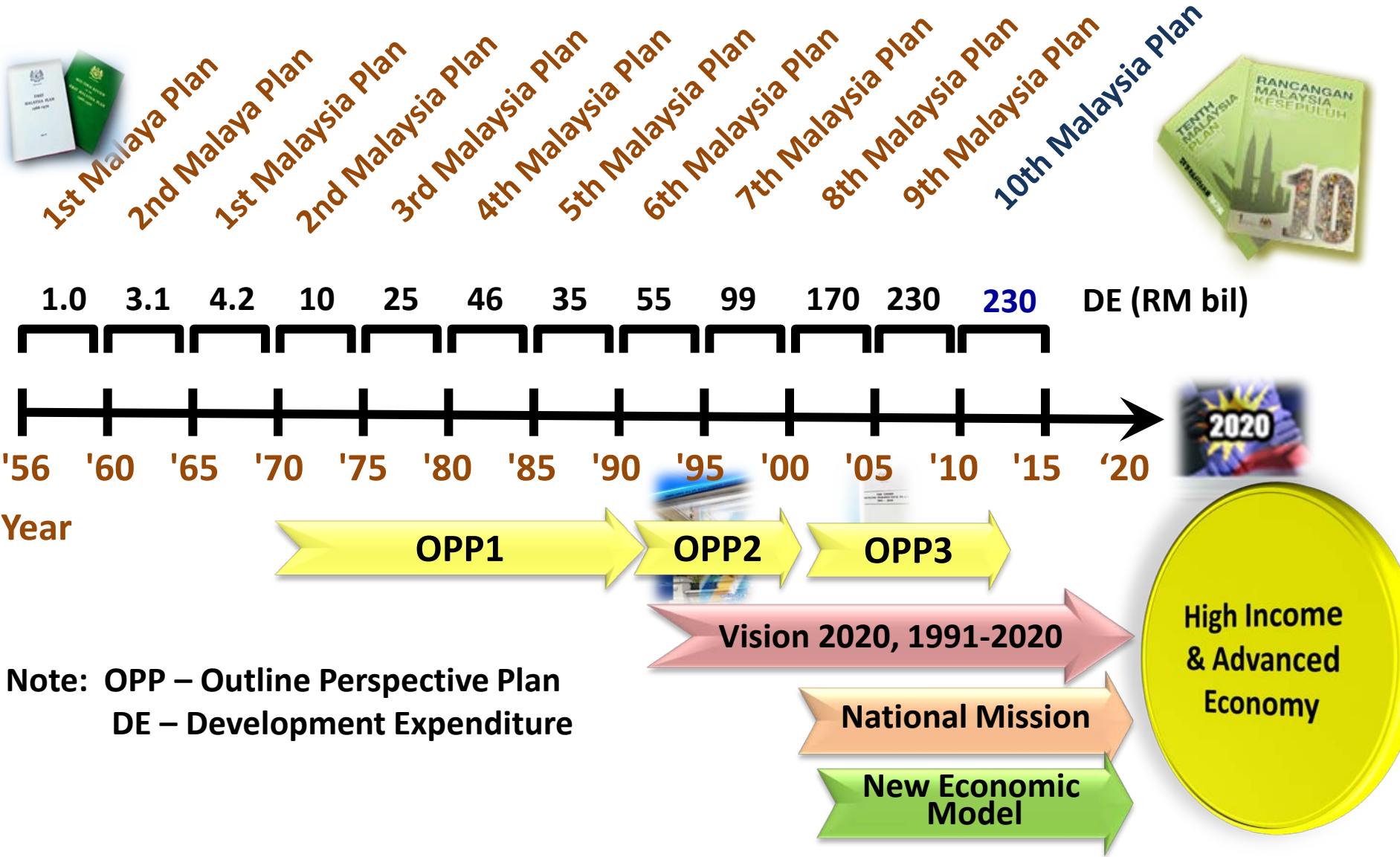
Integration



Ministry of Human Resources, Malaysia

Presentation by;
Ab. Razak Othman
Institute of Labour Market Information &
Analysis (ILMIA)

Planning Horizon Towards 2020



Transformation Towards High Income Economy

National Key Result Areas (NKRAs)



1. Reducing Crime
2. Fighting Corruption
3. Improving Student Outcomes
4. Raising Living Standards of Low-Income Households
5. Improving Rural Basic Infrastructure
6. Improving Urban Public Transport
7. Dealing With The Rising Cost of Living 



Strategic reform initiatives (SRIs)



1. Government's Role in Business
2. Public Finance Reform
3. Human Capital Development
4. International Standards & Liberalisation
5. Public Service Delivery
6. Narrowing Disparities/ Bumiputera SMEs

Global Comparison

GNP per capita (US\$)	1990	2007	2020 ^f
HIC (Average)	19,098	37,572	58,422
HIC (Minimum)	7,620	11,455	14,818
US	23,330	46,040	78,704
UK	16,300	42,740	84,239
Australia	17,090	35,960	55,522
Singapore	11,860	32,470	55,093
Korea	6,000	19,690	39,428
Turkey	3,070	8,030	12,162
Malaysia	2,503	6,700	15,341

Note: f – forecast by EPU/NEAC

Table 1 : Employment (Youth) : Summary of Statistics, 2007-2011

	2007	2008	2009	2010	2011
Tenaga Buruh/ Labour Force ('000)					
Lelaki / Male	4,339.6	4,505.2	4,554.3	4,854.0	4,879.8
Perempuan / Female	2,775.0	2,782.2	2,587.3	3,021.1	3,098.9
Bekerja/ Employed ('000)					
Lelaki / Male	4,248.7	4,315.9	4,337.8	4,646.0	4,680.0
Perempuan / Female	2,625.7	2,645.6	2,713.2	2,882.4	2,960.0
Kadar Pengangguran /Unemployment Rate (%)					
Lelaki / Male	4.3	4.2	4.8	4.3	4.1
Perempuan / Female	4.7	4.9	5.0	4.6	4.5

Nota/Notes:

Tenaga Buruh / Labour force

Tenaga buruh ini hanya melibatkan golongan belia yang berumur di antara 15 tahun hingga 40 tahun sahaja

The labor force refers to youth between the ages of 15 to 40 years only

Bekerja/Employed

Semua orang yang bekerja sekurang-kurangnya sejam semasa minggu rujukan

All person who, at any time during the reference week worked at least one hour

Sumber: Penyiasatan Tenaga Buruh, Jabatan Perangkaan Malaysia

Source: Labour Force Survey, Department of Statistics Malaysia

EMPLOYMENT

MALAYSIA: POPULATION & EMPLOYMENT BY SECTOR 2000 - 2020

Industry	2000	2005	2010	2015	2020	Yearly growth (%)
						2011-2020
Agriculture, forestry and fishing	1,423.0	1,401.3	1,389.7	1,385.2	1,381.4	-0.1
Minning and quarrying	41.7	42.7	43.3	43.9	44.1	0.2
Manufacturing	2,565.8	3,133.2	3,267.6	3,638.1	3,907.7	1.8
Construction	725.2	759.6	765.4	776.5	783.2	0.2
Services	4,491.9	5,556.0	6,307.3	7,381.9	8,418.2	2.9
Electricity, gas and water	75.0	93.0	99.0	105.6	110.9	1.1
Transportation, storage & communication	461.6	630.6	682.7	810.8	911.1	2.9
Wholesale, retail trade groceries, Hotel and Restautant	1,584.5	1,861.5	2,178.5	2,782.2	3,420.1	4.6
Financial, Insurans, land property and business services	500.1	734.4	832.0	959.6	1,073.5	2.6
Government services	979.5	1,118.4	1,249.5	1,264.4	1,283.4	0.3
Others services	891.2	1,118.1	1,265.6	1,459.3	1,619.2	2.5
Total	9,247.6	10,892.8	11,773.3	13,225.6	14,534.6	2.1
Labour Force ('000)	9,571.6	11,290.5	12,216.8	13,654.0	14,945.1	2.0
Unemployed ('000)	297.0	397.7	443.5	428.4	410.5	
Unemploment rate (%)	3.1	3.5	3.6	3.1	2.7	
Population (million)	23,488.7	26,476.9	28,250.5	29,773.8	31,628.1	
Working age population 15 - 64 Tahun ('000 orang)	14,743.4	17,510.3	19,230.1	20,655.7	21,855.4	

EMPLOYMENT BY EDUCATION ATTAINMENT FROM 2000-2020

Pencapaian Pendidikan / Education Attainment	2000		2005		2010		2015		2020	
	('000 persons)	(%)	('000 persons)	(%)	('000 persons)	(%)	('000 persons)	(%)	('000 persons)	(%)
Tiada Pendidikan Formal <i>No Formal Education</i>	83.9	6.1	519.4	4.6	500.9	4.1	384.8	2.8	54.3	0.4
Rendah <i>Primary</i>	2,498.2	26.1	2,325.8	20.6	1,869.1	15.3	851.5	6.2	253.1	1.7
Menengah <i>Secondary</i>	5,159.1	53.9	6,277.5	55.6	6,888.0	56.4	7,814.5	57.2	8,656.6	57.9
Tertiari <i>Tertiary</i>	1,330.5	13.9	2,167.8	19.2	3,110.2	25.5	4,603.2	33.7	5,981.1	40.0
Sarjana Muda <i>Degree</i>	488.2	5.1	835.5	7.4	1,448.7	11.9	2,585.2	21.2	3,642.8	24.4
Diploma	555.2	5.8	948.4	8.4	1,192.5	9.8	1,450.9	11.9	1,665.7	11.1
SPM dan Ke Bawah <i>SPM and below</i>	287.1	3.0	383.9	3.4	469.0	3.8	567.2	4.6	672.6	4.5
Tenaga Buruh ('000)	9,571.6	100.0	11,290.5	100.0	12,216.8	100.0	13,654.0	100.0	14,945.1	100.0
Kadar Pengangguran (%) <i>Unemployment Rate</i>	3.1		3.5		3.6		3.1		2.7	
Guna Tenaga ('000) <i>Labour Force</i>	9,274.6		10,892.8		11,773.3		13,225.6		14,534.6	

MALAYSIA : POPULATION & EMPLOYMENT BY SECTOR, 2000-2020

('000)

INDUSTRY	2000	2005	2010	2015	2020	Pertumbuhan Tahunan (%) 2011-2020
Agriculture, Forestry, Livestock & Fishing	1,423.0	1,401.3	1,389.7	1,385.2	1,381.4	-0.1
Mining & Quarrying	41.7	42.7	43.3	43.9	44.1	0.2
Manufacturing	2,565.8	3,133.2	3,267.6	3,638.1	3,907.7	1.8
Construction	752.2	759.6	765.4	776.5	783.2	0.2
Services	4,491.9	5,556.0	6,307.3	7,381.9	8,418.2	2.9
<i>Electricity, Gas & Water</i>	75.0	93.0	99.0	105.6	110.9	1.1
<i>Transport, Storage & Communications</i>	461.6	630.6	682.7	810.8	911.1	2.9
<i>Wholesale & Retail Trade, Hotels & Restaurants</i>	1,584.5	1,861.5	2,178.5	2,782.2	3,420.1	4.6
<i>Finance, Insurance, Real Estate & Business Services</i>	500.1	734.4	832.0	959.6	1,073.5	2.6
<i>Government Services</i>	979.5	1,118.4	1,249.5	1,264.4	1,283.4	0.3
<i>Other Services</i>	891.2	1,118.1	1,265.6	1,459.3	1,619.2	2.5
TOTAL	9,274.6	10,892.8	11,773.3	13,225.6	14,534.6	2.1

	2000	2005	2010	2015	2020	Pertumbuhan Tahunan (%) 2011-2020
Tenaga Buruh / Labour Force ('000 labours)	9,571.6	11,290.5	12,216.8	13,654.0	14,945.1	2.0
Pengangguran / Unemployment ('000 persons)	297.0	397.7	443.5	428.4	410.5	
Kadar Pengangguran / Unemployment Rate (%)	3.1	3.5	3.6	3.1	2.7	
Penduduk / Citizens ('000 persons)	23,488.7	26,476.9	28,250.5	29,773.8	31,628.1	1.1
Penduduk umur bekerja (15 - 64 tahun) / Citizens working age (15 – 64 years) ('000 persons)	14,743.4	17,510.3	19,230.1	20,655.7	21,855.4	1.1

Human Capital Development Planning framework

DELIVERY SYSTEM

- Education
- Training

Education:

- Early childhood
- Preschool
- Basic education

Tertiary:

- University
- Colleges
- Polytechnics
- TEVT

Flow

Stock

Labour Force



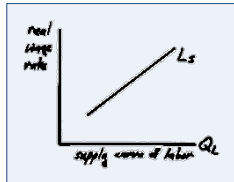
LABOUR MARKET OPERATION



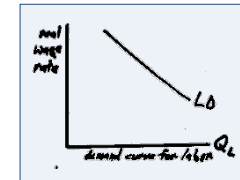
Issues

- 1 Unemployment
- 2 Competitiveness
- 3 Wage Flexibility
- 4 Critical Skills
- 5 Manpower requirements
- 6 Labour Mobility

Labour Supply



Labour Demand



Elasticity of employment and output by economic sector



Economic Growth by Sector

Factor Intensity



Production Technology

Population growth

+

Immigration

Cohort component method to estimate population

- Prices of Labour + Capital
- Industrial Incentives
- Labour Legislation
- Fiscal & Monetary Policy
- Exchange Rate

