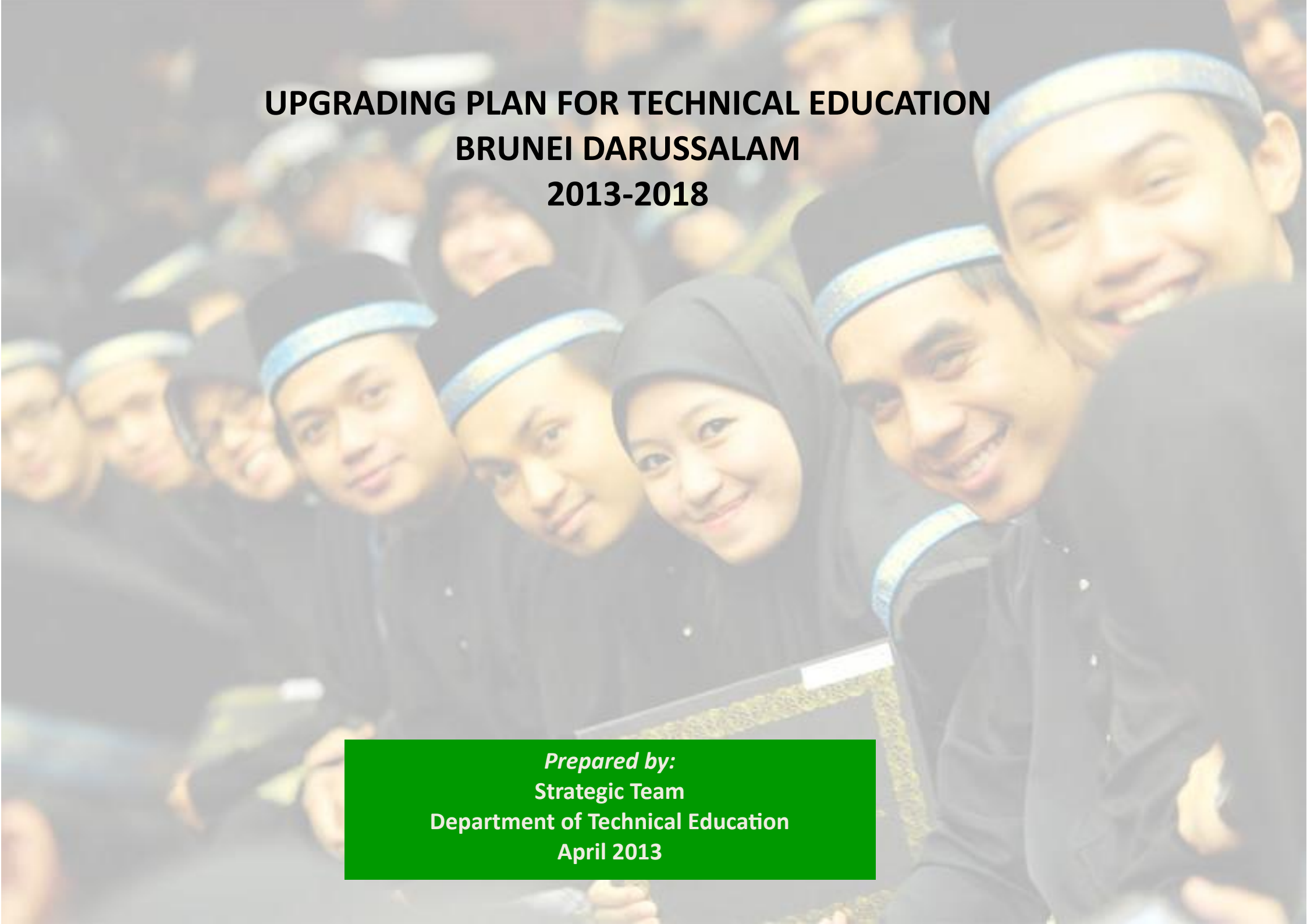
UPGRADING PLAN FOR TECHNICAL EDUCATION
BRUNEI DARUSSALAM
2013 -2018







UPGRADING PLAN FOR TECHNICAL EDUCATION BRUNEI DARUSSALAM 2013-2018

Prepared by:
Strategic Team
Department of Technical Education

April 2013

“Sesungguhnya Allah tidak mengubah apa yang ada pada sesuatu kaum sehingga mereka mengubah apa yang ada pada diri mereka sendiri.”

Surah Ar-Ra’d, ayat 11

“...In this regard, it is also appropriate for the Ministry of Education to re-assess the position of technical and vocational education to ensure that this education can contribute to the requirements of industries and employment for locals...”

Translation of excerpt from His Majesty’s Titah

in conjunction to the New Year 2013

CONTENTS

LIST OF ABBREVIATIONS

ATAC	Apprenticeship Training Advisory Committee
AOB	Annual Operating Budget
BEDB	Brunei Economic Development Board
BDTVEC	Brunei Darussalam Technical and Vocational Education Council
BOG	Board of Governors
BTE	Brunei Technical Education
BTEC	Business Technician Education Council
CBT	Competency-Based Training
CET	Continuing Education and Training
CPA	Curriculum, Pedagogy and Assessment
DACUM	Developing A Curriculum
DSA	Dual System Apprenticeship
DTE	Department of Technical Education
EOM	Expenditure of Manpower
GPA	Grade Point Average
HNTec	Higher National Technical Certificate
IBT	Institution-Based-Training
IRK	Islamic Religious Knowledge
JPKE	Department of Economic Planning and Development
MIB	Melayu Islam Beraja
MoE	Ministry of Education
NTC	National Trade Certificate
NTec	National Technical Certificate
OJT	On-The-Job Training
OOE	Other Operating Expenses
PB	Performance-based Bonus
PMB	Penilaian Menengah Bawah
RPL	Recognition Prior Learning
RTO	Registered Training Organisation
SC	Skill Certificate
SPN21	The 21st century National Education System (Sistem Pendidikan Negara Abad ke-21)
TVET	Technical and Vocational Education & Training
VTI	Vocational and Technical Institution

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EXECUTIVE SUMMARY

Today's globalised and highly competitive environment calls for a productive workforce that is skilful, efficient (doing things right), effective (doing right things) and innovative. This is imperative for any nation that seeks to build a knowledge-based economy via highly competent, well-educated human resource capital. According to a report by APEC Economic Committee (November 2000), *"...in a knowledge based economy, there is a high proportion of people who have completed secondary education (to exit, 'year 12' level), who have post-secondary qualifications, and (most characteristically) who are engaged in continuing education".* Technical and Vocational Education and Training (TVET) which is increasingly considered as part of mainstream education, creates important pathways towards enhancing competencies for honing employability skills necessary for creating a highly successful economy.

Although TVET is seen instrumental in sustaining development, Brunei Darussalam's TVET has been left to its periphery and its significance has not really been recognised. A transformation plan is crucial and should be seriously and urgently considered to ensure that labour market priorities are identified along with the initiative to rebrand the vocational and technical institutions (VTIs) as equally preferable institutions for post-secondary education in the country.

Policy makers, administrators and educators in various fields of TVET have all agreed that TVET plays an important role in the economic and social development of a nation. To become more effective in managing its human resources and develop an integrated approach to skills development, there is a need to re-think the current position of TVET system in Brunei Darussalam.

There is also the need for skills development in Brunei Darussalam to meet the requirement of the industry and community at large - it needs to be more relevant and responsive to these demands, and be flexible. Flexibility in terms of VTIs means they have the incentives, resources and capacity to understand, identify and respond to these demands. The education and training system must keep abreast with the changing demands from the industry and the community in order to be efficient.

The aim and objectives of the TVET strategy should be to create a TVET system that is effective, efficient, relevant, flexible, accessible, affordable, accountable, and sustainable and fulfils its general obligations towards the society. This is in order to ensure that the TVET system fully contributes to national development with its "demand driven system". This is necessary since the demand for skills is difficult to predict as technology develops at an ever increasing rate and some skills accordingly become obsolete, and others, in more demand.

Plans of actions which are presented in this 5-year Strategic Plan (2013 –2018) required for the modernisation of TVET in Brunei falls under 6 broad themes: (i) course restructuring; (ii) expanding apprenticeship options; (iii) progression opportunities; (iv) upgrading the training environment; (v) scheme of service; and finally (vi) renaming DTE and vocational institutes. In conclusion, this report purposes to apply the proposals mentioned with a view to achieving the objectives, goals and way forward.

" ...It had become clear that we would not able to achieve the economic growth that we desired in line with our vision of Wawasan Brunei 2035. In view of this, we have no other choice but to work even harder and to continue to increase our productivity, be it in public, private or independent sectors. ..."

His Majesty's Titah,
Brunei Darussalam Tenth National Development Plan (2012-2017)

CHAPTER 1

CHAPTER 1

INTRODUCTION

Today's globalised and highly competitive environment calls for a workforce that is skillful, efficient and innovative. This is imperative for any nation that seeks to build a knowledge-based economy via highly competent, well-educated human resource capital. TVET nowadays which is increasingly considered as part of mainstream education creates important pathways towards enhancing competencies for honing employability skills necessary for creating a highly successful economy. It is seen as an agent for development in many parts of the world especially in countries that desire to develop its population into skilled workforce to take advantage of the globalization era, and Brunei Darussalam is no exception.

SPN21 AND VISION 2035

One of the strategies in SPN21 initiated by TVET in the country is to equip students with the skills and knowledge considered useful and necessary to render them the abilities to compete successfully at local and international levels. SPN21 aims to produce citizens who are committed and able to contribute to the future growth, prosperity and stability of Brunei Darussalam (MOE Strategic Plan, 2012). TVET plays a very important role to improve student success rates and enhance their marketability upon their entry into the job market. By helping individuals to gain access to TVET, it can impact positively on the country's economic development, achieving full employment and promoting social inclusion. A well-structured TVET system will enable productivity, enhance competitiveness and promote entrepreneurial activities in preparing individuals for productive livelihoods.

The education strategy adopted in the SPN21 is derived from the eight (8) education policy directions of Brunei's Vision 2035 which stated *"by 2035, Brunei aspires to have an educated, highly skilled and accomplished people with dynamic and sustainable economy which will eventually lead to better quality of life"*. Human resource development has been one of the main thrust of the Brunei Vision 2035 in line with the goal and aspiration for stronger, stable, sustainable, integrated, balanced and diversified socio-economic environment. Hence, it is through education and training that the nation could achieve its desire to develop the human resource that the country will need in its endeavor to prosper.

CHAPTER 1

IMPORTANCE OF TVET

Policy makers, administrators and educators in the field of TVET have all agreed that TVET plays an important role in the economic and social development of a nation. Skills, knowledge and innovation are the three most important driving forces for economic growth and social development in any country. Citizens of those countries with higher levels of education and skills will be able to adjust more effectively to challenges and opportunities in the global economy which is frequently evolving.

TVET educates and prepares students for both employment and continuing academic and occupational training. It has the potential to enhance human capabilities and widen peoples' choices. The success of TVET in any developing country can be considered as a key indicator of the country's advancement in its development. Through TVET society has the means to develop its members' potentials to respond to the future challenges effectively.

In Dr Law's report (2012), he highlighted that *"…Aligning skills with economic development is one such fundamental principle. It is a necessary condition upon which skills development and economic growth mutually support and complement each other. A strong economy creates jobs and wealth for the people and nation. But sustaining economic growth requires a ready pool of relevant and well-trained manpower. With changing skills sets, new technologies and economic restructuring, it is even more important that educational and training systems are aligned with and responsive to the needs of an increasingly competitive global economy. This is especially crucial if Brunei is to diversify its skills base and compete in a global labour market."*

Nevertheless, the role of TVET in furnishing skills required to improve productivity, increase income and improve access to employment opportunities has been widely recognised. It was contended that since education is considered the key to effective development strategies, TVET must be the master key that can alleviate poverty, improve the quality of life for all and help achieve sustainable development.

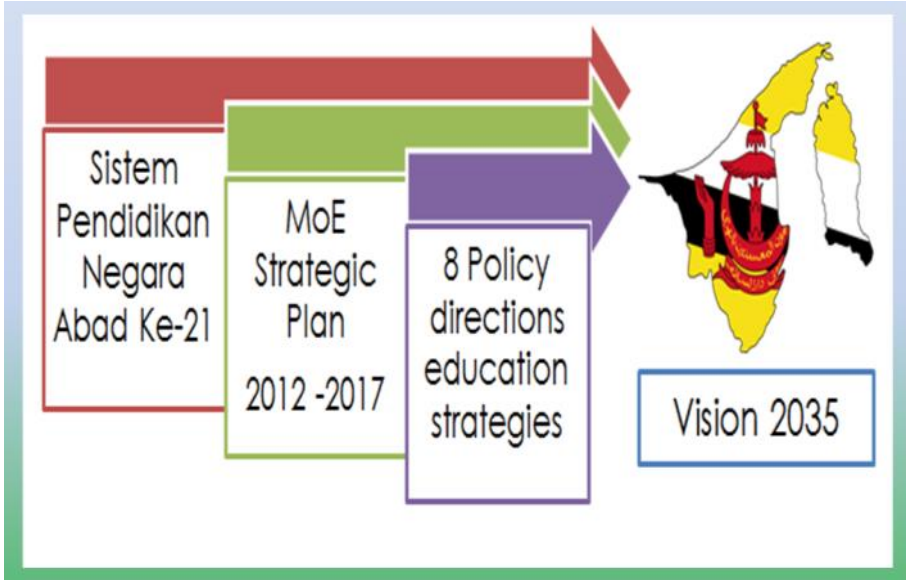

MAJLIS PENYAMPAIAN HADIAH DAN PENUTUP PERTANDINGAN
KEBANGSAAN "WORLDSKILLS BRUNEI DARUSSALAM"
KALI KE ENAM TAHUN 2012
TETAMU KEHORMAT
Yang Mulia Dato Seri Setia Awang Haji Yusoff bin Haji Ismail
Timbalan Menteri, Kementerian Pendidikan
worldskills
Brunei Darussalam
JABATAN PENDIDIKAN TEKNIK
KEMENTERIAN PENDIDIKAN
DTE
NATIONAL SKILLS COMPETITION
COOKING

CHAPTER 2

CHAPTER 2

REVIEW OF THE PRESENT DTE TRAINING SYSTEM

DTE under the Ministry of Education has the mandate to plan, coordinate and evaluate the implementation of TVET programmes in addressing socio-economic demands of Brunei Darussalam and; to support and promote the development of human resources through the provision of TVET services to students, government and the private sector.



