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LIST OF ACRONYMS

BUSA	Business Unity South Africa
COSATU	Confederation of South African Trade Unions
CSI	Corporate Social Investment
DDG	Deputy Director General (Head of Branch)
DG	Director General (Head of Department)
DHET	Department of Higher Education and Training
ETD Programmes	Education, Training and Development (learning) Programmes
FEDUSA	Federation of Unions of South Africa
FFC	Financial and Fiscal Commission
GDP	Gross Domestic Product
GEPS	Government Employees Pension Scheme
NATED	National Education and Training (Report 191) programmes
NBI	National Business Initiative
NC(V)	National Certificate (Vocational)
NEDLAC	National Economic, Development and Labour Council
NSDS	National Skills Development Strategy
NSF	National Skills Fund
NSFAS	National Student Financial Aid Scheme
NT	National Treasury
PAYE	Pay As You Earn
PDI	Previously disadvantaged institution
PER	Public Expenditure Review
PIVOTAL	Professional, Vocational, Technical and Academic Learning programmes
PSET	Post School Education and Training
PSETA	Post School Education and Training
QCTO	Quality Council for Trades and Occupations
SARS	South African Revenue Service
SDA	Skills Development Act
SDL	Skills Development Levy
SDLA	Skills Development Levies Act
SETA	Sector Education and Training Authority
TVET	Technical and Vocational Education and Training
UIF	Unemployment Insurance Fund
Umalusi	The quality council for general and further education

1 INTRODUCTION

Post-School Education and Training (PSET) is critical to South Africa's future social and economic development. Post-school education and training improves the employment prospects of students, and provides skilled labour needed by employers. Over the long term, a well-functioning and effective PSET system can contribute to increased productivity, attracting investment and help position the economy to achieve global competitiveness. The PSET system also plays an important role in nation building and social cohesion. It contributes significantly to addressing the "NEET" challenge, that is, 3 million young people who are not in any form of employment, education or training. The emphasis in the PSET has also been on improving access to education and training for the poorest citizens. In recent years, this has been achieved through various policy interventions including the increase in funding disbursed through the NSFAS to students from poor households, and expanding enrolments in TVET colleges to cater for those learners who have dropped out of the schooling system or do not qualify for entry into the university system.

The White Paper for PSET, released by the Department of Higher Education and Training in 2013, outlines the core challenges confronted by the system, and sets out a number of policies for expanding the university and college sectors. This paper proposes three specific targets to be achieved over the NDP period, by 2030.

Table 1: Summary of targets in the White Paper on Post School Education and Training

Sector	Actual	Target (2030)	% change
TVET	702 000*	2 500 000	256%
Community colleges	265 000^	1 000 000	277%
University	937 000*	1 600 000	71%

Source: (DHET, White Paper for Post-School Education and Training, 2013) Baseline years differ: ^2011 and *2014

While the targeted enrolments increase within universities is significant in its own right, the most ambitious aspect of the White Paper is the expected increases within the college sector, particularly within TVET colleges. The White Paper states that the *"DHET's highest priority is to strengthen and expand the public TVET colleges and turn them into attractive institutions of choice for school leavers"*.¹ This is in line with the high priority that the National Development Plan places on TVET colleges.² In parallel with this expansionary drive, the intention is to improve the quality of education and training offered by institutions within the PSET system.

The targets contained in the White Paper follow on from a period where rapid growth in enrolments in both the university and college sectors has put pressure on the PSET system. This growth has happened in the context of an increasingly constrained fiscal space brought about by slow economic growth. Despite this, funding to PSET has grown. As the Revenue and Expenditure Review reveals government funding to the university sector grew by 10.4% in nominal terms between 2010 and 2014. Funding allocated to the TVET sector grew more rapidly by 16.3% over

¹ (DHET, 2013, p. xii)

² (National Planning Commission, 2012, p. 40)

the same period. However, because enrolments grew faster than funding, total government funding per enrolment declined by 6.9% in the TVET sector.

Whereas the White Paper sets out the needs of the system and how these should be addressed; it does not try to cost these various interventions. Moreover, the White Paper does not consider the different funding options available to the system in any detail, and how these can be made more efficient or sustainable.

This project seeks to estimate the cost of implementing the White Paper, identify the sources of funding and calculate any shortfall (or surplus) that may arise. In doing so, this paper intends to provide policy-makers with the information and evidence they need to make informed choices about implementation of the White Paper, and to understand the resourcing requirements and trade-offs associated with these choices. In parallel to this project, the DHET has begun work to develop an implementation plan for the White Paper; and it is critical that these processes continue to inform each other.

This report is the fourth volume in a five volume series of reports. It follows on a costing model developed to estimate the implementation costs associated with the White Paper under different scenarios. It sets out the findings from a series of interviews and modelling work. It is informed by a series of parameters set out in Annexure A of the Terms of Reference. Not all of these parameters could be modelled, some of them were investigated during interviews with key officials and stakeholders in the PSET system. Those variables that could be costed are explained in greater detail in Volume 3 of this project.

The report is structured as follows:

- Section 1 provides the context to this study.
- Section 2 sets out the results of the costing exercise.
- Section 3 examines the funding framework for the PSET system.
- Section 4 assesses the options for funding and financing TVET colleges.
- Section 5 reviews the options for funding and financing community colleges.
- Section 6 discusses the options for funding and financing the university sector.
- Section 7 summarises the findings and concludes with recommendations.

2 COSTING ESTIMATES

In order to estimate the costs of achieving these targets, a costing model was developed. A number of key findings emerged from the costing model. In the TVET sector, the key drivers of expenditure are the target enrolments, student to lecturer FTE and programme mix. Similarly, in the university sector, the main drivers of expenditure are enrolments, composition and qualification levels of academic staff, and proportion of undergraduate to postgraduates in universities.

In both sectors, throughput rates had a significant effect on the cost per graduate. At higher throughput rates, the university and college sectors are more efficient, and produce more graduates for a given level of funding. Therefore, by increasing throughput rates, the PSET system could potentially achieve significant efficiency gains. That said, throughput rates are partly

determined by factors outside the control of the PSET system such as socioeconomic background of the student, their language competencies, their academic scores in Grade 12, and their Maths and Science scores. Nonetheless, there are interventions within both the university and college sectors could potential improve throughput rates. Some of these interventions are costed in Volume 3, whereas others are discussed in other sections of this paper.

The cost model estimates the expenditure from 2014 to 2030 in the college and university sectors, and for workplace based training, the results of which are summarised in Table 2. The estimates are based on three scenarios:

- The **status quo** scenario illustrates the expenditure implications of meeting the White Paper total enrolment targets, while assuming that all the key cost drivers (e.g. student to lecturer ratios, the mix of enrolments by programme and, throughput rates) remain as they currently are. Effectively this scenario looks at the costs of increasing access, while keeping the key input factors that might affect quality the same.
 - If we maintain the status quo, expenditure will increase from R 64 billion in 2014 to R352 billion in 2030 in nominal terms, growing at an annual average rate of 11.2%. This means that by 2030, PSET expenditure will increase from 1.6% to 2.3% of GDP.
- The **full policy** scenario is calibrated to meet the White Paper enrolment targets while improving quality at the same time. This scenario models changes to the cost drivers and input factors that are likely to improve quality. The changes in these factors are informed both by the White Paper and NDP, as well as the results of interviews carried out by the project team with policymakers.
 - Under this scenario, expenditure rises to R655 billion, and grows at an annual average rate of 14.2%. As a result of this higher growth rate, PSET expenditure will account for 4.4% of total GDP in 2030.
- The **mixed scenario** represents a more gradual approach to improving access and quality, with attention being given to both and targets being achieved in an incremental manner. Given funding limitations, it might not be possible to meet the full White Paper enrolment targets or implement all the interventions to improve quality that were considered under the White Paper Scenario. This scenario therefore shows the possible implications of less ambitious increases in enrolments and input factors; effectively representing a mix between attempts to increase access and improve quality.
 - The total expenditure required under this scenario does not differ from the status quo. The key difference is that the throughput rates are higher and enrolments are moderated. In this scenario, expenditure will increase to R 376 billion, growing marginally slower at 10.6 than under the status quo scenario. PSET expenditure as a percentage of GDP rises to 2.5%.

Table 2: Summary of cost estimates under different scenarios (nominal terms)

(R'm)	2014	2030					
		Nominal			Real		
Sector	Current Value	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Community Colleges	R1 844	R14 840	R26 756	R17 130	R5 668	R10 343	R6 649
TVET	R8 726	R70 301	R292 214	R107 943	R27 719	R112 418	R42 035
Universities	R52 920	R265 533	R334 264	R249 240	R104 020	R129 800	R96 784
Other institutions (incl. DHET)	R427	R1 419	R1 419	R1 419	R542	R542	R542
Total	R63 917	R352 093	R654 653	R375 732	R137 950	R253 102	R146 010
% of GDP	1.6%	2.3%	4.4%	2.5%			

3 FUNDING OF THE PSET SYSTEM

3.1 Funding flows in the PSET system

Figure 1 illustrates the complexity of the funding flows in the PSET system. There are four main sources of funding for the PSET system. A large proportion of funding comes from state subsidies through grants transferred from the DHET and provincial departments of education directly to institutions (the green lines). Earmarked grants are used mainly in the university sector's funding framework to ensure that government priorities are funded. Universities and TVET colleges also receive funding from other government departments, as in the case of the Department of Science and Technology which funds research at universities.

The PSET system is also funded through other forms of taxation and tax concessions. The Skills Development Levy was established to fund workplace based training. Employers receive grants from SETAs on the basis of their workplace plans. They are also eligible for tax concessions if they have learnerships. Private funding comes from student fees, donations and commissioned research. Finally, both universities and TVET colleges receive some funding from non-academic activities such as interest income on investments, the renting of facilities and commissioned projects.

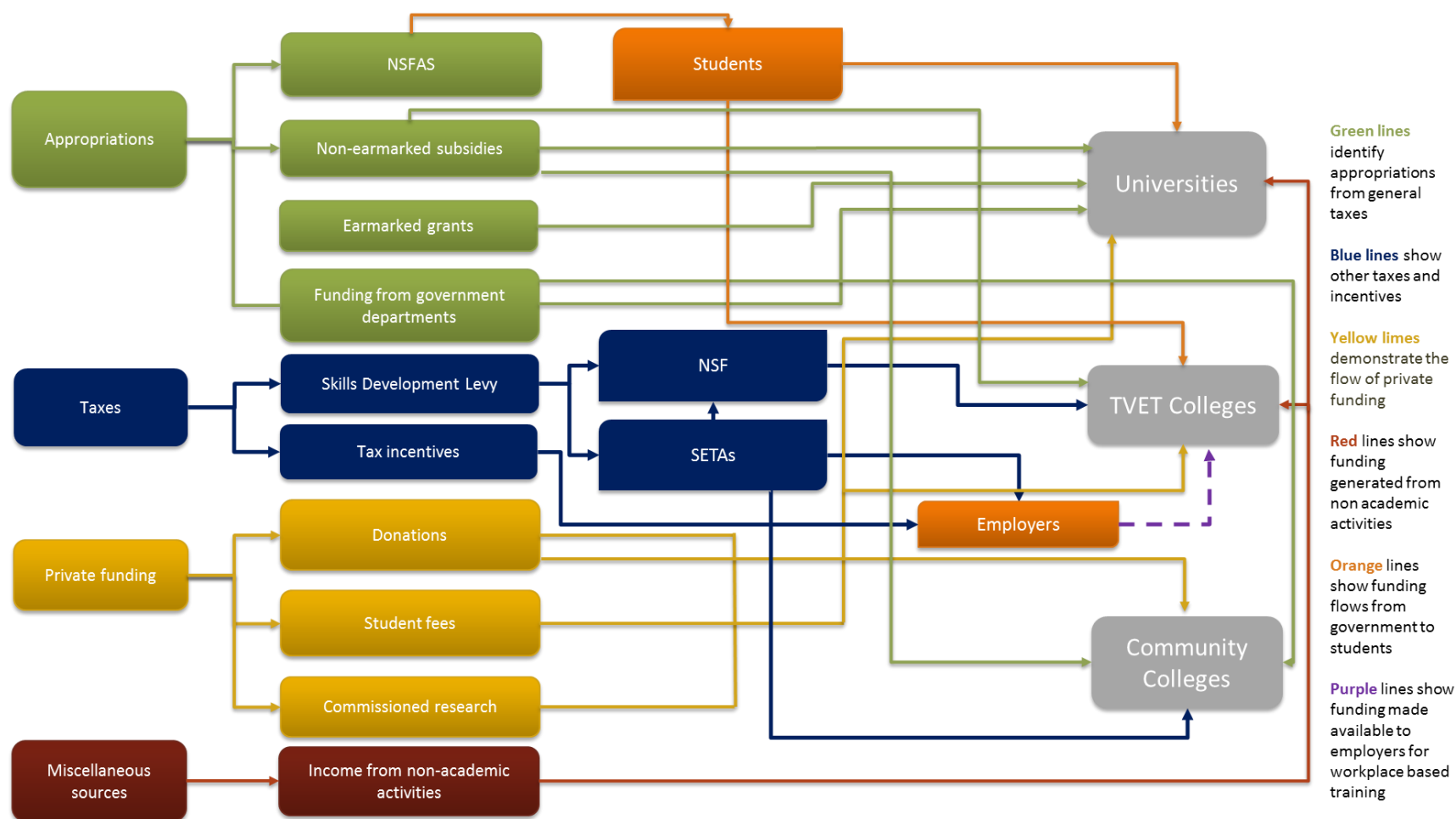
Over the years, the relative importance of each of these sources of funding has changed. A few points are worth highlighting:

- In deciding to expand access through the NSFAS, government funding has shifted from a grant based system to an income contingent system. Not all the funding allocated to the NSFAS goes to universities in the form of fees, correctly so, funding is also given for students to cover books and living expenses.
- The shift towards an income contingent scheme has been funded through additional allocations and by slowing the rate of growth in block grants to universities. This would suggest that the different funding mechanisms compete for allocations. It has also exposed a tension resulting from the increasing demand on the universities created by additional student numbers which they have to address with reduced (in real terms) per capita grant income. This tension has been eased by the additional R16 billion allocated to higher education over the 2015/16 MTEF period, but is likely to remain a tension in the system that will see pressure in universities to increase fees at a time when students are engaged in a "no fee increase" or in some cases "no fee" campaign.
- The university and TVET sectors are also funded to some extent from payroll taxes. In the last five years, funding from the NSF has flowed to the university sector through the NSFAS in the form of funded fees. Additional funding was made available from the NSF's accumulated reserves and more recently by 'sweeping' SETA reserves to the NSF. Although the reserves have been largely committed now, NSF has resolved to continue to fund scarce skills bursaries through NSFAS. This is being done from the 20% (currently R3 billion) that is allocated annually to the NSF from the SDL income.
- In the TVET system, NSFAS allocations are given in the form of grants or bursaries, in contrast to the university system where they are disbursed as loans (though some are converted to

bursaries in the final year if a student passes each year of study and completes their qualification).

- It is unclear why students in the TVET system are funded through the NSFAS, as they receive grants rather than loans. This approach to funding TVET has created an additional burden for TVET colleges, which have had to administer the NSFAS grant scheme. Even if NSFAS disburses funding directly to TVET students, the cost of administering the system will need to be weighed up against the relatively small value of the TVET award.
- NCV and NATED qualifications are funded from multiple sources: by the DHET through a formula based grant, the NSF, NSFAS and SETAs. The amount of SETA funding that goes to TVET colleges is not known as it depends on how the employer uses their grant. Some of the grant could be used to pay for the theoretical and practical training in TVET colleges.
- Community colleges receive some funding from SETAs for occupational programmes, although there are no reliable estimates of this amount. Some SETAs are also funding the start-up costs of community based institutions such as skills centres. In the past SETAs funded ABET or AET programmes but spending on such programmes has reduced significantly as a result of the emphasis being placed on PIVOTAL programmes (80% of SETA funds must be spent on these). The NSF also used to fund such programmes but has also reduced such spending for the same reason.

Figure 1: Funding flows in PSET



3.2 Tax revenue

Following the recent protests across universities and TVET colleges, there is widespread recognition that getting the design of the funding system right is no easy feat. The funding framework is fundamentally about creating a set of incentives that encourage policy makers, administrators and educational institutions to deliver post school education and training efficiently and effectively to support the broader social and economic objectives of the country.

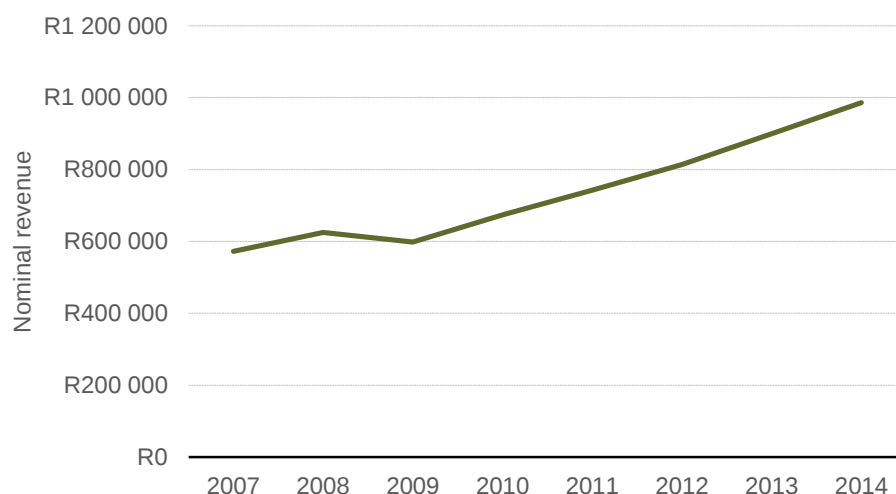
The funding of PSET is influenced heavily by economic cycles. Government funding available for the university and college sectors is often dependent on the fiscal position of the country. In economic downturns, other priorities where the constitutional obligation is immediately realisable (such as basic education) might take precedence over the needs of the PSET system. In other words, PSET competes for funding against other government priorities and programmes. Within the budgeting process, allocation for the PSET system is determined through the Medium Term Expenditure Framework (MTEF), and is a political decision. It is influenced by a host of factors, such as the political imperatives at the time that cannot be modelled.