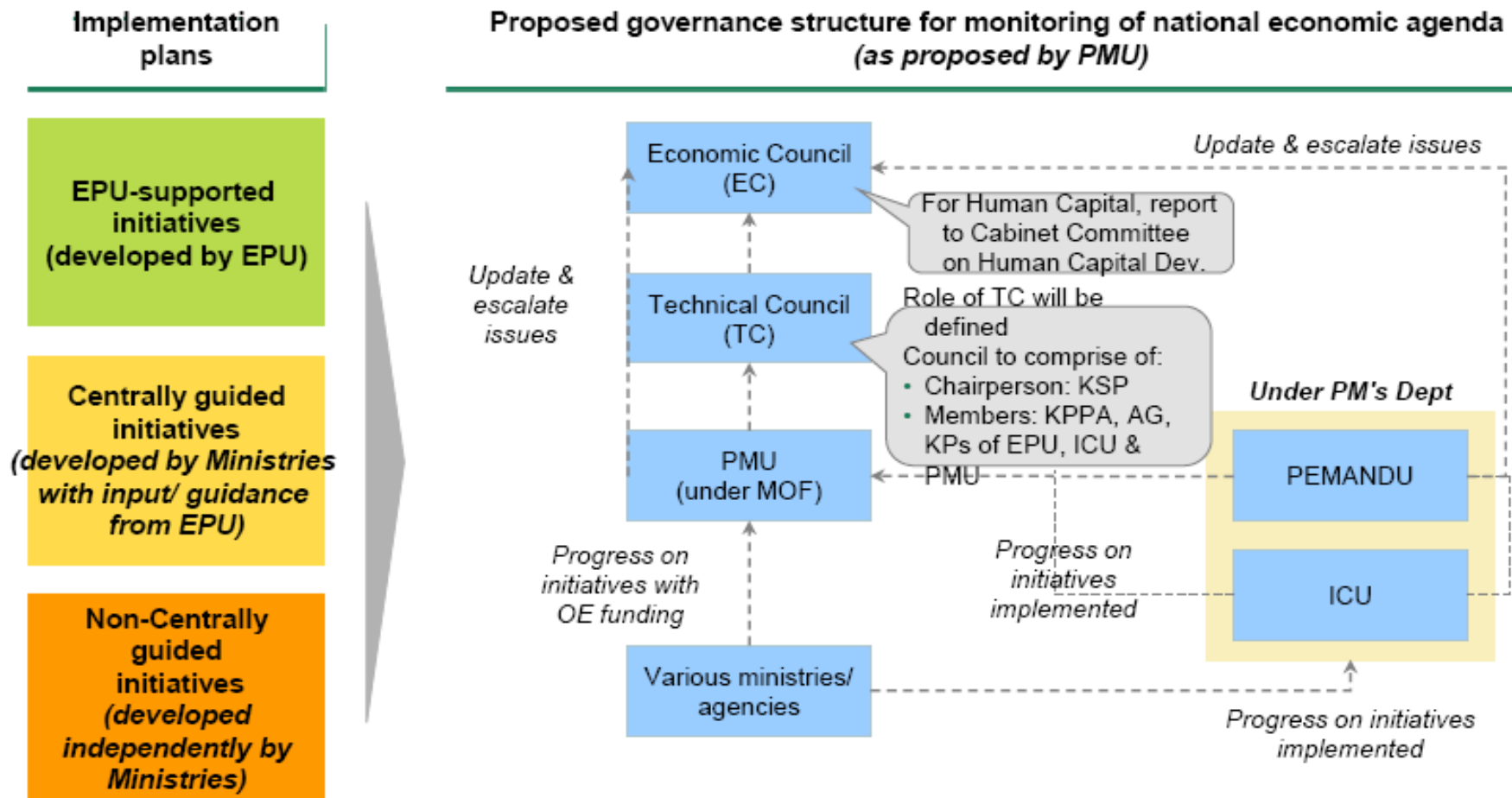
Capital

+

Labour

Elasticity of substitution between labour and capital

Once implementation plans are drawn-up, they will be handed over to the relevant monitoring agencies

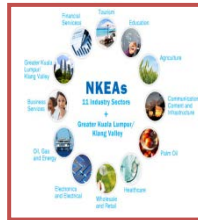


EPU will conduct annual review of 10MP initiatives & obtain progress updates from monitoring agencies

Human Capital Development planning approach

Demand forecast (Demand side)

- 1) Manpower Requirement Approach
- 2) Labour Market Approach
- 3) Human resource modelling (HRD-CGE)



Supply planning (Supply side)

- Consist of education and training provided in line with the changes in economic and demographic structure
- HCD supply planning documentations:



Human capital development planning covers both demand and supply of labour

- 1) **Manpower Requirement Approach** – measure elasticity of employment-output to provide employment estimates in supporting targeted economic development
- 2) **Labour Market Approach** - analyse labour market indicators, e.g. labour turn over, wages, vacancies and productivity
- 3) **Human resource modelling (HRD-CGE)** - integrated system to prepare long/medium term scenarios for employment forecast by industry and occupation



Creating the environment for unleashing economic growth (including 12 NKEAs)



Moving towards inclusive socio-economic development



Developing & retaining a first-world talent base

10MP Strategic Thrusts...

structural transformation towards high income economy



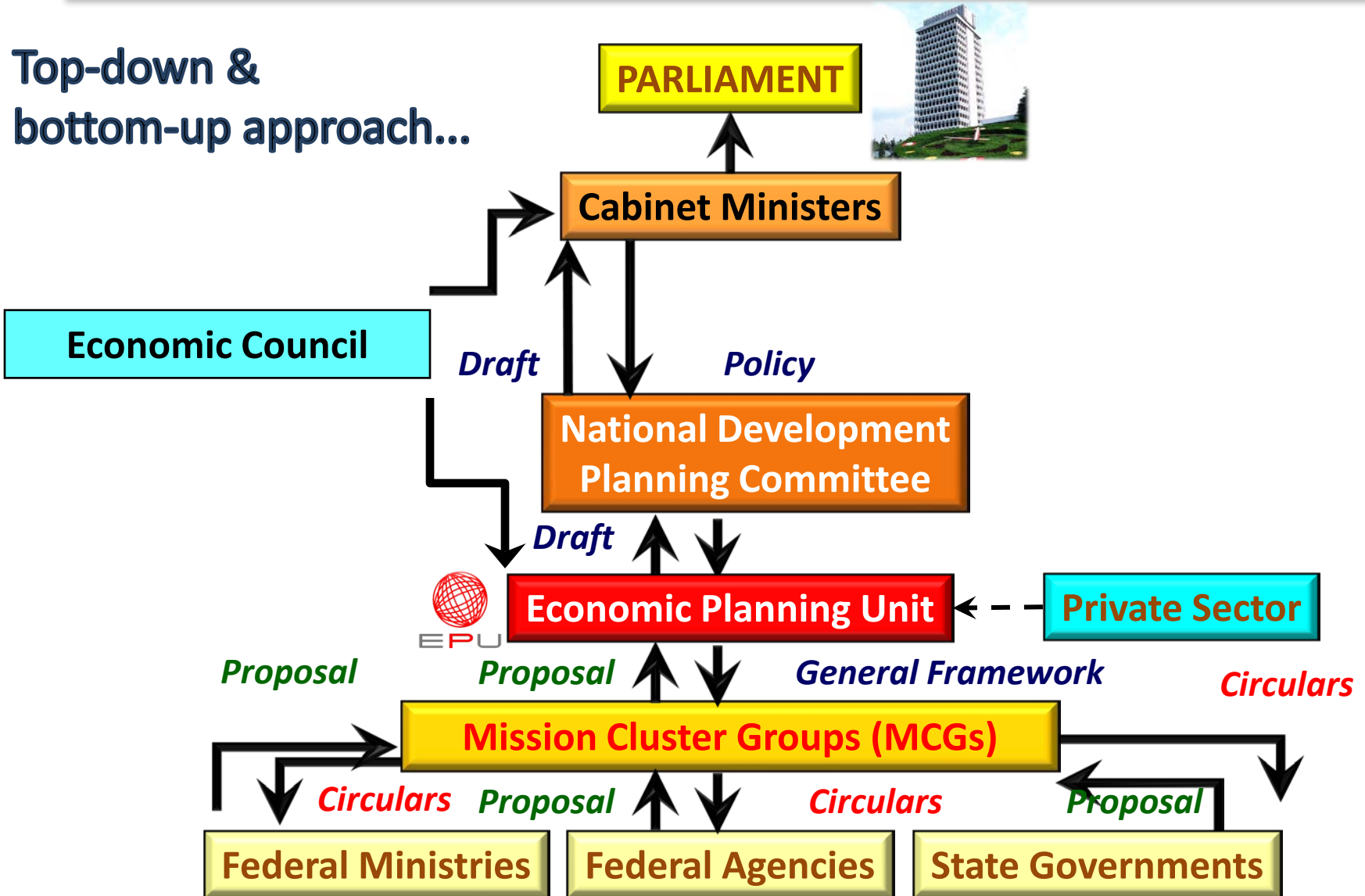
Building an environment that enhances quality of life



Transforming government to transform Malaysia

Development Planning Machinery

Top-down & bottom-up approach...



Intervention : Comprehensive Human Capital Framework Planned in 10MP, addressing entire education and professional cycle, seamless co-ordination and implementation

Integrated Talent Development

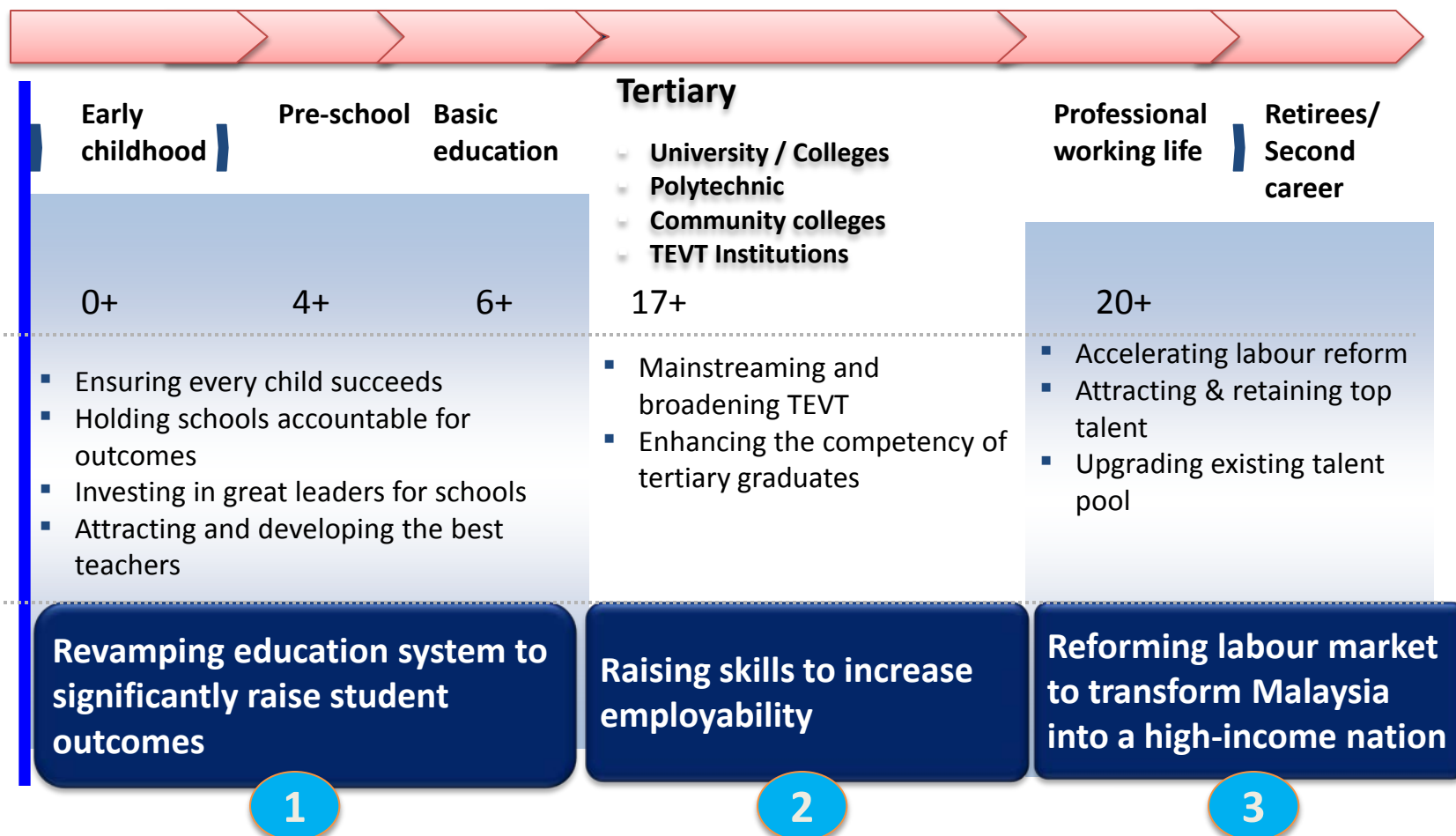


Table 2 : Number of Employed Youth by Age Group, Strata and Gender, 2011

(‘000)