The present training system under DTE is aligned with the SPN21 education system that is to recognize the need to prepare Brunei citizens as competitive individuals to meet the social and economic challenges of the 21st century. The introduction of the 3-tier qualification system is aimed to provide multiple pathways to higher education and create a more dynamic TVE system within the National Education System.

Various programmes are introduced to suit the capabilities of the students who have completed Year 10 or Year 11. The changes in curriculum and programmes help to produce graduates who are more skillful, knowledgeable and entrepreneurial. The students are given a suitable learning timeframe to equip them with in-depth knowledge and skills they require for work. The programmes offered comprised of two levels:

i) Skilled Worker: Skill Certificate (SC)

This training system consists of two levels namely Skill Certificate 2 (1 year) and Skill Certificate 3 (1 year). These Skill Certificate courses are specialised, skill-specific, more hands-on and aims for the job market . A suitable duration for industrial attachment is incorporated into the course.

ii) Technologist: Diploma

The training programme under the Diploma level is broad-based in nature and each includes 3 months industrial attachment.

CHAPTER 2

At present, there are 43 Diploma programmes, 21 Skill Certificate 3 programmes, 23 Skill Certificate 2 programmes and 3 Apprenticeship Training Schemes. These programmes require completion of GCE 'O' level as an entry requirement with pre-requisites for certain programmes. For Diploma programmes, the entry requirement is 4 GCE 'O' Level credit and for Skill Certificate 3 the entry requirement is 2 GCE 'O' level credits and 2 GCE 'O' level passes. Entrance for Skill Certificate 2 programmes requires 2 GCE 'O' level passes.

DTE MILESTONES

Since 1984, Technical and Vocational Education and Training (TVET) has gone through a number of significant milestones in its development. Amongst these milestones are:

i) The establishment of the Brunei Darussalam Technical and Vocational council (BDTVEC) in 1991 to take over the responsibility of awarding TVET qualifications. Prior to this, TVET awards were from the Business Technician Education Council (BTEC) and City & Guilds London;

ii) The establishment of the Department of Technical Education in 1993,

iii) The establishment of Jefri Bolkiah Engineering School in 1973 and upgrading it to Jefri Bolkiah Engineering College in 1987

iv) The establishment of Saiful Rijal Technical College in 1985 as a result of a merger between the Sekolah Bangunan Sultan Saiful Rijal (1970) and the Pusat Latehan Teknikal Brunei (1977).

v) The establishment of the Mechanical Training Centre on 24 February 1986,

vi) Commencement of TVET programmes in the Nakhoda Ragam Vocational School on 8 February 1993,

vii) Commencement of TVET programmes in the Sultan Bolkiah Vocational School in 1996,

viii) The Brunei Darussalam's membership in the World Skills Organisation on 10 May 2004 (38th member),

ix) The establishment of the Business School on 1 February 2005,

x) The establishment of the Wasan Vocational School in August 2005, offering agricultural programmes,

xi) Brunei Darussalam as host country for the 6th ASEAN Skills Competition in September 2006

CHAPTER 2

RATIONALE FOR CHANGE

The present TVET system which is under the DTE (a Government Department), is already out of phase and not likely able to respond to the needs in a modern and globally competitive society. Although TVET is seen instrumental in sustaining development, Brunei Darussalam's TVET has been left to its periphery and its significance has not really been recognised. Such challenges caused a general sense of frustration among the management in DTE and VTIs as it is difficult to get things moving under the present system of governance. The current system does not allow sufficient autonomy and flexibility to enable DTE and VTIs to respond speedily and effectively.

In addition, the existing TVET system is constrained by financial resources to upgrade and expand its training capacities. Much of the infrastructure, technology and facilities are outdated. Infrastructure such as computer labs, classrooms, lecture rooms, student centres, libraries, books, IT facilities is also inadequate to cater to the instructors' and students' teaching and learning needs. Many blamed the critical shortage of training capacity to the slowness in getting projects approved and the lack of resources available.

There is also the need for skills development in Brunei Darussalam to meet the requirement of the industry and community at large - it needs to be more relevant and responsive to these demands, and be flexible. Flexibility in terms of VTIs means they have the incentives, resources and capacity to understand, identify and respond to these demands. The education and training system must keep abreast with the changing demands from the industry and the community in order to be efficient.

For DTE to become more effective in managing its human resources and develop an integrated approach to skills development there is a need to re-think the current position of TVET system in Brunei Darussalam. A transformation plan is crucial and should be seriously and urgently considered with the intention of ensuring that labour market priorities are identified along with initiative for rebranding DTE as an equally preferable institution for post-secondary education in the country. The new TVET system is expected to stay relevant so that in the long run, the system can help to overcome the many challenges that DTE and its VTIs are presently facing and bring about a change in mindset about vocational training in the society.

CHAPTER 3

CHAPTER 3

PROPOSED CHANGES TO TRANSFORM DTE SYSTEM

3.1 PROPOSED CHANGES

The plan of actions which are presented in this 5-year Strategic Plan (2013-2018) required for the modernisation of TVET in Brunei Darussalam falls under the following 6 broad themes:

i) Course restructuring;

ii) Expanding apprenticeship options;

iii) Progression opportunities;

iv) Upgrading the training environment;

v) Scheme of service; and

vi) Renaming DTE and vocational institutes.

The next sections will describe the detailed proposed changes.

3.1.1 COURSE RESTRUCTURING

The reviewing committee has studied reports and findings as rationales towards the course restructuring aspects. The key rationales include:

- Although these 7 colleges provide some 20 fields of studies for Brunei's secondary school leavers, only a small number of training places are for the Oil & Gas field of study.

- Although DTE had sought inputs from industry in developing its curriculum, the actual curriculum was largely developed by its training staff who lacked industrial experience. As a result, the training curriculum does not cover the critical and the necessary skills to produce skilled graduates for the Oil & Gas industry. DTE graduates generally have to undergo another 6 to 12 months of in-house training before they could start on real work.

- My contention is that the mission of DTE is to prepare school leavers with knowledge, skills and values which will enable them to seek employment as “Technicians” and “Skilled Personnel” for the economy. The level of demarcation will be clearer if DTE only focuses on practical “hands-on” Skill Certificate courses. (Dr. Law S.S, para 31, 2012)

- “Certificate” level courses for DTE should be competency-based. The duration of courses can be one or two years depending on the nature of skills and needs of industry. (Dr. Law S.S, para 32, 2012)

- These first-level “Certificate” courses will essentially replace the proposed SC 2 and SC 3. They will train the “Skilled personnel” for the economy. At the second higher level, a “Higher Certificate” practical course can replace the “Diploma” course currently proposed for DTE. (Dr. Law S.S, para 32, 2012)

- Without reliable projections on skilled manpower needs at the national level, the courses offered by DTE could not have been aligned with economic needs. (Dr. Law S.S, para 38, 2012)

- There should no longer be the need to provide remedial or additional general education (eg Mathematics or Science) in DTE. (Dr. Law S.S, para 40, 2012)

The current entry requirements for the SPN21 3-Tier Qualification System are too stringent causing the inability to capture the individual needs of school leavers. As a result, many applicants are not qualified to continue their post-secondary education in the TVET sector. It has to be the mission of DTE to provide a place to every post-secondary student who wants to pursue this pathway of education.

“Good management is the art of making problems so interesting and their solutions so constructive that everyone wants to get to work and deal with them"

Paul Hawken, Natural Capitalism

Figure 1 shows the trends for the past 5 years on the number of applicants, qualified applicants and number of enrollees in DTE institutions. In 2009, there was a drop in the number of applicants due to the abolition of PMB (Peperiksaan Menengah Bawah) i.e. Lower Secondary Examination. This marked the beginning of the phasing out of the National Trade Certificates (NTC 3 & NTC 2) programmes which previously catered to the PMB graduates. Years 2011 and 2012 also showed a decline in applicants due to the introduction of the JPKE sponsorship (Planning & Economic Development Department) for applicants, on "soft-skills" e.g. business and ICT courses in local private institutions. The main concern over the past 5 years is that DTE institutions are incapable of accommodating all the qualified applicants shown.

	2008	2009	2010	2011	2012
Applicants	4856	4214	4390	4175	2566
Qualified	3286	2777	2989	2537	2058
Enrolled	1373	1316	1551	1584	2005
Rejected	1913	1461	1438	953	53

Figure 1: Past 5 years on the number of applicants, qualified applicants and number of enrollees in DTE institutions

CHAPTER 3

With the different levels of applicants' academic achievements and the needs of industry as one of the driving forces for transformation, the new Brunei Technical Education (BTE) will restructure the course contents towards skills development to support the socio-economic development of the country.

The reviewing committee agrees that the new BTE will conduct two levels of programme to be named as **NTec** (National Technical Education Certificate) and **HNTec** (Higher National Technical Education Certificate) as illustrated in **Figure 2.**

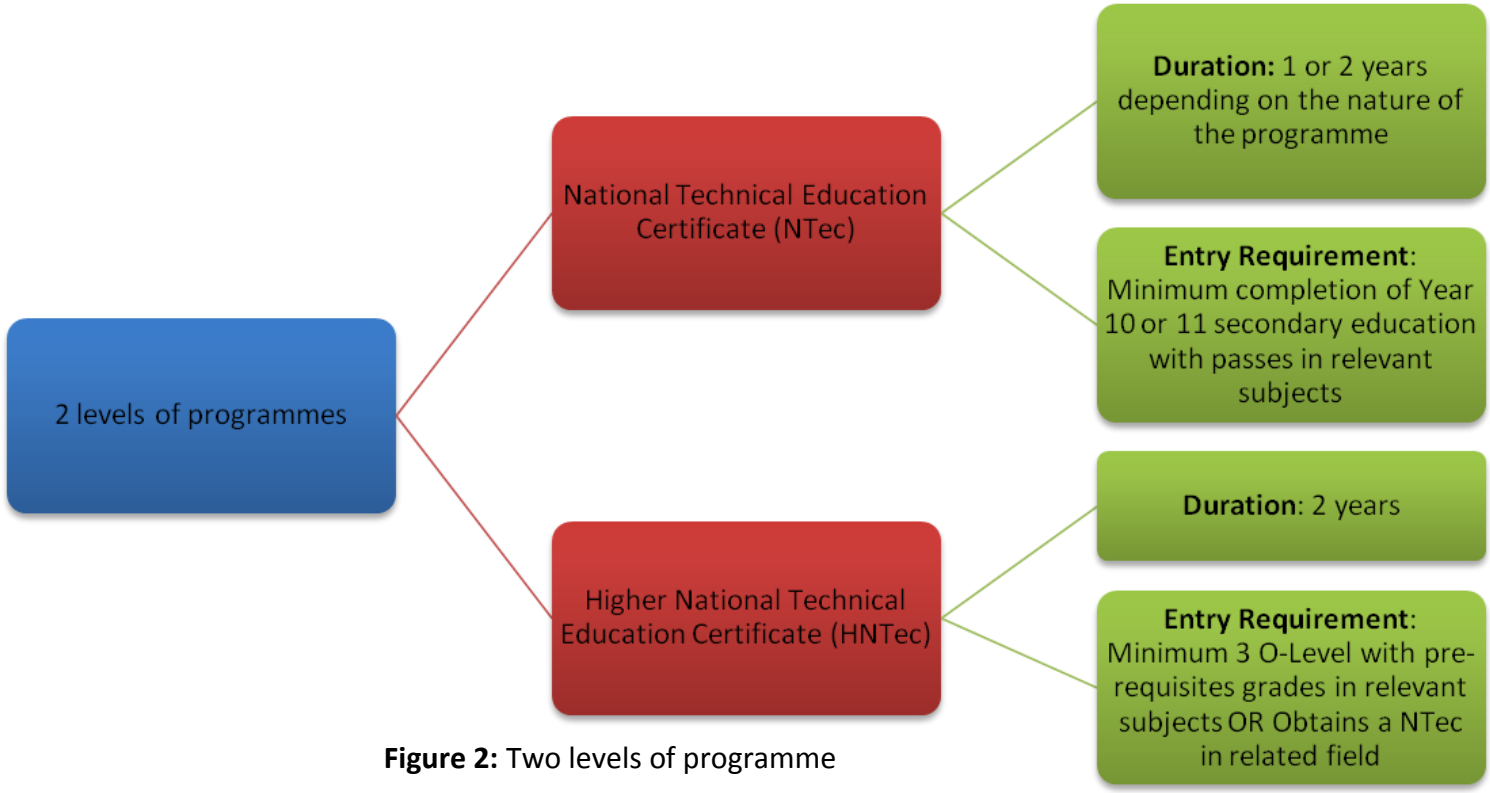


Figure 2: Two levels of programme

Industrial Skills Qualification (ISQ) programme will also be introduced in collaboration with industries which is based on the needs and requirements of respective industries. These programmes will produce graduates that are ready for employment at artisan levels and will be trained for up to one year. The entry requirement for ISQ programmes would be be that the candidates have attended at least 9 years of education and with the minimum age of 16 years old.

Consequently, the curriculum content will be changed in both levels of qualifications, now focusing on skills development. More skills emphasis is put into the Core modules (80% of the curricula) rather than doing remedial modules such as Mathematics and English Language subjects as illustrated in **Figure 3**. Compulsory modules which are MIB (Melayu Islam Beraja) and IRK (Islamic Religious Knowledge) will be common throughout all programmes as important components towards a holistic education.

Embarking into "**Competency based training**" (CBT) is the right step in order to align with industrial standards or competencies in producing skilled workers. CBT allows harmonization between the training system and the labour market through development of proper training programmes based on the realities and needs identification and analysis of tasks and behaviour in accordance with the work place jobs. Hence the committee recommends that a typical course will comprise 70% practical training and 30% theory.