In order to estimate the funding available for the PSET system, the fiscal envelope available to fund public services is projected.

3.3 General taxes

There are two ways to forecast tax revenue. The first method is to calculate the historical growth rate in tax revenue and assume that this growth continues to 2030. Figure 2 shows annual tax revenue between 2007 and 2014. Aside from a decrease between 2008 and 2009; most probably due to the contractionary effects of the 2008 financial crisis; annual tax revenue has grown at a relatively consistent rate. Over the period represented in Figure 2, tax revenue grew at an average annual rate of 8.1%. When adjusted for inflation, this nominal growth rate equates to a real growth rate of 1.6% per year.

Figure 2: South African annual tax revenue (2007 - 2014)

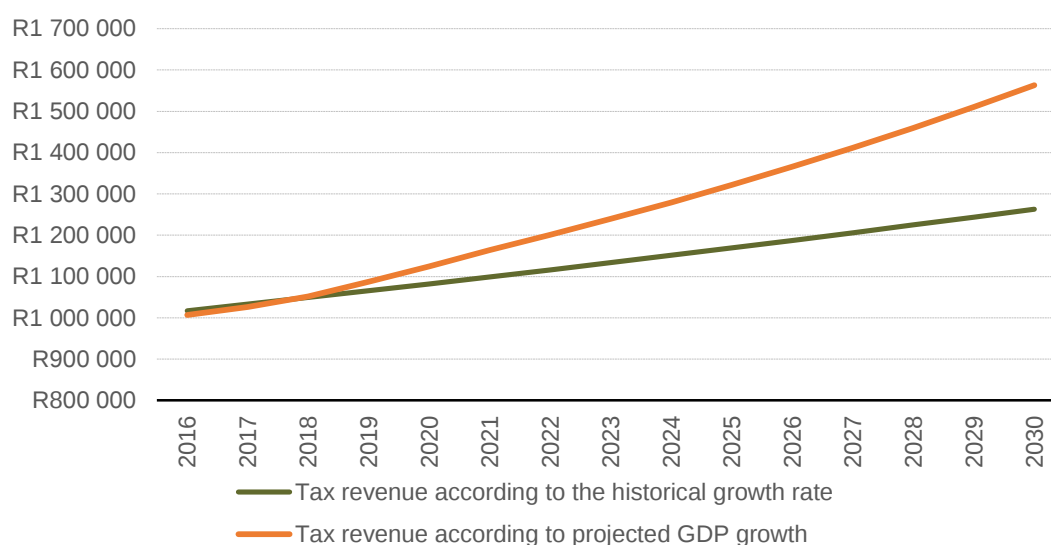


Source: National Treasury (2015)³

Second, tax revenue is forecasted over time on the assumption that there is a positive relationship between economic activity and tax revenue. Therefore, it can be assumed that tax revenue will grow at approximately the same rate as GDP. An analysis of tax collection data reveals that tax revenue as a percentage of GDP has remained relatively consistent, within a range of 21.9% and 26.4% over the last 20 years. This small range of 4.5 % makes it reasonable to assume that tax revenue will grow at approximately the same rate as GDP between 2016 and 2030. The *Fiscal Sustainability Model* maintained by the National Treasury forecasts GDP to grow at an average annual rate of 2.9% in real terms. Using information from the *Fiscal Sustainability Model*, we are able to project growth in tax revenue over time. Figure 3 illustrates the projections of tax revenue based on:

- Historical growth
- Projected growth (in line with the *Fiscal Sustainability Model*)

Figure 3: Projected tax revenue growth



Source: DNA Economics calculations

We assume that funding for PSET will grow at the same rates as tax revenue. Therefore, as the fiscal envelope expands, funding for PSET grows proportionally. These growth rates are used to estimate the amounts of state subsidies available to the university and college sectors.

³ National Treasury. 2015. Tax statistics. [Online] Available from: <http://www.treasury.gov.za/publications/tax%20statistics/2015/default.aspx>

3.4 Skills Development Levy

For the workplace based training component of the model, a projection of the Skills Development Levy is needed. The Skills Development Levy requires all employees to contribute 1% of their wage bill to fund learning and development. The levy is divided between the SETAs and the NSF, in favour of the training authorities, which receive 80% of the funds collected. They in turn disburse these funds to companies within their sectors, who train and up-skill their employees. When this mechanism works, companies receive part of their levy back and this minimises the economic costs of the country's workplace based training system.

Some argue that that when the skills system does not work well the opportunity cost of the skills system is significant as some R15 billion is being taken out of the economy. Part of the motivation for a major review of the current skills development arrangements is the general consensus that the current system is not working effectively either from an efficiency perspective or effectiveness. Not only are huge reserves being generated (current reserves are running at around R9 billion – though these are “committed”) but many question whether the work of SETAs is aligned to the needs of industry or the wider economy (see various reports for NEDLAC and the HRDC). Whilst there are differences of emphasis amongst stakeholders, and a view that some parts of the skills system are working well and others not (BUSA holds this view), there is consensus that the system as whole is not working well and is in need of reform.

The current DHET proposals may be adjusted but the policy drive to improve the flow of needed skills for the economy through the more effective use of available levy income will continue as will the drive for a greater degree of integration of skills development with PSET.

Section (2) (a) and (b) of the Skills Development Act (1998) directs that the NSF be credited with 20% of the skills development levies, interest and penalties collected in respect of every SETA as well as the skills development levies, interest, penalties collected by the South African Revenue Service from employers. The intention is to fund training for people that do not fall within the jurisdiction of a SETA. In other words, it uses employer contributions to subsidise training programmes for school leavers and the unemployed as well as rural projects and projects for disadvantaged groups. The funds can also be directed to fund government priorities in relation to skills development. Furthermore, funds allocated to the NSF are a direct charge against the revenue fund and therefore not appropriated through the budgetary process.

However, it is likely that this allocation will change in the near future, if the DHET's proposals in the SETA Landscape paper are accepted. This policy proposes a new allocation formula for the SDL. The proposed formula keeps the administration (10%) and mandatory grants (20%) as they are with a new split for discretionary grants and the NSF. The proposal is for the NSF to receive 60% of the levy revenue and to allocate a portion (40% of SDL revenue) for occupational programme training and the remainder for national priorities. The following table sets out the proposals.

Table 3: SDL Revenue Allocations

SDL funding focus	Current allocation of SDL	Proposed allocation of SDL
NSF	20%	60%- 40% PIVOTAL training- 20% National Priorities

QCTO	0.50%	(Funded through NSF)
SETAS		
Mandatory Grants	20%	20%
Discretionary Grants	49.50%	10%
Administration	10%	10%

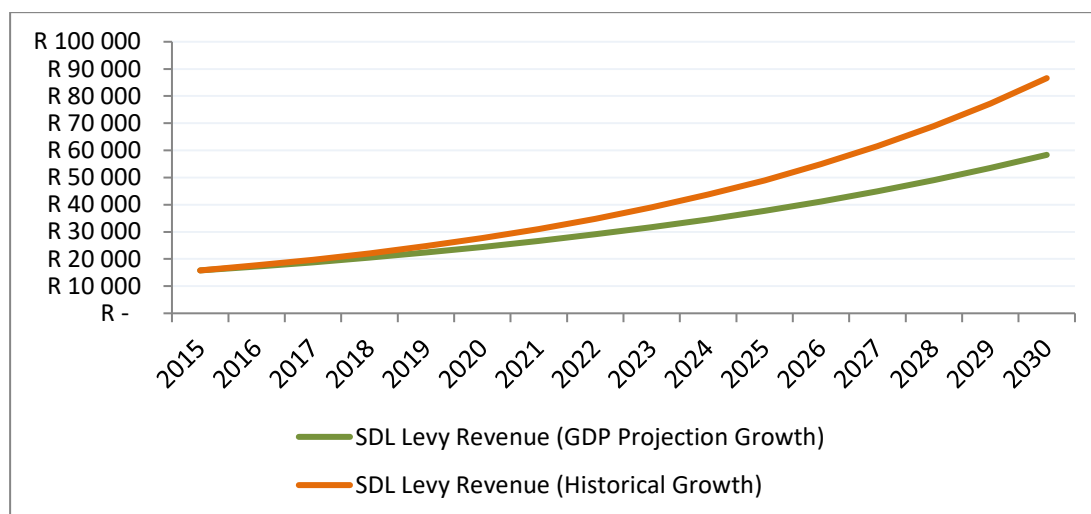
Source: DHET SETA Landscape Paper

If these proposals go ahead, they potentially provide an additional source of revenue for the TVET sector, especially for those PSET institutions that are able to deliver PIVOTAL or occupational programmes. It needs to be noted that there is currently no agreement with employers and trade unions on the reallocation of the additional 40% from SETAs to the NSF, nor on making use of that money to fund PSET. The Department has determined that skills institutions will work more closely with, and fund programmes through, public colleges and universities. The White Paper is clear that there must be a greater level of coordination of training and collaboration between skills development and PSET institutions and so some funds will flow to fund PSET. If agreement can be reached at NEDLAC the amount currently allocated could grow and the flow of funds could be more effectively targeted. If the funds are managed centrally there could also be more consistency. However it is unlikely that the full R6 billion or even the largest part of that R6 billion will be available to fund public PSET institutions. Stakeholders will not agree to that. If significant sums are to be made available it is likely that they will be focused on scarce skills occupations and in particular the workplace component of occupational qualifications. In other words it is more likely to be paid to employers than to become a direct source of revenue for PSET institutions.

On the other hand the current the 20% allocated to the NSF to fund national priorities allows the DHET to direct these resources to areas of the TVET system that require additional funding. Currently the strategy in NSF is to fund priority scarce skills development. This is done partly through bursaries to TVET college and university students and partly by contracting providers and employers to train artisans and deliver learnerships. The majority of available funds is allocated in this way. In addition substantial sums have been allocated to capacity development in the TVET colleges. This includes lecturer development on the HR side and the building of new colleges on the infrastructure side. It can be envisaged that community colleges will also seek regular funding from the 20% allocated to the NSF.

The SDL has consistently outstripped inflation and income tax revenue growth rates. Increases in the SDL is fuelled by wage increases and inflation. Two methods of forecasting SDL revenue growth are used in this model. The first method uses historical growth rates to project revenue growth up to 2030. Over a seven year period the SDL increased by an average of 12.07% in nominal terms. The second method uses GDP growth rates up to 2030, forecasted by the *Fiscal Sustainability Model*. In this approach a GDP 2.9% growth rate proposed with CPI inflation at 6.2%. In both cases, the MTEF projections for the SDL have been used up to 2018, with the levy growing by historical or projected SDL growth rates between 2019 and 2030.

Figure 4: Projected SDL revenue growth (Nominal)



Source: DNA Economics calculations

Given that the current level of income from the levy is R15 billion (see National Treasury audited figures for 2014/15 and the 2015/16 revised estimates in the ENE) and the real value of this amount will increase, it is inevitable that such a level of income has to be viewed as a potentially important source of funding for PSET expansion. However the expectations in relation to this have to be contained.

The original and current intention of legislation providing for the levy is to fund worker education and training. Worker education includes employed workers and new entrants to the labour market. Currently the preference of employers is to use the levy income to fund in-house training and training commissioned from private training providers. Trade unions are concerned about the apparently reduced focus on training of employed workers. If there is to be agreement on the legislation changing to allow a proportion of levy income (other than the 20% available now) to go to the NSF then employers and unions will need to be convinced that the public colleges and universities can deliver quality skills for existing and future workers. The current discussions on occupational qualifications driving the partnerships between skills development and PSET institutions are the start of a process of dialogue that may lead to agreement, but this is not a given and agreement cannot be assumed at this stage.

In the Volume 2 a comprehensive analysis of the SDL revenue, how it gets allocated and the implications of allocating more to the NSF or the continuation of the current allocation patterns was discussed. The analysis further focused on how the levy can be prioritised to fund the different competing interests. Finally the analysis discussed possibilities for funding the public PSET using the SDL. These are discussed in the following sections.

4 FUNDING FRAMEWORK FOR TVET COLLEGES

4.1 Sources of funding

This section discusses the primary sources of funding for public TVET colleges and the assumptions made to model the forecast the future values of these parameters. Exact estimates of what proportion of TVET college funding originates from different sources are not available to the project team for a number of reasons:

- Inconsistencies in the way that colleges record financial data (e.g. lack of consistent recording of bad debts on student fees)
- Lack of financial data for a (small) subset of colleges
- The low quality of financial reporting in several colleges
- For occupational programmes (including skills programmes) colleges often do not record the original source of funds received; for example whether the funds originate from a SETA or directly from an employer.

As a result of these challenges, assumptions have in many cases had to be made to estimate the source of funds; particularly in determining the breakdown of funding and financing between SETAs, private fees, donations and employer sponsored programmes.

4.1.1 State subsidies

The annual state subsidy to TVET public colleges is determined via a funding formula. This subsidy, transferred from the DHET, is meant to cover the majority of the costs of delivering NATED (Report 191) and NC(V) programmes. This includes the recurrent direct lecturing and programme costs, on-going programme-related capital costs⁴ and college overhead costs related to administration and student support.

Interviewed DHET officials have indicated that the colleges will be expected to present a far greater number of occupational and skills programmes in future; which will likely be accompanied by a reduction in NATED programmes. The policy intent of this change is to increase the employability of TVET graduates by linking theoretical, practical and workplace training more closely. While some of these occupational programmes will be funded through SETAs and the NSF, it is likely that the subsidy will remain the primary funding source for these programmes with any SDL grant funding being used to incentivise employers to form partnerships with public TVET colleges and make their workplaces available for workplace experience and training.

It is assumed in the tables presented below that state subsidies increase at the rate that tax revenue increases; using the two tax revenue growth scenario assumptions discussed in Section 3.2.

⁴ This includes the maintenance and depreciation of equipment, machinery and facilities required to deliver practical training

There is currently no earmarked infrastructure grant to TVET colleges from the fiscus. As a result infrastructure expansion is typically funded through retained surpluses and / or NSF funds; as well as through once-off capitalisation funding (e.g. in 2007 a large re-capitalisation of the sector commenced). The result is that colleges typically run substantial annual surpluses to enable future capital spending (approximately 12% of total income in 2013⁵). As a result, it is likely that if an additional funding source is not created for infrastructure, increases in the subsidy will be channelled towards capital spending rather than to operational spending per student.

4.1.2 Tuition Fees

The state subsidy is intended to cover 80% of the costs of delivering NC(V) and NATED programmes; with the other 20% being financed from private tuition fees and the NSFAS. The fees received by all colleges are therefore based on this assumption in this model. In practice, the amount transferred to colleges per student is about 30% less than that assumed by the funding norms, with the result that fees (including NSFAS) typically cover more than 20% of the cost of delivery per student.

In addition, fees are also paid for other programmes; and colleges record such “fees” in a wide variety of different ways; including as tuition fees, project income or “other” income. Tuition fees per student are assumed to grow at 0% in real terms.

4.1.3 NSFAS allocations

Within the TVET system, NSFAS provides bursary funding to some NC(V) and NATED students. Accommodation and transport funding is also provided to some of these students; though only to a relatively small proportion of students. The modelled amount of NSFAS funding required by TVET colleges is therefore determined based on a number of variables:

- The number of students enrolled in NC(V) and NATED programmes
- The assumed proportion of students who receive NSFAS funding
- The assumed tuition fee over time
- The assumed proportion of students who receive transport and / or accommodation funding
- The amount of transport and / or accommodation funding per student who receives it

It assumed in the baseline funding model that the proportion of funded students remains constant over time, but all of the above variables can be adjusted by the model user to determine their impact.

Analysis of the financial statements of colleges for 2014 suggest that the majority of NSFAS funds are directed towards NC(V) programmes; with approximately 69% of NC(V) fees and only 31% of NATED fees being covered by NSFAS amongst the 22 colleges for which data was available.⁶ NSFAS only funds a student’s first attempt at each level, and hence the vast majority of first

⁵ Source: (National Treasury, 2015)

⁶ It should be noted that in practice NSFAS will cover a greater proportion of fees than these figures; given the high proportion of defaults on private fees. Accurate estimates of default rates are however not available.

attempt NC(V) students are covered by NSFAS; given the high failure and repeat rates in NC(V) and demographics of most TVET colleges. In addition it appears that about 20% of TVET NSFAS funds are allocated towards residential expenses

4.1.4 NSF and SETA

It was estimated that about 5% of operational TVET revenue originates from the NSF in 2013⁷, which is split between a wide range of programmes, project and initiatives. Similarly a small proportion of TVET occupational programme funding is provided through SETAs, although exact estimates are not available. The failure of the TVET system to attract more SETA funding reflects the general preference of employers towards private providers. Public TVET colleges will have to become institutions of choice if SETAs are to become a substantial source of operational funding.

Additionally, infrastructure funding to TVET colleges has been provided by both the NSF and SETAs; and it is expected that particularly the NSF will continue to fund infrastructure development and capacity building initiatives within the TVET sector.

NSF and SETA funding is modelled through the Workplace module of the Costing Model and serves as a key input into the funding of TVET colleges. It assumed in the scenarios presented below that the proportion of SETA and NSF funds that are directed towards the TVET sector remains the same over time; although the models allow the user to investigate the impact of changes to the allocation of the levy and its spending.

4.1.5 Other income (third stream)

TVET colleges also receive smaller amounts of funding and financing that do not fall into the above categories, including:

- Investment income
- Public contributions and donations
- Sales of goods and rendering of services (where e.g. college staff or students perform a service to a private entity)

The most substantial amongst these is investment income. Based on the financial statements of the 39 colleges for which this information was available, it appears that in total colleges received approximately R200m in investment income in 2014. This income is made possible by the approximately R4.5bn worth of short (cash and cash equivalents) and long-term investments that colleges held in 2014.

