

HIGHER EDUCATION FOR NAMIBIA 1988-2003:

**Stocks and Flows; Needs, Supplies and
Affirmative Actions**

A Study of Magnitudes and Directions

Prepared For

Namibia Commission on Higher Education

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I.

OVERVIEW And EXECUTIVE SUMMARY

Higher education in Namibia and for Namibians as a whole is virtually a new sector despite the fact that as of 1988 about 27,500 Namibians and expatriates in Namibia held posts requiring degree or tertiary diploma qualifications of whom up to 20,000 held the requisite qualification. Until the late 1970s access to higher education was easy for the children of settlers and of expatriates but was undertaken predominantly in the Republic of South Africa, the federal Republic of Germany and, to a lesser extent, the United Kingdom. Very few majority community Namibians had access to tertiary education and - even at diploma level - virtually none was offered in Namibia.

Over the past fifteen years two sets of changes have occurred, parallel to continued broad access to external higher education for expatriate and settler household children. The first was the build-up of tertiary education in exile for majority community members largely coordinated by the then Liberation Movement, now majority party, SWAPO. Part was in specialised institutions - notably the UN Institute for Namibia (UNIN) in Lusaka - but most was by placement in overseas universities and polytechnics.

The second was the growth of tertiary education - or what purported to be tertiary education - programmes in occupied Namibia. Initially these focused on providing majority community diploma level teachers and nurses for the rapid late occupation period build-up of primary education and its less rapid parallels in health care and secondary education. In fact the entry levels, curricula and general quality of most of these courses were not tertiary but specialised secondary, laying the foundations for a serious problem of about 10,000 post holders urgently needing upgrading training to perform their duties (especially in Education) adequately. By the mid-1980s a conglomerate diploma granting institution which added degree courses was created under the title of Akademy and now enrolls perhaps 1,500 students at tertiary diploma/degree level - most from the majority community since the communities with long access to higher education consider its courses seriously inferior to those in RSA or overseas.

Therefore, planning for Namibian higher education is in one sense the prisoner of the past - it inherits a position of substantial replacement and expansion demand for higher education graduates/diplomates, very little existing capacity in Namibia for meeting that demand, a neo-apartheid pattern of past access and current position holding. On the other hand it has certain opportunities to build more freely because no genuine university and very limited other tertiary capacity or history exists to constrain present and future choices.

A Definitional Aside

Higher education for purposes of this paper is defined to include all programmes whose normal entry base is Standard 10 (12 years), or its equivalent, plus diploma courses of three years starting from Standard 8 (10 years). University is used as a rough equivalent of degree, and Other Tertiary/Polytechnic of diploma courses. The division among the two is usually seen in terms of the relative proportions of general education and broad underlying theoretical principles relative to specialised or sectoral education and more specific applied knowledge plus skills. In practice, neither institutional titles nor whether a diploma or a degree is awarded, follow such a neat dichotomous pattern. Indeed, some institutions offer specialised secondary, tertiary diploma and degree courses and Institutes of Adult Education, while frequently linked to or integral parts of, Universities usually operate from literacy through tertiary to outreach education.

Outside the public service (and in particular education and health) the qualifications seen as essential to holding a job are by no means always specified in much detail and in the public service they are (not least in Education in Namibia) often not met. Therefore, estimation of numbers of tertiary education completers needed and of employees with qualifications inadequate for present posts can rarely, if ever, be precise. However, working estimates of numbers needed, numbers qualified and degree/diploma breakdown can usually be derived which are usable orders of magnitude for Higher Education strategic planning and articulation.

The Numbers Needed

As of 1993 - the probable first year of the University of Namibia - the need for persons with tertiary qualifications will be of the order of

55,000. Of these perhaps 45% will need degrees and 55% tertiary diplomas. But up to 20% of post holders will have neither. (See Chapter II and Annex B, especially Tables 1, 2.)

Over 1993-2004 replacement, upgrading and expansion requirements will total on the order of 58,500 (see Table 3 and Annex B - Table 3). That figure assumes rapid upgrading of the 10,000 severely underqualified, a departure rate of expatriates and European ancestry citizens comparable to that in Zimbabwe during its first decade of independence and a 5% average Gross Domestic Product annual growth rate, again comparable to Zimbabwe.

And How To Supply Them

Until the late 1990s normal matriculation (Standard 10) examination passers cannot be the dominant source of students for higher education. The very narrow upper secondary base and the weakness of many teachers imposes constraints on how rapidly this flow can be expanded.

