REVIEW OF TAFE FUNDING IN THE NORTHERN TERRITORY

John Nagel

ADELAIDE 1991

This project was funded by the Northern Territory Department of Education
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Acknowledgements

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A key element of the project was the extensive consultations conducted with many staff in the Northern Territory. Their valuable contributions are acknowledged and their names are listed in Appendix 1.

Staff of the TAFE National Centre for Research and Development are thanked for their assistance during the consultancy and production of this report, in particular Dr William Hall and Mr Geoff Hayton for their critical appraisals.

Telephone discussions were held with a number of persons in other TAFE systems. Ms Lynne Walsh (Western Australia), Mr Phil Clancy (Victoria), Mr David Sharland (New South Wales) and Mr Stewart Newell (Queensland) are thanked for providing information, in some quite lengthy conversations, which confirmed that the issues discussed in this report are being faced in other systems and that the approaches being independently developed have many elements of commonality.

The consultant, being a Director in the Department of Employment and TAFE in South Australia, is also indebted to the many staff in South Australia who have been involved in related matters over many years.
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SUMMARY

This Report is the outcome of a consultancy conducted for the Department of Education in the Northern Territory. The principal aim was to establish an accurate, fair and equitable model which would allow cost comparisons between institutions and between programs offered at different locations.

A funding model is proposed which defines four categories of expenditure:

- Overheads;
- Educational Programs;
- Support Services and Investment Activity; and
- Developmental Funding.

The model is intended to assist the making of decisions on resource allocations at the planning stage by focussing on the need to balance the level of anticipated income from all sources with the planned total expenditure for intended educational outputs.

A common approach to the measurement of outputs will enable a consistent approach to specifying the planned level of educational activity and support services in each TAFE institution. A Unit Cost approach is proposed to enable the funding required for the planned educational profile to be estimated. To avoid having the planning processes overloaded with data, a structure of Educational Programs and Support Services will need to be established.

The report discusses the factors and processes that need to be considered in determining the structure of the Education Program, the Unit Costs and the manner in which widely varying cost factors are included without the model becoming extremely cumbersome.

While the model is quite simple, its implementation will require the consideration of many practical issues. These are discussed and recommendations are provided to aid implementation. A look at the Contents page under IMPLEMENTATIONS ISSUES will show the range of matters considered.
SUMMARY OF RECOMMENDATIONS

Recommendation 1

It is recommended that a funding model, as described in this report, be implemented to assist the decision making processes of managing the resources available to TAFE in the Northern Territory, with a focus on the planning of resource allocations to individual TAFE institutions for intended educational outputs. (Page 12)

Recommendation 2

It is recommended that Completed Student Contact Hours be used as the (proxy) measure of output in determining Unit Costs and in specifying planned levels of output in the defined Educational Programs within each TAFE institution. (Page 17)

Recommendation 3

It is recommended that the nominal length of subjects delivered by non-traditional methodologies be defined, at the subject-development stage, as the number of contact hours required when provided by a traditional classroom methodology. (Page 17)

Recommendation 4

It is recommended that an Educational Program Structure be established for the purposes of budget planning and resource allocation to TAFE Institutions in the Northern Territory. The structure to be related to the Field of Study Classification of Tertiary Education Courses so that additional data collection and manipulation is minimal. (Page 20)

Recommendation 5

It is recommended that a classification of Overhead and Corporate Services be established for all TAFE institutions in order to provide a base for comparing Overhead expenditure in the funding model. (Page 21)

Recommendation 6

It is recommended that the dollar value of the Overheads category in the funding model be kept small by the allocation of appropriate costs to the other expenditure categories in the model as far as is reasonably possible. (Page 21)

Recommendation 7

It is recommended that for each of the limited number of activities, listed below, a measure of service output and unit cost be developed by appropriate experts with experience in managing such services. In the first instance these activities to be:

(a) Library Resource Centres;
(b) Community Development (mainly by Community Educators in remote Homeland Centres);
(c) Curriculum Development - Accreditation activities;
(d) Curriculum Development - Course development when provided by one institution for other institutions;
(e) Learning Material Development - where set up as an on-going activity and managed separately from an Educational Program delivery;
(f) Student Services (Information/counselling, support arrangements, etc).

Recommendation 8

It is recommended that a check list of expenditure types be developed so that Unit Costs in each Educational Program and TAFE Institution are determined on a consistent basis. In so doing, all expenditure must be considered and if not allocated against an Educational Program, then must be allocated against one of the other three categories of expenditure in the funding model. (Page 22)

Recommendation 9

It is recommended that, for each Educational Program, a Standard Unit Cost be determined based on the average costs of those subjects provided in the dominant mode of delivery. (Page 24)

Recommendation 10

It is recommended that a number of weighting factors be determined, only where appropriate, in each Educational Program so as to incorporate significantly higher or lower variations to the Standard Unit Cost for the following situations:

(i) distance and isolation;
(ii) disadvantaged students;
(iii) level of subject (Stream); and
(iv) particular economies or dis-economies of scale. (Page 25)

Recommendation 11

It is recommended that the weighting factors on Standard Unit Costs be determined as a single average on each factor for each TAFE college (and ITAFE) and that if any variations occur within the college they be a matter of allocation decisions within the college. (Page 25)

Recommendation 12

It is recommended that a small group for each Educational Program be selected to recommend to the Secretary the value of the Standard Unit Cost plus weighting factors for its Educational Program across the whole of TAFE in the NT. Membership of the group should contain subject and delivery expertise, institutional management expertise, a representative of industry (from a relevant
Industrial Training Committee, if available) and system expertise familiar with resource allocation issues. (Page 25)

Recommendation 13

It is recommended that the funding model focus on the balance of total anticipated income and total planned expenditure at the TAFE College/ITAFE level and that any exclusions be carefully scrutinised as genuinely segregatable and be rare exceptions to a general inclusivity of all expenditure. (Page 27)

Recommendation 14

It is recommended that the treatment of higher education activities be on a case-by-case basis but generally be excluded particularly where the funding of the higher education program comes directly from government sources and managerial arrangements facilitate segregation. (Page 27)

Recommendation 15

It is recommended that TAFE Central Office activities be included in the funding model. (Page 28)

Recommendation 16

It is recommended that income from commercial activity and cost recovery activities be included in the model and when viewing the total output of Educational Programs, be explicitly seen to result in an increased output. (Page 28)
I INTRODUCTION

1. Consultancy Brief

In December 1990, the Department of Education in the Northern Territory engaged the TAFE National Centre for Research and Development to undertake a consultancy titled: A Review into TAFE Funding.

The consultancy brief directed the consultant to address the allocation of resources to the five TAFE institutions in the Northern Territory with a principal aim of establishing an accurate, fair and equitable model which will allow cost comparisons between institutions and between programs offered at different locations.

Important elements identified as deserving attention were:

(a) the allocation of NT courses to streams to ensure consistency of comparisons;

(b) possible different approaches for mainstream vocational education compared to adult/further education;

(c) various cost factors related to individual programs;

(d) a weighting approach to program and institutional cost comparisons possibly expressed in terms of a 'common currency' based on costs per student contact hour.
2. Project Methodology

A consultative approach to the development of the model was agreed to in meetings in December 1990 with the Deputy Secretary, TAFE, the Director, Office of Tertiary Education, the Vice-Chancellor, Northern Territory University and other involved persons. Briefing information and documents were readily supplied and arrangement made to visit, in February, all the TAFE institutions including most of the Regional Centres which co-ordinate services to remote locations. A visit to the Community Education Centre at Maningrida was also arranged. A list of persons consulted in the December and February series of meetings is provided in Appendix 1.

The consultations focussed on a Discussion Paper which had been sent to the institutions prior to the February series of meetings. This paper described, in general terms, a funding model and how it might be used in the planning processes for resource allocations to TAFE educational programs and institutions in the Northern Territory. The paper raised a number of issues in a deliberately open-ended manner so that persons consulted could genuinely contribute to the development of the funding approach.

The strength of the support received for the general approach is worth emphasising. Not one person spoke against the direction being proposed and many spoke with enthusiasm for an approach which they saw as enabling an enhanced understanding of the reasons for various funding decisions. This was largely based on the expectation that the model would be implemented with a commitment from all to abide with the procedures and agreements inherent in the model and that this would result in a high level of trust amongst institutions and between institutions and central authorities. Although the support was general and strong, many also believed that the implementation of the approach would require significant effort which would only be worthwhile if the negotiated allocations were not subject to subsequent ad hoc adjustments and, preferably, were established in the context of a funding approach which went beyond a single financial year. Many of those consulted made other valuable points and expressed reasoned preferences about the several options discussed. These have been incorporated in this report which is based on the Discussion Paper and the reactions to it.