It appears unlikely that these funding sources will grow substantially over the short to medium term. The model therefore assumes that these “other” sources of income growth at the same rate at which state subsidy funding to the sector grows; which directly influences their ability to generate these forms of revenue.

⁷ Source: (National Treasury, 2015)

4.2 Funding and shortfall estimates

Table 4 and Table 4 below provide estimates of the total costs under the different expenditure scenarios, the funds originating from different sources and the total shortfall for the TVET college sector. Table 3 provides these estimates under the historical funding growth scenario, while Table 4 provides the projected funding growth scenario (see Appendix A for growth assumptions). Please note that this table only provide information on current (i.e. operational) costs; and does not include infrastructure costs. Consumer Price index is assumed at 6.2% as projected by National Treasury in its *Fiscal Sustainability Model*.

The assumptions made within each of the costing scenarios (Status Quo, Full Policy and Mixed) within each of the sectors are provided in **Error! Reference source not found..**

Table 4: TVET Costing, funding and shortfall under the Historical funding growth scenario

Historical (R millions)	2014	2030 (Real)			2030 (Nominal)		
Item	Current Value	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Current Costs	R8 622	R27 700	R112 418	R42 035	R70 301	R292 214	R107 943
Funding and financing: Total	R10 076	R23 751	R21 840	R12 196	R51 824	R55 804	R30 359
Government Subsidy	R5 827	R7 841	R7 841	R7 841	R19 065	R19 065	R19 065
NSF and SETAs	R898	R5 551	R0	R121	R5 551	R0	R121
Third stream	R606	R736	R736	R736	R2 014	R2 014	R2 014
Tuition and residence fees	R2 667	R9 623	R13 263	R3 498	R25 193	R34 725	R9 158
NSFAS contribution	R1 619	R5 853	R3 217	R1 274	R15 324	R8 422	R3 336
Shortfall (-) / Surplus (+)	R1 454	-R3 950	-R90 578	-R29 840	-R18 477	-R236 410	-R77 584

Source: TVET Colleges Costing and Funding Model

The key findings from these tables are:

- The current costs, and hence the resulting shortfalls, differ substantially across the three costing model scenarios:
 - The R236.4 billion nominal shortfall in 2030 in the Full Policy scenario is reflective of the tremendously ambitious nature of this scenario. Not only are enrolments assumed to increase from 702 000 to 2 500 000, but it is assumed that substantially more is spent per enrolment in an attempt to improve the low level of throughput in the system. Additionally, the expected shift towards a greater proportion of occupational programmes and higher certificate programmes also contributes to the large estimate; as these programmes are far more expensive than NATED; which currently comprises the majority of enrolments.
 - While the Status Quo scenario results in a somewhat more manageable level of shortfall and it meets the 2 500 000 enrolment target; it is likely that the current low throughput rates in the system will remain or even worsen if additional funding (per student) is not allocated; and therefore implementing this scenario should likely be avoided.
 - The Mixed scenario assumes that enrolments grow at 2% per annum (to 950,000), but that programme mix is adjusted and that a greater amount is spent per student (in an attempt to increase throughput rates).

- It should be noted that even the targets in the Mixed scenario, which fall far short of the White Paper, still result in a shortfall and would only be achievable if either TVET is prioritised above other sectors in the State Subsidy or if additional funds could be directed from the NSF, SETAs and private sources (see next section).
- When comparing Table 4 and Table 5, we see that shortfalls reduce under the Status Quo and Mixed Scenario, due to an increase in the growth rate of both the state subsidy and the levy.
- Tuition fees are higher under the Status Quo scenario than the Full Policy scenario as it is assumed that tuition fees are only payable for NC(V) and NATED. It's further assumes that tuition fees will not be collected from private sources for foundational, occupational and higher certificate programmes and that these will instead be funded by the NSF, SETA and the fiscus. This is a very conservative assumption, but was the only reasonable choice given the lack of certainty on how these programmes will be funded in future.

Table 5: TVET Costing, funding and shortfall under the projected funding growth scenario

Projected (R'm)	2014	2030 (Real)			2030 (Nominal)		
Item	Current Value	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Current Costs	R8 622	R27 700	R112 418	R42 035	R70 301	R292 214	R107 943
Funding and financing: Total	R10 076	R25 576	R23 665	R14 021	R56 035	R60 015	R34 569
Government Subsidy	R5 827	R9 488	R9 488	R9 488	R22 821	R22 821	R22 821
NSF and SETAs	R898	R5 551	R0	R121	R5 551	R0	R121
Third stream	R606	R913	R913	R913	R2 470	R2 470	R2 470
Tuition and residence fees	R2 667	R9 623	R13 263	R3 498	R25 193	R34 725	R9 158
NSFAS contribution	R1 619	R5 853	R3 217	R1 274	R15 324	R8 422	R3 336
Shortfall (-) / Surplus (+)	R1 454	-R2 125	-R88 753	-R28 015	-R14 266	-R232 199	-R73 373

Source: TVET Colleges Costing and Funding Model

4.3 Funding and financing options analysis

Annexure A of the terms of reference suggested a number of funding options that should be explored when considering the funding of the PSET system. This section explores some of the available options in the context of TVET colleges and incorporates the suggested avenues articulated in Annexure A.

4.3.1 Efficiency gains

Low throughput rates

Low throughput rates is perhaps the key challenge facing the TVET sector. A commonly held view within the DHET and colleges is that TVET colleges do not generally have sufficient funds available to deliver high quality training programmes; and that this is one of the key reasons for the low throughput rates present in the system. It is not easy to prove whether throughput rates could be improved without increasing per student expenditure, but based on the expenditure analysis performed it appears that certain aspects of training - particularly the practical components of training and student financial and academic support – are not receiving sufficient priority within the system. This suggests that additional spending per student might be required to improve throughput rates.⁸

Improving throughput rates increases efficiency in the following way: Higher throughput implies few drop-outs and more graduates, which (*ceteris paribus*) results in a lower unit cost per graduate. However, if these improvements are accompanied by an increase in funding per enrolment, this efficiency gain does not decrease the cost of the system as a whole (for a fixed level of enrolments). The costs of increasing throughput rates assumed in the costing model (see the Costing Model Output report for more detail) would therefore increase the total cost of the sector for a given level of enrolments, and it appears unlikely that cost savings could be found within colleges to offset this increase.

However, given the present low throughput rates, it would appear that increasing throughput rates should take priority over increases in enrolments and that the constrained fiscal envelope should be directed towards improving throughput rates rather than increasing enrolments; even if this jeopardises the achievement of the enrolment targets. Once throughput rates and the quality of provision have been improved it is possible that greater amounts of private and donor funding could be accessed; and enrolments increased – though it is likely that this would only be possible over the longer term.

⁸ Note however that higher funding or expenditure per student will likely only be effective if accompanied by non-pecuniary improvement

Exam cycles

The DHET are currently investigating the possibility of creating programmes with fewer exit points; for example changing NC(V) levels 2 to 4 or NATED N4 to N6 into single qualifications. One potential benefit of such a change (or a similar intervention) is that it could reduce the seemingly high examination costs that result within the current system. Discussions on the practical implications of such a change are however still in their early phase and an accurate estimate of the impact of such a change is not possible at this stage. However, the R178.1 million spent in 2014/15 on national examinations and assessments⁹ represents 2.8% of total DHET expenditure in the TVET budget sub-programme; suggests that the savings are unlikely to substantially reduce the total cost of presenting programmes. It is also likely that any savings could be absorbed by improved quality assurance, and is hence unlikely to result in a significant overall reduction in cost.

4.3.2 Reprioritisation of the Skills Development Levy (SDL)

Given the large shortfalls presented above and the current fiscal constraints, the most likely source for additional funding to the TVET system is perhaps the Skills Development Levy grant institutions, the NSF and SETAs. Indeed, there is some flexibility within the levy grant system to enable funds to be steered in certain direction. The review every five years of the National Skills Development Strategy (NSDS) – which is consulted on within the National Skills Authority (NSA) the stakeholder body established to advise the Minister – provides the opportunity to give direction to SETAs and the NSF.

However, based on the interviews with business representatives, there is a view amongst employer organisations that the Department has exercised too much discretion in the allocation of levy funds. As a result, there are currently on-going challenges to ministerial decisions in the courts and within NEDLAC. Any discussion on the levy and its use should therefore be understood within this context. In particular, if stakeholders do not agree change will be difficult to achieve.

The remit of the NSF is currently very wide (national priorities). This applies to the 20% of levy income allocated to the NSF (R3 billion a year). This is legislated in the Skills Development Act (SDA) which provides for this to be top sliced for use by NSF. The current use of that money to fund NSFAS, bursaries for scarce skills studies at universities, artisan and learnership programmes, college recapitalisation, etc. requires no change in the law. It is likely that the 20% will continue to be available for such things as TVET college recapitalisation, workshops and equipment, college lecturer development and other once-off commitments. The community colleges are expected to seek funding for their programmes from the NSF.

⁹ (National Treasury, 2016)

NSF money has often been re-directed in response to short-term funding shortfalls, such as the NSFAS; which limits its reliability as a funding stream. Currently the thinking within NSF is that there should be multi-year commitments and more clarity on what will be funded. It is possible to envisage the 20% (R3b a year) being divided between key needs within the PSET system.

There is also the possibility of continuing to fund some artisan and other scarce skills occupational programmes from this amount. However it needs to be noted that this will not be on the scale of the past few years. The surpluses that built up in the NSF - supplemented by un-committed reserves from SETAs - will not be on the same scale going forward. In fact one of the challenges facing the NSF will be to meet the expectations that have been raised by the availability of some R4-5 billion in accumulated reserves that they temporarily had access to. The NSF as currently funded is getting to the point of being over committed.

Current proposals (the SETA Landscape Gazette) would allocate 20% (R3b) to the NSF for national priorities (as per the current legislation) and in addition would allocate 40% (R6b) to the NSF for occupational (PIVOTAL) programmes. At the present time, this amounts to R9b in total. This is a significant change that on the one hand would potentially make R6b available to fund a certain part of the public PSET system (through occupational qualifications), but on the other might create challenges if employers are not in agreement.

If the Department can convince the employers that the system will be fair and that the money will be spent on programmes for existing and future employees in industry, then the possibility exists of changing the law and obtaining agreement. There appears to be agreement on the focus being scarce skills occupations but not on the processes of managing this through the NSF.

If the legislation is changed (and this requires NEDLAC constituencies to agree the changes) then potentially an additional 40% (approx. R6 billion at the current time) of existing money (over and above the 20% or R3 billion already allocated to the NSF) raised from the levy could be formally allocated to the public PSET system. In order to achieve agreement within NEDLAC, DHET will need to explain how the money will be used and how quality occupational training will be delivered. This would be a win-win arrangement if it could be achieved. If the NSF can allocate that money to employers who partner public TVET colleges then this would be long term sustainable income to fund expansion of occupational training in public TVET colleges. However employers are sceptical of the TVET colleges and will be reluctant to see levy funds used in this way.

There is a practical problem in relation to funding occupational programmes. Funding for theoretical and some practical training comes from the fiscus, whilst funding for work placement and some practical training comes from the SETAs. There is no coordination between the two sources of funding to enable a learner to be funded for theory and practice at the same time. It is being proposed by the NSF management that a single funding model be developed that enables a learner being funded for a college programme to also be funded for the associated work placement.

This will be extremely difficult to achieve when the available funds are located in 21 SETAs and so the transfer of this money to the NSF is needed to achieve this. Again the integrated funding model is a challenge that needs to be addressed in the NEDLAC consultations.

Centralising the funds (rather than locating them in 21 SETAs) could enable the integrated funding model and achieve the additional income from the levy set out above. It could also enable some improvements in throughput. Throughput rates in TVET colleges are often constrained by the lack of workplace experience, necessary for learners to complete their qualification. If a substantial number of work placements could be guaranteed for students enrolled in occupational programmes, combined with other measures being put in place, there is potential for improving throughput rates (specifically in occupational programmes as opposed to NCV). The argument for a single funding mechanism is a powerful one.

It is therefore proposed that a single funding model be developed that enables a learner being funded for a college programme to also be funded for the work placement. Centralising the funds (rather than locating them in 21 SETAs) could enable that.

Feasibility and ease of implementation of a single funding model for skills

A great deal of work has gone into improving the efficiency and capacity of the NSF. The NSF would be able to manage the additional funds. There are various delivery models that could be considered for the distribution of NSF funds. Criteria could be developed that steers the funds in the direction of quality programmes to deliver occupational qualifications through public TVET colleges. Multi-year funding could be used to incentivise improved throughput in colleges.

Some stakeholders criticise the centralisation as working against implementation. However the experience of the artisan grant and artisan approval processes shows that this can work, better in fact than duplicating grant disbursements in 21 SETAs. The other criticism from employers is that there would be no control over, or accountability for, funds. The reality in the 21 SETAs is that there is limited accountability at present. In any case criteria can be agreed for the allocation of funds that could address this. Additionally, there are potential efficiency gains from having one institution handling all funding matters relating to occupational programmes.

Institutional and legal issues

The changes proposed will require legislative changes. It will also require agreement at NEDLAC and in the words of one interviewed union leader, “will divide the NEDLAC constituents”.

Currently the SDA only allows 20% to go to the NSF and grants to employers can be spent at their discretion. There would need to be a process of consultation in NEDLAC before tabling legislation in Parliament. The SETAs are currently public entities and would need to have that status removed with the SETAs being converted to advisory bodies. It is unclear what the trade union position on the changes will be. There will be concerns raised if they view the focus changing from being workers to broader use of the levy to fund the public PSET system. However if the clear focus in PIVOTAL programmes is to support occupational programmes, the trade unions may support the changes. The challenge will be that many employers are very unlikely to support the changes in their current form. In an interview conducted with SACCI it was stated clearly: *“We pay taxes to fund public education and we would like to see that money spent better and produce better quality, particularly the schooling and college systems. The levy is over and above the taxes we pay and it is for the purpose of training workers for our industries. It is not our job to fund training for the NEETS or learners in the public education system. We want the funds spent on our employees, current and future.”* BUSA and the NBI expressed similar sentiments.

Employers want:

- A clear focus on employees and future entrants to the labour market in line with the original mandate; the R6b to be allocated to the NSF is classified as “PIVOTAL”. This is an acronym referring specifically to occupational programmes. It is not yet clear exactly how this additional NSF money will be allocated, only that the intention is to use the money to expand occupational ETD programmes. It is assumed that the NSF will give funding to employers who open up their workplaces to train in occupational programmes presented partially by public colleges, however the mechanism for this has not been spelt out and interviewed employer representatives are not yet convinced.
- Decentralisation rather than centralisation – employers are likely to support a more flexible allocation of funds to a combination of sector and other structures;
- Accountability. This has two aspects:
 1. The accountability institutional mechanism – the NSF is currently accountable to the DG and the Minister and this is not acceptable. If R6b currently reported on to SETA board is to be located in the NSF then the request is for some form of accounting authority with employer representation at national level.
 2. The consequences of poor performance. If funds are to be allocated to TVET colleges there have to be consequences to poor performance. Employers argue that there should be open competition for funds from private providers and that only really successful providers should be funded.
- A clearer commitment on the role of the private sector. Interviewed representatives made the point that some occupations are served only in the private training sector. They cited some of the emerging professions in the performing arts and in the green economy where it is

virtually impossible to obtain training within the public system. Could assistance be provided to poor learners to enrol in such programme? The private provision available needs to be classified as part of PSET and be supported.

- The building of more trust between employers and government. Whether correctly or not the perception is that funds intended for skills development are increasingly being used to fund the public education system. The recent court case to challenge the SETA Grant Regulations has further damaged relationships. The skills development systems and processes need to be based on trust. The JIPSA process was cited that focused on unblocking skills. There was a level of agreement on what was being done, and trust between the parties, and so progress was made – reviving artisan development being an example. If similar agreement could be reached in relation to the role of the SDL in the current context, progress could be

4.3.3 Funding infrastructure

The costing model estimates the required infrastructure expenditure that will be required between 2016 and 2030 to achieve the targets and assumptions under each of the scenarios; as provided in Table 6 below. The substantial differences between the Status Quo and Mixed scenarios show the extent of the impact of meeting the full enrolment targets. The next key cost driver is the proportion of students in residence: under the Status Quo scenario it is assumed that only 1.5% of FTE students are accommodated in residences; whereas under the Full Policy scenario this changes to an ambitious 20% (roughly in line with the current level within Universities); which again shows the enormous impact of this assumption.

Table 6: TVET Cumulative Infrastructure costs (2016 to 2030)

Cumulative Infrastructure spending (R'm) 2016 to 2030	Infrastructure Type	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Nominal	College infrastructure	R188 097	R344 854	R93 369
	Accommodation	R6 799	R242 730	R43 800
	Total	R194 897	R587 584	R137 169
Real (2014 prices)	College infrastructure	R106 042	R194 024	R52 253
	Accommodation	R3 833	R112 392	R21 196
	Total	R109 538	R289 644	R38 523

Source: TVET Costing and Funding Model

The tremendous infrastructure costs associated with meeting enrolment targets again highlights the difficulty of achieving these targets while simultaneously providing sufficient funding for quality training. Indeed achieving any meaningful level of enrolment growth will likely be difficult if the majority of infrastructure is to be funded directly from the fiscus; particularly since there is no currently no conditional infrastructure grant provided to TVET colleges.

The only recurrent annual source of TVET infrastructure funding is the NSF, although its contributions have not been stable over time. The 20% of the SDL that goes to the NSF (currently approximately R3bn) for national priorities could in theory all be used for funding TVET infrastructure, although in practice a large number of other priorities compete for these funds. In 2014/15 only R116.9m was allocated directly towards TVET infrastructure¹⁰.

Alternative funding and financing streams will therefore need to be explored for TVET infrastructure costs. Donor funding, public private partnerships and multilateral (or development finance) institutions are three avenues that should be explored. To leverage these financing streams, colleges will need to form partnerships with various institutions. Currently SETAs are responsible for brokering such partnerships between PSET institutions and employers but limited progress has been made. However they have had some success and this could be expanded.