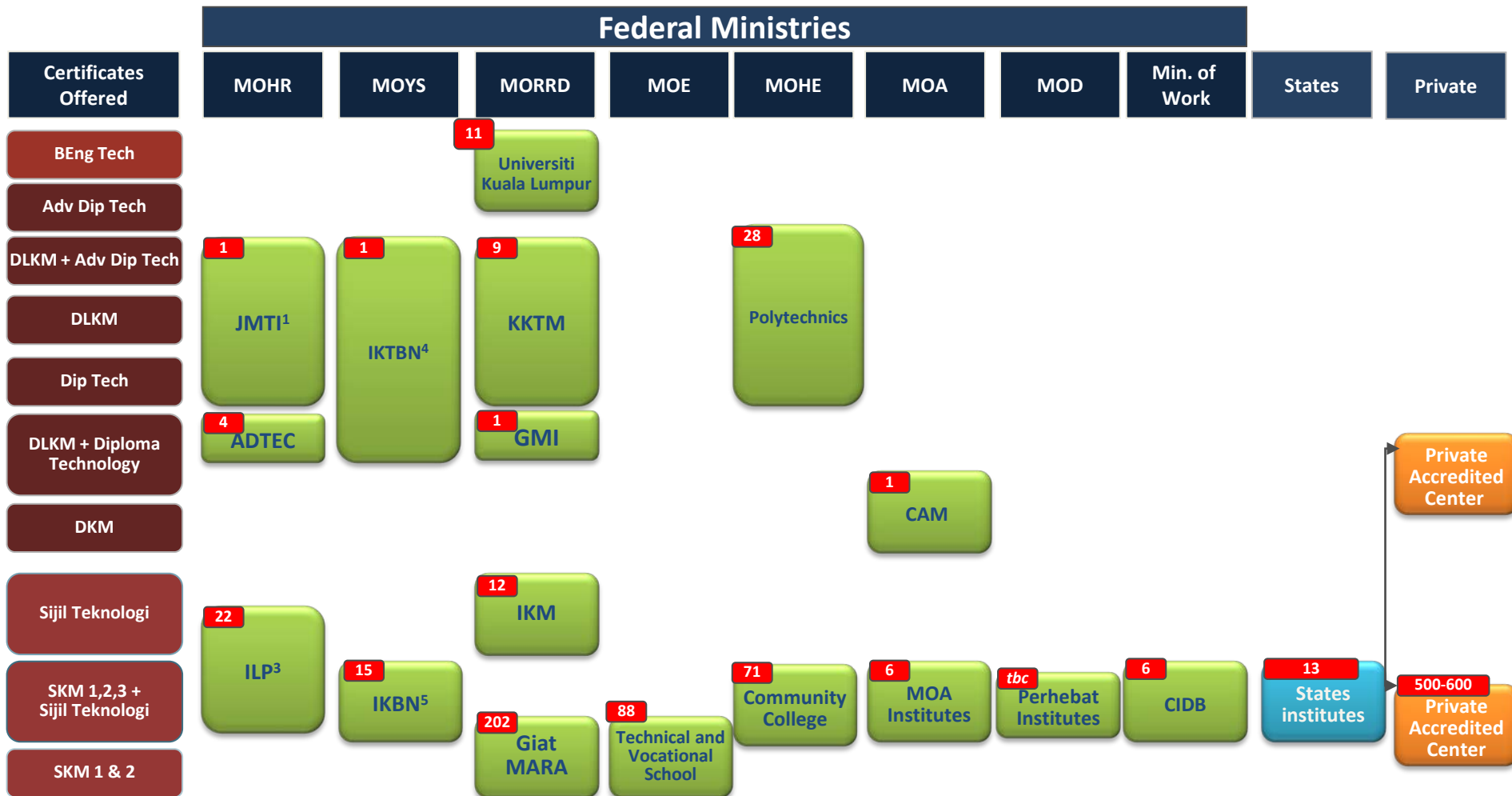
Kumpulan Umur <i>Age Group</i>	Jumlah <i>Total</i>			Bandar <i>Urban</i>			Luar Bandar <i>Rural</i>		
	Jumlah <i>Total</i>	Lelaki <i>Female</i>	Perempuan <i>Male</i>	Jumlah <i>Total</i>	Lelaki <i>Female</i>	Perempuan <i>Male</i>	Jumlah <i>Total</i>	Lelaki <i>Female</i>	Perempuan <i>Male</i>
15-19	402.9	265.0	137.9	235.5	144.6	90.9	167.4	120.4	47.0
20-24	1,414.9	854.8	560.1	941.7	532.1	409.6	473.1	322.7	150.5
25-29	1,925.0	1,139.5	785.5	1,330.5	754.1	576.4	594.5	385.4	209.1
30-34	1,823.5	1,112.7	710.8	1,305.1	766.8	538.3	518.4	345.9	172.6
35-39	1,681.5	1,049.9	631.6	1,190.2	712.7	477.5	491.4	337.3	154.1
40	392.2	258.1	134.1	271.0	174.6	96.4	121.2	83.5	37.0
Jumlah/Total	7,640.0	4,680.0	2,960.0	5,274.0	3,084.9	2,189.1	2,366.0	1,595.1	770.9

Sumber: Jabatan Perangkaan Malaysia

Source: Department of Statistics Malaysia

Access & quality

- Establishment of skills training institute started as early in 1906 by Public Works Dept. but noticeable wave in 1960s
- Currently more than 1,000 institutions offering Skills Training from federal ministries, state skills centre and private providers.



...the Govt. playing an active role

~1,000 TEVT institutes

45% of which are public sector institutes¹

230,000 TEVT students

enrolled per annum, with 70% in public sector institutes

8 Federal Ministries/ agencies

own, fund and operate the public sector institutes

2 very distinct agencies

regulate the sector
(i.e., Department of Skills Development and Malaysian Qualifications Agency)

At least RM1.3Bn Govt. funding

allocated in 2010 to operate the public institutes (excluding student loans²)

Intervention : Up-skilling of Workforce to Ensure Quality Flow and Stock to Support Economy Growth and Industries Demand

Flow

New entry to workforce

Meet industry demand



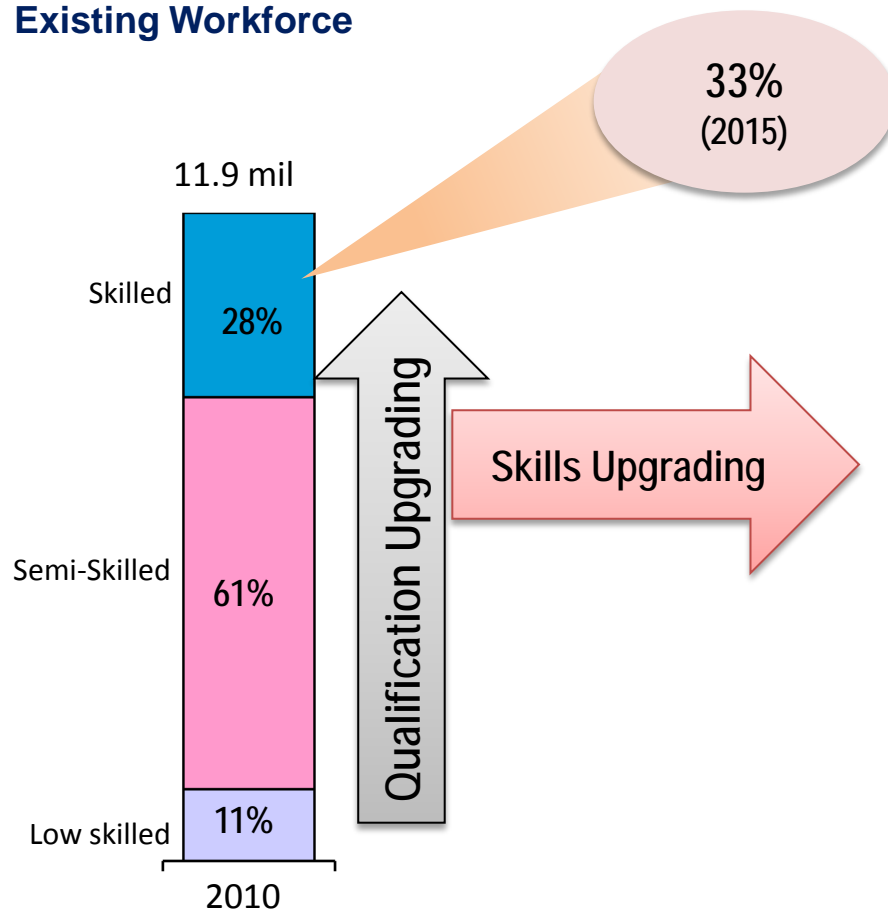
Bridging Programmel
Finishing School

Output from Educations
Institutions



Stock

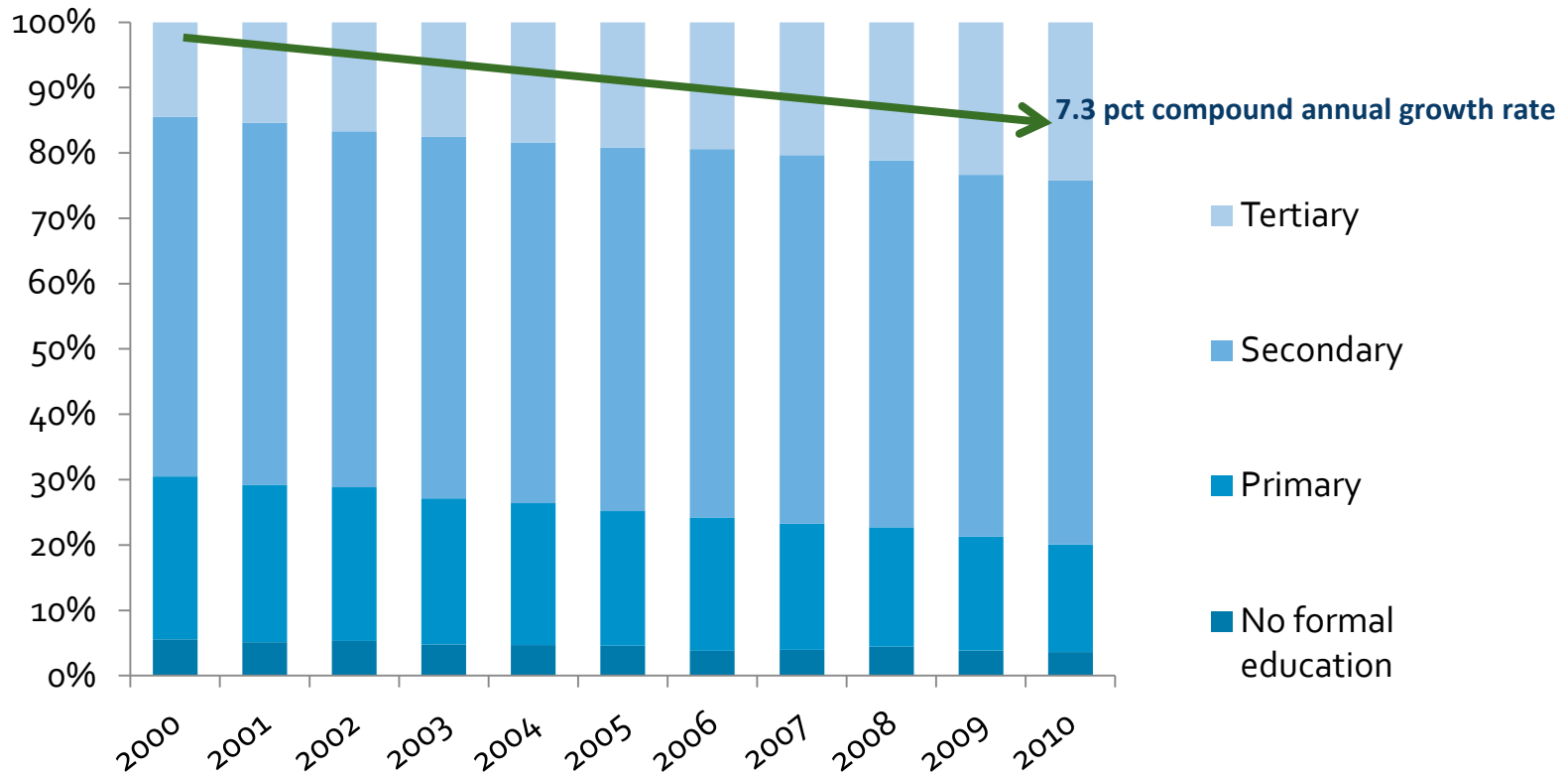
Existing Workforce



Educational Attainment Has Increased over Time

In 2000, about 15% of the work force was tertiary educated...

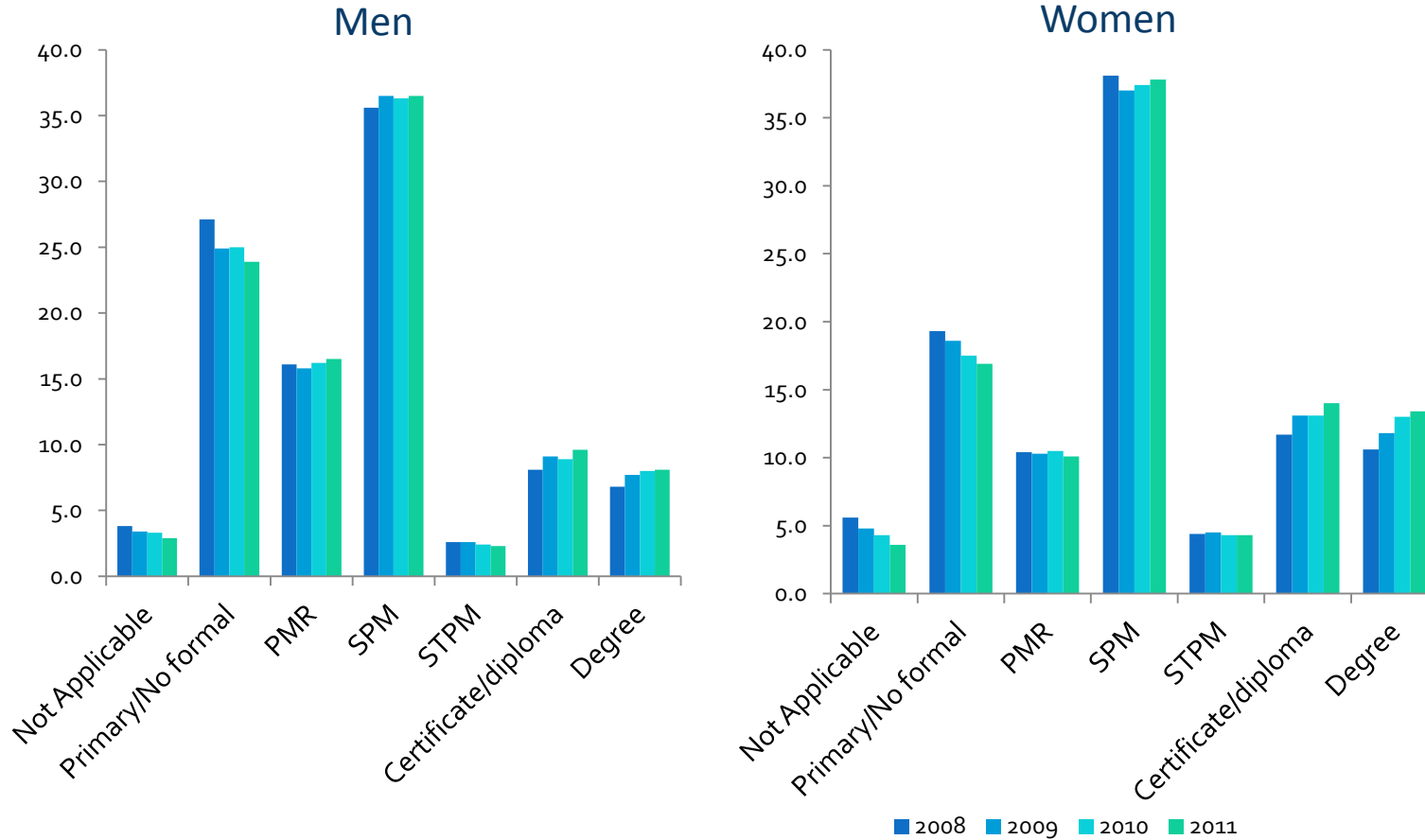
... in 2011 this percentage reached 24.5%.