Complementary routes - e.g. upgrading for weak Standard 10 completers/leavers, bridging for adults especially Standard 8 leavers/completers, gap filling for holders of less than adequate external tertiary qualifications - will need to be given priority. Even so the requisite level of tertiary education entrants is unlikely to be met before 2003. (See Chapter III and Annex B.)

Thus a major priority for Namibian higher education in its first decade will be to increase numbers of students enabled to enter to approach numbers required to meet demand. This priority also provides the means to meet the Affirmative Action requirement set by the Namibian Constitution. Because 1993-2003 flows needed are comparable to 1993 stock levels and because almost all students enabled to enter higher education by complementary channels will be from historically disadvantaged communities, Affirmative Action's initial priorities will turn on enabling historically disadvantaged (on ethnic, gender and geographic lines) community members to qualify for and to complete tertiary education and to ensure that they are not discriminated against when they do. (See Chapter III and Annex A.)

Questions of vertical linkages among levels of sectoral specialised education and of horizontal relationships within higher education are important to achieving efficiency in regard to numbers, quality and cost of

graduates/diplomates. They have as yet not been articulated in detail nor subjected to much inter-institutional discussion. These actions would appear to be early (1991-92) priorities for the Higher Education sector. (See Chapter IV and Annex F.)

Into The Second Decade

From 2004 broad balances in numbers needed and supplied can be achieved - except at second and third degree level. A probable flow shortfall of 9,000 over 1993-2003 can be clawed back over six to eight years. (See Chapter IV, Annex B.)

At that point more complicated quality, diversity of courses and of institutional locations and staff development issues will be likely to rise on the higher education priority list to succeed the difficult, but also simple, quantity requirements of the 1990s. (See Chapter IV and Chapter II - Table 5.)

Organisation

The balance of this study comprises three chapters on Numbers Needed, Student Supply Ways and Means and Other. Supply issues based on eight more detailed Annexes.

II.

DEMAND: Stocks And Flows

The demand for graduates of higher education in terms of levels and changes in levels of posts needing them can rarely be determined with great precision. The borderline between what is necessary and what is desirable (in cost efficiency as well as social terms) is never precise and varies over time (usually creeping up), with structural change, across countries, with output and public finance per capita and in response to educator and employer fashions. In Namibia the baseline data are somewhat shaky (especially as to percentage of posts in certain categories requiring tertiary qualifications and as to numbers of post holders actually having them). Similarly, the changes in economic and public service structure and, hopefully, in growth rates as well as the replacement of neo-apartheid by affirmative action mean that 1984-88 or 1977-88 trends are unlikely to be very good proxies for use in estimating 1993-2003 demand.

But the admitted imprecision should not be read as saying no meaningful quantitative orders of magnitude can be derived. There is, for example, broad agreement that either a degree or a diploma is a basic need to be an effective teacher and that in numerous production sectors polytechnic type tertiary education is a necessary input for sustained increases in productivity. Similarly, the employment and post typology data for Namibia are if anything better than for the majority of South economies and there is a history of attempted academic analysis of these magnitudes going back for almost fifteen years.

Stock Levels 1988 - 1993 - 2003

The numbers of posts in Namibia in 1993 (nominal first year of University of Namibia) which will require degree/diploma level higher educational attainments is 37,500 (27,500 as of 1988 Manpower Survey) and is likely to rise to 55,000 in 2003. On a middle of the road University/Polytechnic or Degree/Diploma division perhaps 45% would be degree and 55% diploma requiring. As of 1988 about 10,000 post holders (7,000 in Education) lacked the basic background education needed for their posts. (See Table 1.)

These levels are relatively high for a lower middle income African country with a population of the order of 1,750,000. The reasons include:

- a. the production structure is dominated by medium (e.g. ranching) to large (e.g. mining) units using medium to high technology - including tertiary education qualified personnel;
- b. the administration and infrastructural sectors have built in geographic (long distances relative to population and production levels) and historic (divide and rule) diseconomies. While the second is being

TABLE 1

1988-1993-2003 Overall Tertiary Needs Projections

<u>Source</u>	<u>Base Year</u>	<u>Projections From Base Year</u>		
		<u>1988</u>	<u>1993</u>	<u>2003</u>
UNIN (1978)	<u>1977</u>			
Degree	5,000	12,500	16,250	-
Diploma	<u>5,000</u>	<u>15,000</u>	<u>19,500</u>	-
Total	<u>10,000</u>	<u>27,500</u>	<u>35,750</u>	
Windhoek (1990)	<u>1985</u>			
Degree	9,600	10,560	13,720	-
Diploma	<u>15,400</u>	<u>16,940</u>	<u>22,030</u>	-
Total	<u>25,000</u>	<u>27,500</u>	<u>35,750</u>	
Manpower Survey	<u>1988</u>			
Total		28,500	37,500	-
This Study	<u>1993</u>			
Degree	-	-	17,500	25,000
Diploma	-	-	<u>20,000</u>	<u>30,000</u>
Total			<u>37,500</u>	<u>55,000</u>