3. Managerial Context and Challenges

A brief consultancy such as this (eight weeks total) must avoid the temptation to drift too far into the management, planning and budget issues currently confronting TAFE in the Northern Territory, as much as in the rest of Australia. Nevertheless, the challenge of describing a practical funding model cannot be addressed in isolation from the context in which the model is intended to operate. The nature of the model will depend on how it is intended to be used and therefore the budget allocation process and budget issues, in particular, need to be discussed.

TAFE is a complex education sector, delivering a vast range of courses and learning activities, across a wide range of subject matters, and at several academic levels. The nature of TAFE students, part-time and full-time, of various backgrounds, often disadvantaged, with a wide range of academic ability and also geographically dispersed, has led TAFE to a flexibility of provision and a variety of delivery modes which further complicate the sector. Although coming from origins which stretch back to early European settlement,
it is only relatively recently that TAFE has been acknowledged, in Australia, as a major sector of education in its own right. A rapid expansion in funding and program provision in the 1970's and early 80's was not matched by the development of adequate management information systems, or the development of appropriate strategic planning processes.

A feature of the late 1980's, and currently continuing, is the opposing forces of funding constraint and of pressure to expand. Award restructuring in industry, increasing demands for a fair share from disadvantaged groups, economic and political pressures for people to remain in education longer, an emerging acceptance that, for Australia to survive economically in a competitive world, it must become a 'clever country' and a realisation that initial and on-going training is a critical component of these changes, all act to increase the demand for TAFE provision. However, all Governments are looking to reduce expenditure and there is a perception abroad that TAFE is expensive. Alternative private providers are springing up, often with assistance from Governments. TAFE must compete on cost and quality in an emerging training market as it continues to receive most of its funds through Parliamentary Appropriations but where student fees and charges and charges on industry become a more significant component of income.

All TAFE systems in Australia are being faced with the same economic imperative to plan resource allocations with greater sophistication. The approach of 'historical incrementalism' (last year's budget plus or minus a bit) is totally inadequate. An approach which quantifies costs for feeding into a planning and budget allocation process will bring some objectivity into a large part of the decision making process. The inevitable debate, using an agreed 'language', can then be focussed on opportunities to make real improvements in efficiency while still addressing the issues of quality and equity. A logical linkage to the academic planning process, driven by curriculum and labour market factors, will ensure that managerial decisions within colleges and at the systems level are informed on both service delivery and finances.

College budgets may be determined in a variety of ways. One starting point is the identification of needs followed by an attempt to assess the resources required to satisfy them. A point of reference would be expenditure in previous years. Alternatively, a start could be made by estimating the income into the system from various sources, taking into account the various constraining funding conditions on some sources, and then determining what is to be distributed to each college on the basis of some assessment of relative need without specifying any absolute funding needs. (The latter approach is essentially the methodology of the Relative Funding Model being introduced in the higher education sector.)

Whatever the starting point, the ultimate objective is to reconcile planned expenditure with forecast income. That is, to balance the budget. The process is essentially political, in the sense of involving consultations, judgement amongst competing needs and pressures and a need to reach practical compromises. Regardless of the approach, better decisions will be made when accurate and reliable data is available for analysis. This report describes a model which identifies the required data and will aid the appropriate analysis.
II FEATURES OF AN IDEAL FUNDING MODEL

It is suggested that a funding model and its application should satisfy certain criteria:

(a) allow (influence) resource allocations on the basis of needs, not merely historical precedence, and where total needs exceed the funding capacity, on the basis of a publicly sustainable expression of priorities;

(b) identify imbalances quickly for remedial attention rather than as a post-mortem;

(c) encourage the pursuit of excellence in all of its dimensions (quality, efficiency, primacy of the customer, capacity for timely response, output rather than just activity, etc);

(d) not disadvantage innovative, entrepreneurial and non-traditional approaches;

(e) be stable from year-to-year but open to adjustments without invalidating the total model;

(f) relate to verifiable and trustworthy real numbers, which are recognisable by managers and other interested and involved parties;

(g) be simple in final form and yet not contain conversion factors of dubious validity nor factors that require mental gymnastics to understand;

(h) use data derived from normal operating activities so as to provide an on-going commitment to collecting the data accurately and in a timely manner;

(i) use data capable of being analysed without large inputs of clerical labour. Modern technology takes away the tedium of data manipulation but large amounts of keyboard inputting is costly and a major source of error;

(j) provide for an expansion rather than erosion of institutional managerial prerogatives together with facilitating of accountability for the proper use of funds;
(k) allow for decision making processes leading to the allocation of funds internal to institutions to be consistent with and assist inter-institutional allocation processes;

(l) not inhibit the raising of other funds;

(m) accepting that government is not the only source of funds, allow for a variety of inter-relationships between the departmental allocations and other incomes;

(n) contribute to convincing political masters and the community that TAFE does give good value for money.

These criteria are offered to provide a reference against which a funding model can be judged recognising that compromises need to be made in practice.
III GENERAL FORM OF THE FUNDING MODEL

The model proposed is described in terms of a required balance between planned expenditure and forecast income for each TAFE College. The expenditure side of the model concentrates on the planned Educational Program with an emphasis on the achievement of outcomes through the identification of a Unit Cost value for each defined Educational Program Area and Support Service.

1. The Model Expressed as an Equation

\[ Y = O + a_1 E_1 + a_2 E_2 + a_3 E_3 + \ldots + a_n E_n + b_1 S_1 + b_2 S_2 + \ldots + b_n S_n + D \]

where

- \( Y \) = Total Income to the institution, expressed in dollars
- \( O \) = Overheads not assigned to Educational Programs or Support Services, expressed in Dollars;
- \( E \) = Educational Programs;
- \( a \) = Unit Costs for the corresponding Educational Programs, \( E \);
- \( S \) = Support Services and Investment Activities best separately identified rather than incorporated in \( E \);
- \( b \) = Unit costs corresponding to \( S \);
- \( D \) = Developmental Funding (generally not ongoing).

At this stage, the model is presented in simple form and you, the reader familiar with the mission of TAFE, will no doubt be trying to relate the real world of TAFE activities and outputs to the model. Most of what follows in this report is directed at just that, and hence some patience is required. Nevertheless, a few brief examples of what each category of expenditure covers would help at this stage.

Overheads, \( O \): all or part of the Principal's salary, general administration, building and grounds maintenance etc;

Educational Programs, \( E \): an output related measure of the size of provision in all subjects and courses in a particular category (such as Business Studies, Rural Studies, Electrical Engineering etc) and provided in particular circumstances;

Support Services and Investment Activity, \( S \): a measure of the size of provision of activities such as the Library Service, Community Development in Aboriginal homelands, Curriculum Development etc;

Developmental Funding, \( D \): expenditure which is either transitory and thus would temporarily distort the Unit Costs or is not easily expressed in terms of Unit Cost multiplied by Output (or activity) but should not be lumped into Overheads, eg, expenditure on a project to develop self-paced learning materials in a particular course, or a project developing commercial approaches to course provision etc.

To keep the focus on Educational Outputs, there should be a preference to assign expenditure in the model so that most expenditure occurs in the \( aE \) category.
2. The Model Expressed as a Balance Sheet

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<tr>
<th>Forecast Income</th>
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<th>Planned Expenditure</th>
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<tr>
<td>General Allocation</td>
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<td>Overheads 1</td>
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<td>(NT &amp; C/wealth Govt)</td>
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<td>Overheads 2</td>
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<tr>
<td>Specific Purpose NT allocation</td>
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<tr>
<td>Specific Purpose</td>
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<td>Educational Program 1</td>
<td>(Unit Cost &amp; Quantity)</td>
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<tr>
<td>C/w Govt allocation</td>
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<td>Educational Program 2</td>
<td>(Unit Cost &amp; Quantity)</td>
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<tr>
<td>Student Fees</td>
<td></td>
<td>Support Service 1</td>
<td>(Unit Cost &amp; Quantity)</td>
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<tr>
<td>- Admin/General</td>
<td></td>
<td>Support Service 2</td>
<td>(Unit Cost &amp; Quantity)</td>
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<td>- Materials</td>
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<td>- Tuition</td>
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<td>Income incidental to</td>
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<td>training activities etc</td>
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<td>TOTAL INCOME</td>
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<td>TOTAL EXPENDITURE</td>
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3. Practical Complications

The apparent simplicity of this balance disappears when we start considering the practical situation of TAFE:

(a) typical of a human service provider, the outputs of TAFE activity are hard to quantify. Indeed, precisely what the outputs are is a subject which could be debated for considerable time. So, how do we practically measure the service or product (ie put appropriate numbers on all the Es, Ss and associated Unit Costs, as and bs)?