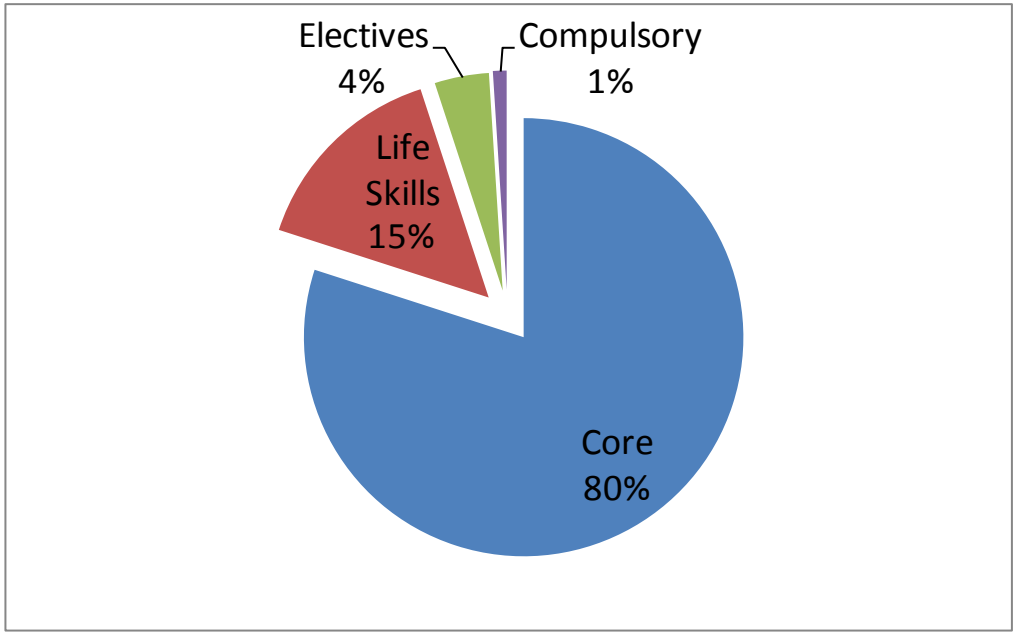


Figure 3: New curricula content

CHAPTER 3

For the CBT to be well implemented*, staff development, appropriate resources and environment* are crucial pre-requisites in all Registered Training Organisations (RTOs). Developing the curriculum will begin with occupational analysis in the **DACUM** process, making sure of "What" should be taught in the content as the competencies (knowledge, skills, attitudes, know-how). Certified DACUM facilitators shall be employed to conduct the proper process to avoid skepticism.

The existing facilities are to undergo upgrading to support the teaching and learning of new courses. These new courses will be categorised under the titles of school as follows;

i) School of Agrotechnology & Applied Sciences;
ii) School of Business, ICT & Services;
iii) School of Built Environment & Management;
iv) School of Design and Media;
v) School of Engineering.

The term "school" is to be understood as a faculty as in the university .

*"**Let** our advance worrying become advance thinking and planning "*
Winston Churchill

CHAPTER 3

NEW COURSES

The existing courses *(Appendix A)* offered from Skill Certificate level to Diploma level cover 13 fields of studies namely Agriculture Studies, Building Construction, Business studies, Aircraft Engineering, Computer Studies, Dressmaking and Tailoring, Electrical and Electronic Engineering, Hairdressing and beauty, Hospitality and Tourism, Information and Library Management, Mechanical Engineering, Science and Art related programmes.

The popularity of a course may be judged by the number of applicants or vice-versa. Using this measurement, the 15 least popular courses were identified and would be phased out. A balance between applicants' interest (supply) and the needs of industry (demand) must be drawn out by increasing more group intakes for popular courses while keeping just the right quantity for certain courses with low supply but still in demand *(Appendix B).*

In view of Dr Law's report on the need to focus on practical "hands-on" skills, the present SC 2 and SC 3 programmes will be replaced with first-level "Certificate" courses and "Higher Certificate" practical courses will replace the existing "Diploma" courses offered (Dr. Law S.S, 2012). Several programmes that are to be phased out have been identified. Some of the rationale for phasing out include the difficulty in finding companies willing to participate in students' work attachment and the lack of progression to higher studies in local institutions (Dr. Law S.S, 2012) . Other programmes have been amended to suit the 70% - 30% proportion of skill-based to theoretical knowledge *(Appendix C).* The introduction of new courses particularly those related to the Oil and Gas Industry will be offered in stages based on the industrial demand to ensure there is no job mismatch. *(Appendix D) .*

Hence, with a new mission as a post-secondary education that provides skills development, the institute will be able to respond to the needs of the industries. Restructuring the curriculum with competency-based contents shall be relevant in meeting employers' expectations. Revising the entry requirements and providing a wider choice of courses shall capture every individual capability to enroll into TVET. With a new curriculum, a new pedagogical model, staff development and upgrading of facilities, the vision as the first choice post-secondary education is not impossible to achieve.

3.1.2 EXPANDING APPRENTICESHIP OPTIONS

DUAL SYSTEM APPRENTICESHIP

A Dual System Apprenticeship (DSA) combines apprenticeship education and training in a company and Registered Training Organisation (RTO). This system is practised in several countries, such as Germany, Austria, Switzerland, France, Malaysia (at German-Malaysia Institute) and other countries in Asia.

The Apprenticeship and Trade Testing Section was set up within the Department of Technical Education (DTE), Ministry of Education on 4th January 1999. Its tasks include the coordination of the development, implementation and evaluation of the apprenticeship training programmes between technical education institutions and employers. The section was then upgraded to Industrial Training Development Division on 1st September 2009. DTE has inked the Memorandum of Agreement with 36 industrial partners for the apprenticeship programmes.

A range of four apprenticeship training models have been defined by BDTVEC. They offer a number of different arrangements where an employer sponsors (fully or partially) an apprentice and may or may not provide employment as it is subjected to performance and vacancy at the completion of the apprenticeship *(Appendix D).*

The new institute proposes the strengthening of the existing apprenticeship training models to a Dual System Apprenticeship with employment-based training model. The apprentice is employed by a company and spends time in the workplace and at a Registered Training Organisation (RTO) undertaking “off-the-job training” during a period of block release, 6 months in company and 6 months in RTO *(Appendix E).*

CHAPTER 3

EXPANDING APPRENTICESHIP

Referring to the Apprenticeship Scheme July 2000 to December 2012 Statistic, a total of 485 apprentices enrolled and 348 apprentices graduated from the Apprenticeship Training Scheme programme. Each year there are 60 students undergoing the existing apprenticeship programmes such as Professional Cookery and Services, Refrigeration and Air-Conditioning and Automotive Technician.

In the next 5 years, 2013-2018, DTE plans to increase the enrollment intake from 60 to 200 capacity with the new dual system apprenticeship programmes to meet the needs of industries especially in the Oil and Gas sector. The local employment in Oil and Gas contributes to 40%, which needs to be increased to 80% by 2035.

On 19 March 2013, a range of 16 new Dual-System Apprenticeships programmes *(Appendix F)* have been proposed by the RTOs for the industries such as Oil & Gas, Maritime, Hospitality Services, Building Services, Building Construction, Business & Services, Automotive, Food Technology and Agro Technology. Consultation with the respective Apprenticeship Training Advisory Committee (ATAC) for the demand and needs of the employers is required for these newly proposed programmes.

The best practice of using block releases training schedule for Institution-Based-Training (IBT) and On-the-Job Training (OJT) is employed to optimize the training resources. The education and training programme will take a minimum of 2 years and is subjected to the trade area.

Intensifying the dual system apprenticeship can be done by helping to fund some of the cost of training incurred by the employer. It is proposed that a company will receive tax reductions or an amount given to train an apprentice over a certain period of time.

Advantages of the Dual System Apprenticeship (DSA) for the company:

- Secures the skilled workforce needed;
- Reduces the costs to train for positions within the company;
- Increases motivation and loyalty to the company;
- Apprentice receives job specific qualifications;
- Productive performance of trainee.

Advantages of the Dual System Apprenticeship (DSA) for the apprentice:

- Recognised Industry Certification;
- Increased prospects for employment upon completion;
- Theory and practical application of curriculum;
- Certain degree of independence through an “earn while you learn” program.

“Transformation in the world happens when people are healed and start investing in other people”
Michael W. Smith

3.1.3 MORE PROGRESSION OPPORTUNITIES

Technical Vocational Education and Training (TVET) focuses on the delivery of occupational skills, competencies and standards responsive to the needs of the industry and economy. The structure of articulation arrangements proposed here will permit broad opportunities for further educational attainment. As such, whilst the mission of the new *Brunei Technical Education* (*BTE*) is to prepare graduates for employment, there will be some provision for those with advanced standing to have significant opportunities to undertake higher level certifications.

To further encourage social/career mobility and education progression the new BTE enables access to Continuing Education and Training (CET) particularly for school leavers and matured students. The system will be designed on a modular basis. The new BTE aspires to have a KPI of 80:20, where the target for employability is set at 80% and further studies at 20%. Hence the need for a screening process allowing only the best and academically inclined candidates ,who are at par with the A-level stream students, to proceed. This is best done by adopting the Grade Point Average (GPA) Merit system which will be pre-set on basis of yearly quota and programme. Nonetheless besides GPA, progression pathways will be based on a multifaceted set of criteria e.g. work experience, maturity, Recognition of Prior Learning (RPL). However, these are still under discussion. The new system will also allow students to undergo multidisciplinary yet relevant programmes.

In the new 3-tier Qualification Framework, BTE will offer courses at two levels: NTec and HNTec. The minimum entry requirements for students to enter TVET will be based on completion of Year 11. Students with a minimum of 3 'O' levels will be eligible to apply for HNTec courses which are more specialised (skilled workforce) than NTec courses which are for basic skilled workforce. It is suggested that the programmes of NTec level should be designed such that students who completed year 11 can be absorbed into new TVET system regardless of their results.

"If anyone travels on a road in search of knowledge, Allah will cause him to travel on one of the roads of Paradise"
Prophet Mohammad S.A.W

Therefore, the committee has to develop the NTec programmes into two categories: NTec 'Category A' which are for students who have credits in English and Mathematic subjects and NTec 'Category B' designed for students who do not pass in any of these subjects. 'Category B' courses should have more variety of courses including Sports and Creative Arts.

Based on the Employability Study 2013 conducted by DTE shows that the employability is quite low i.e. 34% when compared with students going for further studies (46%). Students employed in private sectors were higher compared to those employed with the Government sector. Perhaps, with the new BTE and the new system changed, quotas provided by the national agency will enable the right number of students to be trained for employment. With this, the employability will be expected to be higher as students with the right skills will exit to seek employment straight away with lesser number of students going for further studies.

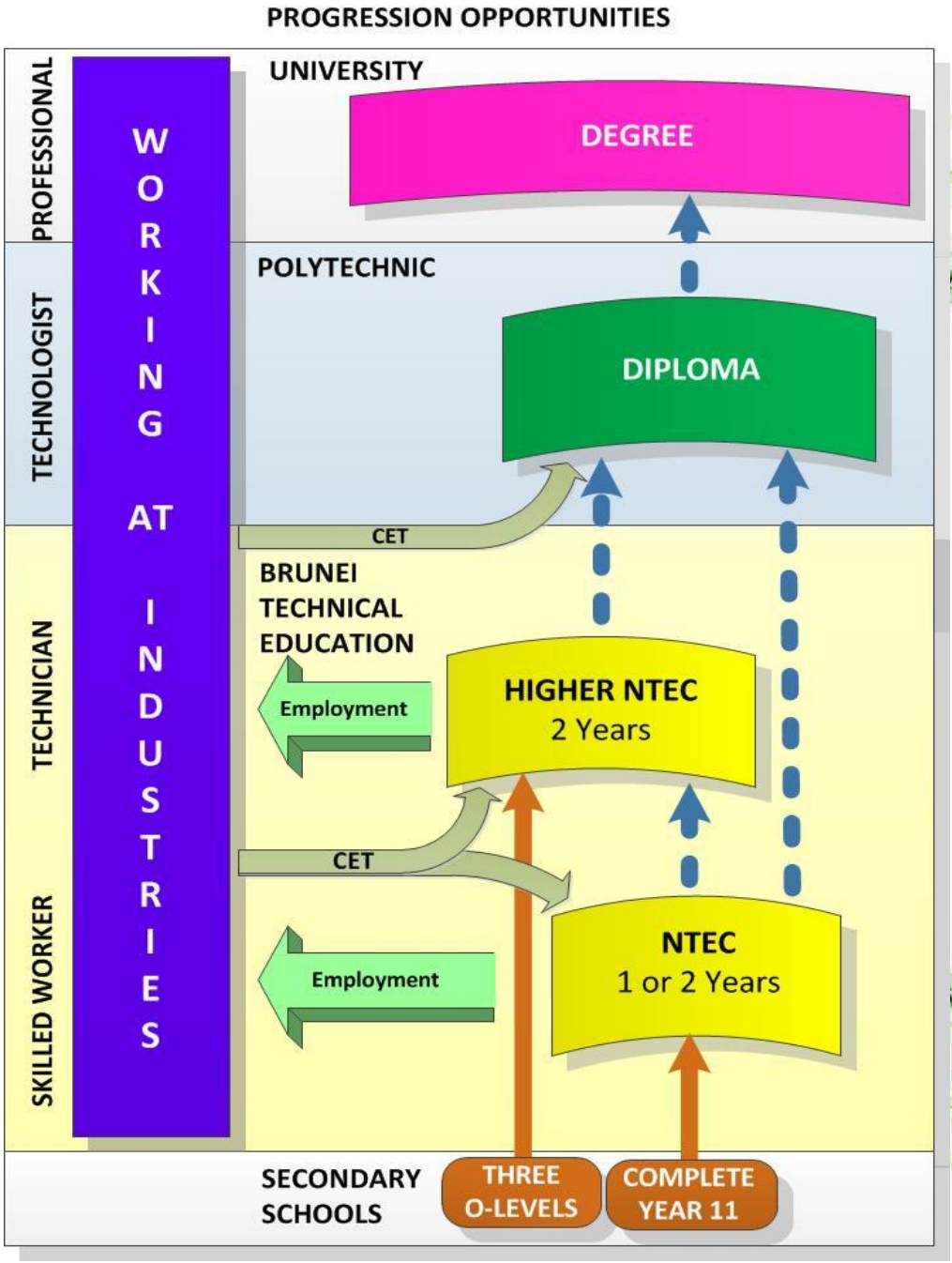


Figure 4: Schematic diagram to show the progression opportunities of BTE

3.1.4 UPGRADING THE TRAINING ENVIRONMENT

The transformation of technical education in relevancy to **"21st Century Education"** is one of the focal points of the Ministry of Education in the upgrading and provision for a more conducive training environment. Transformation will involve several constituents in order to ensure that appropriate and adequate training facilities are available. Up-to-date infrastructure and logistics will be one of the keys to the transformation.