For explanatory notes see TABLE 1 ANNEX B

reduced, both for technical reasons and as a result of post security aspects of national reconciliation the process will be relatively slow;

- c. over their whole life the colonial and occupation regimes sought to provide rising and ultimately high infrastructural service levels to the settler/expatriate communities and over its last decade the

occupation regime for its own reasons rapidly expanded health, education, water and administration services (or perhaps disservices in the last case) to the majority communities. Despite their neo-apartheid nature and low quality, these services do require large numbers of higher education completers and their qualitative and quantitative enhancement will require both upgrading of the qualification of serving personnel and increases in their numbers.

The composition of demand can be identified moderately clearly - and a build-up on that basis provides a cross-check on macro estimates of the stock requirement. Typically the largest employer of highly educated personnel is the Education Sector (23,750 or over 42.5% in 2003) with Health second (8,500 or 15%). Including Agriculture (25%) Water, Production Professionals (50%) the Engineering area (7,000-7,500 or 13% to 14%) ranks third. (See Table 2.)

TABLE 2

1993 Tertiary Education Stock Requirements

<u>Sector</u>	<u>Degree</u>	<u>Diploma</u>	<u>Total</u>
Education	11,750	12,000	23,750
Primary/Secondary	(9,500)	(11,750)	(21,250)
Tertiary	(1,750)	(250)	(2,250)
Adult/Bridging-Completion	(500)	(Negl.)	(500)
Health	3,500	5,000	8,500
Public Administration	1,000	250	1,250
Legal	400	-	400
Agriculture	1,750	2,500	4,250
Agriculture Services	(500)	(1,250)	(1,750)
Enterprise Managers	(1,250)	(1,250)	(2,500)
Accountancy/Audit	500	750	1,250
Statistics/Computing/Economics	500	Negl.	500
Life Sciences	500	500	1,000
Communications	250	250	500
Religion	500	250	1,750
Engineering	1,000	2,000	3,000
Enterprise Managers	1,250	1,500	2,750
Production Professionals	1,750	4,000	5,750
Other	350	500	1,850
Total	<u>25,000</u>	<u>30,000</u>	<u>55,000</u>

For explanatory notes see TABLE 2 ANNEX B

Flow Levels - Replacements, Reskillings, Additions

Over 1993-2003 total tertiary level course completions needed will total of the order of 58,500 or an average of 5,850 a year. (See Table 3.) Of these about 30% (17,500) each will be replacements and expansion at first degree and diploma level, 36% (21,300) upgrading/reskilling and 4% (2,200) second and third degree level. It should be noted that these totals relate to Namibians completing higher education whether in Namibia or abroad and also that they exclude higher education requirements of the uniformed services. (See Annex C.)

TABLE 31993-2003 Tertiary Completion Flow Requirements

A. Wastage - 1993 Personnel	
European Ancestry Community (60% of 17,500 base level)	10,500
Majority Namibian Communities (25% of 20,000 base level)	5,000
- 1993/2003 flows (5%)	2,000

Subtotal	17,500

B. Increase In Stock Levels	17,500

C. Upgrading	
Overhang	10,000
Normal - say 2½% a year	11,300

Subtotal	21,300

D. Second/Third Degrees	2,200

Total	58,500

For explanatory notes see TABLE 3 ANNEX B

The relatively high replacement requirement is the combination of two partially offsetting factors:

- a. 60% of the 17,500 present (1990/93) citizen of European ancestry/expatriate communities are likely to retire and/or depart for other countries by 2003;
- b. retirement-death-departure rates among the relatively young 17,500 post holders of majority community ancestry are unlikely to exceed 25% of base levels (2.5% a year).

The 60% assumption is based largely on Zimbabwean experience. In that sense it is a best case (in that - see Chapter III - the dominant 1993-2003 constraint on Namibian higher education will be student supply). If there are shocks to the confidence of these personnel - including prolonged economic unsuccess - much higher rates and inconveniently bunched outsurges can be anticipated.

However, in a different sense the 6% expatriate/European ancestry citizen community wastage rate is helpful. It implies that in general there will be no barrier - beyond availability of qualified candidates - to appointment and promotion processes raising both the absolute numbers and the proportions of tertiary level educated personnel from historically disadvantaged groups (ethnic, gender, regional). Therefore, affirmative action over 1993-2003 will be able to concentrate primarily on enabling more Namibians from historically disadvantaged groups to qualify and to articulating and enforcing an end to discriminatory practices in respect to ethnic group and to gender. (See Annex A.)