(b) however measured, the number of different products and services is very high;

(c) the values of the Unit Costs (as and bs) will be dependent on the scale of production (ie the equation is non-linear) and the evaluation of all the factors which determine each Unit Cost is not simple;

(d) the size of the Overhead (value assigned to O) can vary significantly according to how much of the 'non-direct' costs are attributed to particular products and services;
accrual of capital expenditure or investment from previous periods to the current period may or may not be incorporated. This issue is not only restricted to buildings, plant and equipment but course development, for example, is an investment activity if it produces a product (the course documentation) which is used in future funding periods;

with a cash flow accounting approach, the future commitments of decisions taken in the current years and the mismatch of the July-to-June financial year to the January to December academic year must be considered in the decision making process;

Total Funding Y is not simply determined in a causal manner by adding up the items on the expenditure side of the equation. There is an interaction between the funds available, the production costs and the scale of production. In addition, increasingly, funds are coming from many sources, usually with conditions attached.

Various funding approaches and models are used in education around the nation and the world. No attempt has been made to conduct a comprehensive literature search as time would not allow. However, several models have been looked at and, although not explicitly stated, the differences between them come down to how the various complicating factors are dealt with (or ignored!).

The next section of this paper discusses these complicating factors as issues requiring decision in order to define a practical funding model for use in TAFE in the Northern Territory.

Recommendation 1

It is recommended that a funding model, as described in this report, be implemented to assist the decision making processes of managing the resources available to TAFE in the Northern Territory, with a focus on the planning of resource allocations to individual TAFE institutions for intended educational outputs.
IV IMPLEMENTATION ISSUES

Most of the issues needing resolution in order to implement a workable funding model are about the degree of simplification and abstraction from the mass of detail making the real world incomprehensible. The pay-off is a workable model, able to be understood by managers, and which will show trends, demonstrate inconsistencies and assist in decision making. The price is the loss, or putting aside, of information. In addressing the issues, compromises will need to be made.

1 Measurement of Educational Output

We start with the hard one; but that is unavoidable because it is an issue central to what TAFE is about. This is best introduced by asking the question:

"What business are you in?"
"Teaching?" Perhaps that's only a sub-set of the learning business or the business of providing learning opportunities and support.

So, what is the TAFE product or service?

A student who has successfully completed a subject, course or non-formal learning opportunity?
The conduct of a learning program whether by traditional teaching or by a range of non-traditional modes?
The sale (or giving away) of a learning package with or without tutorial support?
What about the student who requires recognition through assessment of prior and informal learning and then only needs bits and pieces of a formal subject? Is the assessment a TAFE service?
What about private providers who need to have their courses accredited?
All of the above and more?

Many of these questions are rhetorical as, even if agreement about the answers is possible, the question of practical measurement is perplexing.

In the Discussion Paper it was suggested that in the end, a measure of activity, such as Total Student Contact Hours involved in the delivered learning process, will have to be used as a proxy measure of the output. Such a measure has the advantage of using the Student Contact Hour statistics widely accepted in TAFE in Australia but it has the disadvantage of not enabling a fair comparison between traditional and alternative delivery modes and it has the danger of accepting activity as the measure of success.

Being aware of these weaknesses, it was suggested that it would be acceptable to use Student Contact Hour data in a funding model while monitoring the link between this activity measure and better but more esoteric measures of output. Development of appropriate Performance Indicators could address this issue. It would also be reasonable to accept the use of Student Contact Hour data as a proxy measure for the output from most traditional teaching activities and devise more appropriate measures for other activities such as the production of flexible mode learning materials or the community development work of community educators in remote aboriginal communities.
Different levels of collection of Student Contact Hours were listed in the Discussion Paper:

(a) Nominal Student Contact Hours: 
(actual enrolments x total subject hours);

(b) Actual Student Hours: 
(actual enrolments x total subject hours less the effect of student attrition);

(c) Completed Student Contact Hours: 
(No. of students who complete subjects x total subject hours);

(d) Successful Student Contact Hours: 
(No. of students who successfully complete subjects x total subject hours).

In order to keep the focus on output, it was suggested that the ‘budget driver’ for the Educational Programs be the Planned Completed Student Contact Hours for the future year under consideration in the resource allocation process. For consistency in the model the Unit Costs would have to be expressed in terms of Dollars per Completed Student Contact Hour, taking student attrition into account in determining the value of the Unit Cost. This in effect puts student attrition, correctly, in the category of a cost to deliver the service which, in-as-much as management can control the factor, should be minimised. The argument about students leaving a subject when they have learned what they want is acknowledged, but if that is a major reason for high attrition figures, then there is a case to look at the structure of the subject.

This issue generated a great deal of valuable discussion, particularly on accuracy, and difficulties of collection of Student Contact Hour data and on the educational and managerial implications of the suggested approach. A number of concerns can be taken into account in the proposed use of weighting factors (see below) and in that part of the model that deals with Support Services.

Whether Completed Student Contact Hours is a reasonable measure to use requires further discussion. The concern is that with small classes, which are often necessary in the Territory if a subject is to be taught at all, just one or two students withdrawing can have a relatively large impact on the Completed Student Contact Hour figure. The preference expressed in discussions was for the use of Actual Student Contact Hours and that was going to be the recommendation without further debate.

However, using Actual Student Contact Hours as the main determining factor of the funding model would not have the model financially encourage reforms in TAFE provision which are directed at being more efficient in achieving the outputs. For example, flexible modes of delivery, self-paced learning, competency-based approaches and the recognition of prior learning are all likely to require fewer Actual Student Contact Hours (on the average) to achieve the same end. Using Actual Student Contact Hours in a funding model would have a college proposing to move in this direction see a likelihood of having its allocation reduced! (Good for those with a bean-counter mentality, hardly encouraging of imaginative, open management.) Likewise, course designers, for both formally accredited and non-formal courses, should be exposed to the financial costs of allowing courses to be longer than really necessary. Add to
this the question of how do you count Actual Student Contact Hours for student-centred, self-paced methodology (which often is one answer to small class sizes) and there is seen to be a strong case to look for something better.

This report is not the vehicle to enter into a full debate on this issue, so only a concise scan of possible options with their advantages and disadvantages will be undertaken:

Course Graduations:

Advantage: for formal courses, often needed to meet employment requirements, therefore easily understood by industry, community and government. Easy collection of unambiguous statistics.

Disadvantage: often only achieved by individuals over several years and therefore use of statistics in a single year would be problematic, undervalues output by ignoring achievement at the subject level and in study for non-accredited courses. Course lengths vary considerably and thus are not a common measure.

Successful Subject Completions:

Advantage: focus is on the smallest coherent unit of educational activity which leads to an identifiable outcome. Definitions can include non-formal activity. Easily understood by industry, community and government. Collection of statistics easy.

Disadvantage: subject lengths vary and thus are not a common measure. Undervalues output by ignoring the value added to the non-successful student. May provide pressure on teachers to inappropriately raise pass rates.

Successful Subject Completions modified by Credit Point Weighting:

Advantage: same as Successful Subject Completions plus use of a Credit Point Weighting would remove the problems of the varying length of subjects and varying student involvement in alternative delivery modes and thus a common measure is established.

Disadvantage: would require the development of an equitable and comprehensive system for allocating credit point value to every subject and formal learning activity.

Subject Completions modified by Credit Point Weighting:

Advantage: same as Successful Subject Completions with Credit Point Weighting plus valuing of the value added to the non-successful student.

Disadvantage: same problem of setting up a Credit Point Weighting system.
Completed Student Contact Hours:

**Advantage:** same as Subject Completions modified by Credit Point Weighting where the Credit Point Weighting is effectively determined on the basis of nominal Student Contact Hours defined for the subject or formal learning activity. Collection of unambiguous statistics relatively easy.

**Disadvantage:** Alternative modes of delivery are 'weighted' by the same length of subject figure for Student Hours as for traditional classroom methodology (this may or may not be appropriate).

**Actual Student Hours**

**Advantage:** currently accepted as an appropriate statistical measure of educational activity despite criticisms which vary from the, 'how dare you reduce my teaching to a bums on seats statistical measure', to an awareness that the measurement requires collection methods which can result in considerable errors. Includes a valuing of the benefits obtained from students who withdraw at various stages of a subject.

**Disadvantage:** requires relatively complex statistical collection methods, strongly activity-focussed rather than output-focussed.

The decision on the choice of an appropriate, if imperfect, proxy measure for output requires a judgement across a continuum on which the above possibilities lie. It is contended that the Completed Student Contact Hours measure is the best choice for use in planning resource requirements. The level of attrition can be estimated from known trends in various subjects and can be taken into account in planning enrolment levels needed to achieve the intended completions, and in determining the Unit Costs. These Unit Costs will have higher numerical values than a model based on Actual Student Contact Hours.

An example will demonstrate the differences.

Consider a subject which is nominally 100 hours long and costs $12,000 to provide to an enrolment of 20 students of which 15 complete the course with the 5 withdrawals occurring after 50 hours of provision. Then, Completed Student Hours = 15 x 100 = 1500

**Actual Student Hours** = 15 x 100 + 5 x 50 = 1750

Unit Cost based on completed SCH = \( \frac{12,000}{1,500} = $8.00 \) per SH

Unit Cost based on actual SCH = \( \frac{12,000}{1,750} = $6.86 \) per SH

At the planning stage the college would indicate a planned Completed Student Hour outcome of 1500 at $8.00 per CSCH to receive $12,000 for this program. It would then be a matter of college judgement, matched with student demand etc, that would determine how many enrolments would be taken to aim for this planned output.