There is a commitment within the DHET to encourage colleges to specialise in certain occupational qualifications and programmes; in particular through the creation of Centres of Specialisation¹¹. Such centres could firstly reduce the total infrastructure and capital costs required; by recognizing that it is not feasible to expect all colleges to have all the required equipment across a wide range of programmes. Instead infrastructure, equipment and staff development expenditure can be targeted towards key programmes. Additionally, by displaying competence in certain programmes colleges may be more able to create partnerships with employers; thereby potentially also limiting the infrastructure requirements through the use of partner employer facilities in practical training. A small number of Centres of Specialisation are currently being piloted through the NSF. However much uncertainty remains in relation to the full long-term costs of these centres or how broadly this model is likely to be applied in future.

¹⁰ (DHET, 2016)

¹¹ DHET 2015: How to become a Centre of Specialisation
<https://skillsonlinecf.net/Documents/21%20Steps/How%20TVET%20Colleges%20can%20position%20to%20become%20Center%20of%20Specialisation.pdf>

A PPP for funding student accommodation infrastructure is also currently in the initial stages of being piloted by the DHET in cooperation with National Treasury. In the short term it is likely that such PPPs will be most effective for the funding of student accommodation, particularly if the funding streams for student accommodation is likely to be reliable (e.g. through NSFAS). Interviewed GTAC officials suggested that there is likely to be substantial appetite for this type of PPP for student accommodation from banks, pension funds and multilateral institutions like the DBSA if robust risk transfer and mitigation mechanisms can be put in place along with a reliable funding stream. It should, however be noted that the required rates of return on such PPPs are relatively high - typically between 16% and 18%¹². PPP funding for other college infrastructure could potentially also be successful if they are used as part of a wider partnership between employers and colleges – potentially giving the employer a bigger hand in improving quality and through put rates – although the likelihood that the number of such PPPs would be sufficient to meet the substantial investment required to meet enrolment targets seems unlikely unless the quality of college tuition and management is first improved.

4.3.4 Using funding to leverage improvements and external funding

It is suggested that SDL income allocated to the NSF could be used to incentivise or leverage additional income. There are two elements of funding possibilities that could be targeted through the use of NSF funds as a catalyst or motivator for attracting additional income. The first is infrastructure and the second funding for occupational programmes.

Incentivising infrastructure funding

This proposal is based on the SETA Landscape proposals being implemented in full or in part. In such a scenario the NSF could allocate from the R9 billion that it will then manage an annual amount for infrastructure. Colleges and universities (in partnership with DBSA, employer bodies, private providers, and development partners) could be invited to develop proposals to submit to the NSF for expanded infrastructure. This could be in the form of an institutionally owned project or through a PPP. As not all projects have the potential for generating income, not all projects would be viable as PPPs. An example of a potentially viable PPP would be student accommodation where the rent paid could provide the basis for a return on investment, whereas the building of a workshop or laboratory would be a different form of investment, one where the return is skilled people. Once the project is agreed in principle a sum of money could be allocated from the NSF. In this way is it possible to envisage substantial additional funds being raised to support infrastructure expansion within the PSET system.

¹² Based on interview conducted with National Treasury official specialising in PPPs

Incentivising additional funding for occupational programmes

One of the misunderstandings that exists amongst skills development stakeholders is that 40% or R6 billion will be taken from the SETAs and that SETAs will not play a role in how the money is spent. This is not the understanding of everyone in the skills institutions. The MerSETA CEO suggested that the SETA would be well positioned to apply for funds from the NSF and project manage PIVOTAL programme implementation. He suggested that employers would provide funds and workplaces to train artisans and other occupational programmes and that it would be possible to envisage the SETA having an even greater role than at present.

This highlights the potential of the R6 billion that is being centralised to mobilise additional funds and at the same time reward effectively performing SETAs that have stakeholder support. SETAs (with the support of sector employers and trade unions) could be invited to submit PIVOTAL programme project proposals to the NSF for multi-year funding. The criteria for funding could include a range of factors that are highlighted in the PSET White Paper. For example criteria could include: the delivery of priority PIVOTAL programmes that address sector or national scarce and critical skills needs; the involvement of a public PSET institution that has proven capacity to deliver such programmes; matching funding from employers; commitments from employers to provide workplace training and experience. Other criteria could be developed around donor support, the retraining of existing workers etc. So the criteria would not purely be about money and numbers but also about quality and throughput.

5 FUNDING FRAMEWORK FOR COMMUNITY COLLEGES

This section discusses the primary sources of funding for community colleges and the assumptions made to forecast the future values of these parameters. As colleges were recently transferred to the DHET from PEDs, there is limited detailed data on the funding of these colleges. Moreover, no information is available on NSF and SETA funding transferred to provinces over time. Consequently, assumptions have been made in regard to funding received from levy-granting institutions.

5.1 Sources of funding

5.1.1 State grants

Community colleges are primarily funded through appropriated funds. For many years, the PALCs were located under PEDs, which budgeted for these institutions. The allocation was determined at the discretion of each province, not on the basis of a particular formula as in the case of universities and TVET colleges. The state grants were meant to cover the full operations of the colleges with no expectation of fees from the enrolled learners. The CET sector has traditionally been under resourced and treated differently under provincial administration. There is a general lack of accessible provisioning as tuition is usually accorded limited hours due to operating mainly from public schools. The fact that the PALCs

have not employed full-time staff and were staffed through short-term contracts created a lack of adequate opportunities for effective tuition. With learners not receiving adequate learning materials and lecturers often having to pay for support materials from their own pocket, the situation is not conducive for effective learning. The CET sector requires significant increase in spending to improve the quality of provision.

PALCs are located mainly in public schools with a few operating from NGO premises or having stand-alone premises. As such, they do not generally own their infrastructure but rather use the infrastructure of other education institutions to conduct their programmes. While community colleges infrastructure is limited, the target set in the White Paper is to establish college centres in each district municipality. In order to do so, alternative sources of funding need to be found to finance the roll out of these community colleges. One of the proposals put forward by a DHET task team was to combine the TVET and AET functions, in order to streamline the delivery of NQF 1 to 4 AET programmes, and share infrastructure. Given the constrained fiscal environment, using existing infrastructure to deliver these programmes is likely to remain the most cost effective option.

5.1.2 NSF and SETAs

While community colleges remained under the control of PEDs, some provinces that applied for funding from the NSF and SETAs to provide skills programmes. In 2013, grants from these institutions funded about 3% of all community college enrolments. Since the transfer of colleges to the DHET, there has been a reported decline in funding from SETAs and the NSF. As this funding was previously applied for by provincial departments, the transfer to the DHET has effectively halted this stream of funding for community colleges.

The intended role of the NSF was to fund training for those that cannot access employer training and well as national priorities. A key target audience would have to be the NEETs, and so the training funded from the NSF could be envisaged as enabling unemployed people to obtain work or earn a livelihood from a small business or cooperative. Given the congruence between the stated principle of the Community colleges of providing vocational training that prepares people for participation in both the formal and informal economy and the role of the NSF, there has to be prioritisation of training delivery through these institutions. Going forward, it is likely that community colleges will offer skills programmes with funded sourced from the NSF and SETAs. The costs of these skills programmes is modelled through the Workplace module of the Costing Model and serves as a key input into the funding of community colleges.

5.1.3 Donor funding

The extent of donor funding for community colleges is not known although anecdotal evidence suggests that some colleges receive funds. It is important to mention that community colleges also receive donations in kind, and are helped through volunteers. Access to donor funding

community colleges would have to have some capacity to apply for such funding, and report on progress against milestones. In addition, donor funding is sporadic, with PALCs responding to calls for proposal. Therefore, donor funding may not be reliable and sustainable source of funding for community colleges over the long term.

5.2 Funding and shortfall estimates

5.2.1 Assumptions

As the state grant is funded through the fiscus, it is assumed that state funding for community colleges will grow at the same rate as tax revenue. Therefore, as posited in section 3.2, state grants are expected to grow at either the historical real growth rate of 1.6% and/or the projected growth rate of 2.9%. On the other hand the SDL has historically reflected above inflationary growth. Thus NSF and SETA funding is expected to reflect growth at either the historical nominal rate of 12% or the projected growth rate of 9.1% (1.9% real).

5.3 Shortfall estimates

Expenditure up to 2030 has been modelled under different scenarios to estimate annual and cumulative funding requirements. The two tables below reflect current expenditure (2014) and projected expenditure to 2030. The tables further provide funding and financing values currently, by 2030 and cumulatively (2016-2030). In addition the tables reflect funding shortfalls under each of these scenarios. The scenario (status quo, full policy and mixed) are explained in appendix 1. Please note that these are nominal values. Consumer Price index is assumed at 6.2% as projected by National Treasury.

Table 7: Community College Costing, funding and shortfall under the historical funding growth scenario

Historical (R millions)	2014	Nominal (2030)			Real (2030)		
Item	Current Value	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Current Costs	R1 844	R14 840	R26 761	R17 130	R5 668	R10 221	R6 543
Funding and financing: Total	R1 844	R7 385	R9 962	R7 362	R2 821	R3 805	R2 812
State subsidies	R1 732	R6 868	R6 868	R6 868	R2 623	R2 623	R2 623
NSF	R23	R104	R2 320	R232	R40	R886	R89
SETA	R89	R413	R774	R261	R158	R296	R100
Shortfall (+) /	R0	-R7 455	-R16 798	-R9 768	-2 847	-R6 416	-R3 731

Surplus (-)							
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Source: Community Colleges Funding and Costing Model

Table 8: Community College Costing, funding and shortfall under the projected funding growth scenario

Projected (R millions)	2014	Nominal (2030)			Real (2030)		
Item	Current Value	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Current Costs	R1 844	R14 840	R26 761	R17 130	R5 668	R10 221	R6 543
Funding and financing: Total	R1 844	R7 372	R9 880	R7 349	R2 816	R3 774	R2 807
State subsidies	R1 732	R6 868	R6 868	R6 868	R2 623	R2 623	R2 623
NSF	R23	R101	R2 258	R226	R39	R863	R86
SETA	R89	R402	R754	R254	R154	R288	R97
Shortfall (+) / Surplus (-)	R0	-R7 469	-R16 880	-R9 781	-R2 853	-R6 447	-R3 736

Source: Community Colleges Funding and Costing Model

If we use historical growth rates to forecast funding and continue on our current trajectory, then under the status quo scenario, expenditure will amount to R 14.8 billion, while funding available from different sources is expected to be R 7.4 billion. The difference reflects a 92% funding shortfall. This deficit, however reduces to 80%, under the full policy scenario when in line with the White Paper student access and quality are both expanded. The reduction in shortfall is made possible by increasing targeted NSF and SETA funding of skills programmes in the CET sector.

The emphasis on skills programmes on the colleges programme qualification mix may lead to a duplication of efforts in the TVET sector, when current plans are to phase out NATED and replace them with these occupational programmes and to further introduce skills programmes. However, if take up rates for the programme offerings in community is lower and costs do not meet the minimum scale (or the demand projected by the White Paper), then it is possible that the full policy scenario may lead to an over-investment in the sector. In the community college sector, the rising shortfall will be further driven by a higher infrastructure requirement, If the policy intent is to replicate certain aspects of the US community college system; a decentralised model for the delivery of basic and foundational programmes, then a substantial investment in infrastructure will be needed to achieve the level of decentralisation set out in the White Paper.

If we use projected growth rates in line with the *Fiscal Sustainability Model*, the funding shortfall for the status quo scenario is R 7.5 billion (92%) in 2030. In other words, if the expenditure per student remained roughly constant, in order to reach the 1,000,000 enrolments by 2030, an additional amount of R 7.5 billion will be required in 2030. In a mixed scenario, which attempts to balance quality and access, the shortfall is 67% compared to the 82% for the full policy scenario.

Over the period between 2016 and 2030, we estimate that the cumulative shortfall using historical growth rates is 32% under the status quo, 116% under full policy and 59% under the mixed scenario. In effect, this means that aiming for a 275% increase in enrolments in community colleges, may not be affordable based on the current approach to training. This would imply that the community colleges model and target set out in the White Paper would require further analysis, firstly to clarify the scope and delivery approach, and secondly to cost any proposed approaches to implementation, before a final decision is made on the roll out of community colleges to district municipalities.

5.4 Funding and financing options analysis

Annexure A of the terms of reference suggested a number of funding options that should be explored when considering the funding of the PSET system. This section explores some of the available options in the context of community colleges and incorporates the suggested avenues articulated in Annexure A.

5.4.1 Funding current expenditure

The growth of enrolments in community colleges up to 2030 will be driven by skills programmes, AET programmes and the new national senior certificate for adults. Information on the community college sector is limited, and therefore, it is not easy to make assumptions around the proportion of enrolments in the three types of programmes. Questions around how the nine interim colleges will be further decentralised to districts remain unanswered. Given this uncertainty, it is difficult to cost and forecast the expenditure and funding levels of the sector. A major area of uncertainty throughout the system, and in the community college sector, is the proposal on the use of SDL as a potential source of funding for skills programmes.

Historically, the NSF has funded training in the community sector. The original intention of the NSF 20% allocation was to fund training for those disadvantaged groups and individuals who could not expect to benefit from SETA grant funded programmes. The SETAs were meant to address the needs of industry and established businesses whereas the NSF was focused on the unemployed, youth, rural women and people with disabilities. In recent times there has also been a focus on cooperatives and micro enterprises in the informal economy. Community colleges are ideally situated to address such needs and therefore can make a strong case for NSF funding. The case is particularly strong in relation to the current 20% allocated to the NSF.

The challenge in the NSF currently is that the 20% that they are receiving now is already accounted for. Most of that money is being spent on PIVOTAL programmes. If the SETA Landscape proposal is agreed and a further 40% is transferred to the NSF which will be specifically dedicated to PIVOTAL programmes this would provide the opportunity for the funds currently allocated to PIVOTAL from the 20% to be reallocated to include a substantial ongoing commitment to programmes run by community colleges.

The following table shows a possible scenario in the event of the SETA Landscape proposals being implemented.

Table 9: Possible change in the allocation of the NSF 20% (R3 billion)

Current allocation	%	Possible reallocation	%
Bursaries via NSFAS and learnerships	38.50%	Bursaries for scarce and critical skills via NSFAS	33%
PIVOTAL programmes	34%	Programmes delivered by Community Colleges	33%
PSET capacity building – lecturer development and infrastructure	24%	PSET capacity building – lecturer development and infrastructure,	29%
Admin, Research and Advisory	4%	Admin, Research and Advisory	4%

It should be emphasised that this is not policy within DHET currently, and that there are many demands on the funds available in the NSF. However if the changes being canvassed are agreed this (or a variation using different percentages) is a logical allocation of funds. The assumption is that PIVOTAL programmes will not need to be funded from the 20% as they will be funded from the newly transferred 40%. Therefore the 20% can be reallocated to those who cannot benefit from NSF-funded PIVOTAL programmes. If (say) R1billion could be allocated to community colleges it would not meet the funding shortfall but it would increase spending in colleges from the current R1.8 billion to R2.8 billion, which is a substantial contribution to a new system that is seeking to make a difference in communities. If a unit cost of R10 000 is used this will enable 100 000 learners to be funded, or if a cost of R20 000 is used 50 000 could be funded.

5.4.2 Alternative sources of funding

Community colleges rely mostly on the government for funding, including government entities such as SETAs. Very little private sector money is invested in community colleges. As mentioned previously, there is limited donor funding made available for community based adult education and training.¹³ Although, some CLCs receive funding from NGOs and church groups, this is not substantial according to CLC managers. A suggestion from the interviews is to encourage companies to make donations to adult basic education and to be able to benefit in the form of tax relief or other recognition such as BEE points. In fact there has been substantial growth in Corporate Social Investment taking place. For example Nedbank has a Foundation that focuses on four areas of development: education; health; skills development and community development. Other companies have similar funds available. If the community colleges are established effectively and build community support and buy-in there is a real possibility of marketing them with CSI fund holders and obtaining significant income. Of course this would mean developing the capacity to develop funding applications and project management capabilities and so there are resource implications of such a strategy.

In the section of this report dealing with TVET an incentivised funding approach is proposed. A similar approach could be adopted for the NSF funds allocated to community colleges, with the funding being used to attract CSI and other sources of funding.

¹³ Lovegrove (2003) *Dancing with Donors: Financing of Adult Education*

6 FUNDING FRAMEWORK FOR UNIVERSITIES

6.1 Sources of funding and financing

6.1.1 State grants

Government funding to universities is based on a funding framework designed to fund enrolments and priority areas of government within higher education. The funding framework makes use of a **block** and **earmarked grants**. The block grant is determined by a formula based on a set of weights. It consists of four components namely: the teaching input, the teaching output, the research output and the institutional factor grants. The teaching output grant is one of the few performance based incentives in the PSET system that rewards universities for the number of graduates they produce.

Earmarked grants provide additional funding to the university sector based on their needs, and steer these institutions towards achieving key policy priorities. In 2013, the block grant and earmarked grant together constituted 40% of total income within the university sector.

For the purposes of our modelling work, we assume that block grant and earmarked grants will grow at the same rate as tax revenue. Therefore, state grants grow either in line with historical real growth rate of tax revenue of 1.6% and or the projected growth rate of 2.9% of GDP.

6.1.2 NSFAS allocations

The National Student Financial Aid Scheme was established in terms of the National Student Financial Aid Scheme (Act 56 of 1999). It provides financial aid (student loans and bursaries) to poor, but academically eligible students. It accounts for a significant portion of university income. In 2012/13, NSFAS loans and bursaries to university students amounted to R5.87 billion which constituted 11% of total income. In 2014/15 this rose to R6.97 billion and in 2015/16 this is estimated to rise to around R9 billion.

6.1.3 Tuition fees

The contribution of student fees (excluding contributions through NSFAS) has remained relatively constant from 2000 to 2013 as a proportion of total university revenue. In 2013, total university fee income was approximately a third of total university revenue.