Almost half of the upgrading element relates to 10,000 present post holders who are seriously underqualified. This group needs to receive priority attention, not least because they include most primary and many secondary school teachers. Their early retraining is essential to laying a stable foundation for qualitative as well as quantitative development of the entire educational system. The other portion of upgrading (11,300) is more normal consisting of secondary educated employees seeking tertiary qualifications and diploma/degree holders seeking to broaden or deepen their education to achieve promotion. The 21% of total tertiary educated personnel per year seeking such upgrading assumes career structures and

conditions (including released time and scholarships from employers) favourable to deepening human investment. Over 1993-2003 these flows would need to be concentrated in the second half of the period because initially overhang upgrading of non-qualified personnel should take priority and, until that is largely achieved, employers will find it very difficult to provide release (whether part or full time) qualified serving personnel.

Increases in personnel relate to a secular upward creep in qualifications demanded and employment makeup, structural shifts with economic and social transformation and output growth. Estimation - especially as the transition from neo-apartheid and war to universal access and reconciliation is beginning and that from fifteen years of economic stagnation to healthy growth should be about to commence - is difficult and any assumptions relatively tentative.

Creep and structural change are estimated to increase required higher education diploma/degree holder numbers 1.5% a year. Economic growth is projected to average 5% a year over the 1993-2003 period and to require a 2.5% annual increase in tertiary education personnel, i.e. a 2.5% annual productivity (or economies of scale) effect.

The 5% GDP growth projection is comparable to that of Zimbabwe in the 1980-90 period and under half that of Botswana - the two least non-comparable economies for comparison purposes. Further, given government's stated ambitions and the high levels both of inequality (with tertiary education graduates very much on the upper end of the spectrum) and of absolute poverty, a significantly lower rate is likely to result in political, social and economic tensions so severe as to invalidate any projection exercise.

Alternative estimation of needed increases by sector (see Annex B - Table 3 - Note 3) yields comparable overall requirements. At least for Education it also approximates primary-secondary-tertiary personnel requirements for an ambitious expansion programme (see Annex B - Table 2 - Note 2).

2004 And After

The second decade of Namibian higher education will be marked both by continuity and by shifts to more complicated, structural, and quality focused priorities than 1993-2003 which will be dominated by coming as

close as possible to enabling adequate student flows to enter and to complete key programmes. The broad parameters of the 2004 position are set out in Table 5.

TABLE 5**2004 Consolidated Flows: Into Decade Two**

Opening Tertiary Level Personnel Posts		<u>55,000</u>
Wastage - 3½% Annually	1,925	
Expansion		
Creep/Structural Shift - 2% Annually	1,100	
Growth Related - 3% annually	<u>1,650</u>	
Basic New Tertiary Educated Personnel Required	4,675	
Plus Upgrading/Advanced Degrees To First Degree/Diploma - 2½% Annually	1,375	
Second Degree	500	
Third Degree	<u>100</u>	<u>1,975</u>
Total Completions Needed		<u>6,650</u>
Opening Tertiary Students Entrants	17,500	17,500
Matric	8,400	
Bridging/Completion/Adult	1,350	
Upgrading/Secondary/Tertiary-Net	<u>750</u>	<u>10,500</u>
Total Students Completions		<u>28,000</u>
First Degree/Diploma	7,000	
Second/Third Degree	<u>500</u>	<u>7,500</u>
Surplus/Deficit		850
Backlog Reduction First Degree	950	
Deficit Second/Third Degree	<u>(100)</u>	

For explanatory notes see TABLE 5 ANNEX B

With a lower wastage rate and completion of upgrading overhang retraining, replacement and upgrading completion requirements will become roughly equal (1,925 and 1,975 respectively) while expansion requirement will be about 2,750. Within upgrading the second/third degree requirement (500 second,

100 third per year) will require special attention because of difficulties in developing educationally effective/cost efficient programmes in Namibia and because (especially in respect to doctorates) successful moving toward the posited targets is crucial to staff development with Namibianisation of tertiary educational institutions. (See Annex D and Annex B - Table 5 - Note 3.)

III.

SUPPLY: Students And Their Enablement

Over its first decade the main constraint on higher education of Namibians will be the supply of qualified students (see Table 4). Direct matriculation entries cannot be expected to meet more than a quarter of the 'required' numbers in 1993 and even by 1998 will be barely a third. Only in 2003 can they reasonably be expected to dominate new entrants into tertiary education and entrants to be at levels consistent with meeting graduate/diploma requirements.