Colleges able to work at lower attrition levels than the average for a particular
area or able to get students to the completion level by less than the nominal 
length of tuition (through, for example, alternative delivery modes or by 
recognition of prior learning) will be rewarded by having a lower cost structure 
which should then release funds for other worthwhile purposes, at least in the 
short run. In the long run the rewards may be more in the way of recognised 
good management because the lower cost structures should work into system­
wide lower unit costs.

Recommendation 2

It is recommended that Completed Student Contact Hours be used as the 
(proxy) measure of output in determining Unit Costs and in specifying planned 
levels of output in the defined Educational Programs within each TAFE 
institution.

Recommendation 3

It is recommended that the nominal length of subjects delivered by non­
traditional methodologies be defined, at the subject-development stage, as the 
number of contact hours required when provided by a traditional classroom 
methodology.

It should be noted that selection of an alternative measure of output will not 
invalidate the model but will involve different attention to statistical collections 
and Unit Cost calculation. What is essential is that a consistent model is 
structured.

2 Averaging and Aggregations

Considering the value to assign to Unit Costs might involve analysing costs at 
the level of the individual Educational Activity or Support Service, but any 
model that does not aggregate activities which are similar will collapse under 
the burden of too much data.

The Discussion Paper noted that the Budget Programs (see Appendix 2) used 
for parliamentary appropriation to TAFE in the Northern Territory are not 
directly suitable for use in a funding model.

(i) Allocation to Educational Programs

The Educational Program Structure suggested, in the Discussion Paper, as a 
starting point was generally accepted as a reasonable structure. With a few 
suggested modifications it is reproduced in Figure 1.

Such a set of Educational Programs would be central to resource allocation 
considerations, in managing the overall educational program and in expenditure 
monitoring and control. Hence the determination of the structure is a critical 
decision and ought receive some further careful consideration. Included in this 
consideration should be the possibility of using the National Field of Study 
Classification of Tertiary Education Courses (see References). This classification 
replaces the National TAFE Fields of Study. It results from a review by the 
Joint Committee of TAFE Statistics and is integrated into a Higher Education
classification. The classification comprises twelve Broad Fields within which are Major and Minor Fields. The Broad and Major Fields are reproduced in Figure 2 (A full description of the structure including the Minor Fields is contained in an 85-page document listed in the References).

FIGURE 1: A POSSIBLE STRUCTURE OF EDUCATIONAL PROGRAMS

| Applied Science          |
| Business and Secretarial |
| Construction, Building and Furnishing |
| Creative and Applied Arts |
| Education                |
| Electrical and Electronic Engineering |
| Fashion and Personal Services |
| Language Studies (ESL & LOTE) |
| Mechanical Engineering   |
| Motor Vehicle Repair and Maintenance |
| Preparatory, Foundation and Literacy |
| Rural Studies and Horticulture |
| Secondary Education (Distance) |
| Tourism and Hospitality  |

Enrichment, Leisure and Recreation (Stream 1000)

This classification is complex but comprehensive. A number of Major Fields are appropriate to Higher Education but not TAFE. In some Broad Fields the concentration of TAFE activities is such that categorisation for funding comparisons would only receive allocation consideration at the Major Field level whereas for others, appropriate use of Minor Fields would be necessary. See, as an example, Figure 3 - Minor Fields under Engineering and Related Technologies.

Clearly the Fields of Study Classification could not be used directly in a funding model. However, as it is a classification used for statistical purposes, consideration could be given to creating an appropriate Educational Program classification by appropriately collapsing the Fields of Study to suit TAFE in the Northern Territory.

From the above there are two starting points in determining the Educational Program Structure for the planning of resource allocations in the Northern Territory; viz, the suggested structure coming from the Discussion Paper or a suitable collapsing of data fields in the Fields of Study Classification. The prime consideration in choosing between the two options should be the importance of matching the Educational Program structure to managerial arrangements of institutions and the mapping of data from this structure into Budget Programs and into structures required for statistical reporting. It is understood that managerial structures are under review both in the Institute of TAFE and in the remainder of TAFE in the Northern Territory. Accordingly, a direction only will be recommended in this report.
<table>
<thead>
<tr>
<th>Figure 2:</th>
<th>Field of Study Classification of Tertiary Education Courses</th>
<th>Broad and Major Fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Land and Marine Resources, Animal Husbandry</td>
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<tr>
<td>01.01</td>
<td>Land and Marine Resources, Animal Husbandry - General</td>
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<tr>
<td>01.02</td>
<td>Agriculture, Forestry</td>
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<tr>
<td>01.03</td>
<td>Animal Husbandry</td>
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<td>01.04</td>
<td>Land, Parks and Agriculture Management</td>
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<td>01.05</td>
<td>Agricultural/Land/Rural Services and Supplies</td>
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<td>01.06</td>
<td>Fishing and Fisheries</td>
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<tr>
<td>02</td>
<td>Architecture, Building</td>
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<tr>
<td>02.01</td>
<td>Architecture, Building - General</td>
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<tr>
<td>02.02</td>
<td>Architecture</td>
<td></td>
</tr>
<tr>
<td>02.03</td>
<td>Building</td>
<td></td>
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<td>Urban and Regional Planning</td>
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<td>Visual and Performing Arts</td>
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<td>04</td>
<td>Business, Administration, Economics</td>
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<td>Business, Administration, Economics - General</td>
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<td>04.02</td>
<td>Business, Administration, Management</td>
<td></td>
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<tr>
<td>04.03</td>
<td>Economics</td>
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<td>05</td>
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<td>05.01</td>
<td>Education - General</td>
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<td>05.02</td>
<td>Initial School/TAFE Level Teacher Education (pre-service)</td>
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<td>Post-Initial School/TAFE Level Teacher Education</td>
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<td>Education other than Teacher/Trainer Education</td>
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<tr>
<td>05.05</td>
<td>Other Teacher/Trainer Education</td>
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<td>06</td>
<td>Engineering, Surveying</td>
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<td>Engineering and Related Technologies</td>
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<td>Surveying</td>
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<td>Health, Community Services</td>
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<td>Rehabilitation Services</td>
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<td>Science - General</td>
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<td>09.02</td>
<td>Computer Science, Information Systems</td>
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<td>09.03</td>
<td>Life, General Sciences</td>
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<td>09.04</td>
<td>Mathematics</td>
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<td>09.05</td>
<td>Physical Sciences</td>
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<td>10</td>
<td>Veterinary Science, Animal Care</td>
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<td>Veterinary Science, Animal Care - General</td>
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<td>Services, Hospitality, Transportation</td>
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<td>11.03</td>
<td>Transportation</td>
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<tr>
<td>12.03</td>
<td>TAFE Multi-field Basic Education</td>
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</tr>
</tbody>
</table>

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Recommendation 4

It is **recommended** that an Educational Program Structure be established for the purposes of budget planning and resource allocation to TAFE Institutions in the Northern Territory. The structure to be related to the Field of Study Classification of Tertiary Education Courses so that additional data collection and manipulation is minimal.

(ii) Allocation to Streams

The Consultancy Brief makes specific mention of consideration being given to the allocation of courses to streams to ensure consistency of comparisons. The National TAFE Streams classification does not lend itself to establishing criteria for consistent resourcing comparisons. It is a ‘level’ related classification directed at grouping courses with a common purpose in terms of level of educational outcomes. There is no known correlation between resources required and Stream classifications. Indeed, it is believed that across the total educational program the relation is likely to be random. This is not to say that courses in some streams do not require significantly more resources than courses in other streams within a particular Educational Program. In these cases such variations can be incorporated in the model as a secondary factor (see the discussion on the Impact of widely varying cost factors on page 24).

3 Overheads and Corporate Services

Costs are incurred in activities which are not directly attributable to the achievement of particular educational outcomes. In some cases it is not too difficult to distribute such costs to the appropriate Educational Programs (eg middle level management across a limited set of programs, student accommodation, stores and purchasing administration) in other cases it is more difficult and such categories of costs are allowed for in the funding model as Overheads and Corporate Services (item O in the equation on page 10).
Many of the funding models and approaches reviewed in this project deliberately do not include a separate overhead item. The advantage of not doing so is that it maintains a discipline to keep relating costs to the educational output and, particularly for approaches that are restricted to relative resourcing of institutions, the structure of the model is simpler. There are significant differences amongst the colleges of TAFE in the Northern Territory and in addition the Institute of TAFE in the University of the Northern Territory is block funded for Corporate Services whereas some of these services are provided to colleges by the TAFE Division of the NT Department of Education. Accordingly a separate treatment of overheads and services in the funding model is appropriate.