University- and academic programme specific fee levels are not available. The model therefore uses the tuition fee income per FTE student as a proxy for the average student fee. Although, using actual student fees would have been preferable, after consultations with the DHET, it was decided that this approach is the most appropriate when tuition fee data is not available. For the model below, student fees will grow at the same rate as the Consumer Price Index (CPI); thus we assume that there are no real increases over the period.

6.1.4 Third stream income

Sources of third stream income are diverse. It is derived from activities performed by the university – such as funded research, consulting projects and facilities rental where non-tuition fees are

charged in return for services. The contribution of third stream income to total university sector income has remained consistent over time at approximately 27%.

As mentioned earlier, third stream income has remained relatively consistent in terms of its proportional contribution to university sector revenue. In 2000 and 2013, third stream income contributed 27% of total university income while the remaining income was contributed by fees and state grants. Therefore, third stream income contributed 37% of the combined income from student fees and state grants to total sector revenue. It will be assumed that the proportion of third stream income to total income will remain the same. That said, the model allows the user to change any of the income variables to test the sensitivity of total income to changes in these parameters.

6.2 Funding and shortfall estimates

In Volume 3, we had estimated required expenditure over the period using the costing models framed in terms of specific scenarios. The table below show the respective projected 2030 and the cumulative 2016 – 2030 shortfalls under each of these scenarios. Please note that these are nominal values. Consumer Price index is assumed at 6.2% as projected by National Treasury. The assumptions made within each of the costing scenarios (Status Quo, Full Policy and Mixed) within each of the sectors are provided in **Error! Reference source not found..**

Table 10 Shortfall calculation under the historical funding growth scenario

Historical	2014	2030 (Real)			2030 (Nominal)		
		Status Quo	Full Policy Scenario	Mixed	Status Quo	Full Policy Scenario	Mixed
Costs	R52 920	R103 111	R129 800	R96 784	R265 533	R334 264	R249 240
Funding and financing	R56 168	R85 049	R89 754	R79 340	R200 460	R216 130	R188 751
Block grant	R19 561	R27 073	R27 073	R27 073	R62 042	R62 042	R62 042
Earmarked grant (Excluding Infrastructure and Efficiency grant)	R2 394	R4 413	R4 413	R4 413	R10 114	R10 114	R10 114
Third stream revenue	R17 211	R22 969	R24 240	R21 428	R54 139	R58 371	R50 977
Tuition and residences fees	R17 002	R30 593	R34 027	R26 426	R74 165	R85 603	R65 619
<i>NSFAS contribution</i>	<i>R5 870</i>	<i>R11 829</i>	<i>R11 829</i>	<i>R9 854</i>	<i>R30 970</i>	<i>R30 970</i>	<i>R25 800</i>
Shortfall (-) / Surplus (+)		-R18 062	-R40 046	-R17 443	-R65 073	-R118 134	-R60 489

Source: University Costing and Funding Model

Table 11: Shortfall calculation assuming the National Treasury projected growth of funding envelope

Projection	2014	2030 (Real)			2030 (Nominal)		
		Status Quo	Full Policy Scenario	Mixed	Status Quo	Full Policy Scenario	Mixed
Costs	R52 920	R103 111	R129 800	R96 784	R265 533	R334 264	R249 240
Funding and financing	R56 168	R93 452	R98 158	R87 744	R218 523	R234 193	R206 814
Block grant	R19 561	R32 347	R32 347	R32 347	R73 378	R73 378	R73 378
Earmarked grant (Excluding Infrastructure and Efficiency grant)	R2 394	R5 273	R5 273	R5 273	R11 962	R11 962	R11 962
Third stream revenue	R17 211	R25 239	R26 510	R23 697	R59 017	R63 249	R55 855
Tuition and residences fees	R17 002	R30 593	R34 027	26426.329	R74 165	R85 603	R65 619
<i>NSFAS contribution</i>	<i>R5 870</i>	<i>R11 829</i>	<i>R11 829</i>	<i>R9 854</i>	<i>R30 970</i>	<i>R30 970</i>	<i>R25 800</i>
Shortfall (-) / Surplus (+)		-R9 658	-R31 642	-R9 039	-R47 010	-R100 071	-R42 426

Source: University and Costing Model

The key findings from these table are:

- The current costs, and hence the resulting shortfalls, differ substantially across the three costing model scenarios. The 2030 nominal shortfall of R100.1 billion in the **full policy cost** scenario reflects the cost of increasing access and quality in the university sector at the same time. This estimate is driven by higher enrolments but also changes in the programme qualification mix, qualification of lecturers and lecturer to student ratios. The challenge with the **full policy cost** scenario is that it implicitly assumes that there is no binding fiscal constraint on funding the PSET system, and therefore, there is no trade-off between expanding access and quality. Under this policy both are done at the same time.
- However, when the trade-off is taken into account, the nominal shortfall in 2030 declines from R100.1 billion to R42.4 billion under the projected growth scenario; a more optimistic forecast than the historical growth one. In the **mixed** scenario, enrolments do not meet the White Paper target but the quality and throughput is improved. By lowering the enrolment targets from 1 440 000 to 1 163 139, the proportion of students in residences, the qualification levels of lecturers (fewer PhDs) and decreasing PHD enrolments, the estimated shortfall drops by 57.6%. Of these factors, the reduction in enrolments has by far the largest effect on expenditure. In the university sector, where the funding framework is based on enrolments, any change to this variable decreases a host of related direct costs. For instance, if the enrolment targets decrease, the number of Full Time Equivalents decrease. This in turn reduces the teaching input units required and overall personnel costs. Moreover, if the qualifications profile of staff changes as in the **mixed** scenario, personnel costs will decline further.
- If the university sector continues to expand, without increasing the throughput rate, then the shortfall under the status quo is marginally higher at R47 billion, and the efficiency of the system does not improve. In effect, the university sector has a higher shortfall and wastes more resources through high drop-out rates or on more repeating students.
- When comparing Table 10 and Table 11, it is evident that the shortfall depends on the growth rate in state appropriations. The *Fiscal Sustainability Model* forecasts a stronger growth rate over the period between 2019 and 2030. However, if historical growth rates are a better predictor of long term growth rates, then the affordability of the policy scenario for university education will soon become a critical issue.

6.3 Funding and financing options analysis

6.3.1 Efficiency gains

Cohort studies have shown that throughput rates in universities have increased marginally over the years. About 61% of all undergraduate students enrolled in contact programmes would have graduated after 6 years. Nonetheless, high dropout rates, particularly in the first year and in distance programmes (only 4% of all undergraduate students enrolled in distance programmes would graduate after 6 years) exacerbate the waste of resources and inefficiencies in the system.

In general, throughput rates can be improved by (1) reducing drop outs in the system (2) reducing the time taken to complete a qualification, ensuring that there are fewer numbers of repeaters in the system. In university sector, the main challenges for students are widely recognised and include:

- A lack of academic readiness for university level studies.
- A range of problems that can be classified as socio-economic and psycho-social.
- The lack of or inadequate financial support.

Poor academic readiness is a symptomatic of failures in the basic education system in preparing students for higher education. Studies confirm that scores in gateway subjects such as maths and science are key determinants of performance in the university sector. Nonetheless, until the problems in foundational education are addressed universities have to accept responsibility for assisting students who are not yet fully ready to study at degree level. Our interviews suggest that extended degree programmes (where students complete a 3-year degree over 4 years) have higher throughput rates. Fewer students drop out after the first year because the content and pedagogical approach builds foundational knowledge and skills in students, needed to continue their studies. While the funding framework provides funding for these extended degree programmes, it may be useful for the DHET to enhance the framework, by providing universities that enrol a higher proportion of students from Quintile 1, 2 and 3 schools with additional funding through an earmarked grant. Moreover, students enrolled for these extended degree programmes could be given preference for NSFAS funding. A weighted matrix could be applied where students enrolled for STEM degrees receive funding first.

Whereas, academic support, through these extended degree programme is critical, our key informants report that a very large proportion of students are not ready or able to make the transition to university, either academically or in terms of discipline. Psycho-social support is necessary to help students transition to university. Mindful of this, some universities provide these services as part of their comprehensive student support. However, student support should ideally be part of a series of interventions aimed at reducing drop-out rates. Again this is an element that needs to be included for grant funding if it is to be made a universal requirement across the system.

Another major factor contributing to drop out is inadequate financial support for students from poor backgrounds. One of the major criticisms of the NSFAS, and the reasons for their low throughput rates, is that the fund provides some financial support for all students. Funding is spread over a large amount of students, and as they run out of monies, they are no longer able to continue their studies. The NSFAS' new approach, colloquially termed "all for few" aims to extend the financial coverage of the NSFAS award to pay for the full cost of study. This approach is likely to increase the throughput rates, particularly in universities that depend heavily on NSFAS funding.

However it needs to be noted that the problem is not only with NSFAS. In the past NSFAS would fund a certain number of students in a university. A university might be allocated 3000 NSFAS grants and enrol 6000 who are in need of the grant. It was the university that spread the funds amongst the students. As NSFAS moves to fund students directly and not via the university, the problem of the addition unfunded students will remain. There is a need to acknowledge that when the Department agrees a certain number of students with a university (i.e. the 6000 example above) but NSFAS only has funds for half of those students (3000 in the actual example given) there is a problem of enormous proportions. It would be sensible for NSFAS funding to be taken into account when setting enrolment numbers in the universities.

6.3.2 State subsidies

As discussed earlier, grant funding to the university sector is largely dependent on the funds available, that is, the size of the total fiscal envelope. It will however also be influenced by the allocation given to Higher Education within the budgeting process and the subsequent share of public resources allocated to the university sector within the PSET system. The findings above assume that the share of university funding relative to total PSET funding remains the same over the modelling period. In fact the White Paper proposes a substantial adjustment that will see TVET colleges having a much higher proportion of learners than higher education.

While state subsidies have decreased as a proportion of total university sector revenue over time, as more funding was allocated to the NSFAS, it is reasonable to assume that the state subsidy will stabilise over time. However, this assumption is easily changed in the models by varying the rate of growth of any sector relative to another.

Although the block grant is unlikely to be used to address the projected shortfalls, there are ways of structuring the block grant to potentially improve efficiency in the system in order to improve throughput rates.

Currently, the block grant has four separate components, two of which are based on performance. The **teaching output grant** funds graduates and encourages universities to ensure that students complete their studies whereas the **research output funding** encourages the publication of peer reviewed articles and books as well as the graduation of masters and doctoral students. Therefore, increasing graduates and publications increases the university's share of the total value of block grant funding available. Universities compete with each other for this performance linked funding and the improvement of one university necessarily means a decrease in available funding for another university that did not improve or improved by less.

An alternative approach is to have a separate performance pool of funding that is disbursed to universities based on university-specific performance goals. If a university does not meet the performance goal, they receive no funding. However, if they improve sufficiently relative to their baseline, they are rewarded with additional funding. This approach might be more appropriate as South African universities are distinct. Often performance pools reward universities that already do well, they don't necessarily reward continuous and incremental improvement. Making a performance pool available to universities, encourages them to take ownership of their own performance. It also ensures that HDI universities or those with weaker performance have an incentive to improve. Funding for a performance pool could be made available from underspending in the education sector or through an agreement with the NEDLAC stakeholders to allocate a portion of SDL to the performance pool.

Strengthening performance based measures within the current funding framework in a way that improves success while creating sufficient checks and balances to counteract any potential unintended consequences is one aspect of the overall funding reforms that need to be considered for the university system.

6.3.3 *Third stream income*

The ability of universities to raise third stream income differs substantially across the universities. Various factors influence third stream income including reputation, performance and available resources. As already discussed, third stream income has remained a constant proportion of total university sector revenue over the last decade. This implies that an increase in grant and fee income will most probably be accompanied by an increase in third stream income. Nonetheless, it is important to mention that the state has very little influence on the total third stream income.

Options for increasing third stream income include:

- Encouraging the use of university academic staff for consulting services required by government while putting in place controls to ensure that a portion of the funding goes to the university
- Ensuring minimal red tape in terms of universities' commercial endeavours but not at the expense of the university's primary academic mandate

6.3.4 *Student fees*

Fee income in our model is based on a 0% real increase assumption. While this assumption is likely to hold in the short term, it is unlikely to continue over the long term, as a zero fee increase means that other funding mechanisms such as the block or earmarked grants would have to make up for the shortfall in fees. Alternatively universities will be forced into a situation that they have to make savings to balance their books and this will impact on their ability to provide quality to the expanding numbers they are enrolling. In respect of fees, two approaches might be appropriate in the South African context. First, regulations could be used to cap the maximum increase any university is allowed in a given year. Universities that could leverage other sources of incomes would therefore opt for lower fee increases, and those that needed the additional resources would set their fees equal to the cap. This approach of fee capping could be complemented by a freezing of fees for the period of study. Students who enrol in the first year do not receive increases until they graduate, if they complete their degrees during regulation time. If they go beyond regulation time, they may be subject to a fee increase after regulation time.

This creates two strong incentives within the system. First, it encourages students to complete their studies within regulation time, and second, it gives funders and students certainty around the cost of their tuition fees over the period of study.

A possible difficulty with this is that in the UK where this applies inflation is low, whereas in South Africa inflation levels are such that setting fees for three or four years would be extremely difficult. It would need to be carefully consulted on with universities and the risks assessed.

When considering the capping issue it is important to note that NSFAS already sets a "maximum fee" when allocating a loan. The amount provided is well below that charged by some universities. The understanding that NSFAS has with some universities is that the University will fund the difference. This model is useful in that NSFAS is not encouraging fee increases by making unlimited funds available to students, but at the same time universities can set their fees at the level

they need. The down side of this is that it has exposed a problem of the “missing middle” – those students from lower to middle income households (over R10,000 a month to say R30,000) – who find themselves having to pay the full fees without any financial support. NSFAS is working with the banks to find an alternative funding solution for the “missing middle” which will be piloted later in 2016. Universities have an incentive to support this initiative and a number of universities have already raised significant funds privately to enable such students, as well as those eligible for, but not receiving, an NSFAS loan. Universities are very fearful of the notion of fee capping as whilst it may assist some poorer students it also could reduce income available from those who can pay and make it very difficult for them to balance their books in a still high inflationary environment.

6.3.5 NSFAS allocations

The NSFAS Performance Expenditure Review makes a strong case for reforming the way in which NSFAS funds and is funded. The income and expenditure of NSFAS is influenced by four parameters:

- **Number of NSFAS students funded:** NSFAS awards loans to university students and grants to TVET learners. Although TVET grants are much smaller in value than university loans, the relative distribution between university and TVET funding has increased over the past four years, as additional funding was made available for TVET colleges. Grants are not repayable, and therefore do not replenish the pool of funding available for NSFAS.
- **Repayment rate:** Repayment rates within NSFAS are low for a range of reasons discussed in the Volume 3 and the NSFAS PER. The challenge with low repayment rates is that it limits the amount available for future funding, and undermines the design of the NSFAS. It also has an intertemporal effect, shifting the burden for funding back onto the current taxpayer. However, if throughput rates are improved as a result of better quality education, then over time, it might increase the pool of funding available for NSFAS, as a larger share of the pool is replenished.
- **Loan conversion:** Loan conversions and repayment rates are linked. If the stronger performers are those that convert their loans to bursaries, they are also more likely to find employment. This means that NSFAS is left with a pool of loan holders that have a lower likelihood of repayment. The loan conversion scheme therefore removes the good quality debt from the pool.
- **Full cost of study:** The extent to which the NSFAS covers the full cost of study and associated costs such as travel, accommodation and meals, affects the performance of the students and the throughput rates of the fund.

These parameters have all been modelled in the NSFAS Performance Expenditure Review and the results are discussed in Volume 3 of the report. As the repayment rates influence the funding of the NSFAS, improving repayment rates is likely to replenish and increase the pool of funding available for expanding the number of students who can be funded each year. One of the suggestions currently being discussed is using the South African Revenue Service to collect repayments. In practice, as soon as an NSFAS student registers as a tax payer and earns above a certain thresholds, their repayments are automatically deducted from their salaries. The repayment option may be structured to suit the financial situation of a student to minimise any financial

hardship. SARS collection fees charged to the NSFAS for the SDL amount to less than 0.5% of the levy, and may therefore be a cost-effective option to collect NSFAS debt.

A well-functioning loan scheme will be crucial to the long term sustainability of the NSFAS. As Table 12 shows the NSFAS requirement grows significantly from R 7.7 billion¹⁴ to R49.4 billion in the **status quo** scenario, at an annual average real growth rate of 5.8%. This growth is mostly driven by the TVET funding requirement which assumes that all new NCV entrants are funded and half of NATED students over the modelling period. Similarly, the funding requirement for university sectors grows from R5.9 billion to R31 billion, at an average annual rate of 9.1%, due to the expansion in enrolments in the university sector.

Table 12: NSFAS funding under the Historical Funding Scenario

Historical	2030 (Real)			2030 Nominal		
	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
NSFAS Revenue	R11 014	R10 371	R10 208	R27 152	R27 152	R26 726
Total NSFAS Requirement	R18 862	R17 650	R12 174	R49 384	R46 209	R31 874
NSFAS - Universities	R11 829	R11 829	R9 854	R30 970	R30 970	R25 800
NSFAS - TVET Colleges	R6 869	R5 656	R2 155	R17 983	R14 808	R5 643
NSFAS Admin	R169	R169	R169	R431	R431	R431
Potential NSFAS Surplus (+) / Shortfall (-)	-R7 849	-R7 279	-R1 966	-R22 232	-R19 057	-R5 148

Source: TVET, University and NSFAS Model

Table 13: NSFAS Funding under the Projected Funding Scenario

Projected	2030 (Real)			2030 Nominal		
	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
NSFAS Revenue	R12 020	R12 020	R11 857	R31 469	R31 469	R31 042
Total NSFAS Requirement	R18 862	R17 650	R12 174	R49 384	R46 209	R31 874
NSFAS - Universities	R11 829	R11 829	R9 854	R30 970	R30 970	R25 800
NSFAS - TVET Colleges	R6 869	R5 656	R2 155	R17 983	R14 808	R5 643
NSFAS Admin	R169	R169	R169	R431	R431	R431
Potential NSFAS Surplus (+) / Shortfall (-)	-R6 843	-R5 630	-R318	-R17 915	-R14 740	-R832

Source: TVET, University and NSFAS Model

7 FINDINGS AND RECOMMENDATIONS

7.1 Findings

In light of recent protests in universities and TVET colleges, there is pressing need to examine the affordability and sustainability of the PSET system. The White Paper has set ambitious targets for

¹⁴ This value is only based on bursaries to TVET Colleges and bursaries and loans Universities

both sectors, but key questions around how these targets will be achieved and funded remain unanswered in the policy debate. The targets set out in the White Paper have major cost implications for the state, and the funding and financing framework for PSET.