The gap is not equally distributed among communities. In 1993 it may well be that 50% of the direct matriculation entrants to higher education will come from the European ancestry and Khomasdal/Rehoboth communities which comprise at most 6% of the population. The justification for affirmative action is clear. (See Annex A.) But the need is not to reduce numbers from the historically privileged and less disadvantaged communities. It is to raise the numbers of persons (and in particular women) from the disadvantaged communities who are enabled to enter and to complete higher education. Until 2003 - and probably later - the issue of quotas to hold down entries of any citizen community can hardly arise - the overriding problem will be to increase total entries and completions.

Therefore, strategy and resultant policy and process in respect to supply of tertiary education entrants and completers needs to focus on:

- a. expansion of numbers in secondary school and especially in Standards 9 and 10 (years 11 and 12);
- b. the quality of secondary school education including access to science and mathematics which is close to being marginal north of Windhoek;
- c. developing alternative and complementary routes to tertiary education entry (see Annex E);
- d. devising measures to achieve a genuine high completion/low failure rate within tertiary education.

Secondary Schools

Expansion will take time. The base is small; the majority of teachers underqualified; the laboratory facilities - with a handful of exceptions - poor to non-existent; the matriculation pass rate poor.

Expansion to a target of 8,000 higher education qualified Standard 10 completers from a 1993 base of about 1,400 will require a cumulative growth of 10% a year until 1998 and 20% a year thereafter. (See Annex B Table 4 Note 3.) To achieve this teacher retraining/upgrading at all levels will be vital and over 1993-98 both require a significant proportion of tertiary

TABLE 4Potential Namibian Tertiary Student Population Parameters

	<u>1993</u>	<u>1996</u>	<u>1998</u>	<u>2003</u>
Continuing Students	1,250	5,500	8,000	16,000
<hr/>				
New Entrants				
Direct Matric	1,400	1,850	2,250	8,000
Bridging	()	1,000	750	500
Completion	(100)	750	600	500
Adult Educating	()	150	250	500
Tertiary Upgrading	1,000	-	-	-
Overhang Upgrading	2,000	2,000	1,000	-
Normal Upgrading	300	500	1,000	1,250
Overseas Secondary	150	250	500	250
<hr/>				
Total New Entrants	4,950	6,500	6,350	11,000
<hr/>				
Total Students	6,200	12,000	14,350	27,000
<hr/>				
Completions	500	4,000	5,500	7,000
<hr/>				
Nominal Completion Target from Table 3	4,800	5,300	5,850	6,900
Shortfall (Surplus)	4,300	1,300	350	(100)

For explanatory notes see TABLE 4 ANNEX B

places and provide a significant proportion of its entries and completions. Indeed up to one quarter in the case of entries and a third in that of completions around 1996-97 would be from this source (and a third and a half respectively from overall urgently needed upgrading of post holder qualifications) assuming a five to six year target for completing the 7,000 teacher (10,000 total) upgrading backlog.

Complementary Enabling Routes

Non-traditional paths to higher education entry are essential both to meet demand and to redress the bias against historically underprivileged groups.

The largest flows should be sought from bridging (Standard 10 completers with partial failures or poor subject mixes) and completion (Standard 8-9 leavers/completers and Standard 10 leavers/completers several years out of school). These could well be taught by the University's Adult Education Institute as specialised secondary school upgrading courses of one to two years duration. Briefly (in the mid-1990s) they could almost equal standard entry flows.

Slower to build up but probably more permanent would be standard adult education secondary courses taught by distance education plus limited duration (say 6 week) residential periods. These should have priority over tertiary adult education which - given the need for full time students - is unlikely to have a substantial student pool for some years. (See Annex E.)

Other Sources

There are probably 2,000 Namibians with tertiary qualifications earned abroad who have not secured jobs. Most have moderate to severe gaps or quality problems in their tertiary educational attainments. These could, in most cases, be filled by one to two year programmes focused on identified weaknesses rather than repeating areas already mastered.

Finally, upgrading (overhang and normal) can provide students as well as demand. Even once the overhang is successfully upgraded, at least 1,000 such students (perhaps half upgrading secondary to tertiary and half strengthening tertiary qualifications) may reasonably be expected.

Keeping Completion Rates High

Because rapidly expanding secondary schools and complementary entry streams will inevitably lead to a significant proportion of students at high risk of failure, action to avert that result needs to be mapped out now, not taken up only when failure rates rise toward 50% in year one instead of a tough but feasible target of 10%. Two areas seem of particular relevance:

- a. a quantitative methods and numeracy (both broadly defined) first year course for all or almost all higher education students. For whatever reason African students of ability and demonstrated logical and verbal skills are often much weaker in these quantitative and as a result fail;
- b. a counselling system with regular meetings of counsellor and student backed by instructor reports on learning problems channelled to counsellors to allow timely action to avert crises.