Source: DOS – LFS 2000-2010

Upper Secondary Level Remains the Most Commonplace in the Labor Force

Large differences in labor force participation of men and women, however the pattern for highly educated workers is very similar

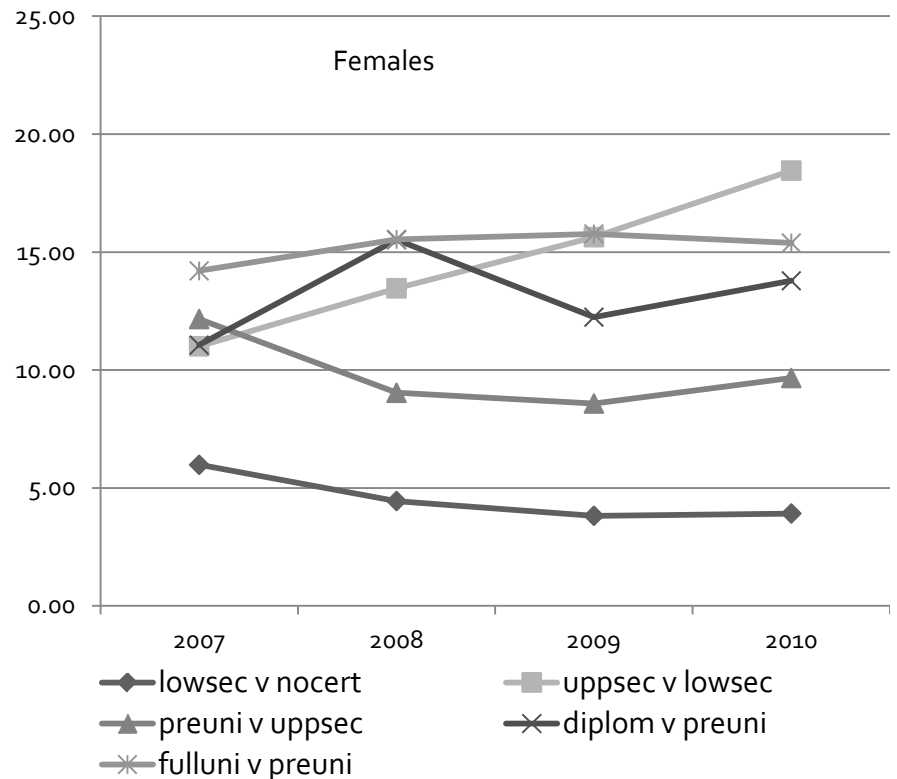
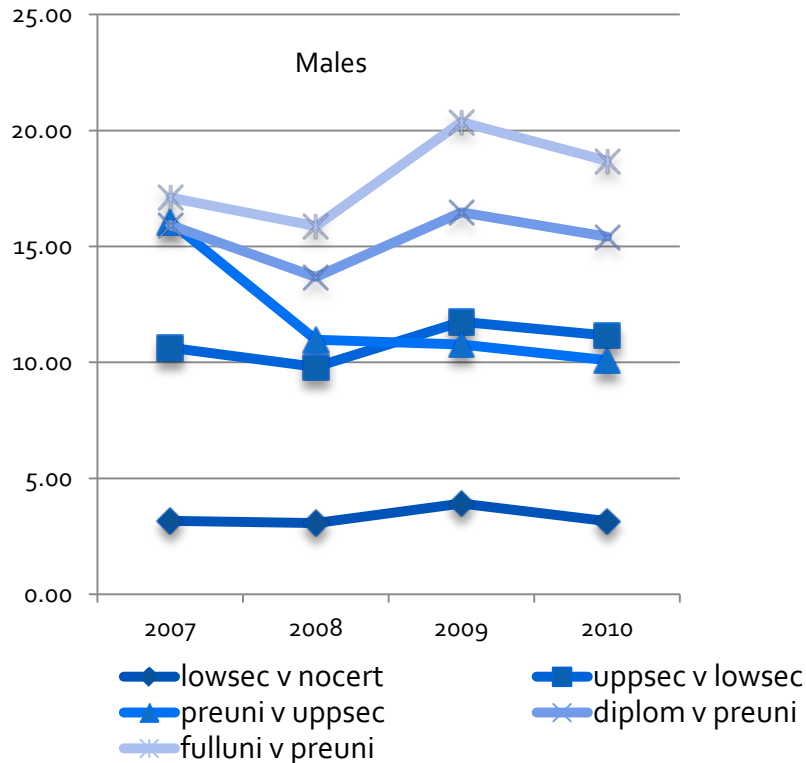


Source: DOS – LFS 2008-2011

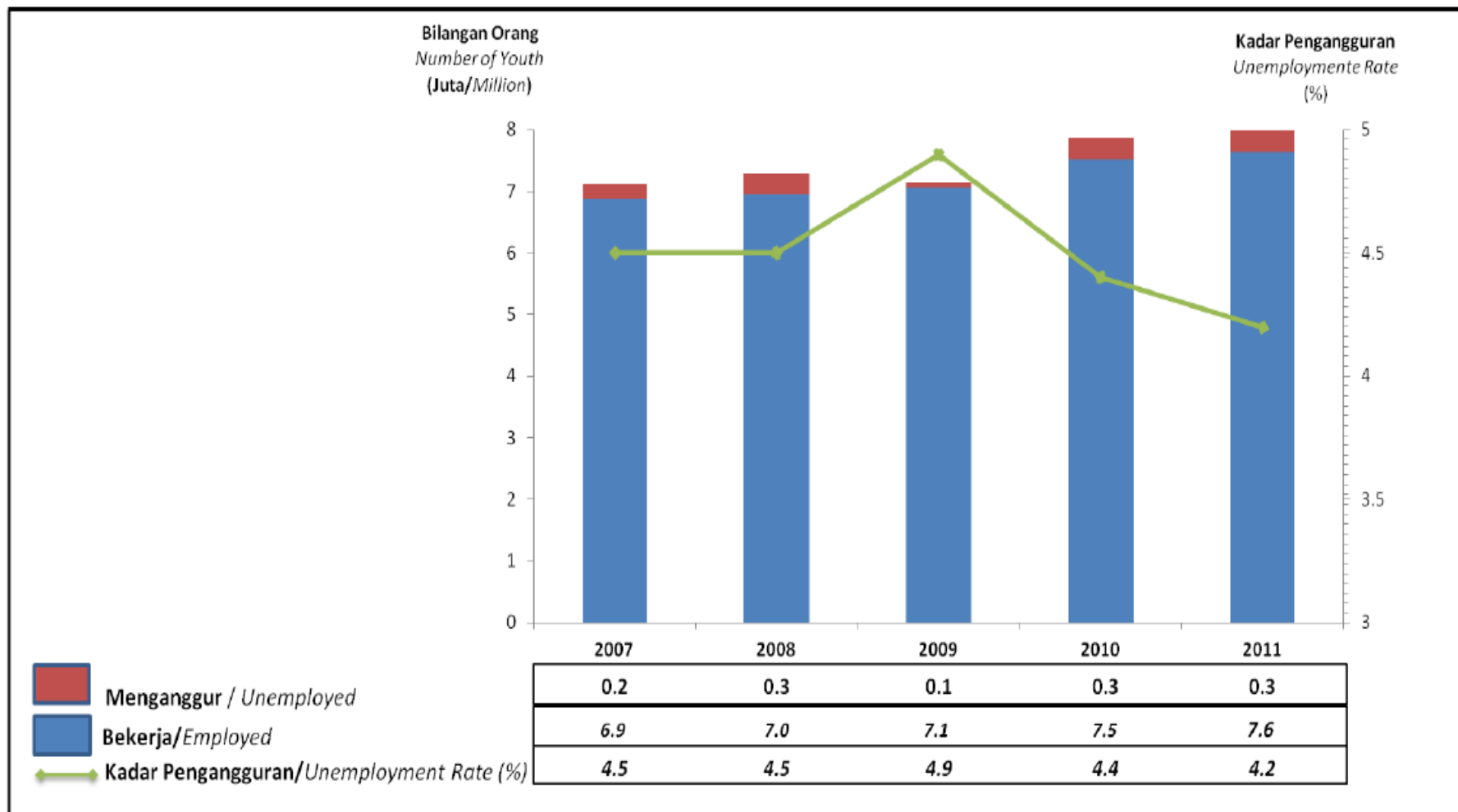
Returns to Education are High for Men and Women

- Returns for lower secondary education are the lowest...one year of additional schooling within this education level yields no more than 4% increase in wages for males and 6% for females.
- Highest returns at university stage for men, upper secondary for females.

Returns to Education in Malaysia by gender, 2007-2010



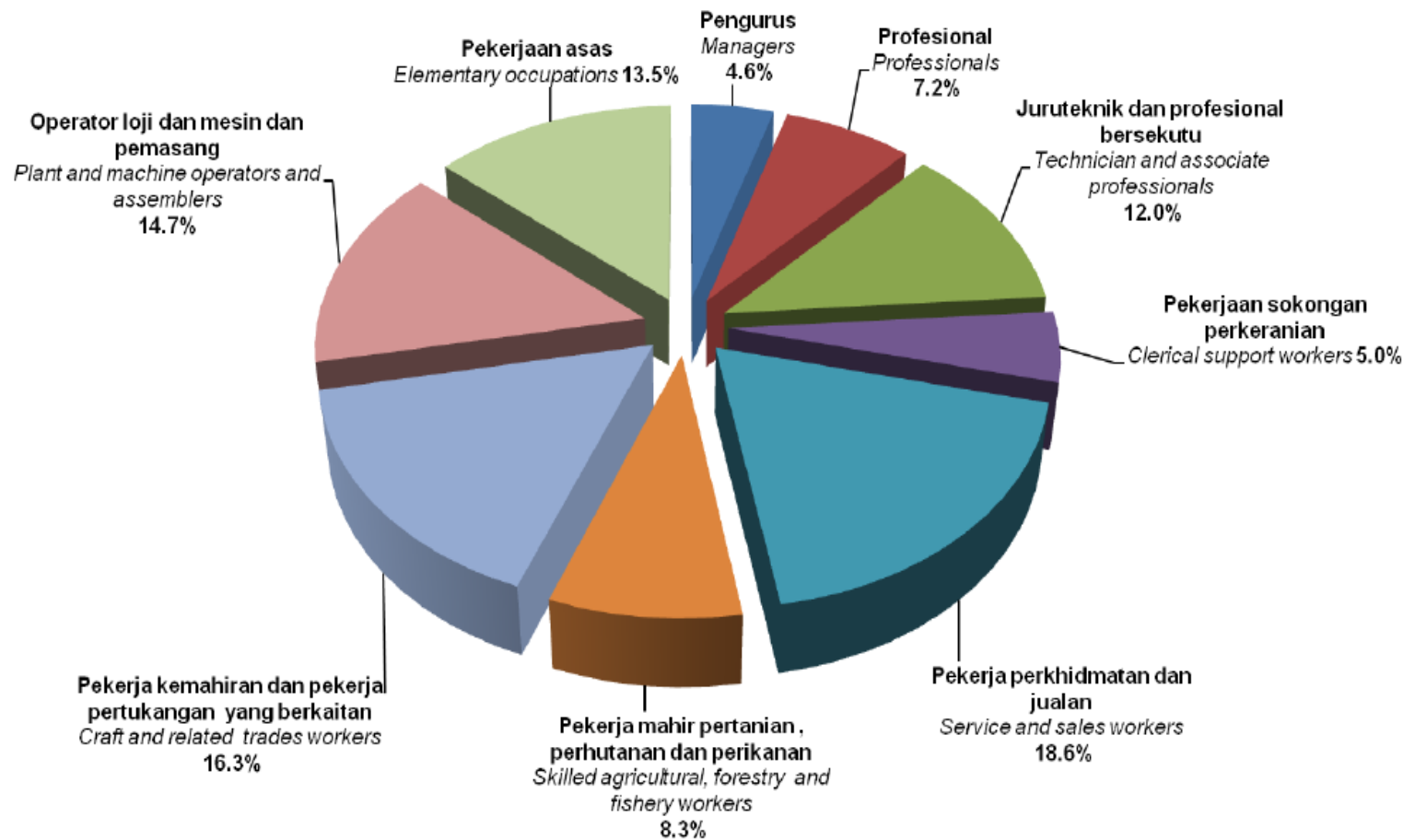
Carta 1 : Bilangan Bekerja, Menganggur dan Kadar Pengangguran (Belia 15-40 tahun, 2007-2011)
 Chart 1 : Number of Employed, Unemployed and Unemployment Rate (Youth 15-40 years), 2007-2011