CAMPUS INFRASTRUCTURE AND LOGISTICS DEVELOPMENT

In line with the transformation of technical education, the need to develop and provision of new infrastructure and logistics is a necessity to the formation of an **"Institute"** as intended. To accommodate the expected transformation, a new headquarters (Administration) and mega campuses (Programme Implementation) would be required to support the delivery of courses effectively. The two mega campuses would accommodate a total number of 8,000 students where the "Institute" headquarters will be located at the "Central Campus".

- **Central Campus** (4,000 students) inclusive of "Institute" headquarters
- **Satellite Campus** (4,000 students)

Physical infrastructure will include IT-based administration facilities, teaching and learning facilities, sports and recreational facilities. The **"Central Campus"** should be ready by **2018** and the "**Satellite Campus**" by **2020**. The **purposely** designed campus will be able to cater to the needs of technical education in the implementation of the upcoming curriculum.

The development of the campuses will be based on **"Design and Build"** theme. The buildings will be constructed as several storeys ("Vertical Up Concept" of 8 or 9 storeys) with interconnected linked bridges or ways, lifts, escalators and other modern facilities.

In addition, the development of the two mega campuses infrastructure will require strategic locations and an estimated land area of twelve (12) hectares . The acquisition of gazetted land (sites) for the campus infrastructure development will be the utmost priority.

COST ESTIMATION FOR THE CAMPUS INFRASTRUCTURE AND LOGISTICS DEVELOPMENT

The Central Campus and "Institute" headquarters infrastructure and logistics accomplishment by 2018 will be the first physical infrastructure of the technical education transformation. The construction of the "Central Campus and headquarters" buildings is estimated to be at a cost of **One Hundred and Sixty Six Million Dollars** (**BND $166,000,000.00).** This cost is inclusive of upgrading current VTIs campus and facilities up to standard.

The second mega campus (**Satellite Campus**) estimated to cost **One Hundred and Thirty Three Million Dollars (BND$133,000,000.00),** should be ready by 2020. The regrouping of all VTI's will be finalised with the completion of the second mega campus. It will accommodate a total of 8,000 students within the new technical education system.

Relevant teaching equipment and resources are essential in ensuring better delivery of skills as required in competency-based training. They should be up-to-date and similar to what are used in the industry. The cost of equipment and resources is estimated about **Twenty Seven Million dollars (BND$27, 000,000.00)** for each campus and should last for the next 10 years.

Towards providing holistic education , it is imperative that non-training components are provided. This is to maximise student interaction and promote leadership skills . Other non-training components include interaction spaces, clubs, ECA, music centre, arts etc. It is estimated to cost about **Ten Million dollars (BND$10,000,000.00)** for each campus.

CHAPTER 3

EXISTING VTI'S

While waiting for the completion of the mega campuses, the existing VTI's will cater to the present as well as the upcoming curriculum. The need to upgrade the current infrastructure and logistics will still be required in order to ensure the smooth process of the programme implementation. The upgrading of the existing VTI's infrastructure and logistics in accommodating the present and upcoming curriculum will require a capital investment of **Thirty Five Million Dollars (BND $35,000,000.00)** in relevancy to the transformation of technical education.

The construction of the two mega campuses infrastructures will reflect the transformation of technical education in line with the SPN21 needs and requirements. The proposed campuses will be able to facilitate the SPN21 school leavers in embracing the transformed technical education system. The modern concept and up-to-date facilities in the campuses will be able to provide and support the programme implementation of the upcoming curriculum. This transformation will enable the development and production of the much needed skilled workforce by the industries in the country.

3.1.5 A NEW SCHEME OF SERVICE

This section is aimed at preparing the Technical Education Scheme of Service needs in technical education in order to:

- Establish a scheme of service that is more relevant and effective for technical education that meets the industry requirements and create attractive career pathways;
- Enhance the profession of lecturer in relevant skill areas to be upgraded as a Principal Lecturer in Technical Education.

Information was collected through several discussions with the Ministry of Education, Dr Law, Principals of Vocational and Technical Institutions, Head of Divisions, Department of Technical Education from February – March 2013.

The need for preparing this new Scheme of Service results from the fact that the existing scheme has been criticised for lacking explicit connections between teacher recruitment with industry, teacher capabilities, curriculum and national priorities, and the needs of teachers and schools. Furthermore, His Majesty The Sultan and Yang Di Pertuan of Brunei Darussalam has recently consented in his Titah that "*technical education needs to be innovative in its scheme of service as to allow practitioner from industry to be recruited as teacher either full-time or part-time" (*Majlis Sambutan Hari Guru, ke-22 Tahun 2012).

OBJECTIVES

Under this Scheme of Service, several objectives have been identified to attract experienced graduates and industry personnel to join the new system which include to:

- Raise the profile or status of teaching staff in technical education;
- Strengthen the rewards, compensation and recognition;
- Expand career opportunities and professional development;
- Enhance capabilities on talent development of staff within the system;
- Create a supportive work environment.

Restructuring the present system will professionally fulfill, challenge and reward the teaching career. In comparison to the existing system, the recruitment of new teaching staff will meet the demand-supply driven by the economy. It will also provide opportunities for lecturers to develop and build their professional capabilities, further their teaching expertise, and progress towards achieving their career aspirations.

CAREER PATHWAYS FRAMEWORK

The new career structure comprises of four career paths which aims to nurture and motivate lecturers to achieve their optimal performance. Teaching has now become more challenging, enriching and satisfying. The details of the new career pathways framework are in *Appendix G.*

Under the new Scheme of Service, there are four directions a teaching career can progress and it is described as follows:

i) ***Academic pathway:*** Instructors work their way up to become Principal Lecturer;

ii) ***Leadership pathway:*** Lecturers can be promoted from a leadership position within the school and the Institute's administration;

iii) ***Technologist pathway:*** Technologists are focused on industrial placement and benchmarked within the industries with the highest level position of Senior Technologist;

iv) ***Specialist pathway:*** Specialists are focused on research, planning, finance, teaching policy, teacher development/ training, curriculum and pedagogy with the highest level position of Senior Specialist.

At each level, there will be an increment in salary. Opportunities for training and development are also provided. Lecturers are observed for 3-5 years in order to determine which career path would best suit them. Talent for leadership is identified at the early stage. The selected lecturers are then groomed for future leadership roles. Institute operates under the belief that poor leadership is the major reason for college failure and by choosing talented individuals early in their careers and investing in them heavily, colleges can avoid this problem.

CHAPTER 3

PAY PACKAGES

Salary packaging allows eligible employees to receive their salary based on the position held. The salary packaging restructure adopts the current salary scale (Skim Perkhidmatan Guru) in which employees will be able to join technical education and retain in the profession. This salary packaging offers greater flexibility of an employee's remuneration to match their individual qualifications and industrial experiences.

CONSULTANCY

In implementing the new system, a specialist expertise is required to devise a scheme of service which should be comparable to that found in the industry. This specialist will commission a project in which they will define the benchmark within the industries and also the job size required by different sectors of industries.

PERFORMANCE BASED MANAGEMENT BONUS

Under this new Scheme of Service, the performance-based management bonus will be linked to the lecturer's performance with a higher performance-based bonus (PB) across all substantive grades. Good performers can look forward to an increase in PB up to 0.5 additional months. Very good performers and outstanding performers can look forward to larger increases of up to 1 additional month and 2 months of PB respectively. This PB will replace the current annual bonus.

INDUSTRIAL PLACEMENT

For every five years, teaching staff need to have industrial work placement of 3 to 6 months continuously in order to stay relevant and meet industrial competencies. A built-in mechanism should be in place in order for fair recognition of expertise and rewards to allow promotion within the system.

IN-HOUSE CPA TRAINING

In-house Curriculum, Pedagogy and Assessment (CPA) training is mandatory for new lecturers who join this new Scheme of Service. It is an intensive course for technical education and training which runs within three months and has on-the-job mentoring. Within the probation period of two years, the lecturer has to undertake this CPA training in order to be confirmed. This CPA training is customised based on the needs and background of the new lecturers.

"If you pick the right people and give them the opportunity to spread their wings—and put compensation as a carrier behind it—you almost don't have to manage them."

Jack Welch

3.1.6 RENAMING DTE AND VOCATIONAL INSTITUTES

The Department of Technical Education and the seven Technical and Vocational institutions must play a strategic and dynamic role in realising the aspiration of Negara Brunei Darussalam towards achieving its Vision 2035.

In order to remain relevant, the existing Technical Education System which has been used for more than 40 years needs to be transformed into a vibrant education and training system and be more responsive to the ever-changing expectation of stakeholders and the dynamic global environment. There is a sense of urgency for the Department of Technical Education and the Technical Education System itself to rebrand and build a new corporate image in order to keep abreast with those changes.

The transformation of the present Technical Education System is a crucial starting point of a new journey for the Department of Technical Education and the seven institutions. It is envisioned that the new Technical Education System will be structured as a semi-autonomous entity with its own Board of Governors (Statutory Board) and Constitution.

Renaming technical education and its VTIs is essential in order to give due recognition to technical education in this country as well as to rebrand it for it to be more acceptable to the community. The plan is to regroup the 7 VTIs into 2 mega campuses. With the new facilities and environment, it will essentially carry a better image, quality and standard. The new institute is proposed to be named as **BRUNEI TECHNICAL EDUCATION** (**BTE**). It is imperative that the term "vocational" be avoided due to its poor image status, therefore the VTIs are proposed to be renamed as **Technical Institutes**. The naming of the new mega campuses training colleges will be up to the Board of Governors' judgment.

The new BTE will project a new image and also brings a better and different perspective of Technical Education. The new system will ensure the demand for 21st Century skills and beyond are met and addressed. This will change and enhance the perception of the prospective employers, parents, students and the general public on the role of Technical Education in Brunei Darussalam as the leading Post Secondary Education provider. It will be recognised and accepted as the first choice for further education, for attainment of skills, for employment and for life-long learning.

"Change your thoughts and you change your world"
Norman Vincent Peale

The newly proposed management will include the provision of a greater autonomy which will ensure a high quality and improved standard of providing and executing Technical Education System in all BTE institutions. BTE will provide up-to-date IT-based infrastructure, a new teaching and learning experience, and a wider choice and industry-driven programmes.

In this respect, the existing seven technical and vocational schools and colleges will be renamed as institutes which later will be re-grouped into two mega campuses, each recognized as a College. These colleges will offer programmes such as Engineering, Business, Services, Hospitality and also programmes related to the Oil and Gas industry. The new system will also put more emphasis on apprenticeship programmes where trainees will gain more experience by having both on-the-job and institution-based training. The tagline and logo of the new Brunei Technical Education will be discussed and decided at a later stage.

SOCIALISING PLAN - BRUNEI TECHNICAL EDUCATION (BTE)

The significance of the new corporate image and rebranding will be shared with internal and external stakeholders. In conducting the socializing activities, it is important to reach both internal and external stakeholders so that they will not only understand the reasons, benefits of the transformation and expected changes but also to provide feedback. The involvement of stakeholders in the transformation process is essential and most welcome.

The socialising plan will include the following:

i) To develop the schedule of socialising and promoting activities. It will feature the details of planned activities such as the date, venue, time and type of activities;

ii) To identify and conduct promotional and marketing activities. This includes making a new corporate video; running a feature in both print and electronic media; radio and TV interviews by the higher authorities; conducting road shows to all districts and organising Karnival Pendidikan Teknik 2013 and beyond;

iii) To enhance and update corporate websites which include updated twitter account, new e-mail addresses, updated leaflets and brochures which will incorporate the changes and the transformation.

3.2 IMPLICATION ON RESOURCES

Under the newly proposed system of technical education, funding will be based on block grant on per student cost. The Annual Operating Budget (AOB) for the current system is thus calculated as a basis for the formula of calculating the cost of educating a student per year.

The initial figures for 2012/2103 (Appendix A) used for the purpose of this calculation is obtained from the 2012/2013 Departmental Warrant ref: DA/DW/06/SF01A/2012/2013 dated 7th April 2012, Utility Section of Department of Administration and Services, Ministry of Education and other relevant department and documents.

EXPENDITURE OF MANPOWER (EOM)

Personnel salaries, bonuses and allowances calculated here (Table 1) include those who are currently under the payroll of Department of Technical Education (DTE) and the institutions under it. These also include an estimation of the cost of personnel who are not directly under the payroll of DTE but are involved in the daily activities of the institutions e.g. cooks for hostels who are under the payroll of Department of Administration and Services, Ministry of Education.

Table 1: The breakdown on the expenditure of manpower

EOM	
Salary	BND$28,000,000.00
Bonus & Allowances	BND$ 5,200,000.00
Total	BND$33,200,000.00

OTHER OPERATING EXPENSES (OOE)

Although some expenses under this heading (Table 2) are currently not incurred directly under DTE's budget, they nevertheless have to be taken into account for the purpose of calculating the AOB. The best estimation also had to be made in some areas due to the lack of reliable information. Refer to Appendix A for details of expenditures.