Affirmative Action

The most effective way to reduce ethnic, gender and regional disparities in access to higher secondary education is to broaden its coverage rapidly with special attention to areas now particularly ill-served. Similarly, the persons enabled by the complementary programmes will in practice almost all be from historically disadvantaged groups.

It is necessary to see the disadvantaged group/affirmative action nexus in more than broad brush black/white terms. Certain areas (especially the North), women and particular communities (e.g. San) are substantially more underprivileged. At Standard 7-10 levels and in present posts beyond classroom teaching and nursing, women are severely historically underprivileged relative to men. That requires specific attention (including on Constitutional grounds) based on careful review both of causes (which are by no means limited to but do include attitudes including those of mothers and women students) and of methods to offset and/or to eliminate them. (See Annex A.)

Fees and Charges (see Annex G) need to be structured - more specifically their payment/repayment needs to be structured - in ways consistent with Affirmative Action. Historically disadvantaged group members and their families cannot, with limited exceptions, pay substantial sums now for

higher probable future earnings. Commercial loans - even if government guaranteed to make them available - will deter disadvantaged group members (and especially women) disproportionately. A possible way around this problem at higher education level is a repayment charge which is in form a limited period tax on higher incomes of tertiary graduates who used loan finance collected by income tax. This could avoid placing a heavy timing and uncertainty burden on borrowers. (See Annex G.)

The Remaining Deficit

Until 2003 there is likely to be a gross cumulative deficit of higher education completions compared to demand of the order of 9,000 (see Table 4 and Paragraph 23 Annex B). At first degree level a surplus could emerge in 2004 which would allow clawing back the deficit over the ensuing decade. (See Table 5.)

The bridging problem is evident. More entrants is hardly a feasible answer - the complementary and other additional entry programmes and secondary expansion rates set out above are already very ambitious. Nor can more than perhaps a fifth be safely 'met' by allowing vacancies to rise. A combination of encouraging normal retirement age personnel to remain in employment for a few years on contracts, hiring additional expatriates and extending contracts of many current ones and ensuring present Namibians pursuing higher education abroad do in fact return could meet the balance. (See Annex B.) The extension of service and additional expatriate hirings could then be reversed/phased out over 2004-2010.

The fragility of this 'balance' should be apparent. Any severe shock - including sustained economic unsuccess and a breakdown for whatever reason of reconciliation - is likely to cause sudden substantial departures. These would be largely, but not wholly (e.g. about 70% of Ghana's qualified doctors of African ancestry were practising abroad in 1983), from minority communities but that would not make the gross imbalances, crippling vacancies and erosion of both productive capacity and vital services (not least higher education) any less real or any less heavy a burden on historically disadvantaged group members.

IV.

SUPPLY: University-Polytechnic Capacity

The preceding examination of supply focuses on Namibians able to participate in higher education. That is the most basic supply constraint. Without students faculty and facilities cannot achieve degree/diploma completions. And without students the option of enrolling Namibians abroad to by-pass domestic institutional capacity constraints does not exist.

However, need/social requirement for degree/diploma holders plus students able to enrol in and complete higher education courses are necessary rather than sufficient conditions for a functioning, developing Namibian higher education sector in general and the emergence of competent, qualified Namibian degree/diploma holders in particular.

Finance - Facilities - Staff

Without finance, facilities and staff one cannot operate a university or a polytechnic. To achieve adequate flows of each - given the numbers of tertiary students needed and potentially attainable - for the Namibian higher education system, will not be easy.

The existing tertiary campuses are not adequate quantitatively nor are they optimal qualitatively or locationally. A serious, detailed study of what facilities can be taken over; what interim use made of secondary school facilities by lengthening the daily hours of use (e.g. at Concordia) and what needs to be built where and when is a priority. But to conduct such a study requires prior agreement on how many students, what institutions (especially what use of specialised institutions for joint technical secondary and polytechnic work), where (both which cities and how different campuses in - especially - Windhoek are to be located and to interact).

The residential issue also needs to be faced. Unless rural area and small town students are to be excluded (by cost if nothing else) a substantial residential capacity will be needed. To the extent several centres for larger programmes are set up, the greater the potential for 'commuter' students. But less than 60% to 70% of initial full time enrollment residential would appear overly optimistic.