Reforms to the funding frameworks over the past few years have been driven by concerns around the long term fiscal sustainability of the PSET system. The shift towards income-contingent loans for students, through greater allocations to the National Student Financial Assistance Scheme (NSFAS) is an attempt to promote greater access to funding for students from disadvantaged backgrounds while creating a pool of funds that could be replenished through repayments. This scheme, it was thought, would reduce the pressure on the state to fund higher education. In practice loan repayments are at a very low level. The reason for this is that NSFAS has as its focus the students coming from the poorest households and the scope for higher levels of repayment is limited, particularly given the policy decision to convert final year loans into grants where students succeed – removing from the equation those most likely to be in a position to repay. .

Even with additional allocations to NSFAS, state grants remain an important source of funding for universities and colleges. In the current funding framework, allocations to universities and colleges are to a large extent driven by enrolments in both the university and college sectors, although the funding formula for universities does reward improved performance through and output-based grant.

This paper outlines the funding and financing options for the PSET systems. It estimates the funding envelope and evaluates this against to the cost of implementing the White Paper under different scenarios.

Table 14 and Table 15 show the surpluses and shortfalls under three scenarios.

The main findings are as follows:

The TVET Colleges

The large shortfalls that result under the full White Paper enrolment targets suggests that these targets are unlikely to be achievable without compromising the quality of tuition. Indeed, it is likely that the funding per student would need to be increased to significantly increase throughput rates. Improving quality could likely only be achieved through a variety of costly mechanisms, including changing the programme mix within colleges to more closely align to the needs of industry - through an increased focus on occupational programmes - increasing student financial and academic support and increasing the proportion of students accommodated in residences. Given the low throughput rates in the system it is recommended that quality improvements and improved throughput should take precedence over enrolment targets, at least in the short to medium term.

If the quality of tuition and relationships with employer can be improved, the possibility of accessing private and SDL funding streams becomes more feasible. It is proposed that a single funding model should be developed for occupational programmes that aligns the funding of the practical, theoretical and workplace training. Such a system is likely to face stern opposition from employers

if it is seen as a mechanism for diverting funds intended for skills development to the plugging of budget shortfalls the public PSET system. However, if such a model is developed with the engagement of industry and their concerns can be addressed, it could act as a valuable mechanism to not only enable the levy to capacitate and improve the public TVET system but to better align college delivery to the needs of industry. There is potential for many colleges to build and sustain employer confidence and support, generate additional income and become the institutions of choice that the PSET White Paper envisages. However not all colleges can expect to attain the standards needed and it may be necessary to accept that there will be some that win and some that lose in terms of funding. This in turn may lead to further problems at a later date.

Community Colleges

Given the low levels of infrastructure and permanent staffing within the community college sector and the lack of any identifiable funding sources, the community colleges are going to find things very difficult. Starting out in the current tight fiscal conditions is not ideal. However There is the possibility of funds being allocated from the NSF and of using such funds to mobilise additional funds from the private sector – for example CSI funding could be made available. As the community colleges are established in localities and gain community buy in and support, assisting unemployed people to form cooperatives and small businesses and find work opportunities, the potential for generating income from various sources will increase. In establishing the management teams for colleges it would be wise to do so on the basis that fund raising will be an important area of work.

Workplace training

There is a need to ensure that skills development stakeholders and in particular employers and trade unions are engaged and convinced of the need for change. There is general agreement that the skills development institutions are not working effectively but little agreement on how to change things. There is a need for the current DHET proposals to be refined and deepened and for stakeholders to help shape the final plans that will shape the required legislative changes. It is possible to envisage a new skills landscape in 2018 but it is still far from clear what the new landscape will look like.

On the one hand there is the potential for:

- Improved channelling of the R15 billion available from the levy to achieve improved skills levels in the nation's workforce.
- The management of the funds in such a manner that supports the work of the Department in transforming the public PSET system.
- Using the available funds to a) mobilise additional funds for occupational programmes delivered by PSET institutions and b) leveraging additional funds for infrastructure development.

However there is also a need to:

- Reassure employers and trade unions that the intention is not to broadly fund PSET, but rather to fund worker education and training (existing employees and new entrants)
 - Reaffirm the importance of sector structures (SETAs or SETABS) provided that they are effective and have the support of sector stakeholders
- Emphasise that SDL money will be used to support high quality occupational programmes and that stakeholders will be involved in confirming or endorsing quality standards.

If agreement can be reached there is the potential for making significant changes to the way that technical and vocational training is done and to develop a collective ownership of the process. However this is a real chicken and egg situation where the employers and trade unions want to see progress in terms of efficiency, quality and impact before agreeing to ring-fenced funds being directed centrally towards the building of a strong PSET system. The Department has the difficult task of persuading stakeholders to enable the funds to be managed in such a way that the improved efficiency, quality and impact can be achieved.

The university sector

Government has two primary mechanisms through which the university sector can be funded - grants to universities and the National Student Financial Aid Scheme. As a proportion of total university sector revenue, grant funding has decreased over time while the funds flowing through NSFAS loans and bursaries has proportionately increased. The advantage of this funding shift is that NSFAS allows government to focus its funding benefits on the poorer student population rather than a general grant scheme that benefits all students equally regardless of socio-economic background. The disadvantage is that it has put pressure on universities to increase fees at a higher rate than inflation and this has resulted in a backlash from students in the “missing middle”. It will be important to find a way of linking increases in grant funding to expanded student enrolment numbers so as to ensure that such pressures do not build up periodically and create further crises. It is difficult to see how such crises can be avoided if grant funding lags behind increases in student numbers. Universities may be able to achieve some economies in certain areas but the university sector as a whole will continue to rely mainly on grants and fees to cover any budget shortfalls caused by expanded student numbers.

The other major source of university funding is third stream income which includes all income from university commercial endeavours. This source of income has remained relatively consistent over time remaining at around 27% of total university sector income. Third stream income is possibly a very important means by which universities might be able to address shortfalls. However, government would not have too much influence on the potential contribution of third stream income to the total income pool. Nevertheless, government can provide specific support to universities that might enable them to raise more third stream income. Interventions that address red tape constraints to third stream income generation might be one option. Additionally, given the high level of human capital in universities, the use of these institutions for consulting services for government may not only increase third stream income for these universities, but also provide government with consulting services at lower costs than the private sector. Of course, checks and balances are important if this approach is to be taken as third stream income should not be earned at the expense of the primary academic mandate of these institutions. If lecturer time were to be diverted

to such work at the expense of time spent with students this would impact negative on quality and throughput and reduce the impact of additional income generated. Some argue that already with salaries not keeping up with those in industry, universities turn a blind eye to academics doing consulting work because it supplements their salary.

As mentioned, the other funding mechanism available to government is NSFAS. NSFAS is primarily focused on students coming from very poor households. As such the potential for repayment of loans is not as high as it would be for those from higher income households. It needs to be born in mind that only a small proportion of funds allocated by NSFAS are in fact loans. NSFAS administers a large amount of non-repayable bursaries on behalf of the Department of Basic Education, NSF, SETAs, SANDF and other government departments. The proportion of NSFAS spending that is in the form of loans is relatively small and as stated is focused on a client group where the potential for repayment is not great.

There has been inefficiency in the system with NSFAS not following up on loan repayments. There was also the problem of losing the garnishee order as a mechanism for enforcing repayment. Much is being done to improve efficiency with support from banks and the banking association. It is estimated that repayments should increase from R250m in 2015/16 to around R600m per year over the next few years. This, however is a small sum in relation to need. NSFAS will continue to require substantial funding from the fiscus.

Finally, fees contribute a large proportion of total sector revenue. In the current political climate it is unlikely that we will see a real increase in fees in the foreseeable future. The suggestion of fee-free higher education will be a challenging scenario. Even if fees grow at a nominal rate as it was assumed it does in the scenario analysis above, there is still a shortfall regardless of the costing scenario. If the fee contribution to revenue is excluded, the shortfall will be even bigger. Decreasing fees will therefore put major pressure on the fiscus and on university third stream income.

Table 14: Shortfall summary under the historical funding growth scenario

Historical funding scenario (R'm)	2030 (Real)			2030 (Nominal)		
	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Universities	-R18 062	-R40 046	-R17 443	-R65 073	-R118 134	-R60 489
TVET Colleges	-R3 950	-R90 578	-R29 840	-R18 477	-R236 410	-R77 584
Community Colleges	-R7 455	-R16 798	-R9 768	-2 847	-R6 416	-R3 731
NSFAS	-R7 849	-R7 279	-R1 966	-R22 232	-R19 057	-R51 148
Total	-R37 316	-R154 701	-R59 017	-R108 629	-R380 017	-R192 952

Source: Respective Costing and Funding Models

Table 15: Shortfall summary under the historical funding growth scenario

Projected funding scenario	2030 (Real)			2030 (Nominal)		
	Status Quo Scenario	Full Policy Scenario	Mixed Scenario	Status Quo Scenario	Full Policy Scenario	Mixed Scenario
Universities	-R9 658	-R31 642	-R9 039	-R47 010	-R100 071	-R42 426

TVET Colleges	-R2 125	-R88 753	-R28 015	-R14 266	-R232 199	-R73 373
Community Colleges	-R7 469	-R16 880	-R9 781	-R2 853	-R6 447	-R3 736
NSFAS	-R6 843	-R5 630	-R318	R17 915	-R14 740	-R832
Total	-R26 095	-R142 905	-R47 153	-R46 214	-R353 457	-R120 367

Source: Respective Costing and Funding Models

7.2 Recommendations

Attached to the Terms of Reference was a list of items that needed to be explored in relation to funding of the PSET system. This list was compiled by the Inter Departmental Task Team (IDTT) at the beginning of the project, and reflects of the issues affecting the cost and funding of the PSET. The table below replicates these issues in the left hand column. Column 2 contains a discussion based on desk research and interviews which enables an understanding of the background as well as the possibilities. The third column contains possible funding options or recommendations which might be considered in the strategy to fund PSET. The final column highlights how these issues have been translated into variables that are included in the models.

Issue	Discussion	Options and recommendations	Variables included in the model
1.Efficiencies			
1.1 Exam cycle	- There are concerns that there are too many exams within the TVET sector. Trimester and semester qualifications means that students must write an exam at the end of each period. - Savings could be made on exams by potentially reducing the frequency of exams, particularly in the TVET sector. There is some discussion on the NC(V) and reducing the exams to a one exit-level assessment. - In addition, it appears that the intention of the DHET is to shift the programme mix in the TVET sector from mainly part to full qualifications. This may lead to a decrease in the number of exams. - There are variable and fixed costs involved in administering exams. Variable costs include printing, consumables and transport whereas exam rooms and supervision are fixed costs,	The DHET should investigate the cost of the different types of examinations (theoretical, practical and trade tests) to fully understand the cost implications of streamlining and reducing the number of exams.	This variable has implications on expenditure, but cannot be modelled because there is not enough detailed information on the cost of examinations.

Issue	Discussion	Options and recommendations	Variables included in the model
	which will not be saved by reducing the frequency of exams. The R178.1 million spent in 2014/15 on national examinations and assessments¹⁵ represents 2.8% of total expenditure in the TVET sub-programme. This suggests that the savings are unlikely to substantially reduce the total cost of presenting programmes. It is also likely that any savings could be offset by the need for alternative quality assurance mechanisms. It is worth mentioning that a potential negative impact of reducing the number of exams is that it might lead to a decline or perceived decline in the quality of education and training.		
1.2. TVET throughput rates	- The DHET does not publish throughput rates for NCV and NATED, but does furnish information on certification rates, which reflects how many learners complete a level in a given year. - The Performance and Expenditure Review published by the National Treasury on TVET colleges shows that throughput rates for NCV and NATED are very low. - There are a mix of educational, social and economic factors that impact on throughput rates. Students enrolled in TVET colleges traditionally come from highly disadvantaged backgrounds. - Some of the factors that impact on a college's throughput rates are the: - Complexity of the curriculum - Capacity and experience of lecturers (particularly in occupational programmes) - Quality of the learner intake (including their age, background	- The DHET should consider reducing the enrolments targets or extending the timeframe in which they are achieved. It would also be useful to the DHET to consider programme-specific targets (e.g. a target for occupational programmes) rather than a just a global target for the TVET sector. - At the same time, the DHET should prioritise improvements in quality which will increase throughput rates from their current low levels. - Given the decline in per student expenditure between 2010 and 2014, it is likely that quality improvements can only be realised by increasing per student expenditure on TVET	- The following variables in the TVET income and expenditure module affect throughput rates: - Programme mix (the proportion of enrolments in each programme relative to total enrolments) - Expenditure per FTE - Student: Lecturer FTE ratios for NCV and NATED - Direct costs for NCV and NATED - Mode of delivery (%)

¹⁵ (National Treasury, 2016)

Issue	Discussion	Options and recommendations	Variables included in the model
	and maturity) ○ Adequacy of the financial, academic and psycho-social support learners receive ○ Large class sizes and low motivation from the lecturers. ○ Incentives to drop-out rather than complete their studies (e.g. where a job opportunity arises) ▪ Low throughput rates means that it is costly for TVET colleges to produce a graduate. By the PER's estimates, it costs about R454 260 to produce an NCV graduate¹⁶. ▪ If throughput rates are improved, it means that expenditure per graduate will decline, and these efficiency gains will free up resources that can be used in other ways including increasing the number of enrolments or improving the quality of training programmes. ▪ However, the benefits of higher throughput rates are lost if this is done by lowering standards (i.e. lowering the test scores required), and will result in a higher cost to the economy in the long run, particularly if employers lose faith in the quality of training and the graduates and certificate holders produced. ▪ Occupational qualifications (because learners have an employer and a work environment) provide opportunity for improving throughput. However the ability of colleges to deliver such programmes is not yet proven and therefore very little information is available on throughput rates for these	programmes. ▪ An increase in per student expenditure should ideally be directed at interventions that will have a meaningful impact on quality such as: ○ expanding the number of lecturers ○ investing in equipment and consumables for greater practical training ○ strengthening the training of lecturers ○ providing greater financial and academic support for learners ○ accommodating a greater number of students in residences ▪ Programmes that could be expanded are occupational programmes as a proportion of total enrolments. This should be done in a gradual manner that takes into account the needs and expectations of employers. ▪ There are opportunities to deal with the NEET challenge through the expansion of modules of employable skills; these are shorter programmes that seek to	of enrolments in distance learning) ○ Bed capacity as a % of enrolments ○ Expenditure on academic support ○ Growth assumptions around the programme mix

¹⁶ As no cohort studies tracking expenditure and throughput rates have been done in the TVET sector, costs per graduate are calculated based on the TVET expenditure model created for this project using the average costs taken from the TVET PER performed by DNA Economics, and the performance data from DHET (2015) Statistics on Post School Education and Training 2013. Average cost here is calculated as the total cost of NCV programmes divided by the number of NCV graduates – where a graduate here is defined as someone who completes all three level of NCV (Levels 2 to 4).