Table 2: Breakdown of the other operating expenses

OOE	
Recurring Expenditure	BND$11,771,000.00
Utilities	BND$ 1,055,000.00
Hostel	BND$ 1,700,000.00
Other Expenditures	BND$ 304,200.00
Total	BND$14,830,200.00

ANNUAL OPERATING BUDGET (AOB)

After taking into consideration the main expenses related to the daily activities of DTE and all the institutions involved, a total figure of around BND$48,000,000 was arrived at (Table 3). As most of the expenses involved at present **are not directly** under DTE's budget, and based on the number of students currently enrolled i.e. 4,000 students, the Annual Operating Budget for a student under the new system of technical education would be **no less** than **BND$12,000.00 each**.

Table 3: The breakdown of the annual operating budget

AOB	
Expenditure of Manpower	BND$33,200,000.00
Other Operating Expenses	BND$14,830,200.00
Total	BND$48,030,200.00

PROJECTION OF THE ANNUAL OPERATING BUDGET

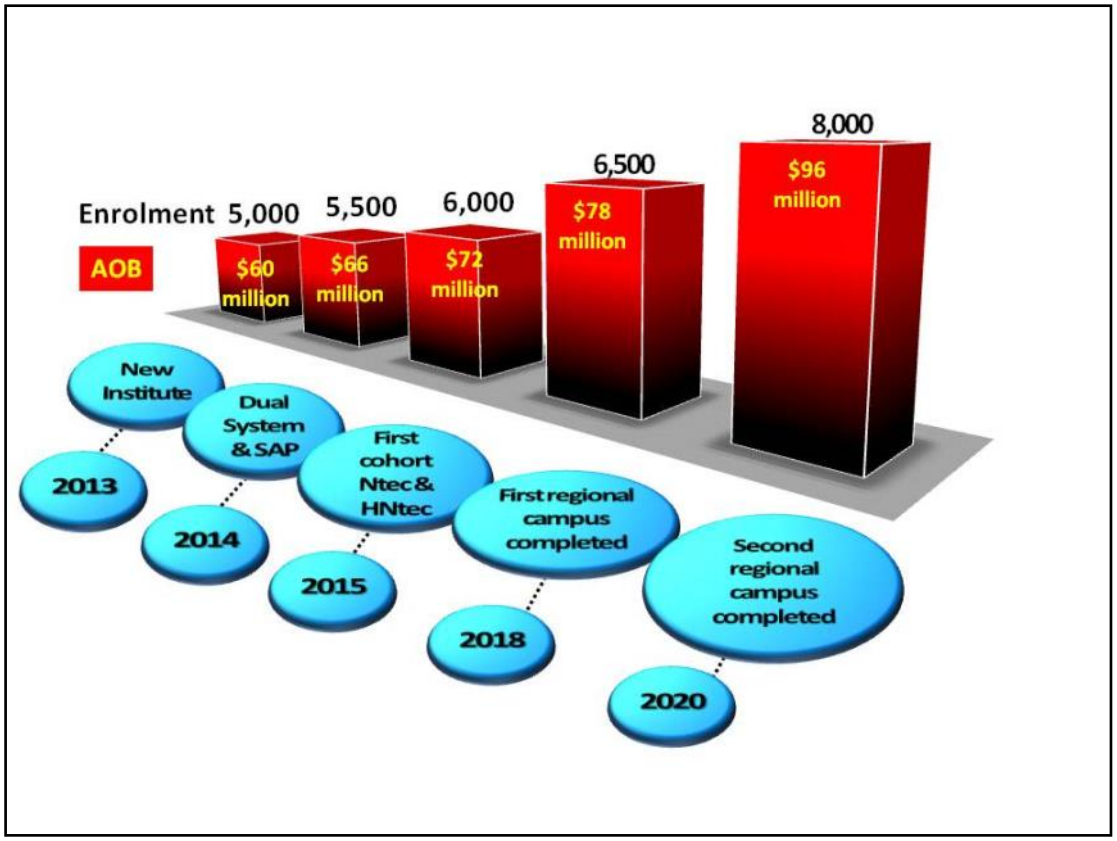


Figure 5: Projection of annual budget 2013 - 2018

DEVELOPMENT CAPITAL

The existing system under DTE today has certain capacity limitation. The new system should be able to respond to the requirement of SPN21. The period for the next 5 to 7 years is the most critical . The new system will regroup the existing system by establishing 2 bigger regional campuses with the capacity of 4,000 students each. The first campus will incorporate the new headquarters. The new regional campuses would offer a better and more conducive learning environment as well as up-to-date facilities and equipment.

The development of the new regional campuses will be carried out in two phases :

1. **First Phase**

Table 4: The cost estimate of the first phase

First Phase (to be completed by 2018)		
1. Upgrading the existing VTIs campuses and facilities up to standard		BND$35million
2. First new campus (incorporating head-quarters building): to be completed by 2018	a) Central campus	BND$133 million
	b) Headquarters (within central campus)	BND$33 million
3. Equipment cost: competency-based with up-to-date technology which will last up to 10 years		BND$27 million
4. Non-training component: this is to maximise student interaction leadership and other non-training component which include interaction spaces, clubs, ECA, music centre, arts etc.		BND$10 million
Total		**BND$238 million**

2. **Second Phase**

Table 5: The cost estimate of the second phase

Second Phase (to be completed by 2020)	
1. Satellite campus, second mega campus will be ready by 2020. Planning and construction may be done in parallel with the first regional campus	BND$133 million
2. Equipment cost: competency-based with up-to-date technology which will last up to 10 years	BND$27 million
3. Non-training component: this is to maximise student interaction leadership and other non-training component which include interaction spaces, clubs, ECA, music centre, arts etc.	BND$10 million
Total	**BND$170 million**

The grand total of cost estimates to upgrade technical education of Brunei Darussalam for the next 5 to 7 years is **BND$408 million (Four hundred and eight million dollars).**

Table 6: The grand total cost estimate of the upgrading

Grand Total Cost Estimates	
Phase 1	BND$238 million
Phase 2	BND$170 million
Grand Total	**BND$408 million**

STAFF DEVELOPMENT IMPLICATION

Staff development cost to be set aside is 5% of the total Expenditure of Manpower (EOM) cost.

Estimated cost = **BND$1.65 million every year**


SVSB

CHAPTER 4

CHAPTER 4

IMPLEMENTATION PLAN AND INTERIM PLANS

With the introduction of the new education system SPN21, there will still be students who achieve 4 O-Levels or below who are less academically-inclined and placed in the “Applied” stream. Addressing the issues of these students should be under the jurisdiction of the new Brunei Technical Education.

Brunei Technical Education with its new system of governance centric structure plans to offer two levels of programmes that is the National Technical Education Certificate (NTec) and the Higher National Technical Education Certificate (HNTec). The programmes under both certification levels may be offered as full-time programmes and as an apprenticeship programmes, in partnership with the industries.

The present system under the Department of Technical Education (a government department) will be gradually phased out by 2015. The new system with its own governing body will then gradually be upgraded and expanded to create opportunities for students to further their studies to higher education. Hence , increasing the students cohort by 25% within 5 years (by 2018). This is to ensure parents that their children have access to higher education which is based on merit and performance.

The interim Stage: The current system will still be implemented until the new system structure is in place. The new governing board will warrant the future course of action of Brunei Technical Education.

TIMELINE

Transformation Brunei Technical Education (2013-2020)

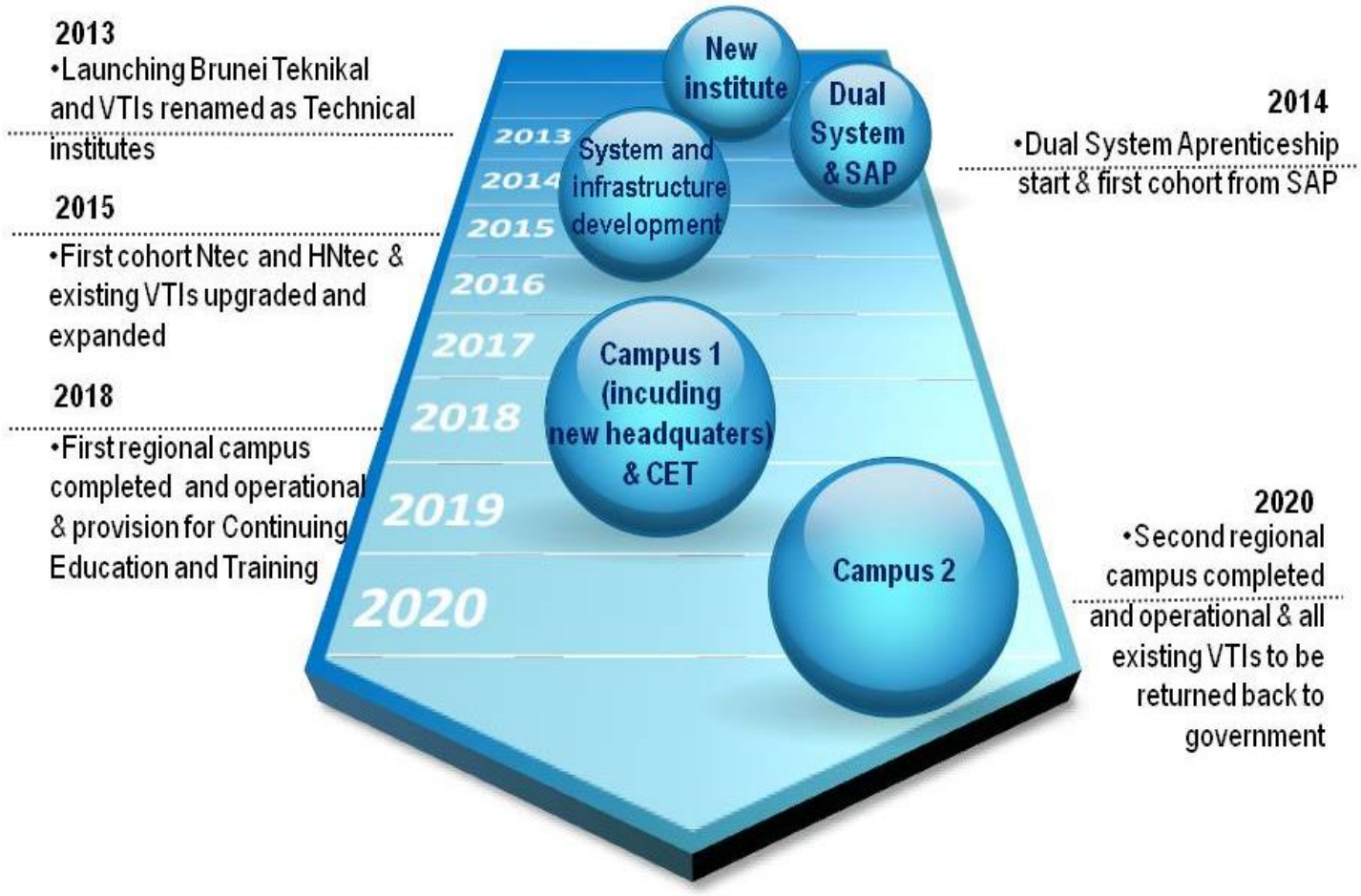


Figure 6: The schematic diagram of the timeline for transformation Brunei Technical Education

CHAPTER 5

CONCLUSION

In conclusion, the new system would be different from the current system which is already out of phase and will not likely meet the needs in a modern and globally competitive society. The key feature of the new system will be that BTE is portrayed as a reputable institute and established itself as a post-secondary education system.

The transformation system will provide a more attractive pathway for potential students. The existing Vocational and Technical Institutes (VTIs) will be upgraded and regrouped into two mega campuses. The existing VTIs will be renamed as Technical Institutes. DTE itself will be renamed as Brunei Technical Education (BTE). The names of the two mega campuses which will be referred to as Regional Colleges will be subjected to the Board of Governor's decisions. The capacity for students' enrolment will increase as a result of the establishment of the new campuses from the current capacity of 4,000 to an anticipated 8,000 students per year.

The rationale for the establishment of the new BTE is to absorb most of the potential pool of students from secondary schools and providing them with a wider choice of courses either full-time programmes or apprenticeship programmes. New and better progression pathways will be created with better defined criteria within BTE and to higher education institutions. For the existing courses, some programmes will continue to be offered, some are phased out and new programmes will be implemented to supplement the needs of the country's economy.

The new system of BTE will offer two level of programmes: National Technical Education Certificate (NTec) and Higher National Technical Education Certificate (HNTec). The number of courses anticipated under the new system will be of about 43 NTec and 35 HNTec programmes. Meanwhile the apprenticeship system will be expanded from the existing 60 apprentices per year up to 200 apprentices per year over the next 5 years.

Since the establishment of Department of Technical Education in 1993 to date (20 years period), there are about 20,000 students who have been trained and graduated. With the new system, this figure can be achieved in a shorter period of time.

"If you can imagine it, you can achieve it, if you can dream it, you can become it"
William Arthur Ward

Students' enrolment of 4,000 per year could be achieved when the first central campus is completed, which is anticipated by 2018. The numbers of students enrolment could be doubled to 8,000 per year when the second satellite campus is completed in 2020. To upgrade the existing system within 5 to 7 years, the capital expenditure will be expected to cost about **BND$408 (four hundred and eight) million dollars**: BND$238 million for the first phase and BND$170 million for the second phase.

For the new institute, funding will be based on block grant on per student cost. Currently, based on the best estimate that can be made, on average about **BND$12,000** (inclusive of allowance) was spent per VTIs student per year.

For staff development purposes, 5% of the total Expenditure of Manpower (EOM) cost is to be set aside, which is estimated to be **BND$1.65 million every year**.

Whilst building up the new system, the existing system will continue to be used and gradually phased out. The newly elected Board of Governors (BOG) will decide the future direction of BTE.

The proposed changes outlined in this report are expected to improve the image and status of technical education in Brunei Darussalam. The new system will provide wider options to better suit the needs of students and school leavers and also cater to the needs of the industries. The new system will be more clearly defined and articulated to higher education and is anticipated to be realised within the next two years (by 2015). This transformed system will represent a significant step in improving the importance of technical education in Brunei Darussalam.