That leads in to a general finance question - who pays? Historically disadvantaged (geographically, on ethnic lines, by gender) communities' students will largely be excluded if full cost payment now for room and board is the answer and, probably, almost as seriously disadvantaged with a standard guaranteed loan scheme. However, alternative loan schemes and timing of future higher income are practicable (see Annex 5) though they place the immediate cash flow burden on the state or an external funding body willing to set up a long term revolving fund.

Recurrent finance for tertiary education in Namibia, adequate in terms of quality and quantity is unlikely to cost less than R250 million (1991 prices) in 2003 and R90 million (1991 prices) in 1996 even assuming 20% and 25% respectively as the proportion of Namibian tertiary student population pursuing courses outside Namibia. This is alarmingly high - absolutely and per student - but the basic causes are the high national real salary scale adopted in 1990, particularly for the higher public service, and the high proportion of residential students. Given these factors, substantial 'unit cost' reductions are probably unattainable.

Capital costs over the first decade will - for the overall University/Polytechnic system - quite possibly reach R500 million (1991 prices). Financing this may be easier than recurrent spending because tertiary education is favoured by external cooperating partners on grounds of developmental principle and financing equipment and construction on grounds of export promotion. The interaction should allow substantial mobilisation of grant/soft loan external funding for facilities.

One way to contain costs is to avoid building complete low throughput programmes (see Annex D). Students needing to follow these programmes would be placed abroad (including in Southern African tertiary education institutions). This can save money even if external scholarship funding is limited - which it may well be for regional institutions although in principle, untied scholarship money for South-South cooperation/trade/capacity building in human investment should be mobilisable. Fairly early on, the possibility of providing Regional demand oriented tertiary facilities in two sectors - Water and Fisheries - should be explored. Specialised tertiary capacity (degree or diploma) is lacking in the SADCC Region partly because national annual needs are probably not over 50 for any country in either sector and such totals cover several non-identical

degrees/diplomas in each case. Both sectors are important to every (Water) or several (Fisheries) SADCC countries and both are particularly important to Namibia. External funding for capital and a portion of first five year's recurrent cost could be mobilised externally if Regional backing (and demonstrated intent to use the facility) was achieved.

Staff should not be an absolute constraint but will be one which careful planning and action will be needed to loosen without major quality or cost problems. Until after the end of the first decade a majority of higher education faculty will need to be expatriate if the completion requirements are to be achieved. The time lag to second and third degrees and the low numbers of candidates available ensures that.

But for African and most Asian country academicians, Namibian salary scales for citizens are attractive - i.e. no evident need for expatriate allowances exists. Provisions as to gratuity in place of pension and access to rented housing at reasonable cost, yes, but not special salary top ups. There is no doubt that good African and Asian faculty who would take Namibian posts exist. The problem is screening what could be very large numbers of applicants. The Association of Commonwealth Universities can play such a role in some countries while (for a fee) a university association or a reputable university (e.g. University of the Philippines or Ateneo in Manila) could do so in others. For senior posts interviews should be afforded, but for others time as well as cost considerations may bar Namibian deans going on extended Continental tours or Namib Air/Air Namibia flying in planeloads of applicants from Asia.

Northern academicians - except in special cases - should come with home country (or untied pool) financing of expatriate allowances. They will need to have such allowances particularly in respect to travel, housing, home country pension/insurance maintenance, secondary education of children (an international school in Windhoek can cope at primary level).

Academicians may in general be less monetary reward oriented than other professions, but most will not choose to take up contract posts abroad unless, at the least, home salaries plus extra costs are covered by the remuneration package on offer. Much lower remuneration may still acquire some dedicated individuals but also a high proportion of low calibre personnel who come precisely because their home remuneration (or even employment) prospects are poor.

Staff development is a priority from 1993 because of the long lag time in achieving results. It can begin to produce large numbers of Namibians only in the late 1990s and expatriates in tertiary education posts could well rise absolutely until after 2005 (see Table 5 and last section Annex B). The assumption used in projections is that for higher education as a whole, 50% MA/MSc and 50% PhD/DSc qualified faculty can provide a quality educational process. In both the USA and UK systems of 1930-1950 that assumption was valid. Raising the doctorate per cent could then be prioritised once it was possible to have new Namibian masters plus doctorate flows to Namibian higher education equal to new staff requirements and a slow erosion of expatriate staff numbers.

Staff economies - often grossly overlooked in African universities - turn primarily on avoiding tiny streams and classes. The 12 to 1 student/staff ratio posited is attainable but only with careful articulation, e.g. grouping prospective secondary school teachers, hydraulic and civil engineers, agriculturalists and professional geologists in single elementary geology courses not having four to six separate ones.