Sumber: Penyiasatan Tenaga Buruh, Jabatan Perangkaan Malaysia

Source: Labour Force Survey, Department of Statistics Malaysia

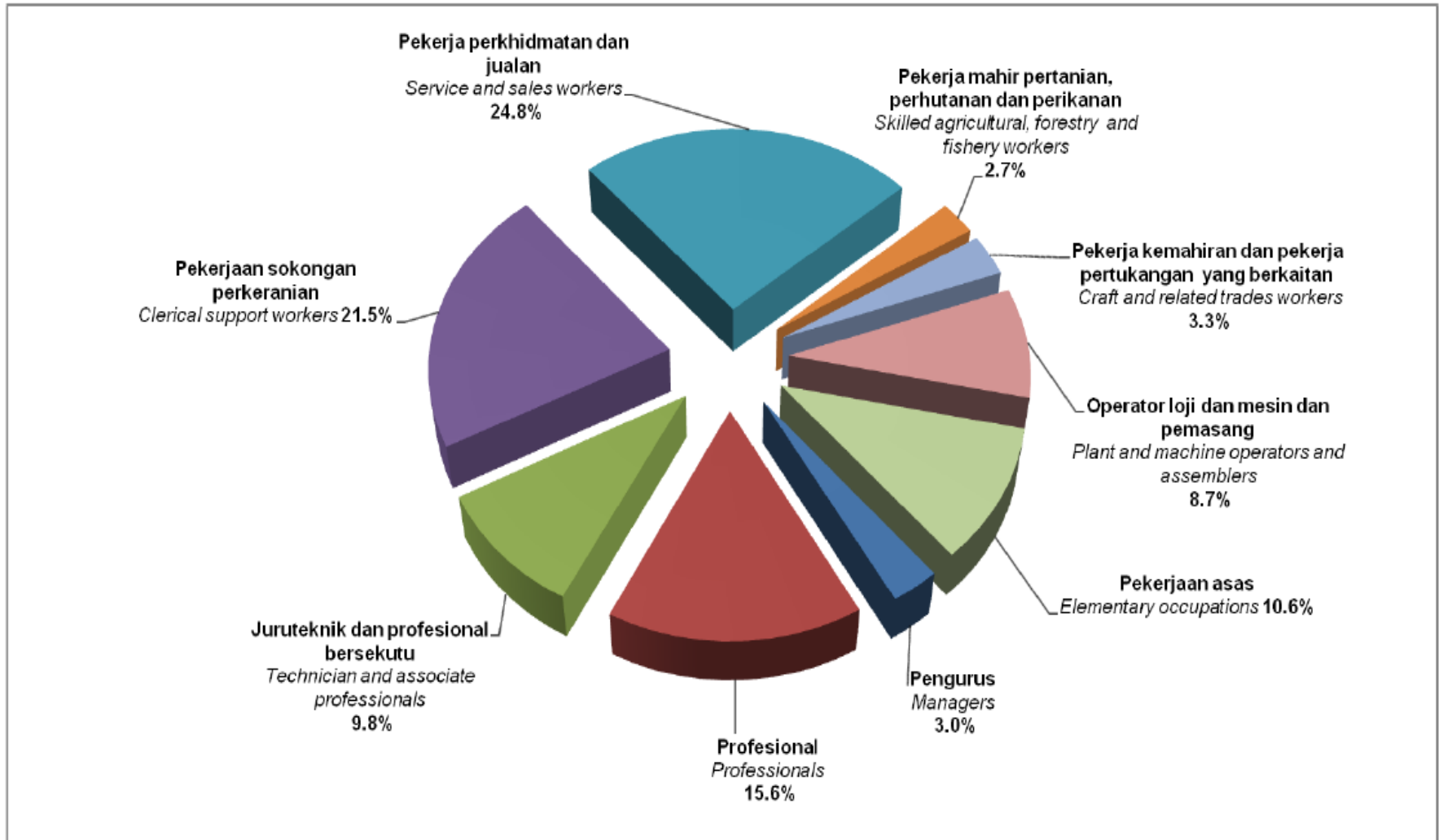
Carta : Men (Youth) Employment Distribution by Occupation, 2011



Sumber: Penyiasatan Tenaga Buruh, Jabatan Perangkaan Malaysia

Source: Labour Force Survey, Department of Statistics Malaysia

CHART : WOMEN EMPLOMENT DISTRIBUTION BY OCCUPATION, 2011

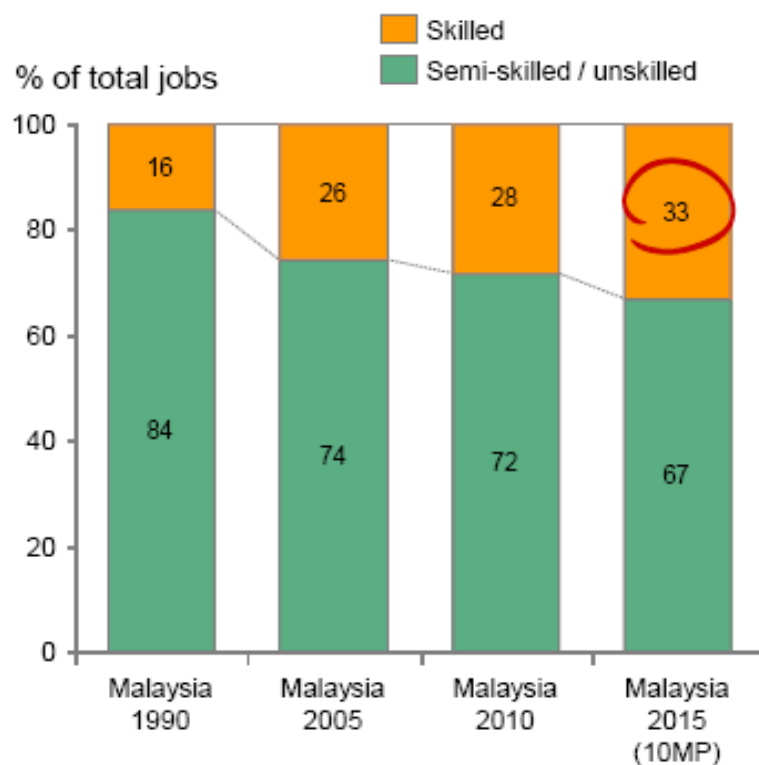


Sumber: Penyiasatan Tenaga Buruh, Jabatan Perangkaan Malaysia

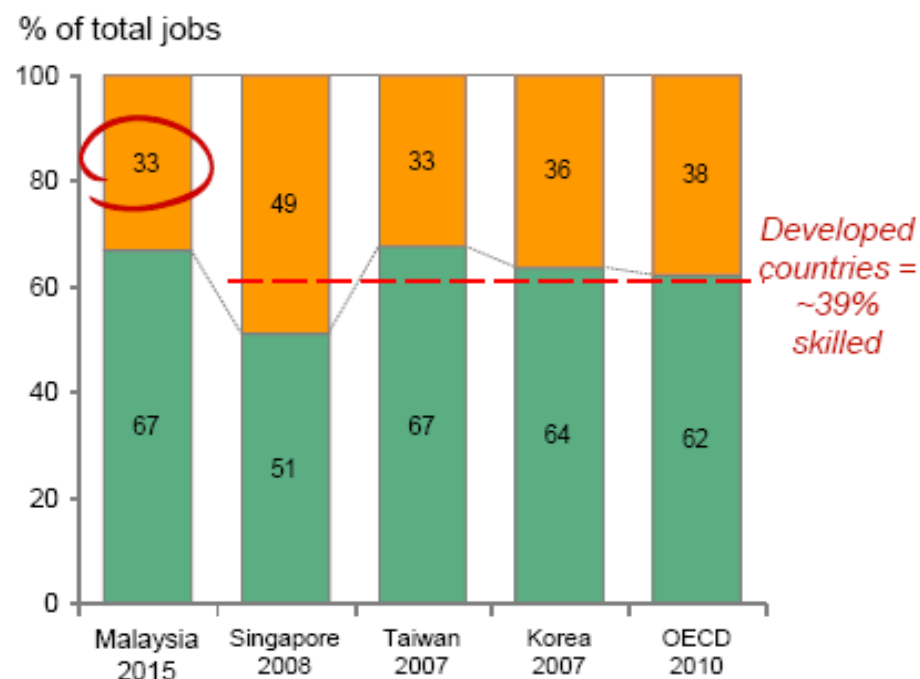
Source: Labour Force Survey, Department of Statistics Malaysia

By 2015, we expect share of skilled positions to increase to 33% of total jobs, approaching developed countries' proportion

Skilled positions to increase to 33% of total jobs from current 28%...

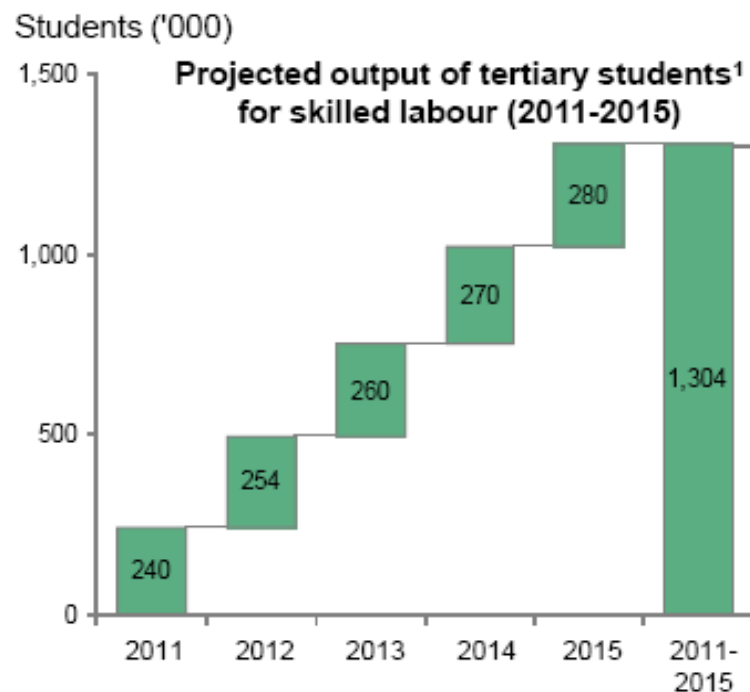


...to approach developed countries' proportion of skilled labour

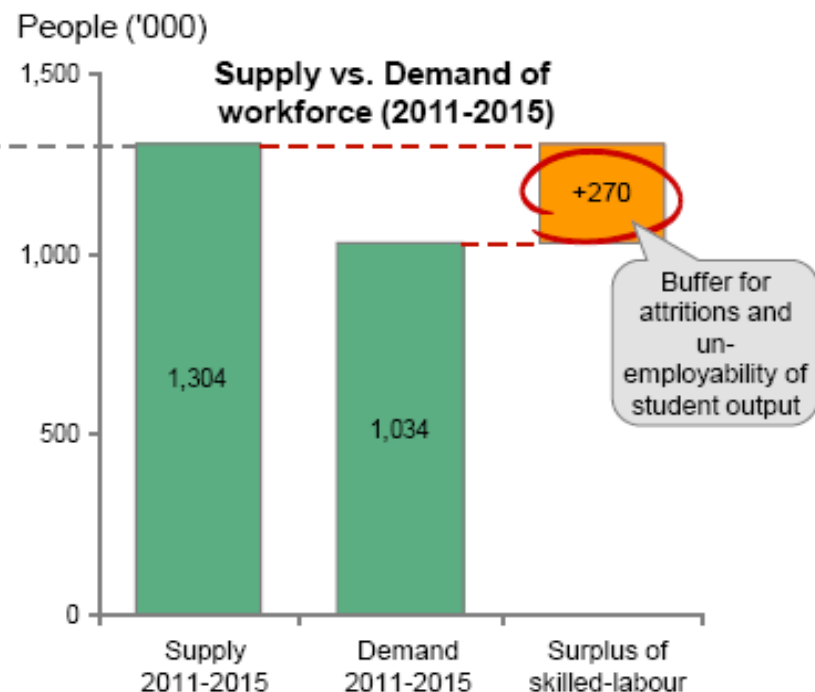


There will be ~1.3Mn graduates coming on-stream over 2011-15, which is sufficient to meet the expected demand

~1.3Mn tertiary student output expected between 2011-2015...



... to meet ~1Mn skilled² labour demand; with surplus of 270k skilled labour



Although skilled² labour demand in quantity is met, quality of workforce is still an issue

1. Include IPTA, IPG, Politeknik, TEVT Awam, Kolej Komuniti, NATC, IPTS, and Malaysian overseas students (assuming all come back)

2. Senior officials & Managers, Professionals, Technicians & Associate professionals

Source: EPU, DoS, MOE

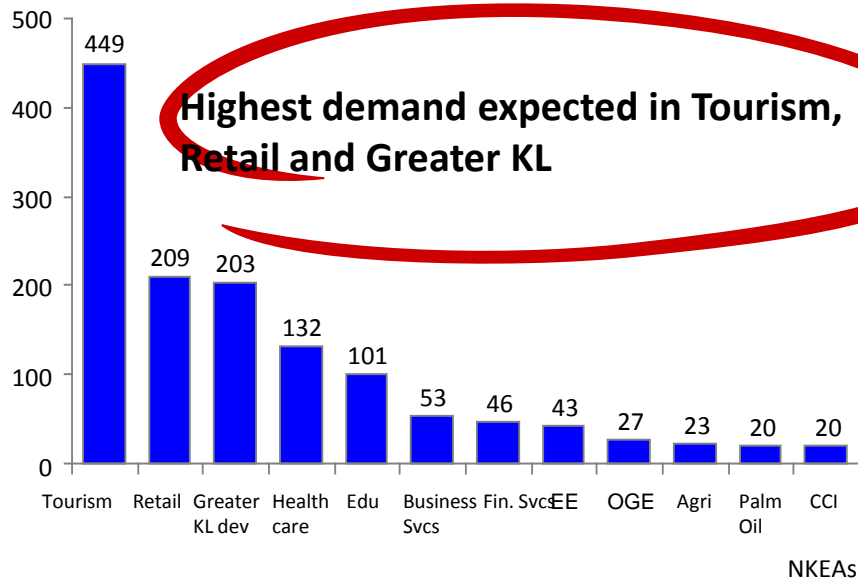
This up-skilling of jobs is a continuation of historical trajectory: from 24% of total jobs in 2001 to 28% in 2009



Our national economic growth demands an increasingly higher number of TEVT graduates going forward

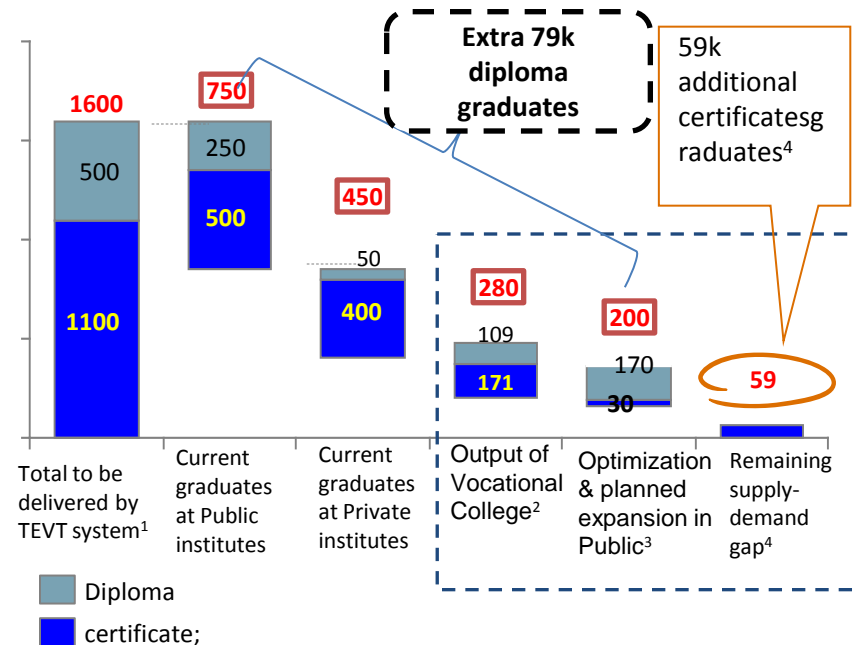
Economic growth demands additional ~1.3Mn quality TEVT workers