APPENDICES

APPENDIX A

BDTVEC PROGRAMMES TITLES FOR SPN21 – JULY 2012

FIELD OF STUDY	DIPLOMA PROGRAMMES	SKILL CERTIFICATE 3	SKILL CERTIFICATE 2
1. Agriculture Studies Total = 13	1. Diploma in Agriculture Science 2. Diploma in Animal Husbandry 3. Diploma in Aquaculture and Fisheries 4. Diploma in Biotechnology 5. Diploma in Food Science and Technology 6. Diploma in Horticulture Science 7. Diploma in Rice Production **2013**	8. SC3 in Fish Husbandry 9. SC3 in Crops Production 10. SC3 in Food Processing	11. SC2 in Fish Husbandry 12. SC2 in Crops Production 13. SC2 in Food Processing
2. Aircraft Engineering Total = 4	1. Diploma in Aircraft Maintenance Engineering (Avionics) 2. Diploma in Aircraft Maintenance Engineering (Airframe and Engine)	No Industrial Demand	3. SC2 in Aircraft Support Engineering (for RBAF) 4. SC2 in Basic Aircraft Engineering (for RBA)
3. Building Construction Total = 10	1. Diploma in Construction 2. Diploma in Geomatics 3. Diploma in Planning and Development (Property) **2013** 4. Diploma in Property Studies **2013** 5. Diploma in Interior Design 6. Diploma in Furniture Design & Construction **(2013)**	7. SC3 in Building Craft 8. SC3 in Furniture Design and Construction	9. SC2 in Building Craft 10. SC2 in Furniture Design and Construction.
4. Business Studies Total =7	1. Diploma in Business and Finance 2. Diploma in Office Administration 3. Diploma in Business (Accountancy) 4. Diploma in Business (Marketing) 5. Diploma in Business (Entrepreneurship)	7. SC3 in Business and Administration	8. SC2 in Business and Administration
5. Computer Studies Total = 5	1. Diploma in Information Technology 2. Diploma in Computer Networking 3. Diploma in Multimedia Technology	4. SC 3 in Information Technology	5. SC2 in Information Technology
6. Dressmaking and Tailoring Total = 2		1. SC3 in Fashion Design and Dressmaking	2. SC2 in Fashion Design and Dressmaking
7. Electrical and Electronic Engineering Total = 10	1. Diploma in Electrical & Electronic Engineering 2. Diploma in Electronics &Communication Engineering 3. Diploma in Audio & Video Systems 4. Diploma in Instrumentation & Control Engineering 5. Diploma in Computer Engineering 6. Diploma in Mechatronic Engineering	7. SC3 in Electrical and Electronic Engineering 8. SC3 in Communication Technology	9. SC2 in Electrical and Electronic Engineering 10. SC2 in Communication Technology
8. Hairdressing & Beauty Total = 2		1. SC3 in Cosmetology	2. SC2 in Cosmetology

APPENDIX A

FIELD OF STUDY	DIPLOMA PROGRAMMES	SKILL CERTIFICATE 3	SKILL CERTIFICATE 2
9. Hospitality and Tourism **Total = 7**	1. Diploma in Hotel and Catering Management 2. Diploma in Travel and Tourism Services	3. SC3 in Front Office and Housekeeping Operations 4. SC3 in Food and Beverage Production and Service 5. SC3 Apprenticeship in Professional Cookery and Services (2 years)	6. SC2 in Front Office and Housekeeping Operations 7. SC2 in Food and Beverage Production and Service
10. Information and Library Management **Total = 1**	1. Diploma in Information and Library Science		
11. Mechanical Engineering A **Total = 9**	1. Diploma in Automotive Engineering 2. Diploma in Vehicle Body Engineering	3. SC3 in Heavy Construction Machinery Mechanics 4. SC3 in Motor Vehicle Mechanics 5. SC3 in Vehicle Body Repair 6. SC3 Apprenticeship in Automotive Technician (2 years)	7. SC2 in Heavy Construction Machinery Mechanics 8. SC2 in Motor Vehicle Mechanics 9. SC2 in Vehicle Body Repair
12. Mechanical Engineering B **Total = 7**	1. Diploma in Building Services Engineering 2. Diploma in Fabrication and Welding Engineering	3. SC3 in Building Services Engineering 4. SC3 in Fabrication and Welding Engineering 5. SC3 Apprenticeship in Refrigeration and Air-Conditioning (2 years)	6. SC2 in Building Services Engineering 7. SC2 in Fabrication and Welding Engineering
13. Mechanical Engineering C **Total = 9**	1. Diploma in Mechanical Engineering 2. Diploma in Mechanical and Manufacturing Engineering 3. Diploma in Marine Engineering 4. Diploma in Plant Engineering 5. Diploma in Mechanical and Design Technology - **2013**	6. SC3 in Industrial Machinery Maintenance 7. SC3 in Precision Machining	8. SC2 in Industrial Machinery Maintenance 9. SC2 in Precision Machining
14. Science **Total = 3**	1. Diploma in Science 2. Diploma in Biomedical Science 3. Diploma in Pharmacy Technician		
15. Arts Related Programmes **Total = 4**	1. Diploma in Art and Design 2. Diploma in Graphic Design	3. SC3 in Art and Design	4. SC2 in Art and Design

APPENDIX B: TOP AND BOTTOM 15 COURSES

The TOP 15 courses APPLIED for intake July 2012

COURSES	NO OF STUDENTS	REMARKS
1. DIP in Mechanical and Manufacturing	325	Value from 2 VTIs
2. DIP in Computer Engineering	285	Value from 2 VTIs
3. SC2 in Business Administration	260	Value from 2 VTIS
4. SC2 in Basic Aircraft Engineering	193	Not open to public
5. SC3 in Business Administration	192	Value from 2 VTIs
6. DIP in Plant Engineering	185	
7. SC2 in Electrical & Electronic Engineering	171	
8. DIP in Marine Engineering	152	
9. SC2 in Aircraft Support System	145	Not open to public
10.SC3 in Electrical & Electronic Engineering	144	
11.DIP in Travel and Tourism	126	
12.SC2 in Motor Vehicle Mechanics	124	Value from 2 VTIs
12.DIP in Information Technology	121	
13.DIP in Electronic & Communication	117	
14.SC3 in Apprenticeship in Professional Cookery and Services	116	
15.DIP in Business and Finance	103	Value from 2 VTIs

APPENDIX B

BOTTOM 15 courses APPLIED as FIRST and SECOND choice for intake July 2012

COURSES	NO OF STUDENTS	REMARKS
1. DIP in Horticulture Science	7	
2. DIP in Food Science and Technology SC2 in Cosmetology	19	
3. DIP in Animal Husbandry SC2 in Precision Machining	20	
4. DIP in Business (Entrepreneurship)	21	Value from 2 vtis
5. DIP in Aquaculture and Fisheries	24	
6. DIP in Agriculture Science	29	
7. DIP in Fabrication & Welding	32	
8. SC2 in Fashion Design & Dressmaking	36	
9. DIP in Biotechnology DIP in Geomatics	37	
10. DIP in Business (Marketing) SC2 in Vehicle Body Repair	39	Value from 2 vtis
11. SC2 in Industrial Machinery Maintenance	40	
12. SC2 in Heavy Construction Machinery Mechanics	41	
13. DIP in Business (Accountancy)	43	
14. SC2 in Crops Production	47	
15. SC2 in Fish Husbandry	50	

APPENDIX C

NEW COURSES NTec AND HNTec FOR JULY 2015 ONWARDS & ITS TARGETED CAPACITY

School of Agrotechnology & Applied Sciences		School of Business, ICT & Services		School of Built Environment & Management		School of Design and Media		School of Engineering	
NTec Courses	**Capacity**	**NTec Courses**	**Capacity**	**NTec Courses**	**Capacity**	**NTec Courses**	**Capacity**	**NTec Courses**	**Capacity**
Aquaculture	20	Business and Administration	100	Furniture Design	20	Art & Design	40	Automotive Mechanics - Heavy Construction Vehicles	50
Agroresource Technology	20	Info-Communication Technology (ICT)	100	Landscape Design and services - ***New***	20	Graphic Design	20	Automotive Mechanics - Light Vehicles	50
Food Processing	20	Librarianship	20	CADD in Construction	40	Digital Audio & Video Production	20	Vehicle Body Works	20
Marine Diving and Surveying - ***New***	20	Food & Beverage Operation	40	Industrial Pipe Fittings - ***New***	100	Interactive Multi-Media Design - ***New***	20	Automotive Electrical System & Accessories	40
Laboratory Services - ***New***	40	Front Office and Housekeeping Operations	40	Facility Services - HVAC	40	Islamic Art & Calligraphy	20	Industrial Welding - ***New***	100
Childcare Services - ***New***	20	Tourism (Customer Service)	20	Facilities Services-Vertical Transportation	20			Precision Machining - CNC	50
Community and Social Service Work - ***New***	20	Tourism Operations	20	Land Surveying & Mapping	20			Industrial Machinery Maintenance	100
		Fashion Design and Dressmaking	20	Building Technology	40			Electrical Building Services	50
		Beauty Therapy	20					Electrical Equipment and Machinery	50
		Hair Design & Services	20					Electronic Servicing Technology	50
								Electronics (Mobile Device)	20
								Electronics and Communication Engineering	20
								Electronics (Broadband Technology and Services)	20
	160		**400**		**300**		**120**		**620**

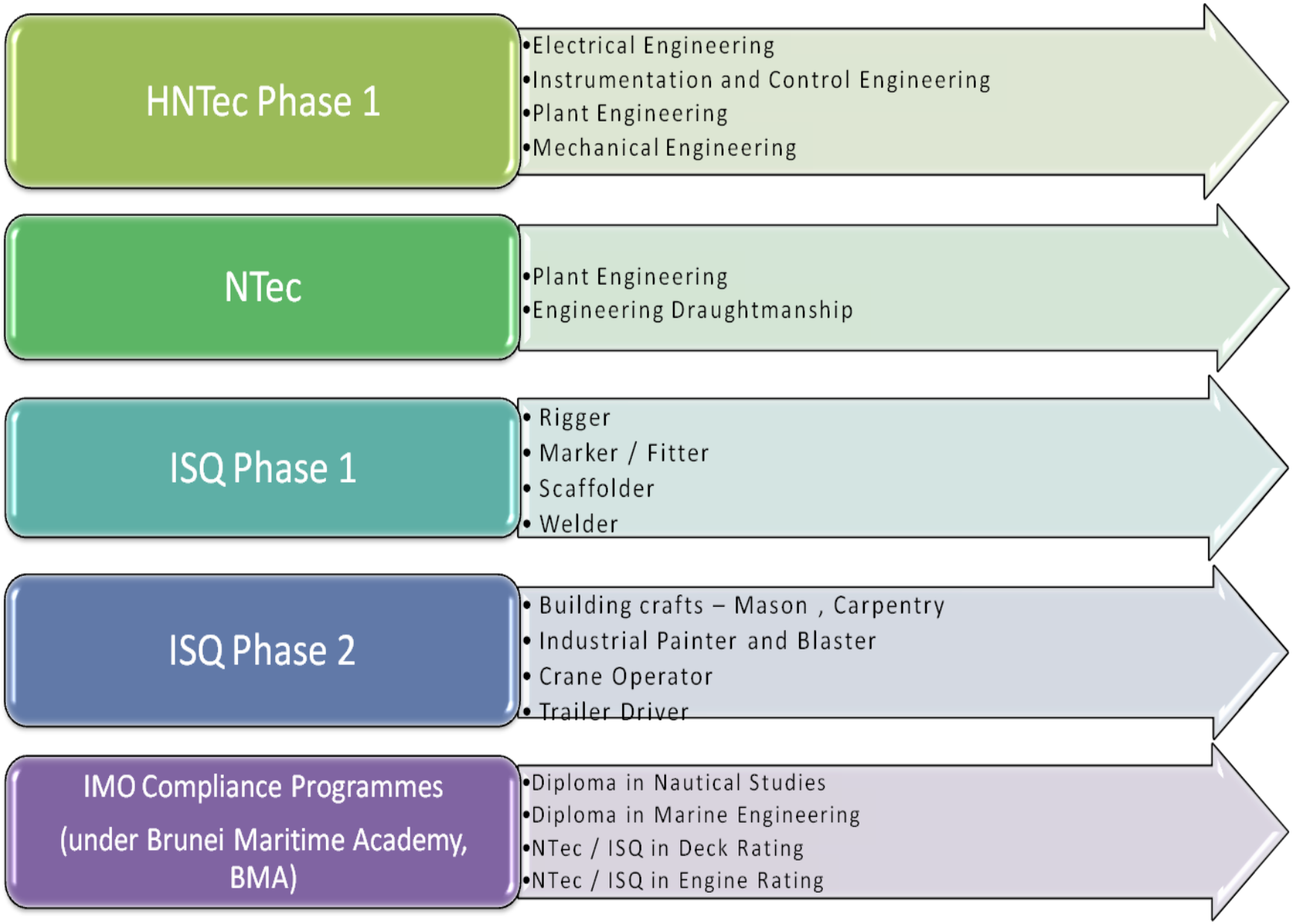
APPENDIX C

School of Agrotechnology & Applied Sciences		School of Business, ICT & Services		School of Built Environment & Management		School of Design and Media		School of Engineering	
HNTec Courses	**Capacity**	**HNTec Courses**	**Capacity**	**HNTec Courses**	**Capacity**	**HNTec Courses**	**Capacity**	**HNTec Courses**	**Capacity**
Aquatic Ecoscience	20	Business Information System - ***New***	40	Construction Management	40	Digital Animation - ***New***	20	Electrical Engineering (For Oil & Gas Sector)	50
Agroresource Technology	20	Business and Finance	40	Space Design/ Architecture	40			Electrical and Electronic Engineering	50
Biotechnology	20	Office Administration	40	Civil & Structural Engineering	40			Electronics and Communication Engineering	20
Food Science and Technology	20	Business (Accountancy)	40	Real Estate Agency	50			Optical Fiber Technology and Cabling -***New***	20
Laboratory Services and Technology	20	Business (Marketing)	40	Property Health & Safety & Maintenance	50			Electronics Engineer-ing	20
Chemical Technology	50	ICT - Wed Prog/Sys Administration)	40	Construction	25			Wireless Technology	20
Pharmacy Technician	40	Computer Networking	40	Geospatial Studies	25			Electronics and Multi-media System	20
		Information and Library Science	20					Marine Engineering	50
		Hospitality Management	40					Process Plant Engi-neering	50
		Tourism (Event)	20						
		Travel and Tourism Services	40						
		Beauty & Spa Management	20						
	190		**420**		**270**		**20**		**300**
Gross = 2800	**350**		**820**		**570**		**140**		**920**

The Gross estimation (2800) of enrolment is based on feedbacks and current resources scenario. With upgraded resources and infrastructures, it is expected to accommodate 3,000/year and incremental of 20% annually to reach target of 4,000 enrolment in 2018. The gross estimation is based on best judgement due to incomplete data.