The treatment, in the funding model, of the overheads and corporate services for the ITAFE and the other TAFE colleges should be the same even though the funding flows may be different. This means that the expenditure items which make up the block funding of Corporate Services to the Northern Territory University for the Institute of TAFE need to be identified together with corresponding expenditure items in both the Department of Education central office and TAFE Colleges.

When the levels of expenditure are known and can be judged against the need for such overheads, then the model will have served its purpose by focussing managerial attention to the level of required overheads and the appropriate control of such expenditure. It is noted that some funding provisions are required in the Institute of TAFE which are not provided in the same manner in the remainder of TAFE (eg some aspects of staff on-costs, major equipment depreciation, insurance on buildings and equipment, etc).

Recommendation 5

It is recommended that a classification of Overhead and Corporate Services be established for all TAFE institutions in order to provide a base for comparing Overhead expenditure in the funding model.

Recommendation 6

It is recommended that the dollar value of the Overheads category in the funding model be kept small by the allocation of appropriate costs to the other expenditure categories in the model as far as is reasonably possible.

4. Support Services and Investment Activity

The bS components of the funding model are included for those services and activities which are not directly identifiable as part of a specific Educational Program and ought not simply be lumped into the Overhead Category. To be included in this category the activity should be:

(a) significant enough to warrant separate treatment;

(b) generally be managed as a separate activity;

(c) be amenable to the identification of a measure of service or product and an associated Unit Cost;
Although potentially identifiable with a specific Education Program, vary from year-to-year so as to create a distortion in the Unit Costs of the Educational Program if placed there in the model.

Although not explicitly stated in the Consultancy Brief, it is clear that the purpose of the funding model is to assist with the process of allocation of recurrent funds. Accordingly it is suggested that the extra complication of accrual of the capital value of building, plant and equipment be not introduced into the model, at least, at this stage. Nevertheless, investment activity continues to occur, each year, funded from recurrent sources. Activities such as development of learning materials are presumably fairly constant from funding period to funding period even though the use of the product developed may occur over several future periods. On the other hand some activities, such as Curriculum Development, may for a period concentrate on a limited number of Educational Programs and then move the focus to others. In addition, one institution may be funded to undertake development activity on behalf of others and this may best be reflected as a Support Service rather than incorporated into the Educational Program for that institution.

Recommendation 7

It is recommended that for each of the limited number of activities, listed below, a measure of service output and unit cost be developed by appropriate experts with experience in managing such services. In the first instance these activities to be:

(a) Library Resource Centres;

(b) Community Development (mainly by Community Educators in remote Homeland Centres);

(c) Curriculum Development - Accreditation activities;

(d) Curriculum Development - Course development when provided by one institution for other institutions;

(e) Learning Material Development - where set up as an on-going activity and managed separately from an Educational Program delivery;

(f) Student Services (Information/counselling, support arrangements, etc).

As the model is implemented, other activities might be added or some of these might be treated in the other categories of expenditure.

5 Developmental Funding

The value of D in the model requires a case by case consideration. The temptation to allow this to grow too large must be resisted or the logic of the model will disappear. It is, however, an essential part of the model to allow important initiatives that do not fit neatly into the other categories to be encouraged. One such item might be a short-term project developing
competency-based learning materials which will result in improved quality of learning and a reduced unit cost in future periods. The emerging challenge of assessing prior learning which promises to be an initially costly but, in the long term, cost-effective service to students and industry might also initially be placed in this category. Another might be the development of entrepreneurial and commercial approaches to expanding the Educational Programs in a resource constrained environment for public sector activity.

Activities funded under this category should pass the test of questioning why they are not included under Educational Programs or Support Services. However, having passed that test, they should not be regarded as secondary and therefore easily cut in difficult budget environments. Chosen wisely, such activities will determine the direction of TAFE well into the future and must be supported.

6 Determining Unit Costs of Educational Programs

Having proposed the Completed Student Contact Hour as the (proxy) measure for the educational output, discussed an appropriate structure to aggregate activity into Educational Programs and considered the issues of Overheads, Support Services and Investment Activity, and Developmental Funding, the issue of calculating Unit Costs can be addressed. That is, for each Educational Program what are the values for the a’s in the formula on page 10?

Four questions need addressing:

i What are the cost components?

The following should be included:

(a) salaries of Teaching Staff (full time, fractional, part time and overtime);
(b) salaries of managerial and support staff directly involved or attributed to the program;
(c) salary on-costs (standard items, funded from the recurrent budget, such as pay roll tax, leave loading, average figures for sick leave and long service leave, etc);
(d) locational costs of staff, including travel costs and travel allowances (if relevant);
(e) material costs;
(f) movement of, and maintenance and repair of equipment;
(g) purchases and rental of minor equipment;
(h) attributed fuel and power costs (directly costed if possible);
(i) attributed postal and telephone communication and administrative costs (directly costed if possible);
(j) steady ongoing developmental costs (learning materials, curriculum and staff development, etc);
(k) net residential costs of students (excluding subsidies paid to students).

Some items which might be attributable to particular Educational Programs in one college but not in others can be taken into account in dealing with widely varying cost factors (see immediately below) or by assigning such costs to overheads. Items such as Rental of Premises, Ground Maintenance and Cleaning of Facilities, Lease of Major Equipment and Salary On-costs incurred in ITAFE but not in the rest of TAFE are examples. If these items are not relatively significant, then they should be included in overheads so as to keep the treatment of widely varying cost factors relatively simple.

Recommendation 8

It is recommended that a check list of expenditure types be developed so that Unit Costs in each Educational Program and TAFE Institution are determined on a consistent basis. In so doing, all expenditure must be considered and if not allocated against an Educational Program, then must be allocated against one of the other three categories of expenditure in the funding model.

ii How should the impact of widely varying cost factors be incorporated?

Within an Educational Program, costs may vary in different subjects and courses due to variations in academic levels (stream), modes of delivery, remoteness of location, nature of students, etc;

The Discussion Paper identified three options for dealing with this situation:

- take an average of costs across all activities to arrive at a standard Unit Cost for the Educational Program. A simple solution but likely to penalise institutions with a high proportion of unavoidably high cost courses;
- establish a Standard Unit Cost and a series of weighting factors to be applied for particular activities which are significantly more costly to provide than the base;
- establish a limited number of separate Unit Costs within each Educational Program.

Of those consulted, who expressed an opinion, the second option is preferred.

Recommendation 9

It is recommended that, for each Educational Program, a Standard Unit Cost be determined based on the average costs of those subjects provided in the dominant mode of delivery.
Recommendation 10

It is recommended that a number of weighting factors be determined, only where appropriate, in each Educational Program so as to incorporate significantly higher or lower variations to the Standard Unit Cost for the following situations:

(i) distance and isolation;
(ii) disadvantaged students;
(iii) level of subject (Stream); and
(iv) particular economies or dis-economies of scale.

Recommendation 11

It is recommended that the weighting factors on Standard Unit Costs be determined as a single average on each factor for each TAFE college (and ITAFE) and that if any variations occur within the college they be a matter of allocation decisions within the college.

iii Should the Unit Cost be determined from historical data or from a theoretical analysis?

The answer is both. Existing costs and methods of operation must be considered but if these only are used to establish Unit Costs then possible inconsistencies will be perpetuated. Strong support on this matter was expressed by many of those consulted. Existing inequities must not be 'justified' and entrenched.

iv Who should determine the Unit Costs?

The values of the Unit Costs will be critical to funding allocations and consequent program delivery and output. The determination of Unit Costs (and associated weights) must therefore be done with care and discipline and be open to review on a regular basis.

Recommendation 12

It is recommended that a small group for each Educational Program be selected to recommend to the Secretary the value of the Standard Unit Cost plus weighting factors for its Educational Program across the whole of TAFE in the NT. Membership of the group should contain subject and delivery expertise, institutional management expertise, a representative of industry (from a relevant Industrial Training Committee, if available) and system expertise familiar with resource allocation issues.

7 Balancing Planned Expenditure and Forecast Income

To provide a starting point for the resource allocation process for the coming year the equation should first be set up for each institution for the current year.
Plans that might result in changes in the outputs or total funding, driven by curriculum and labour market factors and the like, should be developed and incorporated as changes to these equations.

The equations are then likely to be out of balance.

Adjustment can be made through several iterations, making the various managerial judgements and decisions essential to this process of planning, until a balance is achieved. The logic of the model suggests the following strategies might be included:

- changing the planning figures for Completed Student Contact Hours;
- increasing fees and charges (are they ever decreased!?)
- seeking alternative funding sources;
- re-examining items in Overheads;
- changing the planning figures for Support Services and Investment Activity;
- changing the plans for Developmental Activities;
- re-examining the cost structures represented by the Unit Costs and Weights. These must not be reduced in the short term or the trust built up through the consultative development of Unit Costs will disappear along with confidence in the model. In the long term, the realities of budget pressures might mean that the regular reviews of the Unit Costs and Weights will have to consider ways of achieving responsible reductions;
- seeking increased funding from the Government.