Issue	Discussion	Options and recommendations	Variables included in the model
	programmes. Throughput rates are also affected by the lack of placement opportunities for students enrolled in TVET programmes. Expanding workplace placement is a key thrust of the DHET's policy, and is articulated in the SETA landscape paper.	enhance to employability of learners. It is further recommended that the DHET monitor and publish throughput rates on NCV and NATED. This is necessary if the DHET is to review the funding framework to incentivise quality and improved throughput in the TVET sector.	
1.3. University throughput rates	- University cohort studies show that throughput rates are low if the regulation time for a qualification is used as a measure of success. It would appear that a fair proportion of students complete their three-year qualifications in four years. After six years, about 59% of the 2008 cohort had graduated. - There are many reasons for the low throughput rates. Some argue that students are not ready or able to make the transition to university, either academically or in terms of discipline. In other words, the schooling system has not produced learners who are more ready to engage in university level study. The failings of the basic education system places an enormous (and costly) obligation on universities to support students in their studies. - To address this problem, universities have put in place academic programmes to address the dropout rates and throughput rates. Extended degree programmes (in which the first year is used to improve the readiness of students for their university programmes), language support, psychological and other support services are available to students; however, these interventions are not fully developed or consistently implemented across universities. - In addition, students often do not have adequate financial	- There is a need for further research on the determinants of university throughput rates. This analysis will allow the DHET and universities to design appropriate interventions to improve throughput rates, without reducing the quality of university education. It is likely there the university sector would need a set of cross cutting interventions that address the socioeconomic determinants of performance at universities (e.g. student funding, accommodation) as well as university-specific interventions (e.g. mix of qualifications, extended degree offerings, student support) that deal with the contextual factors faced by different universities. - In order to encourage better performance, the DHET could consider gradually increasing the weight of the output grant in the university sector's funding framework.	- The following variables in the university income and expenditure module affect throughput rates: - Enrolment targets - Graduate targets - Throughput rates - Student qualification mix - Proportion of students in contact versus distance education - Student to staff ratios - Teaching Input Units to Academic Staff Ratio - Bed capacity as % of

Issue	Discussion	Options and recommendations	Variables included in the model
	support to cover study-related expenses such as accommodation, transport and meals. Thus, students are more likely to drop out of university when their funding is exhausted. As the Performance Expenditure Review¹⁷ commissioned by the GTAC shows, NSFAS students have lower throughput rates than the general university cohort. While there are many reasons for the lower throughput rate of NSFAS students, it is partly due to the “some for all” approach, under which the scheme’s financial awards only covered part of the full cost of study, leading to a funding gap. ▪ In the short term, more rigorous entry requirements (such as university entrance exams) would slow the rate of expansion within the university sector. However, this practice would also reduce access and impact on equity within the student cohort. Restricting access in the short term may further aggravate an already tense situation in the university sector. ▪ Since funding is linked to plan enrolments, this practice has in the past created incentives for under-enrolment within the university sector. Some universities have inflated their enrolment projections because historically they were funded for all the projected numbers. However in recent years, the DHET has clawed back funding from universities in instances where actual enrolments were significantly less than planned enrolments. Nonetheless, the funding framework still has a strong bias towards enrolments, and more could possibly be done to encourage better throughput.		FTE enrolment in 2030 ○ Growth dynamics ○ Qualification levels (% undergraduate, honours, masters) ○ Distribution between fields of study by funding group ○ Proportion of students covered by the NSFAS
1.4 Improved use of SETA and NSF	▪ Both the SETAs and NSF have built up their surpluses over the years as a result of pervasive underspending. However, these surpluses have dwindled as more funding has been directed	▪ Although surpluses have been committed to different projects and programmes, it is recommended that	▪ The SDL funding and allocation module allows for different scenarios to

Issue	Discussion	Options and recommendations	Variables included in the model
surpluses	towards supporting the public PSET system. For example, the NSF funded enrolments in NCV and NATED within TVET colleges, and provided funding to meet the shortfall incurred by the NSFAS. Moreover, surpluses have also been committed to funding multi-year programmes. Consequently, the amount of uncommitted surpluses that remains is minimal. Part of the reason that the NSF and SETA's have committed funding is to address the Auditor General requirement of showing that surpluses are linked to future spending. It is unclear whether funds have been committed to policy priorities or been committed to simply appease the Auditor General.	these programmes are analysed to determine how they contribute to the policy priorities and targets set out in the White Paper. Currently, the NSF administers only 20% of the SDL. If the SETA Landscape proposal that 60% of SDL goes to the NSF is approved, then the DHET would need to consider whether (i) the NSF has sufficient capacity to administer these funds (ii) administrative capacity within the NSF and SETAs can be rationalised so as not to incur excessive administrative costs in administering the SDL.	be modelled. Specifically, the user can choose the proportion of the SDL allocated to SETAs and the NSF. The proportion of the levy spent on administrative costs can also be changed in the SDL funding and allocation module.
1.5 Improved use of NSF funds	- Traditionally, NSF funding was intended to support young people, rural women, people with disabilities and the unemployed. It was also intended to support national priorities. However, given the broad mandate of the NSF, in practice NSF funding has been used to support the public PSET system. - The SETA Landscape Paper, in its current iteration, proposes to allocate 20% of the SDL to the NSF for national priorities and a further 40% for the occupational (PIVOTAL) programmes. The remaining 40% would be transferred to SETAs. It is not yet clear exactly how the additional funding made available to the NSF will be allocated. However the policy intent is to expand an integrated post-schooling system and to promote occupational qualifications and programmes. - It is likely that such as change will require a legislative amendment to the Skills Development Act. For this to happen, the DHET and NEDLAC constituencies need to agree on these changes. This would mean that additional funding (40% of the	- While the SETA Landscape paper provides some idea on the policy direction in relation to the SDL, it does not provide sufficient detail on what the additional funding to the NSF will be used for. The current expectation is that the additional allocation (40%) would largely fund workplace training rather practical or theoretical training. - In deciding on how the additional funding for the NSF will be utilised, it is proposed that some of the levy should be earmarked for occupational programmes delivered in public TVET colleges in partnership with employers. - In amending the Skills Development Act,	- The split between the SETAs and NSF can be changed in the SDL module to reflect the agreed policy decision. - In addition, the SDL funding and allocation module allows the user to decide on how the NSF and SETAs allocate their funding across different categories of expenditure (e.g. training programmes, bursaries, infrastructure etc.). Furthermore, the module can be calibrated to determine how funding

Issue	Discussion	Options and recommendations	Variables included in the model
	SDL) could become available to support the public PSET system. - There is some uncertainty around how the additional funding will be used to; whether it will be used to expand access, improve quality or do both, particularly in relation to occupational programmes. Employees, some of whom, are concerned with the quality of the public TVET programmes, are only likely to provide support for workplace training if the quality of training is improved. - In order for the quality of occupational training to improve, government needs to resolve the problem of how occupational programmes are funded. Currently, funding for theoretical and some practical components come from the fiscus, whilst workplace training is funded by the SETAs. As, there is no coordination between the fiscal funding and SDL, it is possible that there a number of learners that receive funding for only the theoretical and practical programmes, but do not get funding for workplace training. This creates a situation, where learners cannot complete their occupational qualifications without completing their work placement. - It is envisaged that as occupational programmes expand, NC(V) and NATED programme enrolments could be reduced. Interviewed DHET officials have suggested that occupational and foundational programmes are expected to particularly replace NATED programmes.	the DHET should consider: - Re-affirming the intention of the SDL as a source of funding for workplace training - Setting clear parameters and criteria for the allocation of funding from the NSF (i.e. do away with the vague and broad funding criteria) - The funding criteria should ideally allow for the NSF to be used to fund a combination of: - infrastructure and lecturer capacity development in TVET colleges - occupational programmes in TVET colleges - employers to fund work placements. - It is proposed that a single integrated funding model be developed that enables a student being funded for a college programme to also be funded for the work placement. Centralising the administration and disbursement of funds (rather than locating them in 21 SETAs) could facilitate this process.	will be allocated across the different types of training programmes (e.g. NCV, NATED and occupational programmes) and the split between public and private provision. The estimates from the SDL module feed into the TVET income and expenditure module, and becomes a source of revenue for TVET colleges.
1.5 Resolve mandate re SDL and eliminate duplication of funding sources	As Figure 1 shows, the funding flows in the PSET system are complex. The system is funded broadly through four sources of funding: appropriations, earmarked taxes and tax incentives, private funding (mainly student fees) and miscellaneous sources.	As mentioned previously, there is a need to clarify the mandate of the NSF and the funding criteria. Currently, the 20% of the SDL allocated to the NSF can be used to fund a wide range of	The SDL funding and allocation module allows the user to determine how much of the SDL will be transferred to the NSF

Issue	Discussion	Options and recommendations	Variables included in the model
	- There are areas within the public PSET system where programmes are funded by more than one source of government funding. For example, in TVET colleges, the NC(V) is funded through a state subsidy from the DHET and from the SDL channelled through the NSF. Arguably, having two or more sources of state funding for a specific programme can give rise to unnecessary administrative costs. In this particular example, both the NSF and DHET have put in place systems to monitor the utilisation of funds by colleges. Colleges also have to report on the same programme to two different funders, increasing their reporting burden. - As discussed previously, part of the problem around the duplication of funding arises because of a lack of clarity around the purpose of the SDL. There is a concern that the mandate of the SDL has been expanded to include the wider student population and PSET broadly. From our interviews with industry, it appears that there is wide ranging support for the SDL to focus on worker education (training existing workers and new entrants to their industries). This means that employers would prefer if the SDL was used to fund those students that supply industry with skills needed by employers in the workplace, and not the general student population. - A type of programme that links directly to the workplace is occupational programmes. If these programmes are to be funded, there needs to be a clear policy position on what components of the training are funded through the fiscus and through the SDL. - Currently the NSF is accountable to the Minister of Higher Education and Training for its performance. The current accountability arrangements are a cause for concern amongst NEDLAC and its constituents, as there is the common perception that the SDL is being used to augment state funding. If the current accountability arrangements are retained, then the	programmes because the funding criteria contained in the Skills Development Levy Act is broad. Thus, amendments to the Skills Development Act provide a useful opportunity to tighten the funding criteria. Another option less prescriptive option would be for the DHET to issue a policy directive that sets out clear parameters and funding criteria. The current allocation can be targeted at: - Bursaries for poor students - PSET infrastructure - PSET human capacity development - Programmes for NEETs and unemployed - In a similar way, legislative amendments (or a policy directive) would be needed to specify the funding criteria for the additional 40% of the SDL transferred to the NSF if the SETA landscape paper's proposals are approved. Any amendments should re-affirm the focus of the levy on training existing workers and new entrants, and ensure that a proportion of the levy is earmarked for occupational programmes. - Finally, the DHET may need to reconsider the current accountability arrangements governing the NSF if the institution takes on a greater role in the	and SETAs. - Based on this amount, the user may choose what these institutions spend their SDL allocations on. - Users may choose to allocate NSF funding between six categories of expenditure: - Training programmes - Scarce skills university bursaries - Capacity building - Infrastructure - Research and Advisory services - Admin - Within the training programme category, users may further choose the proportion of funding that is allocated to PIVOTAL programmes (e.g. learnerships, apprenticeships, occupation programmes

Issue	Discussion	Options and recommendations	Variables included in the model
	Minister and Director-General will continue to have significant influence on how the NSF funds are utilised; a situation that causes discomfort amongst industry role-players.	allocation and disbursement of the SDL. If the emphasis on workplace training is re-affirmed, than industry needs to play a greater role in deciding on how funds are allocated to programmes. A new (and perhaps legislated) governance structure comprising of a representative sample of public and private role-players should be established.	etc.) ▪ In relation to SETAs, the proportion of the SDL allocated to the following programmes can be varied: ○ Learnerships ○ Internships ○ Apprenticeships ○ Occupational programmes ○ Skills programmes ○ Bursaries ▪ When determining the thresholds or proportion of funding allocated to different types of programmes, the DHET should take into account: ○ The capacity of the PSET system to deliver the programme ○ The demands of the labour market ○ The ability of the fiscus to co-fund the theoretical and to

Issue	Discussion	Options and recommendations	Variables included in the model
			some extent the practical components of training in the case of occupational programmes.
1.6 NSFAS: better collection of debts	- Although funding for the NSFAS has increased rapidly from R3.43 billion to R9.75 billion between 2010/11 and 2014/15, the scheme still faces a shortfall as demand for financial assistance continues to outpace the growth in funding. - A Performance Expenditure Review on the NSFAS commissioned by GTAC reveals that 31% of successful applicants in 2014 could not be funded.¹⁸ - The average value of the NSFAS award in 2014 was below the full cost of study at universities, with 59% of all underfunded students attending historically disadvantaged universities. It is an important point to note as underfunding is one of the major contributors to drop-out rates amongst university graduates. - The NSFAS PER estimates that R1.8 billion (42%) of the R4.2 billion awarded was converted in bursaries as part of the final year conversion programme in 2014. After conversions, R2.3 billion was recorded on the NSFAS' loan book. - This amount includes low quality debt from students who have yet to complete their qualifications, and are unlikely to repay their debt. The net effect of the loan conversion programme is that students who graduate owe less to the NSFAS than those who drop out. This makes little sense as the loan conversion programme removes good quality debt (students with a strong	- The NSFAS PER estimates that loan repayments could contribute about 35% of the required funding. Moreover, about half of all loans awarded could potentially be collected. - It follows that the sustainability of the NSFAS is closely linked to its ability to improve its debt collection. One possibility would be to assign the responsibility for debt collection to SARS so that when students register for PAYE, the repayment is automatically deducted from their salary. - Currently, there are a number of different policy positions on student fees. The idea of fee-free university education has entered the public discourse. A commission has now been established to investigate the possibility of fee-free education. All of these differing policy positions creates uncertainty for the university sector. Going forward, it is important for government to re-affirm	- Repayment rates can be varied in the NSFAS model to determine its effect on the total funding available for disbursement. - The coverage of students (in terms of income quintiles) can also be changed to estimate the additional funding needed to fund the "missing middle."

¹⁸ This section draws on the work of analysis done by Cornerstone Economic Research for the NSFAS Performance Expenditure Review (2015)

Issue	Discussion	Options and recommendations	Variables included in the model
	likelihood of graduating and finding employment) from the pool of debtors. - Along with changes to the National Credit Act, political pronouncements on fee-free higher education and the management decision to stop blacklisting students, the loan conversion programme has depressed repayment rates. - In 2014, loan repayments declined to 3.7% from 28.9% in 2006, turning the NSFAS scheme into one almost entirely dependent on government funding and not a partially self-sustaining scheme, as it was originally intended to be. While, it is unlikely that that NSFAS will be fully self-sustaining as it was designed to fund students from disadvantaged backgrounds who are more likely to drop out of university, it can do much more to recover debt. - The NSFAS' debt recovery and management capabilities are weak. These weaknesses are the result of policy and legislative changes such as amendments to the National Credit Act that makes the use of garnishee order more difficult and the ministerial decision to stop blacklisting students. While some of these factors are beyond the control of the NSFAS, their poor debt recovery track records is also the result of the internal decision to stop using emolument orders altogether. - The NSFAS provides awards to students from families with a household income of less than R122 000 per year. The current threshold excludes the "missing middle", that is households earning about R 122 000 but less than R240 000 per year, who do not qualify for commercial loans.	their commitment to an income-contingent scheme, administered through the NSFAS as the primary method of funding student fees in the university sector. Government should ideally stand firm on the notion that NSFAS loans are not grants and should be repaid by students once they begin to earn an income. - Over the longer term, South Africa should consider moving to a deferred charge scheme, which promotes access at the point of entry but requires students to pay back the cost of their education once they enter employment. The viability of a deferred charge scheme for the university sector depends on a myriad of factors including its cost, affordability and the ability of the labour market to absorb new graduates. - A target is needed for repayments on both numbers of students expected to repay and the amount of money to be repaid annually. - There are a number of ways to deal with the problem of funding the 'missing middle.' Each mechanism has its own benefits and costs that should be considered when making decisions around how the "missing middle" is funded. - The threshold for access to NSFAS loans could be increased from R	

Issue	Discussion	Options and recommendations	Variables included in the model
		122 000 to R 240 000 per annum. One of the benefits of increasing the threshold is that students from the “missing middle” households are more likely to find jobs and repay their debt (provided that the final year conversion programme is scrapped). In effect, by extending access to funding to the missing middle, NSFAS would improve the quality of debt that it raises. ▪ Another option for funding the “missing middle” is through a subsidised interest scheme, where commercial banks can provide funding at reduced rates. Any such scheme would have to be researched carefully to fully assess the potential impact on the fiscus, student debt and the banking sector. ▪ There are discussions about raising a social bond that would offer a mechanism for institutional investors to invest in the higher education sector. However, more research is required to fully understand the implications of such as market mechanism. Specifically, questions such as who will be funded by the bond, the expected rate of return for investors, the types of guarantees (if any) needed from government will need to be investigated.	
1.7 Prioritising of throughput in funding students (i.e. returners)	▪ Between 2010 and 2014, the emphasis has been on providing access to funding for first-time enrolees in the university and TVET sectors. Consequently, some argue that returning	▪ It is proposed that the funding criteria for NSFAS is reviewed to ensure that returning students, particularly those that	▪ The NSFAS model can be used to determine the effect of implementing a

Issue	Discussion	Options and recommendations	Variables included in the model
vs first year)	students have struggled to access funding to pursue their studies and complete their qualifications.	that passed previous levels or years, are given priority access to funding over first time enrollees. Implementing a preferential access system for returning students and moving towards a system that gives fewer students more funding is likely have a positive effect on throughput rates.	system of preferential access for returning students on the funding requirement. The user can change the number of first year enrolments and reduce drop-out rates in subsequent years of study.
1.8 HE inflation drivers (imports, equipment etc.)	▪ The DHET argues that a key driver of inflation in the higher education sector is the higher costs involved in importing goods and services (such as international subscriptions to journals). ▪ The CHE has commissioned research on the drivers of higher education inflation. A report is expected by mid-2016 and will shed further light on the drivers of higher education inflation. ▪ Nonetheless, given that 66% of expenditure in the university sector is on compensation of employees, it would appear that increases in salaries for academic and non-academic staff have also fuelled inflation. Some of the commonly cited reasons for the higher compensation are that universities have increased the salaries of academic staff in order to retain them. Additionally, as the number of academics with PhDs have increased, the salary and wage bill of universities has also risen.	▪ It is recommended that Statistics SA publish the components that make up the basket of higher education goods, used to measure higher education inflation. ▪ Once the drivers of higher education inflation are better understood, the DHET could identify possible ways to mitigate the effect of higher education inflation on expenditure (e.g. through strengthening central procurement mechanism). ▪ The DHET may need to reconsider whether the NDP target that requires 75% of all academics to have PhDs is cost effective.	▪ The university income and expenditure module uses the long term fiscal projection, which sets inflation at an average rate of 6.2% between 2014 and 2030. However, the higher education inflation can be used instead of CPI, to determine the costs of university education. ▪ The module also allows the user to vary the proportion of lecturers with PhDs.
2. Institutional efforts			
2.1 Increase third stream income	▪ About 27% of university income comes from third stream income. "Third stream" refers to all income generated through	▪ Detailed information on the composition of "third stream" income is not published	▪ The university income and expenditure model

Issue	Discussion	Options and recommendations	Variables included in the model
	research contracts, donations, investments and facilities rental. In effect, this is a catch-all category for income that cannot be considered government grants or fees. ▪ A fair proportion of third stream income is earmarked for research and innovation, and cannot be used to fund operational expenditure. ▪ The Revenue and Expenditure analysis (Volume 3) shows that third stream income is strongly correlated with total income received by universities. This may suggest that universities which receive more state funding can generally raise more third stream income. ▪ Therefore, traditional universities are more likely to raise third stream income, compared to previously disadvantaged institutions. It follows that the ability of a university to raise third stream income depends on a variety of factors (e.g. university reputation, research output), some of which are outside the control of the institution particularly in the short term.	by universities. Without additional information, it is difficult disaggregate “third stream income” by source and determine how stable these income flows are over time. ▪ It is recommended that the DHET agree on a Standard Chart of Accounts with the university sector. This would standardise the approach to reporting in the financial statements and allow for cross-comparisons of financial performance. A SCOA would enable detailed financial analysis on the drivers of university income and expenditure, and how these differ by category of universities. ▪ Further research is needed on the determinants of third stream income by university. ▪ There may be opportunities to increase the amount of “third stream” income from quasi-commercial activities, for instance by developing used land into student housing. However, these types of activities require strong management and financial expertise in universities. Moreover, if third stream income (e.g. consulting fees) is pursued at the expense of academic activities, then the quality of higher education might suffer. ▪ The DHET could consider implementing a regulatory framework that requires a proportion of the consulting fees to be	allows the user to specify the rate at which third stream income increases.