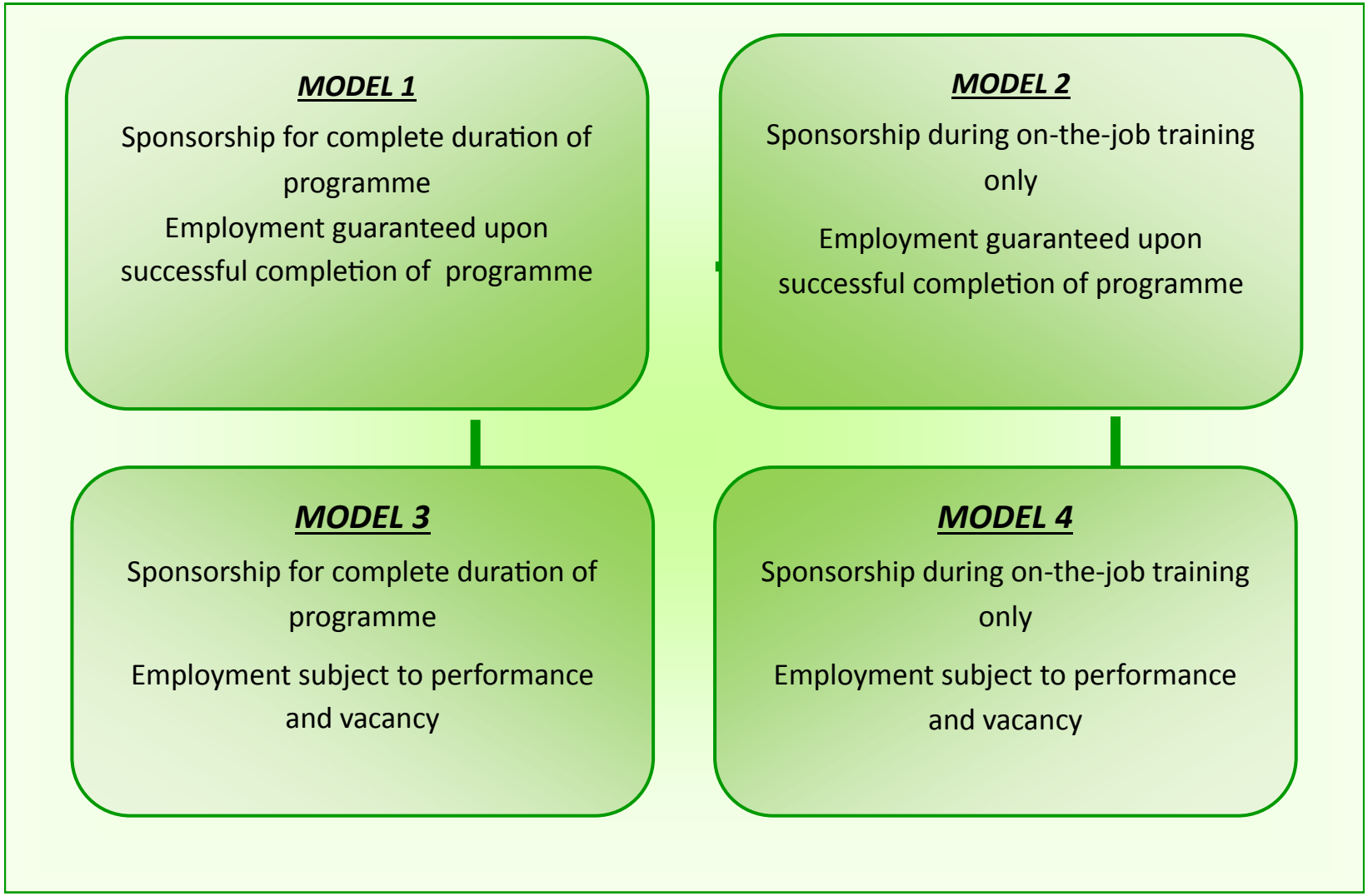
APPENDIX D

POTENTIAL DEMAND FOR EICF 21 CRITICAL OCCUPATIONS



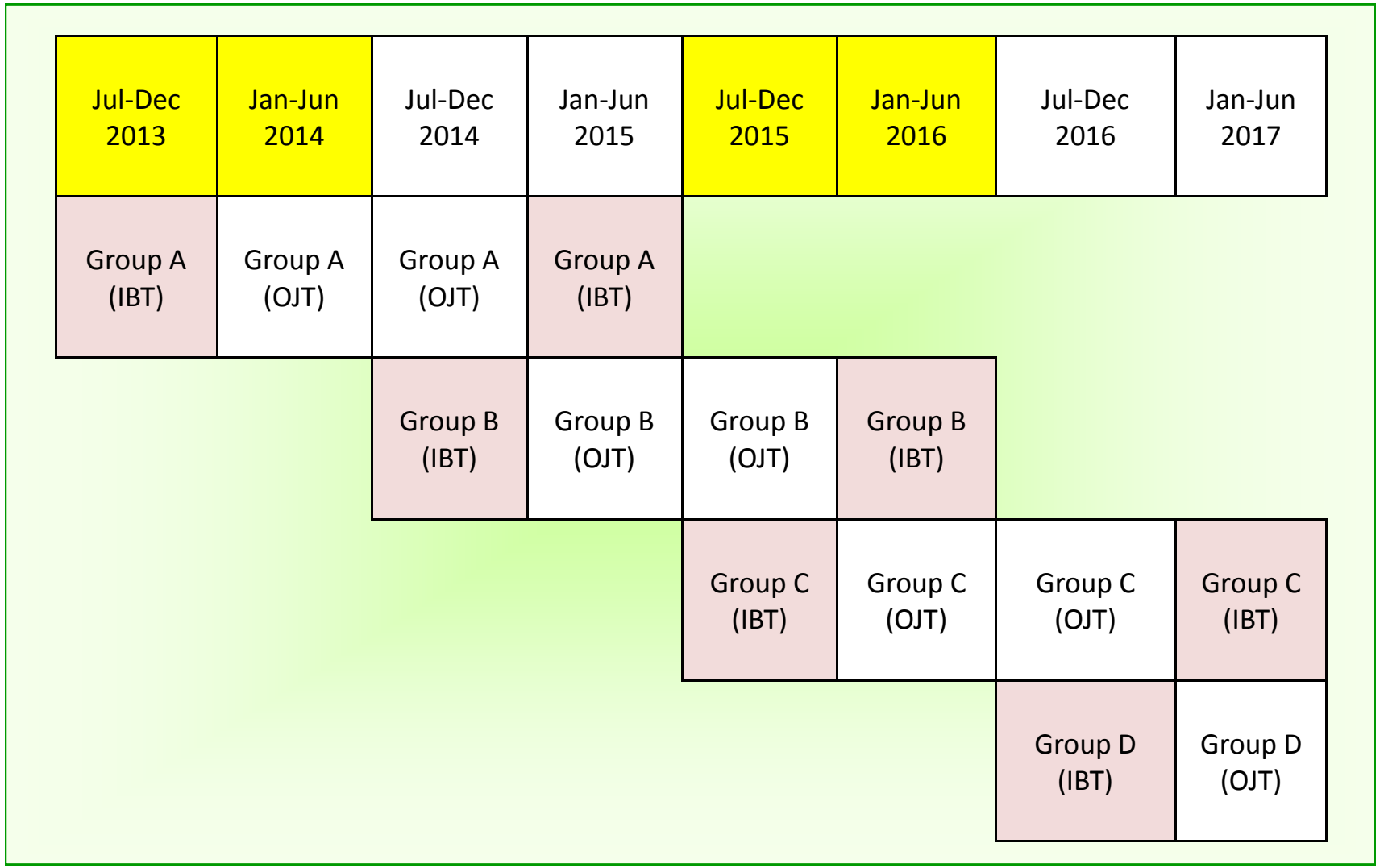
APPENDIX D

THE FOUR APPRENTICESHIP TRAINING MODELS



APPENDIX E

THE DUAL SYSTEM APPRENTICESHIP DURATION



APPENDIX F

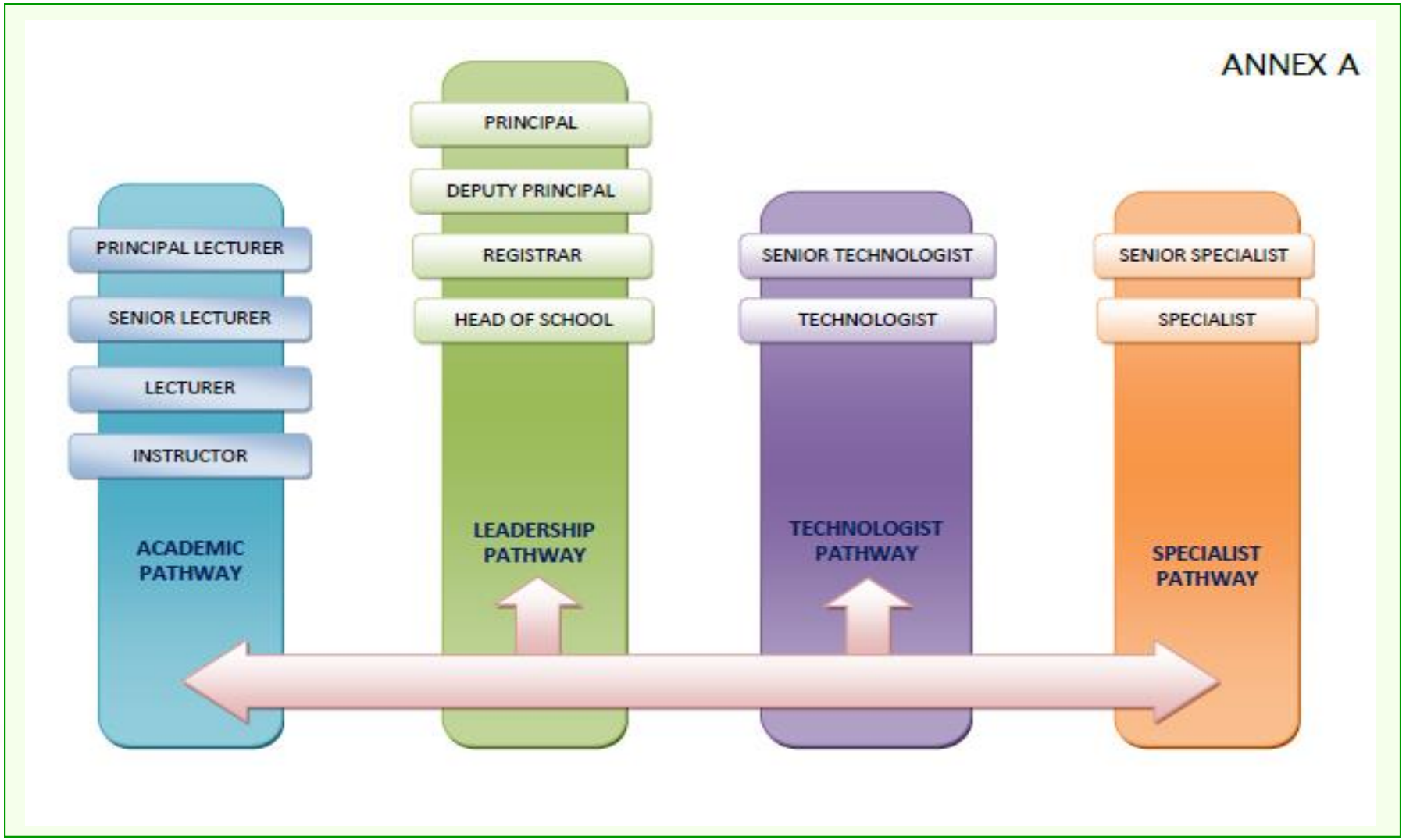
THE NEW DUAL-SYSTEM APPRENTICESHIP PROGRAMMES PROPOSED BY RTOS

NO.	RTOs	PROGRAMMES	DURATION	RELEVANT INDUSTRY
1	MTSSR	NTec Apprenticeship in **Professional Cookery and Services***	2 yrs	Hospitality
2	MKJB	HNTec Apprenticeship in Industrial Instrumentation and Controls Engineering	2 yrs	Oil & Gas
3		HNTec Apprenticeship in Electrical Power Engineering and Electronics	2 yrs	Oil & Gas
4		HNTec Apprenticeship in Welding and Metal Fabrication	2 yrs	Oil & Gas
5		HNTec Apprenticeship in Process Plant Engineering	2 yrs	Oil & Gas
6		NTec Apprenticeship in Seafarer	2 yrs	Maritime
7		NTec Apprenticeship in Engine Room Rating	2 yrs	Maritime
8	SVSB	NTec Apprenticeship in **Refrigeration and Air-Conditioning***	2 yrs	Building Services
9		NTec Apprenticeship in Industrial Machinery Maintenance	2 yrs	Oil & Gas
10		NTec Apprenticeship in Welding	2 yrs	Oil & Gas
11	SVNR	HNTec Apprenticeship in Construction	2 yrs	Building Construction
12		HNTec Apprenticeship in Architecture/Interior Design	2 yrs	Building Construction
13		NTec Apprenticeship in Electrical Installation	2 yrs	Building Services
14		NTec Apprenticeship in Hair And Beauty Therapy	2 yrs	Business & Services
15	SP	NTec Apprenticeship in Office Administration	2 yrs	Business & Services
16		NTec Apprenticeship in Retail and Commercial Enterprise	2 yrs	Business & Services
17	PLM	NTec Apprenticeship in **Automotive Technician***	2 yrs	Automotive
18	SW	NTec Apprenticeship in Food Technology	2 yrs	Food Technology
19		NTec Apprenticeship in Agrotechnology	2 yrs	Agro Technology