No doubt none of the strategies will be easy but at least a reasonably simple total picture will be in front of the decision makers and hence the process of reaching the necessary compromises will not be as arbitrary as it might otherwise be.

8. **Scope of the Funding Model**

All TAFE expenditure in the TAFE institutions must be uniquely traceable to one of the four categories of expenditure in the model or be consciously excluded. Considering some operational details brings some general questions forward:

(i) **Should any subjects (or courses) or activities be excluded from the model?**

This would mean the total anticipated income on the right hand side of the model and the total planned expenditure on the left for the particular subject or activity being both excluded. Possible cases for this are the Adult Migrant Education Service (AMES) and Full Cost Recovery fee-for-service activities. The exclusion of these activities which can be genuinely segregated might
simplify the treatment of the particular activity and/or simplify the model. After all, the funding for AMES is provided under appropriate guidelines by Department of Immigration, Local Government and Ethnic Affairs. On the other hand, the proposed model aims to establish a representation of the whole of the TAFE operation for a particular TAFE institution and with the likelihood of more, rather than less, diversity in funding sources, the exclusion of any activity will weaken the model and its use as a planning instrument.

A further factor relevant to this matter is discussed below under, How should Commercial Activities be dealt with in the model?

Recommendation 13

It is recommended that the funding model focus on the balance of total anticipated income and total planned expenditure at the TAFE College/ITAFE level and that any exclusions be carefully scrutinised as genuinely segregatable and be rare exceptions to a general inclusivity of all expenditure.

(ii) Should Higher Education activities be excluded?

The model is directed at TAFE funding and the Higher Education program funded from other sources should be excluded. In the Northern Territory University, ITAFE has a separate identifiable program. The Batchelor College provides both higher education and TAFE programs and receives funding directly from both higher education and TAFE sources. As far as possible the TAFE funding and related programs should be segregated for the purposes of planning the TAFE allocations. This may lead to appropriate clarifications of funding responsibilities. Having received the planned funding appropriate integration of activities may, of course, be the best way of managing the total program.

Alice Springs College of TAFE has entered into agreement with the NT University to provide higher education programs. It is suspected that in this case segregation of the activity may be less appropriate following the lines of the argument in (i) immediately above.

Recommendation 14

It is recommended that the treatment of higher education activities be on a case-by-case basis but generally be excluded particularly where the funding of the higher education program comes directly from government sources and managerial arrangements facilitate segregation.

(iii) Should Central Office activities be excluded?

To ensure consistency between ITAFE and the remainder of the system and to put central office expenditure under as much planning scrutiny as the colleges the answer must be "No". The equation or balance sheet for central office will have only three categories of expenditure (Educational Programs are delivered only in colleges) with an emphasis on the Support Services and Investment Activities and the Developmental Activities categories.
Recommendation 15

It is recommended that TAFE Central Office activities be included in the funding model.

iv How should Commercial Activities be dealt with in the model?

Any subject or course which is provided for clients who pay for the program should be costed using commercial principles. Thus the total costs including the appropriate shares of Overheads, Support Services and Investments and Developmental costs must be added to the direct Educational Program costs. Through identifying these cost categories the model will assist in estimating appropriate costs for a particular activity.

The price charged should be determined by taking into account the level of profit sought or the level of subsidy which consciously might be provided. Equity issues, the capacity of clients to pay and the training market will need to be considered.

This approach should be adopted with Territory and Commonwealth Government programs as much as with programs provided to private organisations or individuals or to joint venture arrangements. The Enrichment, Leisure and Recreation program should also be costed and priced using this approach.

When income is generated from a commercial activity it becomes available to meet expenditure which might already have been funded from the public purse. Proper accounting of expenditure must occur to avoid the danger of unconsciously subsidising inadequate initial allocations or of running at a real loss while thinking a profit is made. On the bottom line, income generated must be seen to actually fund an increased size of educational program.

It is a Northern Territory management issue but to encourage imaginative college expansions the generation of profit or cost recovery should not result in an immediate return of such funds to central office or the Treasury. However, colleges will need to acknowledge that governmental funding problems may mean that in future planning cycles, a capacity to generate income may result in a lower allocation from public sources (and a consequential lower total program!).

Recommendation 16

It is recommended that income from commercial activity and cost recovery activities be included in the model and when viewing the total output of Educational Programs, be explicitly seen to result in an increased output.

9. Inflationary Impacts

The model only seeks to establish a funding framework for addressing the planning of resource allocations. It need not necessarily be reworked when national wage indexation decisions result in increased salary costs. It is presumed that Treasury adjustments would flow into college salary budgets. Wage and salary movements together with other cost changes will require an annual up-dating of Unit Costs to meet the planning cycle needs for current costing information. Commercial activities may need to anticipate cost increases during the funding cycle or have an ability to increase prices charged as an
immediate response to increased costs.

10. Period of Funding

The natural period over which the measures of educational output and support services are best taken is the January to December academic year. The Education Amendment Act 1989 provides for the financial year of colleges to be the period of 12 months beginning 1 January and the Northern Territory University Act 1988 provides power to the University Council to determine the date on which the financial year ends.

The link between anticipated income and planned expenditure directed toward providing educational outcomes will need an accommodation between the timing of academic years and financial years. Given the Acts cited above, this should not be too difficult to achieve.

Although not essential to the working of the model, a number of those consulted urged for a more predictable funding climate beyond a single financial year. There is everything to be gained in terms of managerial responsibility by a simple move to the carrying forward of any over or under expenditure into the new financial year.

11 Managerial Accountability

Once the funds to be allocated to individual institutions are determined on the basis of the planning assumptions used in the model, college management should be given the authority to manage towards achieving the expected outputs within the total resources. In the model this output is expressed only at the broadest of levels. Nothing in the model should prevent management from making responsible shifts between funding lines to address the swings and roundabouts which will occur during the year.

It is noted that TAFE in the NT is moving towards the use of Resource Agreements which may or may not be more detailed than the funding model in specifying the expected educational outputs. There is an obvious link to the funding model and its use. Senior college management and College Councils should be held accountable for responsible use of funds. How this is achieved is beyond the scope of this report.

12 Implementation and Phasing In

Full implementation of the model will take some time and require a number of decisions, no doubt, some of which have not been foreseen. A 'Manual for Implementation' is provided at Appendix 3. The first time round may require estimations of data which later can be refined. Further, when fully established, the model might reveal a case for significant inter-institution funding shifts. It is suggested that major shifts should not occur without reasonable time for the consequences of any reductions to be managed, perhaps over two or three years. Consequently, whilst aiming for early accuracy and validity, it should be accepted that early fine precision will not be necessary and that the model can be refined through use over several years.
References


9. Field of Study Classification of Tertiary Education Courses, (1990) DEET.


APPENDIX I

The persons whose names are listed below are thanked for the time they made available to make valuable contributions to discussions held throughout TAFE in the Northern Territory, during the consultancy.

Ms Helen Baker
Mr Dick Bassett
Mr Kevin Davis
Mr David Glasgow
Mr Paul Gregory
Ms Lyn Hammond
Mr Colin Hodges
Mr John Ingram
Ms Joy Irvine
Mr Chris James
Ms Bernadette McGeorge
Mr Peter McKinnon
Ms Holly Marjerrison
Professor Malcom Nairn
Mr David Nash
Mr Bob Nixon
Mr Geoff O’Sullivan
Mr Ian Overell
Ms Kath Phelan
Mr Bert Pollard
Mr Rob Preswell (by phone)
Mr Rik Ralph
Mr John Rattigan
Ms Merilyn Rattigan
Ms Diana Renfrew
Mr Jim Richardson
Mr Ian Robert
Mr Cos Russo
Ms Kay Scanlan-Whittaker
Mr Bob Smillie
Mr John Smyth
Ms Helen Spiers
Mr Geoff Spring
Ms Ros Stewart
Ms Robyn Turnbull
Dr Richard Watkins
Mr John Weatherhead
Mr Ralph Weise