Workers by 2020(in '000)



High level estimate of increased capacity of TEVT institutes required

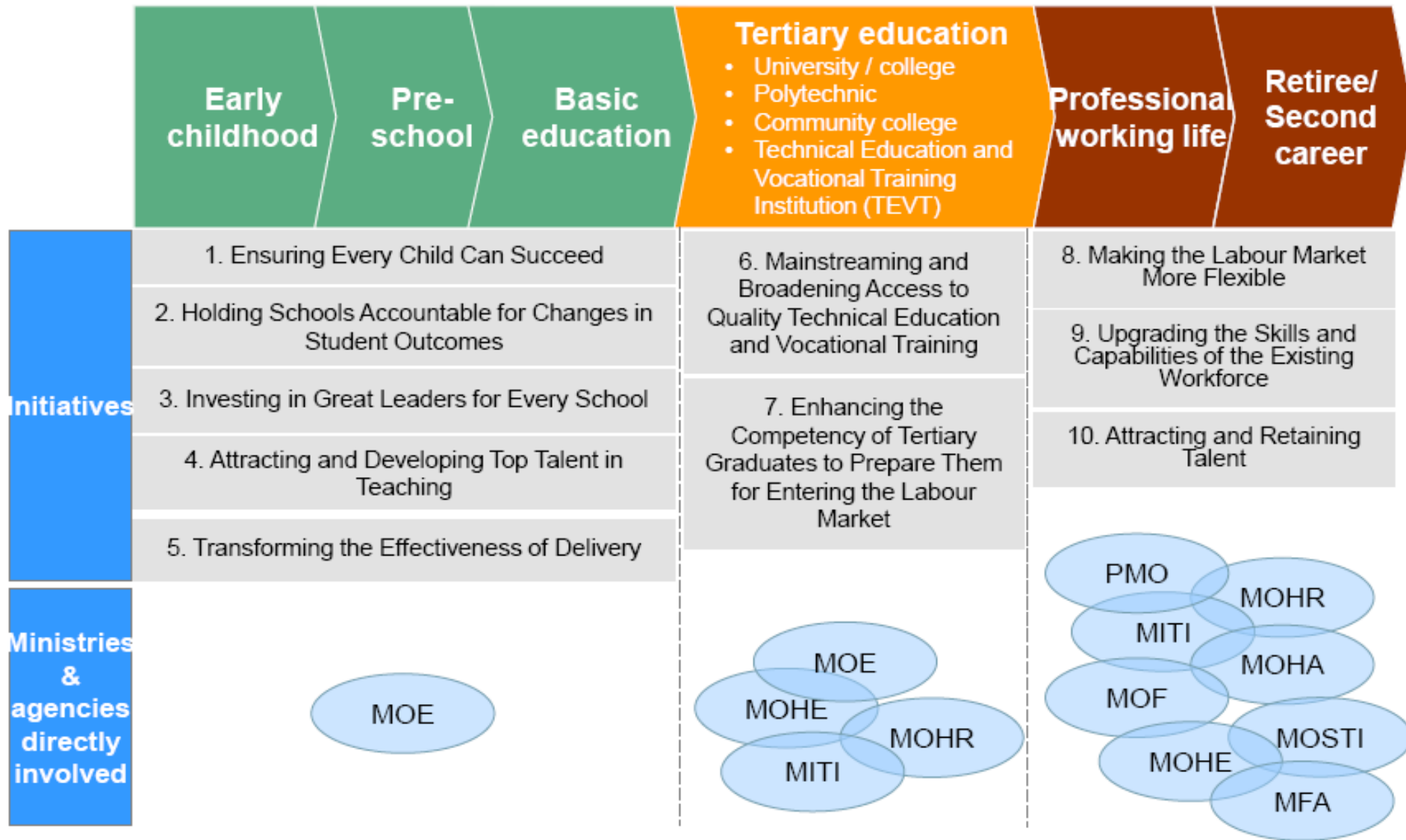
Required graduates by 2020 (in '000)



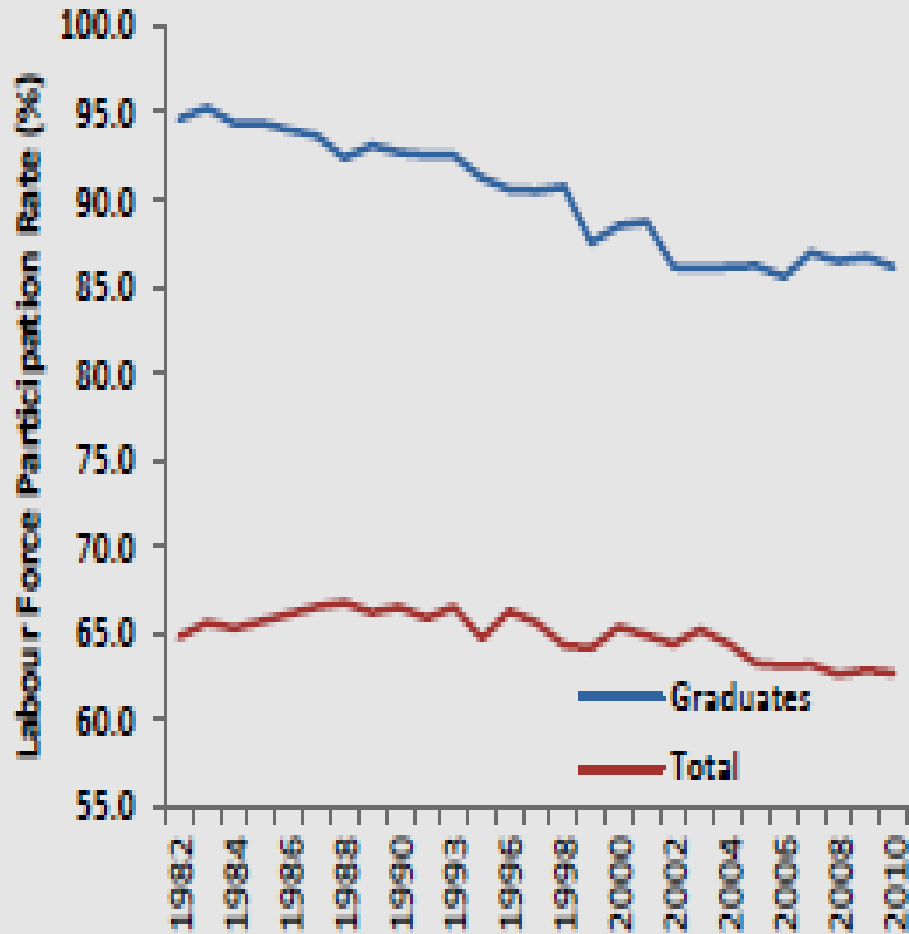
Assumptions:

1. Total to be delivered by TEVT system: graduates required for NKEA (1,330), with 15 to 20% moving to further education + graduates to be delivered for non NKEA sectors based on 2010 data (350,000) and excluding 350,000 diplomas to be produced by universities (public, private and KTAR. – source MOHE).
 2. Output from Vocational Colleges, Ministry of Education (5% from student enrolment).
 3. Optimization: additional capacity and redeployment to diplomas at Polytechnics (target: 356,000 diplomas by 2020), planned new institutes at MOHR and MOYS and hypothesis of potential optimization of utilization rate to 100% vs. 80-90% on average today (excl. Polytechnics).
 - 4 Total graduates per year: 25 to 30K, or 50K capacity seats based on average of 2 enrolment years per graduate.
- Source: Data request from TEVT agencies, Tracer Studies at MOHR, MOYS and Polytechnics, NKEA forecasts, BCG analysis

However, seamless co-ordination and implementation required for success, especially for complex downstream initiatives

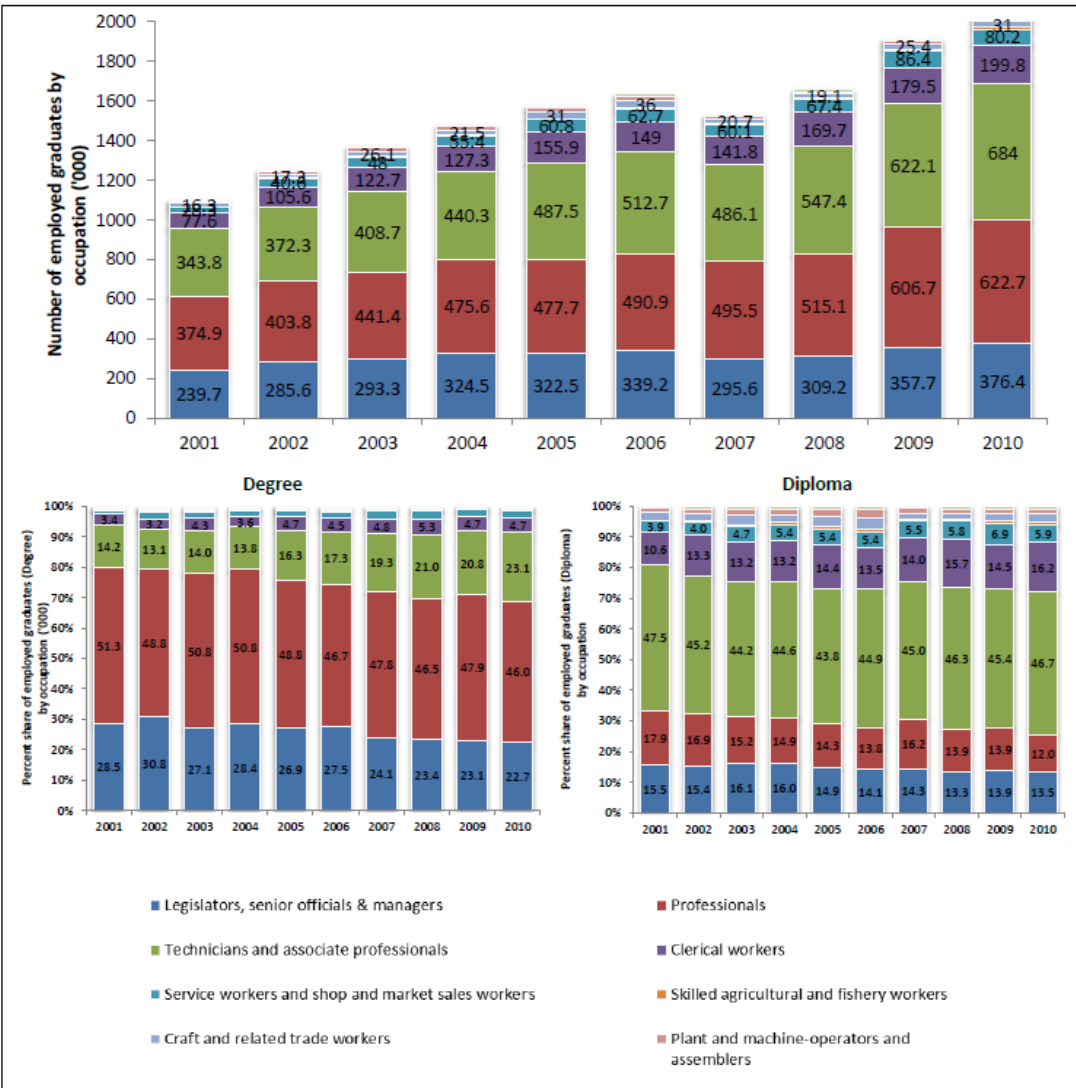


Graduate Employment



- about 90% of graduate are in the labour force
- although no. of graduates had increased, their participation rate have been declining:
 - 94.6% (1982)
 - 86.1% (2010)

Figure 3.17: Employed Graduates by Highest Certificate Obtained and Occupation, Malaysia, 2001–2010



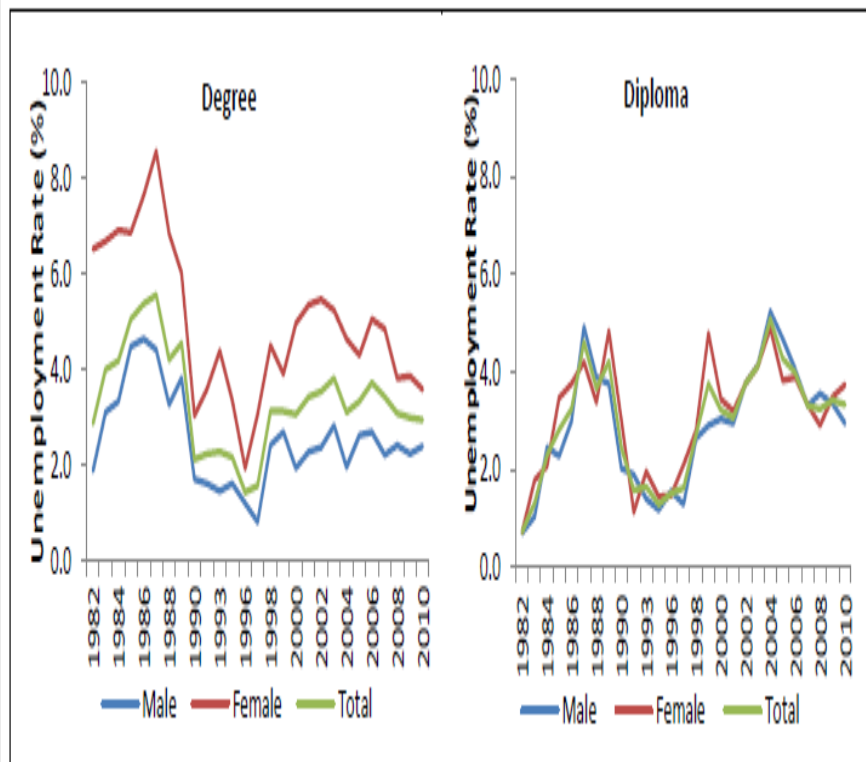
Source: Statistics Department Malaysia, Labour Force Survey, 2001-2010