**** Existing Skill Certificate 2 (SC2) Apprenticeship Programme***

APPENDIX G

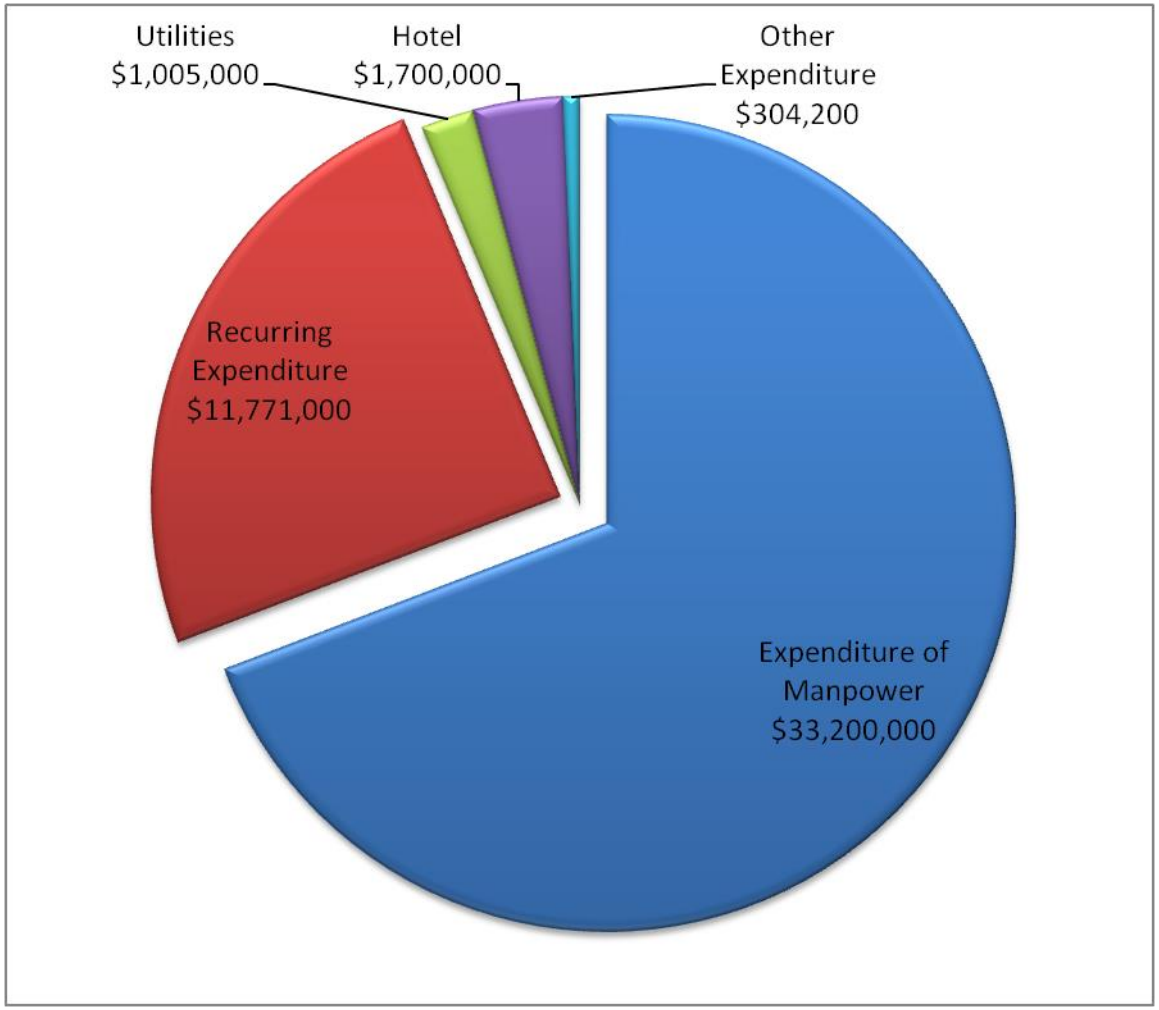
CAREER PROGRESSION FOR TECHNICAL EDUCATION SCHEME OF SERVICE



MODEL 1: CAREER PATHWAY

APPENDIX H

THE ANNUAL OPERATING BUDGET (AOB) FOR THE CURRENT SYSTEM



KEY:

Expenditure of Manpower

- Salary
- Bonus & Allowances

Recurring Expenditures

- Operational Expenses
- Educational Services
- Asset Maintenance
- Student Allowances

Utilities

- Electricity
- Water
- Telephone
- EG Bandwidth
- TAFIS connection

Hostel

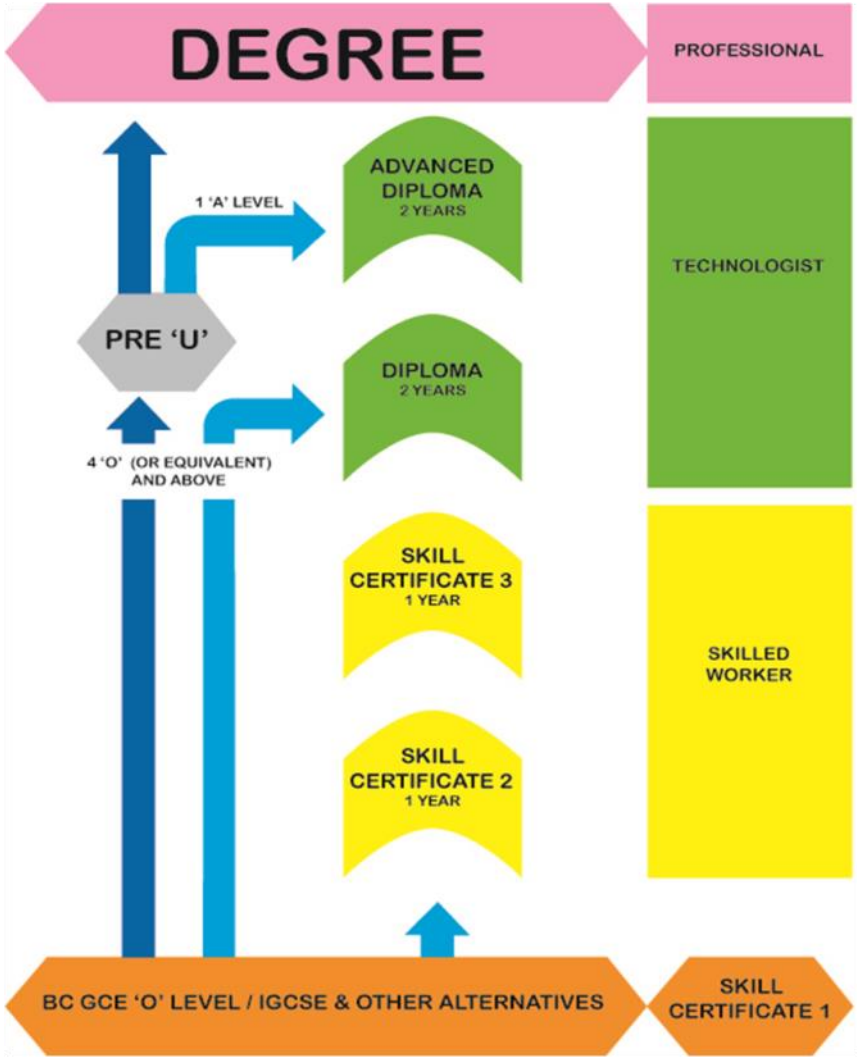
- Preparation of meals

Other Expenditures

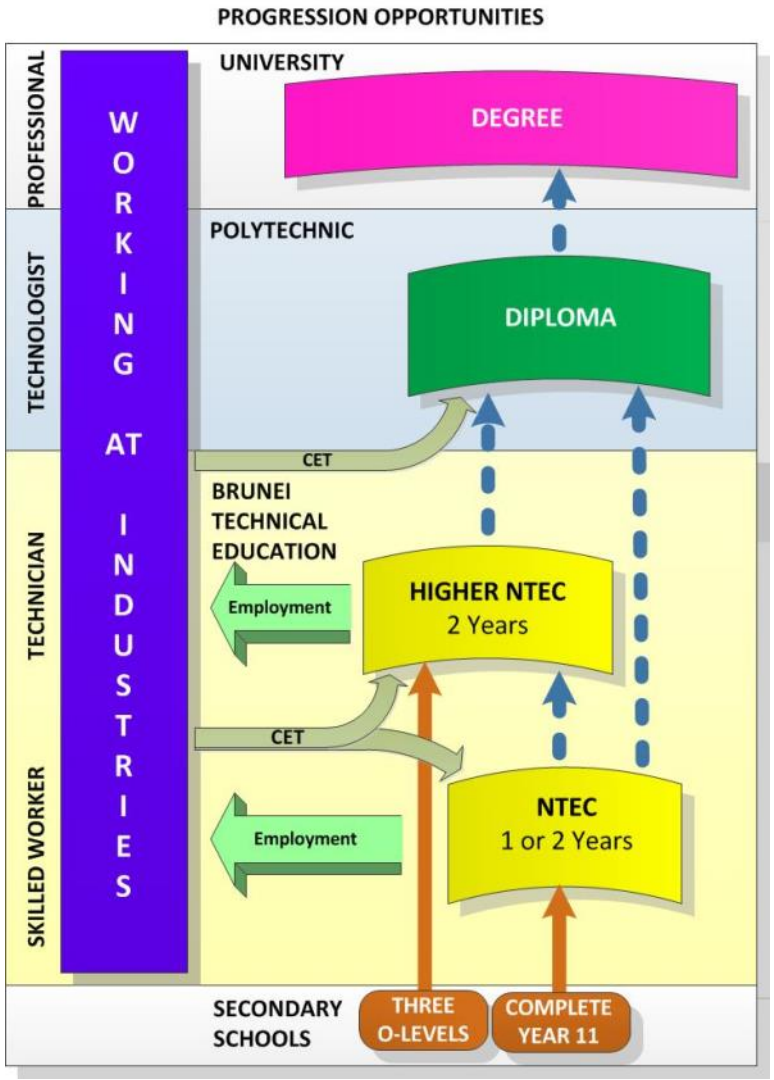
- Convocation Ceremony
- National Skill Competition
- ASEAN Skills Competition
- Shell Eco Marathon Competition
- World Skills Membership
- Abacus Training

APPENDIX I

CURRENT SYSTEM VERSUS NEW SYSTEM



Current System



New System

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STRATEGIC TEAM MEMBERS

Advisor	Dr Law Song Seng Senior Education Advisor
Chairperson	Dr Chin Wei Keh Acting Director, DTE (August 2013– present) Haji Mohd Sharifuddin Bin Haji Mohd Salleh Acting Director, DTE (October 2011—July 2013)
Deputy Chairperson	Awg Haji Abdullah Bin Ahmad Assistant Director 1, DTE Dyg Hajah Mariah Binti Haji Abd Manaf Acting Assistant Director 2, DTE
Secretary	Awg Dr Haji Mohd Zamri Bin Haji Sabli Acting Assistant Director 1, DTE & Head, Secretariat SPN 21 TVE Division, DTE
Members	Dyg Hajah Fatimah Binti Haji Ismail Acting Executive Secretariat, Brunei Darussalam Technical and Vocational Education Council Dyg Munirah 'Atirah Binti DP Haji Othman Head, Personnel Division, DTE Dyg Arbaniah Binti Haji Sablee Head, Finance Division, DTE Awg Mohammad Ramlee Bin Haji Ali Head, Estate Management Division, DTE Awg Walter Chong Meng Siong Head, Curriculum Development Division, DTE Dyg Nur Hanani Binti Haji Ahmad Kumpoh Head, Professional Development Division, DTE Awg Lim Kian Boon Head, International and Industrial Development Division, DTE Dyg Lim Kim Hwa Head, Information and Communication Technology Division, DTE Dyg Hajah Noormawati Binti BPKDP Haji Zainal Acting Head, Research & Development Division, DTE

STRATEGIC TEAM MEMBERS

Members	Pg Haji Sofhrin Bin Pengiran Haji Ibrahim Acting Head, Public Relation and Marketing Division, DTE Dyg Hjh Noorzainab Binti Haji Abdulladi Acting Principal, Sultan Saiful Rijal Technical College Awg Habib Mohammad Bin Haji Wan Junaidi Acting Principal, Jefri Bolkiah Engineering College Pg Hajah Hamidah Binti Pg Haji Hidup Principal, Nakhoda Ragam Vocational School Awg Akandi Bin Abd Razak Principal, Sultan Bolkiah Vocational School Awg Saiful Rizal Bin Marali Acting Principal, Wasan Vocational School Awg Aket Bin Melayong Principal, Mechanical Training Center Sheikh Lukman Bin Sheikh Hamid Acting Principal, Mechanical Training Center Haji Abd Ishak Bin Haji Idris Acting Principal, Business School Secretariat SPN 21 TVE Division, DTE Dyg Hajah Farhanah Binti OKSW Haji Abdullah Dyg Hajah Norly Binti Haji Radiman Dyg Nur Suryiani Binti Haji Ramlee
Report Editorial and Design	Haji Mohd Fadzillah Bin Haji Abdullah Deputy Principal (Academic), Business School Haji Mohd Saiful Hizam Bin Haji Alias IT instructor, Business School Dyg Nur Sham bte Bador Language and Communication Instructor, Business School

UPGRADING PLAN FOR TECHNICAL EDUCATION IN BRUNEI DARUSSALAM 2013-2018

DEPARTMENT OF TECHNICAL EDUCATION
MINISTRY OF EDUCATION
SPG 347 JALAN PASAR BAHARU
GADONG BE1310
NEGARA BRUNEI DARUSSALAM