Finance Officer, Territory Training Centre, NT Open College
Principal, Northern Territory Rural College
Deputy Vice-Chancellor, Northern Territory University
Adult Educator, Maningrida Community Education Centre
Director, Institute of TAFE, Northern Territory University
Data Manager, Adult Migrant Education Centre, NT Open College
Head, School of General Studies, Alice Springs College of TAFE
Principal, Batchelor College
Regional Co-ordinator, Alice Springs Regional Centre, NT Open College
Assistant Regional Co-ordinator, Katherine Region, NT Open College
Administrative Officer, Katherine Regional Centre, NT Open College
Head, Special Projects, NT Open College
Business Manager, Batchelor College
Vice-Chancellor, Northern Territory University
Head of Trades, Katherine Regional Centre, NT Open College
Assistant Principal, Alice Springs College of TAFE
Regional Co-ordinator, Barkly Regional Centre, NT Open College
TAFE Finance Manager, Office of Tertiary Education
Deputy Secretary, TAFE
College Administrative Officer, Alice Springs College of TAFE
Regional Co-ordinator, East Arnhem Regional Centre, NT Open College
Senior Policy Analyst, Office of Tertiary Education
Principal, Maningrida Community Education Centre
Deputy Principal, Maningrida Community Education Centre
Acting Principal, Adult Migrant Education Centre, NT Open College
Principal, Territory Training Centre, NT Open College
Assistant Principal, Alice Springs College of TAFE
Principal, NT Open College
Business Manager, Northern Territory Rural College
Assistant Director, Office of Tertiary Education
Principal, Alice Springs College of TAFE
Senior Lecturer, Jabiru Area Centre, NT Open College
Secretary, Department of Education
Centre Co-ordinator, Palmerston Area Centre, NT Open College
Principal, Adult Migrant Education Centre, NT Open College
Director, Office of Tertiary Education
Principal, Katherine Regional Centre, NT Open College
Principal, Distance Education Centre, NT Open College
APPENDIX II

ACTIVITY-PROGRAM EXPENDITURE STRUCTURE

DIVISION 36 - TAFE

(Source 1990-91 Budget Detailed Estimates Paper No 4, Northern Territory of Australia)

ACTIVITY: CORPORATE MANAGEMENT
PROGRAMS:
Central Administration
Information Systems

ACTIVITY: TAFE SERVICES
PROGRAMS:
State Reference Library
Vocational Preparation Program
International Project Management Unit
Library Devolution Payments
Library Services (1)
Assistance to Missions (2)
Adult Migrant Education (2)
Curriculum Support Services
Commonwealth-Funded Programs
Education Resources

ACTIVITY: COLLEGES
PROGRAMS:
Alice Springs College of TAFE
Batchelor College
Northern Territory Rural College
Northern Territory Open College
Territory Training Centre (2)

ACTIVITY: INSTITUTE OF TAFE
PROGRAMS:
Corporate Management Contribution to NTU Executive
School of Business Studies
School of Tourism and Hospitality
School of Vocational Studies
School of General Studies
School of Technology
School of Construction Trades
School of Mechanical Trades
School of Electrical Trades

(1) Library Services has since been removed from Division 36.
(2) Assistance to Missions, Adult Migrant Education and Territory Training Centre are the responsibility of the Northern Territory Open College as is the Distance Education Centre which has transferred from Division 35.
APPENDIX III
A MANUAL FOR
IMPLEMENTATION OF THE FUNDING MODEL

The diversity of TAFE programs and the resultant complexity of funding requirements mean
that the development of any funding model to meet the requirements described in the
consultancy brief will require the collection and processing of a large amount of data. This will
involve considerable effort, not only in collecting the data, but also in addressing the issues
which the data will highlight. If the model is merely used as some kind of monitoring or
research tool then the effort required to work the model will soon be seen to be not worth the
outcomes. Accordingly the proposed model has been described in terms which assume it will
be integrated into the processes of managing TAFE at a system/college level with a focus on
the planning of resource allocations.

The allocation of resources is one of the most important processes in managing a large and
diverse system such as TAFE and should receive considerable attention linked to the purposes
of the organisation. If TAFE in the Northern Territory chooses to implement the proposed
model described in this report, it will be embarking on a major exercise which will require
considerable effort in fully developing the model alongside the process of resource allocation.

A cryptic description of the steps, in roughly chronological order, to implement the model
follows. The column, 'By Whom', lists the officer who should hold the authority to determine
the particular issue. In most cases it would be on the advice and with the assistance of a
number of other persons.

<table>
<thead>
<tr>
<th>ACTION</th>
<th>BY WHOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Formally accept the broad approach of the funding model as proposed (or modified) (Recommendations 1, 12, 13, 14, 15 and 16);</td>
<td>Secretary in consultation with Vice Chancellor</td>
</tr>
<tr>
<td>2. Assign to an appropriate officer the responsibility for overseeing implementation, including the formation of various advisory committees, the development and provision of training activities, the identification of adjustments to data systems and the development of suitable formats for the presentation of information coming from the operation of the model;</td>
<td>Deputy Secretary, TAFE</td>
</tr>
<tr>
<td>3. Determine how the financial year/academic year arrangements will be accommodated in the model;</td>
<td>Secretary in consultation with Vice Chancellor.</td>
</tr>
</tbody>
</table>
4. Determine the following matters of detail in the funding model:

(i) the Measure of Educational Output (Recommendations 2 and 3);

(ii) the Structure of Educational Programs (Recommendation 4);

(iii) the classification of Overhead and Corporate Services expenditure (Recommendations 5 and 6);

(iv) the categories of Support Services and Investment Activity (Recommendation 7);

(v) a check list of expenditure types in each Educational Program to guide the groups who will recommend on Unit Costs - see 5 below (Recommendation 8);

(vi) the approach to widely varying cost factors (Recommendations 9, 10 and 11);

It is essential that funding and activities are matched without ambiguity. Therefore consistent guidelines must go to the different groups required to recommend the value of the Unit Costs and Weighting Factors (see 5. below). This advice must be understood and accepted by College Principals and Financial Managers, and Central Office senior staff and Financial Managers. Hence, in determining the issues covered in points (iii) to (vi) inclusive, it is suggested that an advisory group be formed, from amongst those interested parties mentioned, to develop a coherent set of guidelines on the four broad funding categories, and to meet as required in the early implementation to advise on matters needing clarification;
<table>
<thead>
<tr>
<th>ACTION</th>
<th>BY WHOM</th>
</tr>
</thead>
<tbody>
<tr>
<td>5. Establish, for each Educational Program and Support Services and Investment Category in the model, a small group to recommend to the Secretary the value of the Unit Cost and any associated weighting factors for the particular program or service (Recommendations 12 and 7);</td>
<td>Deputy Secretary in consultation with Vice-Chancellor or nominee</td>
</tr>
<tr>
<td>6. Review the data requirements of the model in comparison with the current data systems and determine the necessary adjustments;</td>
<td>Director, Office of Tertiary Education</td>
</tr>
<tr>
<td>7. Set up the report formats and the processes of feeding the approved Unit Costs, Program Profiles and income levels into a series of related spreadsheets. Tables 1-7 provide some example formats (along with some further technical details) for consideration;</td>
<td>Director, Office of Tertiary Education</td>
</tr>
<tr>
<td>8. Conduct training for members of advisory groups and others as appropriate.</td>
<td>Officer nominated in 2. above</td>
</tr>
<tr>
<td>9. Receive and collate advice from the groups established to advise on the values of Unit Costs and Weights (see 5. above);</td>
<td>Officer nominated in 2. above</td>
</tr>
<tr>
<td>10. Examine the total matrix of Unit Costs, Weights, Overhead Categories and Developmental Funding Categories for coherence and consistency and recommend to the Secretary interim approval;</td>
<td>Advisory Group suggested in 4. above in consultation with Unit Cost Advisory Groups as necessary</td>
</tr>
<tr>
<td>11. Provide interim approval of the parameters of the model (Unit Costs, Weights, Overhead Categories and Developmental Funding categories) to allow a pilot implementation and provide a start for a cycle of planning;</td>
<td>Secretary</td>
</tr>
<tr>
<td>ACTION</td>
<td>BY WHOM</td>
</tr>
<tr>
<td>----------------------------------------------------------------------</td>
<td>--------------------------------------------------------------</td>
</tr>
<tr>
<td>12. Set up the balance for total income and expenditure for the current year for each institution and central office to validate the parameters of the model, to establish a starting point for the first cycle of planning for the next year of funding and to obtain preliminary information on any inequities in current allocations against expected program delivery;</td>
<td>College Principals, Director ITAFE, Deputy Secretary TAFE</td>
</tr>
<tr>
<td>13. Review the values of Unit Costs and Weights in the light of what has been revealed by the pilot set up of the model;</td>
<td>Same as 10. above</td>
</tr>
<tr>
<td>14. Provide full approval of the parameters of the model;</td>
<td>Secretary</td>
</tr>
<tr>
<td>15. Determine the policy framework within which colleges are to develop Program Profiles (Educational, Support Services and Investment Activity, and Developmental Activity) and any changes to Overheads;</td>
<td>Secretary on advice from TAFEAC and Minister</td>
</tr>
<tr>
<td>16. Develop College, ITAFE and Central Office proposed Expenditure and Income Profiles, expressed as the values of O, aEs, bSs, D and Ys in the model;</td>
<td>College Principals, Director ITAFE, Deputy Secretary TAFE</td>
</tr>
<tr>
<td>17. Conduct trial balances of the model for each institution and Central Office and negotiate adjustments until the whole of the proposed TAFE budget is in balance, taking into account the known level of governmental allocations and predicted income from other sources;</td>
<td>Director, Office of Tertiary Education</td>
</tr>
<tr>
<td>18. Approve allocations and associated plans for each college, TAFE Central Office and ITAFE.</td>
<td>Secretary and Vice-Chancellor</td>
</tr>
</tbody>
</table>
### TABLE 1 UNIT COSTS - EDUCATIONAL PROGRAMS

<table>
<thead>
<tr>
<th>EDUCATIONAL PROGRAMS</th>
<th>STANDARD UNIT COST $ /CSCH</th>
<th>WEIGHTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Distance Isolation $W_1$</td>
</tr>
<tr>
<td>Applied Science</td>
<td>$a_1$</td>
<td>$W_{11}$</td>
</tr>
<tr>
<td>Business &amp; Secretarial</td>
<td>$a_2$</td>
<td>$W_{12}$</td>
</tr>
<tr>
<td>Constr., Bldg. &amp; Furniture</td>
<td>$a_3$</td>
<td>$W_{13}$</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes 1. The Standard Unit Cost is a measure of the average cost for the most common delivery mode and circumstance in the particular Educational Program.