• graduates are mainly employed in top four categories of occupational structures:

- degree holders are largely professional, senior officials and managers; and
- diploma holders are mainly technician and associated professionals.

graduates unemployment

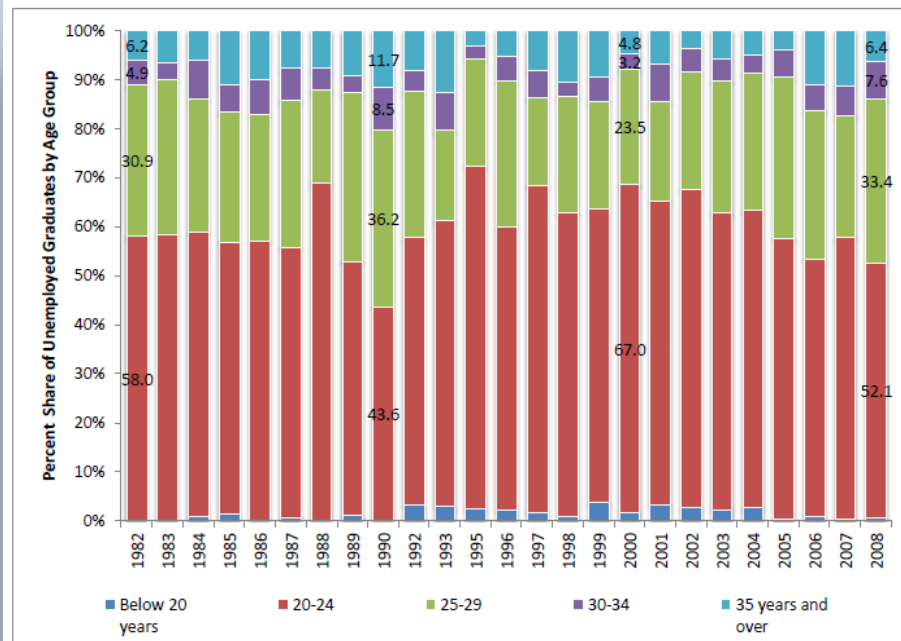
Figure 3.18: Unemployed Graduates by Highest Certificate Obtained and Sex, Malaysia, 1982–2010



Source: Statistics Department Malaysia, Statistics of Graduates in the Labour Force Malaysia, 2011

- higher unemployment among female graduates than male graduates (mainly among degree holders).

Figure 3.19: Percentage Distribution of Unemployed Graduates by Age Group, Malaysia, 1982–2010

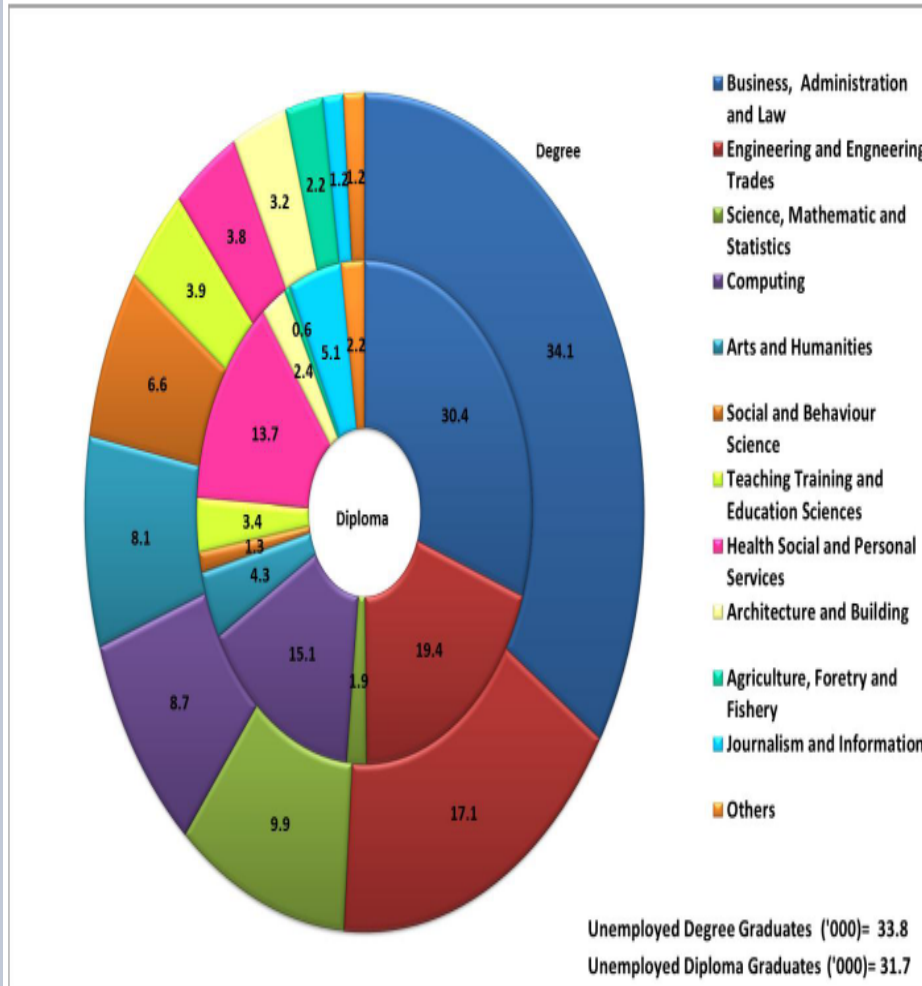


Source: Statistics Department Malaysia, Statistics of Graduates in the Labour Force Malaysia, 2011

- fresh graduates have most difficulty in securing employment.
- about 50% of unemployed graduates are in the 20-25 year age group.

graduates unemployment

Figure 3.20: Percentage Distribution of Unemployed Graduates by Highest Certificate Obtained and Selected Field of Study, Malaysia, 2010



Source: Statistics Department Malaysia, Labour Force Survey, 2010

- unemployment graduate (degree holders):

- business and administration (34%)
- engineering/engineering trades (17%)
- sciences, maths and statistics (10%)

- unemployment graduate (diploma holders):

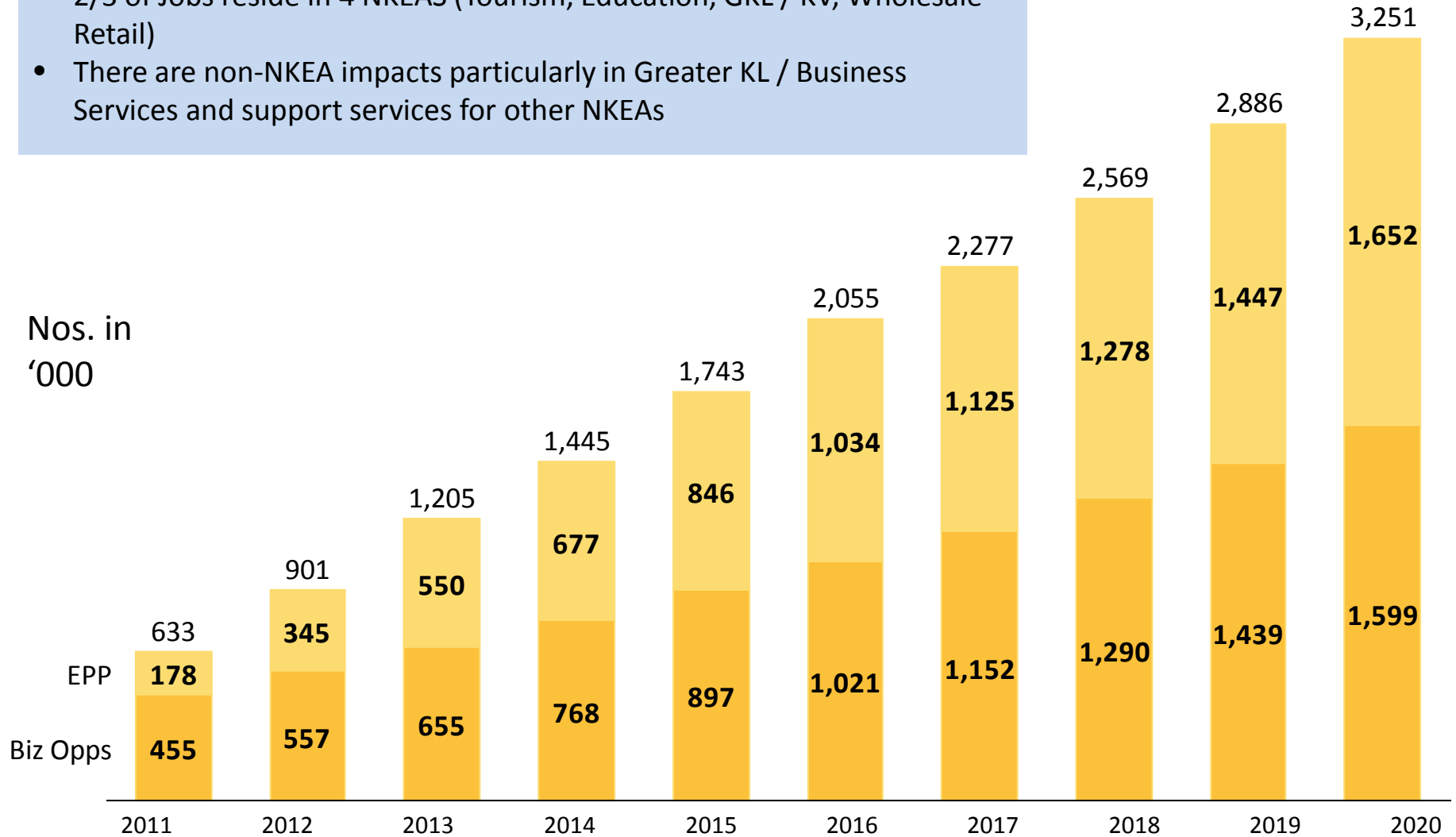
- business and administration (30%)
- engineering/engineering trades (19%)
- computing/computer science (15%)

FUTURE DEMAND

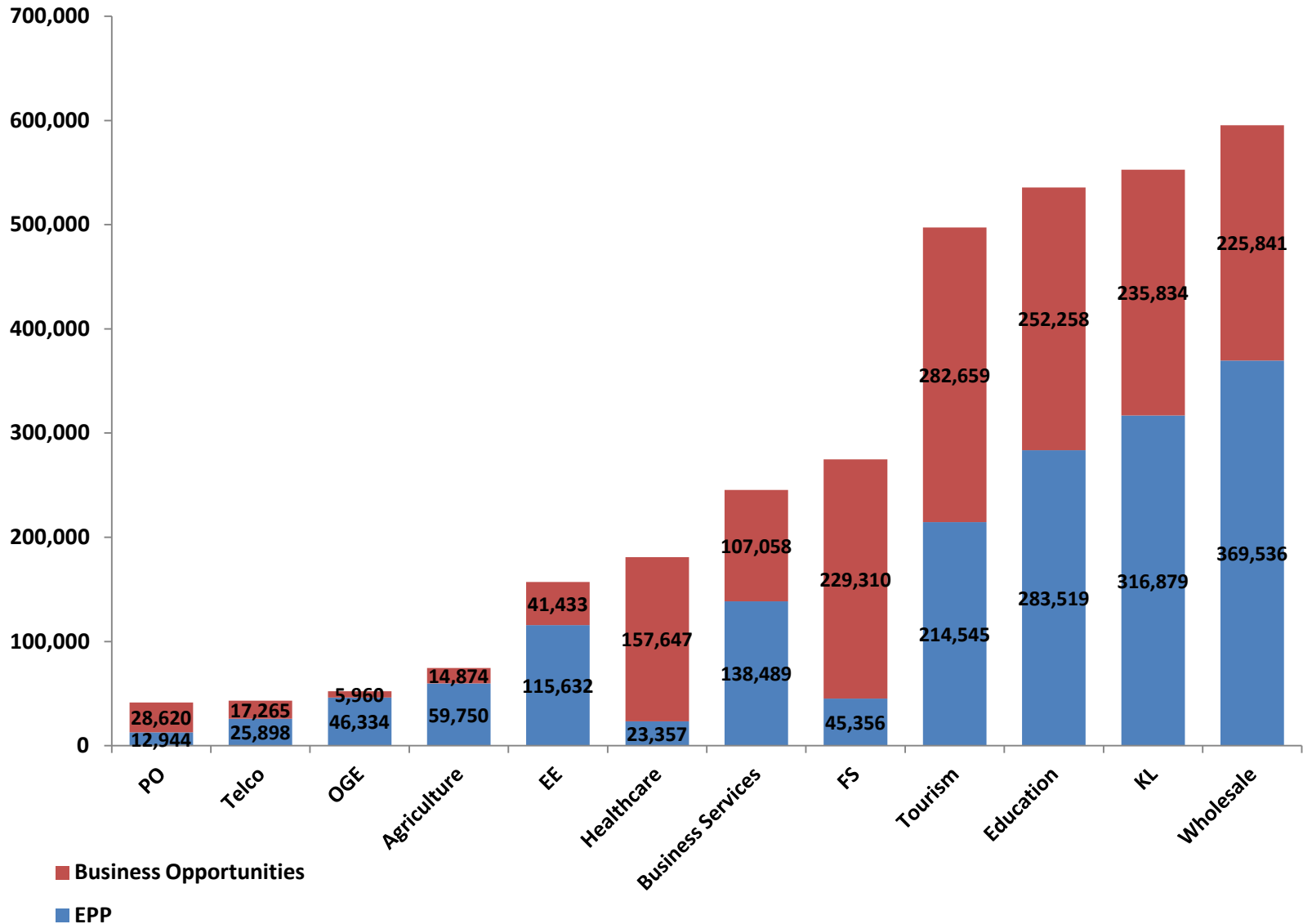


Demand → 3.3 million jobs created from the ETP by 2020

- 49% of jobs are Business Opportunities
- 2/3 of Jobs reside in 4 NKEAS (Tourism, Education, GKL / KV, Wholesale Retail)
- There are non-NKEA impacts particularly in Greater KL / Business Services and support services for other NKEAs