Issue	Discussion	Options and recommendations	Variables included in the model
		paid back to the academic department or university. However, the payback levels should not be set so high as to discourage research by academics.	
2.2 Reprioritisation from other government programmes	- There is an argument that PSET is less well funded in SA than in other countries and that funding has not kept pace with expansion. Such comparisons however are not always useful as (i) the structure of the PSET system is not directly comparable, except in the case of universities where some comparison is possible, and (ii) education, health and social assistance are part of a broad system of social protection, parts of which compete for public resources. South Africa has for instance chosen to increase expenditure in basic education to internationally comparable levels, and has implemented a comprehensive system of social grants, the likes of which are found in very few countries in the world. - However, there is broad agreement that more funding is needed for the PSET system. At the same time, there is also widespread recognition that the efficiency and performance of the PSET system and its sectors could be improved.	- The model produced for this project estimates the funding requirement for each of the sectors within the PSET system between 2014/15 and 2030/31. These funding estimates show the scale of funding needed to meet the White Paper targets under alternative scenarios. - It is recommended that mechanisms are put in place to update the models on an ongoing basis so that the results from this work is taken into account during the DHET's planning and budgeting processes. This could feed into the Medium Term Expenditure Budgeting process where decisions on the reprioritisation of government expenditure are taken.	The proportion of funding allocated to PSET relative to other sectors in the economy is modelled in the Fiscal Sustainability Model maintained by the National Treasury.
2.3 Borrowing	- The ability to borrow depends on largely on the creditworthiness of an institution. In general, institutions can either borrow to meet their short term needs (e.g. overdrafts) or in the long term to finance infrastructure. - PSET institutions have traditionally not entered into long term borrowing contracts, although some universities and TVET colleges do maintain an overdraft facility.	A separate study is needed to determine whether PSET institutions could possibly raise long term loans to finance capital expenditure.	- Borrowing is not currently a source of funding for universities, TVET or community colleges, and thus not included in the modules. - However, each module can be modified to

Issue	Discussion	Options and recommendations	Variables included in the model
			include borrowing if this becomes a substantive source of funding in the future.
2.4 Unlock private sector funding to TVET colleges (specialist industry programmes) DHET role in brokering partnerships	- There is a commitment in DHET to colleges specialising in certain occupational qualifications and programmes. Some colleges already have partnerships with sectors and employers (such as W&R, clothing, mining, motor industry) - Currently SETAs are responsible for brokering such partnerships between PSET institutions and employers but limited progress has been made. However they have had some success and this could be expanded. - PPPs, between colleges and funders (banks, DBSA etc.), between colleges and employers, and between colleges and private providers) have potential for leveraging additional funds. - However, in order to unlock private sector funding, the colleges need to demonstrate and obtain recognition for quality and impact. They must deliver competent people to industry to address occupational demand. Industry does not want to fund general or even technical education which they regard as the responsibility of government to provide from taxes. They are interested in occupationally qualified and competent people for their companies.	- It is suggested that the allocation of SDL funds from the NSF (or from SETAs) to TVET colleges should be specifically linked to and dependent on business plans that include partnerships that leverage additional funds. - These plans should be for occupational programmes rather than the NCV as this is where industry has an interest. - It is possible to envisage employers taking “ownership” or playing a major role in the governance and management of a TVET college and taking shared responsibility for the college achieving industry standards and meeting industry needs. - The key here is making sure that programmes of these institutions are aligned and appeal to industry, thus higher demand for the certificate-holders or graduates. This will be a large contribution to the long term objective of labour absorption and unemployment reduction.	- The TVET income and expenditure module could be calibrated to demonstrate the influence of increasing private sector funding on the shortfall. - Additional funding from Development Finance Institutions or employers for infrastructure will likely reduce the infrastructure funding requirement.
2.5 PPPs for TVET infrastructure (role for	The TVET income and expenditure module estimates that R589.5 billion will be needed to fund infrastructure if the full	Further research is needed to determine whether PPPs are feasible in the TVET sector, and what types of infrastructure	The TVET income and

Issue	Discussion	Options and recommendations	Variables included in the model
DBSA)	policy scenario set out in the White Paper is implemented. - Compared to the university sector, the infrastructure requirement for the TVET sector is higher because of the significant amount of new capacity needed by the sector to cope with its rapid expansion. - TVET colleges will have to expand both their residences and teaching areas to cope the increase in enrolments. - There have been some attempts at PPPs in education in SA and internationally. The levels of success are mixed. The problem is finding projects that offer a rate of return based on income from the project. With student accommodation the income is rental payments but this principle does not apply to a science block or artisan workshop.	could be funded through this mechanism. Some of the NSF funding could be used to incentivise PPPs, however it is unclear whether the current regulatory framework will allow for the NSF to be used in this way. Additional research is required to understand how the NSF can be used to promote infrastructure development in the TVET sector.	expenditure module estimates the infrastructure funding requirement based on the growth in enrolments and distance versus contact enrolments.
3. Current government sources			
3.1 Linking expansion of funding to growth in economy	- There is mixed evidence on the link between PSET and economic growth. While international evidence suggests that the PSET system does contribute to economic growth (e.g. though university graduates, artisans), research also shows that as countries grow, they tend to spend more on PSET. - Economic growth determines how much state funding is available for public services, including PSET. Some commentators argue that linking growth in funding for PSET to economic growth will not go far enough to address access and inequality within the PSET system, particularly when growth rates are depressed. - The question is whether the expansion of PSET funding should be linked to economic growth. It is important to note that growth rates influence the fiscal envelope, and do practically constrain	- Not enough is known about the link between PSET and economic growth in South Africa. Thus, further research is necessary to measure the extent to which the PSET contributes to economic growth. - While this is an important piece of research, it is more important for the DHET to develop a sustainable funding strategy for the PSET system. This funding strategy should ideally take into account the factors, previously discussed including but not limited to: - Cost of funding PSET under	- The modules assume that economic growth is linked to tax revenues. Thus, higher economic growth leads to higher tax revenues. - Taxation revenues grow at an annual average rate of 2.9% in line with the National Treasury's long term Fiscal Sustainability Model. That said, the level of economic growth can be changed

Issue	Discussion	Options and recommendations	Variables included in the model
	the growth in funding available to the PSET system. Therefore growth in enrolment targets and funding cannot be pursued without taking growth rates into account.	different growth strategies ○ Sustainability and predictability of different sources of funding	to determine its effect on the state funding within each module.
3.2 Reprioritisation of other programmes	▪ This topic has been discussed under section 2.2	This topic has been discussed under section 2.2	This topic has been discussed under section 2.2
3.3 Reducing public entities and number of boards.	▪ The SETA Landscape Paper recommends converting all 21 SETAs from Schedule 3B entities into SETABs. While the paper does not specify that they would lose their schedule 3B status, it is implied in the proposals. ▪ According to the landscape paper, streamlining the number of SETAs could result in efficiency savings from centralising corporate and shared services but this could be outweighed by the cost of expanding capacity within the DHET. ▪ In addition, reducing the number of boards in existence could save additional resources, by reducing expenditure in operating these boards. ▪ Although the proposals to achieve cost savings by converting 21 SETAs in SETAB is beneficial to the sector, another aspect of the problem is that SETAs did not discharge their responsibilities effectively (see NEDLAC Report, Ministerial Task Team Report 2012 and SSR TTT review for HRDC). ▪ One of the problems with removing boards is that it reduces accountability. Stakeholders are likely to seek a structure that enables accountability for the SDL funds.	▪ Board effectiveness is key and this can be achieved through clear, predictable and consistent mandates, proper training, accountability, transparency and an absence of interference with clarity of roles between board and executive responsibilities. ▪ The accountability mechanism in the revised SETA Landscape Paper needs to be clarified. ▪ One option is to close all 21 SETAs. The saving in “Admin” costs would be 10% of the levy income. ▪ However, any changes within the structure of SETAs and corresponding expansion of DHET, as envisaged in the SETA Landscape Paper, should be costed to estimate the net effect on administrative expenditure.	▪ The percentage of expenditure spent on administration can be varied in the SDL allocation module, which changes the amount of income available for other categories of expenditure.
3.4 Increase donor	▪ There are already a number of international donors that work with and fund DHET and PSET institutions. These include	▪ Donor funding could be used to fund catalytic programmes within the PSET	▪ Donor funding is included under “other/third

Issue	Discussion	Options and recommendations	Variables included in the model
funding	amongst other GIZ, SSACI, DANEDA, SEDA, and DFID. Each donor focuses on specific parts or programmes within the PSET system. Donor funding is limited and often earmarked for specific projects and programmes. It is unlikely that donor funding will become a significant source of funding for the PSET system.	system. These types of programmes could contribute to developing an evidence base on what types of interventions are effective, and under what conditions they work.	stream" sources of funding. Nonetheless, it is worth mentioning that it is difficult estimate this source of funding reliably.
3.5 Use of levy to fund PSET	This is explored in 1.5.	See section 1.5.	See section 1.5.
4. New sources			
4.1 Tax increases	- It is likely that if significantly increased government funding is required it will have to be mostly made up from tax increases. - There are a number of tax sources / mechanisms that should be considered; and the large size of the shortfall would suggest the use of a combination of these mechanisms if tax rises are to be a key part of meeting this shortfall. The three main sources of tax revenue in the country are corporate income tax (CIT), personal income tax (PIT) and value added tax (VAT), which together accounted for 80.3 per cent of income in 2011/12.	- A significant increase in CIT is not recommended, since this type of tax is a key indicator of international competitiveness. - Additionally, CIT can be volatile, as it is closely linked to the economic cycle. - A combination of PIT and VAT would be the preferred mechanism for funding PSET, as alternative forms of taxation (alcohol and tobacco) generate much less revenue.	The PSET dashboard estimates the aggregate shortfall under different scenarios. Based on this shortfall, it is possible to calculate the tax increases needed.
4.2 Increase SDL from 1% to 2%	- Payroll taxes such as SDL are regressive, thus low income earners contribute a higher proportion of their income to the levy than high income earners. Payroll taxes such as the SDL also tend to discourage formal employment. - Aside from the economic impact of the SDL, there are already concerns around how the levy has been managed and allocated. Increasing SDL is likely to be an unpopular decision,	- One alternative would be to discontinue the SDL and increase general taxes through either CIT or PAYE. This is could be done as there is already a sizeable proportion of employers who write off the levy as a tax. - However, it is likely that there will be	Changes in taxation are modelled in the National Treasury's macroeconomic models.

Issue	Discussion	Options and recommendations	Variables included in the model
	particularly amongst employers.	considerable opposition to the scrapping of the SDL from NEDLAC. Despite the current challenges with the SDL, it remains the main source of funding for workplace training. ▪ If the SDL was removed, then CIT would have to be increased substantially to make up for the equivalent amount of revenue. This would have widespread macroeconomic impacts. ▪ Ideally, the SDL should not be scrapped, but the accountability mechanisms governing the use of the levy could be strengthened.	
4.3 Graduate tax	▪ The possibility of levying a graduate tax has recently entered the public debate. Under a graduate tax regime, all graduates have to pay tax regardless of the direct costs of their studies. ▪ While at first glance, a graduate tax makes intuitive sense as it makes those who benefit from PSET pay for their education, this tax mechanism has several drawbacks. ▪ A graduate tax provides little incentive for students to make cost efficient choices about their education or to complete their studies within regulation time. It also crowds out private incentives to invest in PSET. The disadvantages and the difficulty in implementing a graduate tax scheme means that no country in the world has managed to implement a “pure” system of graduate taxes. ▪ The challenge in South Africa is that the graduate tax would be perceived as an additional tax. There would be concerns about the overall impact of the new tax on the incidence of taxation on	▪ There are various factors that need to be considered when setting a graduate tax. These include: ○ Tax base ○ Structure of the tax (progressive, regressive and proportionality) ○ Tax rate ○ The incidence of taxation on the targeted group of taxpayers ○ Potential perverse or unintended consequences ○ Intergenerational impacts ▪ Introducing a new form of taxation such as a graduate tax is a significant policy	▪ Changes in taxation are modelled in the National Treasury's macroeconomic models.

Issue	Discussion	Options and recommendations	Variables included in the model
	certain income groups.	change, which needs to be modelled and carefully researched before any decision is taken.	
4.4. Use GEPEF to fund NSFAS	- Pensions are for specific purposes, which are defined in law and in pension mandates. - They are independent of the employer. The employer (even when it is government), has no legitimate role in utilising these, without involving the beneficiaries, through their boards.	No action is proposed. Government should steer clear of using pension schemes to address fiscal challenges.	The models can be customised to include additional sources of funding, if and when they become available.
4.5 UIF reserves to fund NSFAS	- The same argument applies as in point 4.4. The UIF has a legally defined role and cannot be directly used for funding other programmes. - Whilst the fund may be in surplus, this can easily change if the actuarial variables are changed. There is an economic argument that the benefit structure is not adequate to take account of the economic realities in South Africa.	No action proposed. Government should steer clear of using insurance schemes to address fiscal challenges.	The models can be customised to include additional sources of funding, if and when they become available.
4.6 Supported student loans via banks (missing middle)	The mechanisms that could be used to support the “missing middle” are discussed in 1.6.	Refer to 1.6 above	Refer to 1.6
4.7 DBSA loans for infrastructure	The role of DBSA in supporting infrastructure investment in PSET is discussed in 2.4 and 2.5.	Refer to 2.4 and 2.5	Refer to 2.4 and 2.5
5. Access parameters			
5.1 Capping tuition fees	Some of the recent student protests have been fuelled by the substantive increases in student fees within the university sector. The expenditure analysis reveals that fee expenditure per student increased at an average rate of 9.2% per year between	The regulation of fee increases (capping) needs to be considered in the context of a broader and sustainable	In the university model, fees are projected to grow in line with inflation (set at 6.2%) over the

Issue	Discussion	Options and recommendations	Variables included in the model
	2010 and 2014, outpacing inflation. This has happened because universities have raised student fees to compensate for the decline in the block grant. ▪ Student fees have been capped in countries such as the United Kingdom, where government set an upper limit to the increase allowed by universities. ▪ In some instances, universities have adopted a stepped approach to increasing student fees. In other words, students only face one increase in fees if they finish their degrees within regulation time. ▪ The DHET is currently investigating regulatory mechanism to limit fee mechanisms. In examining this option, it should be noted that any regulation that caps increases to student fees will constrain the amount of revenue that universities can raise.	funding framework for PSET.	period. In effect, the growth in university fees is capped at a 0% real increase over the period. However, the nominal and real growth rates can be varied.
5.2 Levy versus tax to fund PSET	▪ Sections 1.4 and 1.5 have discussed the implications of the lack of clarity around the use of the SDL in funding the PSET system.	▪ Recommendations on the utilisation of different sources of funding in PSET are discussed in 1.4 and 1.5.	▪ Refer to 1.4 and 1.5.
5.3 Garnishee system for recovering loans when students get jobs	▪ There are many reasons for the reduction in debt recovery. Amendments to National Credit Act, which effectively changed the procedure for obtaining emolument orders are cited as one of the reasons for the low repayment rates. In addition, as mentioned previously, there was an internal decision by the NSFAS to stop using emolument orders altogether. A more comprehensive discussion of these issues can be found under section 1.6.	▪ Refer to the recommendations contained in 1.6	▪ Refer to 1.6
5.4 Slow down expansion plans	▪ Given fiscal constraints, it is important to recognise the trade-off between access and quality. If quality issues are to be addressed, the pace of enrolment expansion will have to be reconsidered. It is recommended that enrolment targets are	▪ Efforts need to be made to match expanded numbers with the appropriate level of funding from the fiscus. ▪ When enrolment numbers are agreed	▪ The user can change a number of variables in the dashboards of each module to understand

Issue	Discussion	Options and recommendations	Variables included in the model
	revised. The modules demonstrate the trade-off between access and quality in each sector. In the TVET sector, a higher level of expenditure per FTE is needed to improve the quality of technical and vocational education, compared to the university sector. In the community college sector, an overhaul in the way programmes are delivered is needed. This can only be done through an increase in per-student expenditure. For a given level of funding, an increase in expenditure per student, will invariably reduce access/enrolments.	with universities and colleges this should be done on the basis that any additional funds needed in the form of grants and loans are budgeted. - It is also suggested that in relation to expansion targets a distinction should be made between multi-year programmes leading to a degree or occupational qualification (which are in general more costly) and shorter programmes leading to part qualifications that provide some form of skills to assist unemployed people to gain access to the labour market which can be delivered at a lower cost and be made available more widely. - Perhaps a quick win would be to expand modules of employable skills for a large proportion of the NEETS whilst slowing the expansion of degree and occupational programmes to enable quality issues to be addressed.	the trade-offs between quality and access.
5.5 Change NSFAS criteria	Refer to the discussion in 1.6	Refer to the recommendations contained in 1.6	Refer to 1.6
5.6 Look at overall allocation to PSET and relative position	This issue is explored in 2.2.	Recommendations are contained in 2.2	Refer to 2.2

REFERENCE LIST

DHET. (2013). *White Paper for Post-School Education and Training*.

National Treasury. (2015). *TVET Performance and Expenditure Review report*.

National Treasury. (2016). *Estimates of National Expenditure 2016*.

Student Funding Panel. (2015). *An analysis of the design, impact and options for reform of the student fees and loans system in England*. Retrieved from Universities UK.



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