2. The weights are best calculated by first calculating the weighted average Unit Cost for all those circumstances (from minor, but significant, to large variations from the standard) for the category being weighted. The weight is then calculated as a ratio of this Unit Cost to the Standard Unit Cost.

For example, consider an Educational Program with a Standard Unit Cost of $10/CSCH. Three different circumstances of Distance/Isolation occur with Unit Costs of $15, $18 and $20 per CSCH for levels of provision in a ratio of 4:1:3 respectively. (ie, by whatever suitable measure the $15 provision is four times as large as the $18 provision and the $20 is three times as large as the $18 provision - this is included to demonstrate a need for weighted averaging). The average Unit Cost for Distance/Isolation is then calculated as follows:

\[
\begin{align*}
\$15 \times 4 &= 60 \\
18 \times 1 &= 18 \\
20 \times 3 &= 60
\end{align*}
\]

\[\text{Total} = \$138\]

divided by \((4 + 1 + 3) = 8\)

That is Average Unit Cost = \(\frac{\$138}{8} = \$17.25\) per CSCH

The Weight for Distance/Isolation is then \(\frac{17.25}{10} = 1.7\)
TABLE 2 UNIT COSTS - SUPPORT SERVICES & INVESTMENT ACTIVITIES

<table>
<thead>
<tr>
<th>SUPPORT SERVICE/INVESTMENT ACTIVITY</th>
<th>STANDARD UNIT COST $ / output</th>
<th>WEIGHTS</th>
<th>Factor 1</th>
<th>Factor 2</th>
<th>Factor 3</th>
<th>Factor 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Library, Resource Centre</td>
<td>$b_1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Community Development</td>
<td>$b_2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Curriculum Accreditation</td>
<td>$b_3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Course Development</td>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Learning Material Development</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Services</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes 1. The dimension for each Unit Cost will depend on what measure of output or activity is chosen for the Support Service or Investment Activity.

2. Weighting factors should only be identified if there are widely varying cost structures.

3. The comment in Note 2. under Table 1 also applies to weighting calculations for these Unit Costs.
TABLE 3  PLANNED COMPLETED STUDENT CONTACT HOURS IN EACH EDUCATIONAL PROGRAM FOR EACH COLLEGE

TABLE 3A  EDUCATIONAL PROGRAM 1 (eg. Applied Science)  
(Standard Unit Cost  $a_1$ - from Table 1)

<table>
<thead>
<tr>
<th></th>
<th>Planned CSCH</th>
<th>Weights</th>
<th>Unit costs</th>
<th>Expenditure $</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard</td>
<td>$E_{1s}$</td>
<td>1.0</td>
<td>$a_1$</td>
<td>$E_{1s}a_1$</td>
</tr>
<tr>
<td>Variation 1</td>
<td>$E_{11}$</td>
<td>weights</td>
<td>$a_1\cdot$weights</td>
<td>$E_{11}weights_1a_1$</td>
</tr>
<tr>
<td>Variation 2</td>
<td>$E_{12}$</td>
<td>weights</td>
<td>$a_1\cdot$weights</td>
<td>$E_{12}weights_2a_1$</td>
</tr>
<tr>
<td>Variation 3</td>
<td>$E_{13}$</td>
<td>weights</td>
<td>$a_1\cdot$weights</td>
<td>$E_{13}weights_3a_1$</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TOTALS EDUC PROGRAM 1  

Notes 1. The variations are aggregations of delivery circumstances for the program in the particular college.

eg 1. Variation 1 may be for subjects provided to students in several similar (cost) circumstances of Distance and Isolation. Then weights = $w_{11}$ from Table 1.

2. Variation 2 may be for subjects provided to Distance/Isolated and Disadvantaged students. Then weights = $w_{11}$ multiplied by $w_{21}$ from Table 1.

2. Tables 3B, 3C etc of identical structure can present planned profiles for the other Educational Programs.
TABLE 4 SUPPORT SERVICES & INVESTMENT ACTIVITY FOR EACH COLLEGE

TABLE 4A LIBRARY RESOURCE CENTRE *(for instance)*
(Standard Unit Cost $b_1$ - from Table 2)

<table>
<thead>
<tr>
<th>Level of activ/output</th>
<th>Weights</th>
<th>Unit costs</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard $S_{1s}$</td>
<td>1.0</td>
<td>$b_1$</td>
<td>$S_{1s}b_1$</td>
</tr>
<tr>
<td>Variation 1 $S_{11}$</td>
<td>weights</td>
<td>$b_1\cdot$weights</td>
<td>$S_{11}\cdot$weights$b_1$</td>
</tr>
<tr>
<td>Variation 2 $S_{12}$</td>
<td>weights</td>
<td>$b_1\cdot$weights</td>
<td>$S_{12}\cdot$weights$b_1$</td>
</tr>
<tr>
<td>Variation 3 $S_{13}$</td>
<td>weights</td>
<td>$b_1\cdot$weights</td>
<td>$S_{13}\cdot$weights$b_1$</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTALS PROGRAM 1**

Notes:
1. Note 1. under Table 3, adjusted to the Support Service and Investment Activity category also applies.

2. Tables 4B, 4C etc will be needed to represent data for the other Support Services and Investment Activities.
TABLE 5A  COLLEGE BALANCE SHEET - ANTICIPATED INCOME

<table>
<thead>
<tr>
<th>SOURCE OF FUNDS</th>
<th>SUB-TOTALS</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Allocation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Specific Purpose allocations</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td></td>
<td></td>
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<tr>
<td>etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fee-for-Service Programs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1 eg Admin Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2 eg Material Fees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>etc</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GRAND TOTAL

Notes 1. This table is required for each college and also, with modifications, for the central office functions.

2. The table is produced by the college as a proposal and after changes through planning negotiations it becomes the confirmed budget.
### TABLE 5B COLLEGE BALANCE SHEET - PLANNED EXPENDITURE

**COLLEGE**

<table>
<thead>
<tr>
<th>USE OF FUNDS</th>
<th>SUB-TOTALS</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overheads</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Educational Programs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program 1 (Table 3A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Program 2 (Table 3B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Support Services and Investment Activity</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service 1 (Table 4A)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service 2 (Table 4B)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Developmental Funds</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Item 3</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**GRAND TOTAL**

**Notes**

See under Table 5A
### TABLE 6 SUMMARY OF PLANNED EDUCATIONAL OUTPUTS IN ESTIMATED COMPLETED STUDENT CONTACT HOURS

<table>
<thead>
<tr>
<th></th>
<th>ASCOT</th>
<th>BATCH</th>
<th>ITAFE</th>
<th>KRC</th>
<th>NTOC</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied Science</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Business &amp; Secre'l</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constr,Bldg &amp; Furn</td>
<td></td>
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<tr>
<td>etc.</td>
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<tr>
<td>TOTAL</td>
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</tr>
</tbody>
</table>

**Notes**

1. Data in this table are all derived from Tables 3A, 3B ... etc.

2. The table would be useful in providing an oversight of the planned educational outputs.

3. An additional column could be added for each institution to allow the recording of the corresponding planned expenditure, also derived from Tables 3A, 3B ... etc.

4. The table extended to record actual Completed Student Contact Hours, known at the end of the period under consideration, would present useful monitoring information.
### TABLE 7
**SUMMARY OF ANTICIPATED INCOME AND PLANNED EXPENDITURE FOR WHOLE OF TAFE**

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<th>ASCOT</th>
<th>BATCH</th>
<th>ITAFE</th>
<th>KRC</th>
<th>NTOC</th>
<th>CENTR</th>
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</tbody>
</table>

**Notes**

1. Data in this table are all derived from Tables 5A and 5B.
2. Total Expenditure should be in balance with Total Income or further adjustments to the plans described in the model will be necessary.
3. The Total of General Allocation (right-hand column) should be the Total of the Division 36 Budget Estimate for the ensuing year.