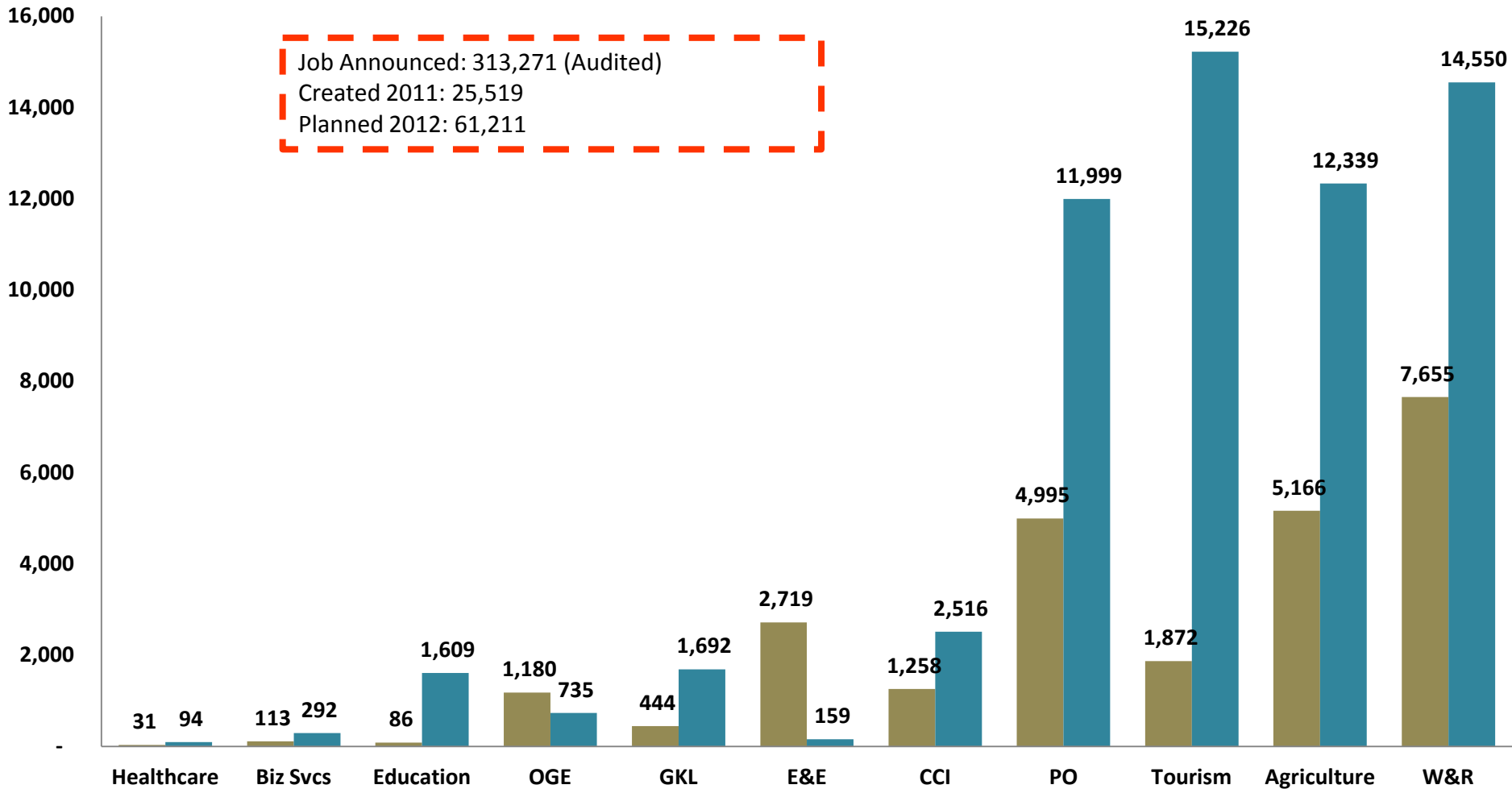
3.3 million jobs – by NKEA (EPPs and BOs)



NKEA Job Creation for year 2011 & 2012 (Announced Projects)

■ 2011 ■ Planned 2012

Job Announced: 313,271 (Audited)
Created 2011: 25,519
Planned 2012: 61,211

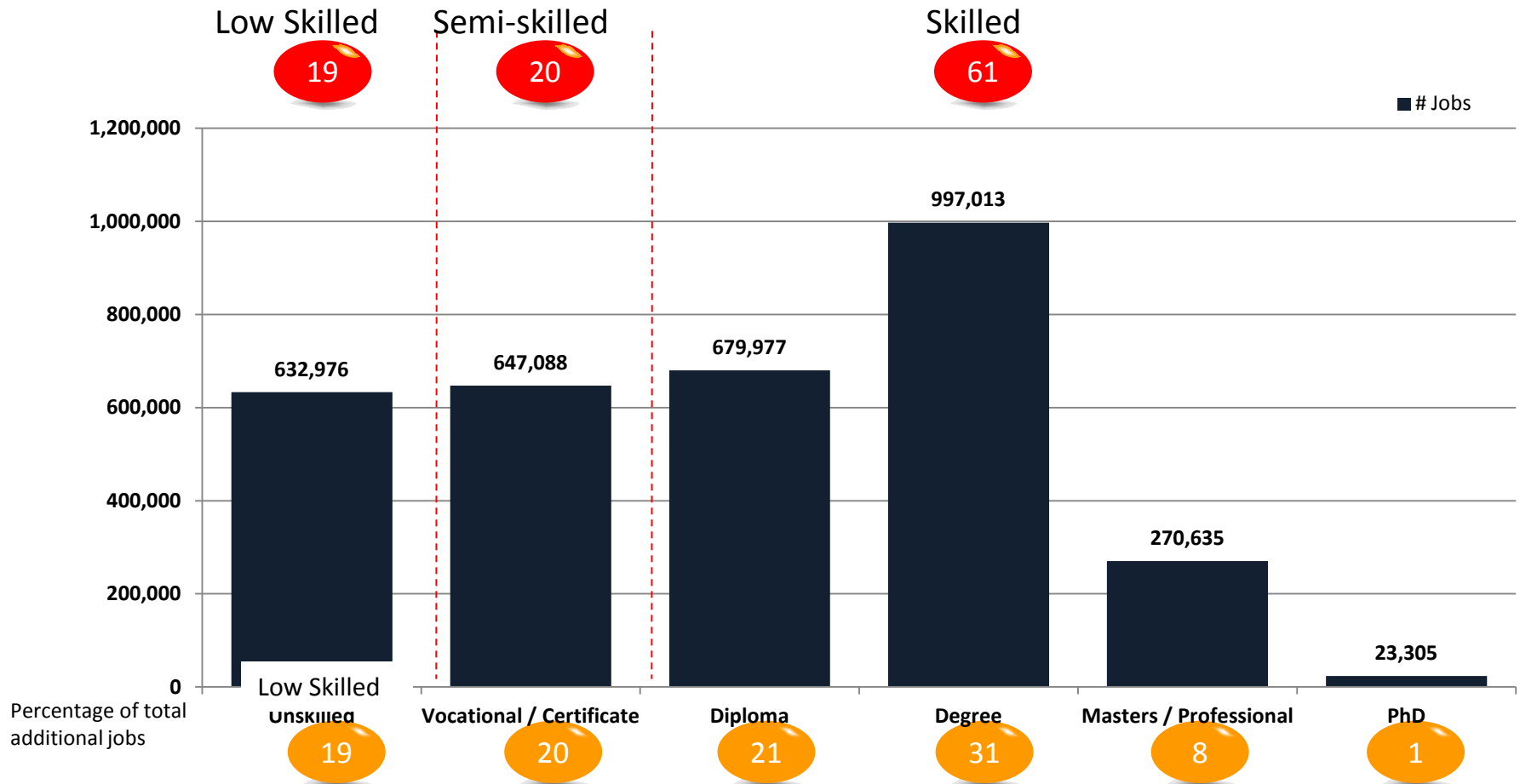


61% of jobs are skilled, 20% semi skilled and 19% are unskilled

2020 Additional Labour Requirements by Education Level
Million



3.3 million additional jobs



Current Supply Pipeline

TAHAP PENGAJIAN <i>Education Level</i>		TAHUN				
		2011	2012	2013	2014	2015
1	DIPLOMA DAN KE ATAS / DIPLOMA AND ABOVE					
	IPTA/ILKA	131,771	140,279	147,946	158,250	165,206
	<i>Universiti</i>	103,450	106,936	110,197	113,721	116,956
	<i>Politeknik</i>	23,859	26,550	28,090	34,200	37,021
	<i>Kolej Komuniti</i>	450	450	450	450	450
	<i>IKM/KKTM</i>	1,041	1,287	3,112	3,112	3,112
	<i>Kolej Profesional MARA</i>	1,138	1,167	1,109	1,350	1,389
	<i>ILP</i>	115	166	183	201	221
	<i>ADTEC</i>	596	1,211	1,833	2,063	2,711
	<i>JMTI</i>	127	316	416	750	825
	<i>CIAST</i>	16	15	59	73	135
	<i>IKBTN/IKTBN</i>	412	371	556	887	975
	<i>KEMENT. PERTANIAN (NATC)</i>	66	125	155	165	210
	<i>Inst. Perguruan M'sia</i>	501	1,685	1,786	1,278	1,201
	IPTS	69,645	73,087	76,707	80,515	84,520
	Total output of diploma and above	201,416	213,366	224,653	238,765	249,726
2	SIJIL / CERTIFICATES					
	IPTA/ILKA	49,274	61,657	61,063	61,807	63,134
	<i>Universiti</i>	420	505	590	675	755
	<i>Politeknik</i>	9,451	3,500	100	0	0
	<i>Kolej Komuniti</i>	18,680	21,210	22,080	22,080	22,080
	<i>IKM/KKTM</i>	4,423	6,386	6,386	6,386	6,486
	<i>GIATMARA</i>	7,254	17,478	17,946	17,946	17,946
	<i>ILP</i>	2,199	5,926	6,533	6,580	6,632
	<i>CIAST</i>	287	644	673	660	660
	<i>IKBTN/IKTBN</i>	3,997	4,397	6,595	7,255	7,980
	<i>KEMENT. PERTANIAN (NATC)</i>	733	716	750	900	1,350
	<i>Inst. Latihan KEMAS</i>	2,250	1,400	0	0	0
	IPTS	21,759	23,065	24,449	25,916	27,471
	Total output of certificates	71,033	84,722	85,512	87,723	90,605
	JUMLAH KESELURUHAN / Total	272,449	298,088	310,165	326,488	340,331

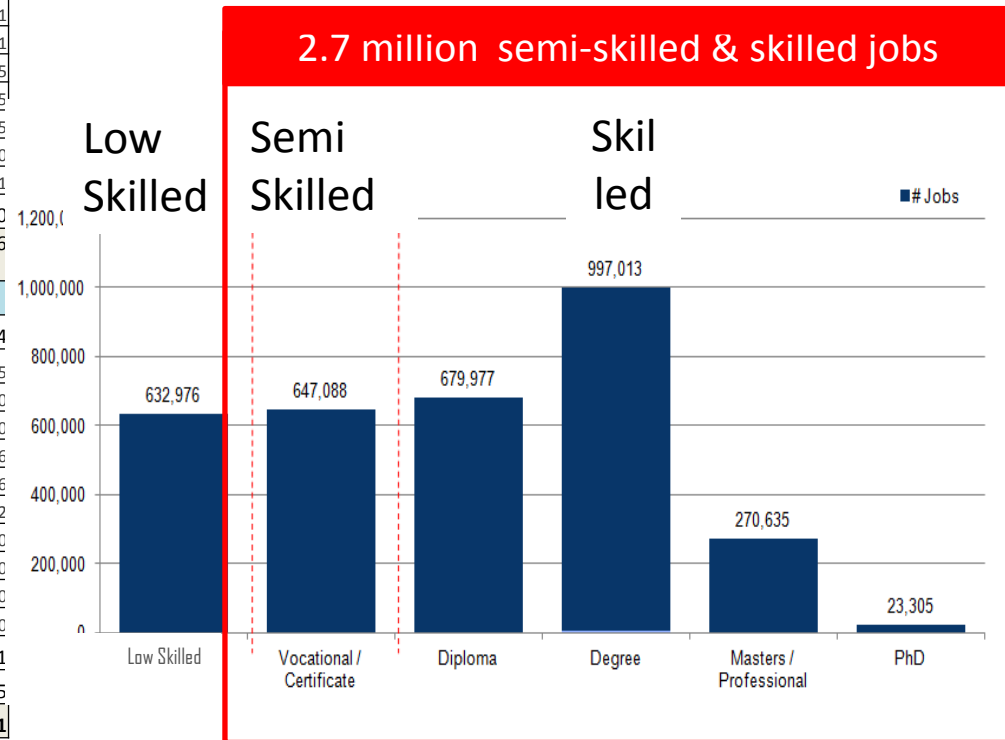
Current Supply Pipeline

Estimate 300,000 *local graduates every year* Translating to additional workforce of 3 million by 2020



0.3 mil gap to be addressed through a series of other initiatives

TAHAP PENGAJIAN	TAHUN				
	2011	2012	2013	2014	2015
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Addressing the Jobs and Skills Gap

Focus urgently to address quality (trainers, curriculum, assessment, facilities upgrades, research, industry linkages)

Rather than investing in infrastructure to increase quantity

QUANTITY

- Improve women's labour participation rate:
 - Upskill/reskill women to re-enter workforce
 - Encourage flexible work arrangement
- Increase retirement age (Minimum Retirement Age bill)
- Attract Malaysian Diaspora back

QUALITY

- Improve matching of supply and demand
 - Competencies & skills between supply (institutional providers) and demand (strategic growth, trends and industries requirements)
- Up-skill current unskilled, low and semi-skilled workforce
- Increase quality of Instructors, lecturers, curriculum and assessment
- Increase research and facilities upgrades

TRAINING SCHEMES

To continuously retrain and upgrade the skills, knowledge and capabilities of the workforce

- Skim Bantuan Latihan (SBL)
- SBL-Khas
- PROLUS
- PERLA
- SMETAP
- Annual Training Plan
- SME On-The-Job Training
- Retrenched Workers Training
- Purchase of Training Equipment and Setting-Up of Training Room

To increase the supply of skilled workers

- Apprenticeship Scheme
- Industrial Training Scheme
- Future Workers Training Scheme
- Recognition of Prior Learning

To equip workers with ICT skills

- Computer-Based Training Scheme
- Information Technology and Computer-Aided Training Scheme



Thank You!

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