Staff morale and productivity requires adequate remuneration, facilities and students. It also requires a stimulating environment. Opportunities to do research, participation in course development and institutional programming and governance, governmental and civil society sets of attitudes favourable to higher education and to avoiding trying to control it in detail are all important.

Horizontal and Vertical Mapping and Relating

Beyond macro resource requirements - and ultimately more complex and more basic - lie questions of overall sectoral strategy, layout, processes and interaction. These have not yet been articulated - even at the level of dialogue - in much detail in Namibia.

A monolithic centralised university would not be a plausible model but nor would a system in which most ministries led specialised secondary/polytechnic facilities and some degree faculties with little interaction with each other, with the Ministry of Education or with the University.

Higher education needs to be mapped overall with useful linkages horizontally among different programmes, courses, institutions identified and an agreed division of labour resulting in coordinated action. (See Annex F.) How is in large measure, a contextual question but for the answers to be deliberated decisions not random responses to individual donor, employer or training officer preferences exploration of possible answers should start in 1991-2.

Higher education needs to be flexibly responsible to users - professionals, present students, employers. That implies advisory boards and councils which look at present substance (and weaknesses) and future directions not just administrative and financial rectitude. It also implies they be at a level allowing such involvement, e.g. Medical School, Engineering Polytechnic, Faculty of Natural Sciences not only University. (See Annex F.)

A related question is vertical or sectoral. Medical degree education needs to be seen together with other science based courses. But it also should be seen together with polytechnic (e.g. nursing) and secondary (e.g. dispensers) or special (e.g. community health worker) specialised medical training. It is not necessarily the case that specialised secondary should be separate from polytechnic education for the same sector. That is especially true if using the same institutions for both levels allows a wider spread of facilities (throughout Namibia). (See Annex F.)

These questions are not footnotes to quantity projections. The success achieved in answering them will go far toward determining the qualitative (and even in some cases quantitative) success of macro target implementation. They cannot be discussed beyond concrete contexts. Thus the priority for initial explorations now.

ANNEX A**AFFIRMATIVE ACTION**

1. Affirmative Action as used in Namibian discussion in respect to education and employment has three related, but distinguishable, aspects:
 - a. elimination of discrimination particularly with respect to ethnic group and to gender;
 - b. provision of special facilities and programmes to enable historically disadvantaged groups (ethnic, gender or other) to have effective access to education and employment;
 - c. affirmative action to the narrower sense to redress the impact of past discrimination e.g. by quota systems for tertiary education entry, employment, promotion, etc.

2. These need to be viewed in the context of the Namibian Constitution which has two relevant provisions:
 - a. prohibition of discrimination;
 - b. requirement to provide affirmative action to redress historic disadvantages/injustices.

3. In respect to elimination of discrimination the first provision requires it and the second is necessary to make enforcement meaningful/practicable (e.g. if there are no female or San qualified engineers nobody can be required to hire them and if no female or San has entry qualifications for a tertiary engineering course employer can be required to provide fellowships to allow engineering education/subsequent hiring).

4. The problems of defining and securing the removal of discrimination are very real but not primarily conceptual nor - in Namibia's case - constitutional. And once qualified entrants, job candidates, promotion applicants exist the doctrine of res ipsa loquitur applies. If of 600 engineers only 30 are women and 20 black, and these all at lower levels discrimination is proven if there are unemployed and/or experienced but non-promoted black and female engineers. To cite a present prima facie case: 63% of classroom teachers are women but only 16.5% of head

teachers-inspectors-subject advisers. Given equal access to promotion related training and non-discriminatory hiring for/promotion to higher level courses these percentages could not have happened. This should be a concern of the University and of the Ministry of Education - not just of women's affairs. However, at small employer level problems of application do arise. Communication, family and prior acquaintance preferences which are not in themselves discriminatory do influence hiring. Given the historic pattern of employers, these micro non-discriminatory patterns add up to objective discrimination at macro level.

5. Two factors should over the next decade erode discrimination:
 - a. the number of members of the European ancestry minority community will decline - on the 1980/90 Zimbabwe analogue probably by 5% to 8% a year;
 - b. expatriates (except from Sub-Saharan Africa and most Asian countries) are far more expensive than citizen employees.

Thus pecuniary self interest should tend to erode discrimination.

6. Anti-discrimination measures in general are not primarily issues for higher education (albeit research, analysis, consultancy on existing patterns and how to eliminate them may well be). Ensuring that higher education's own personnel and student practices are free of discrimination (including gender discrimination) is an obligation of tertiary educational institutions. So too is providing qualified persons from historically disadvantaged ethnic and gender groups so that non discriminatory present practices can result in more equitable patterns of opportunity and results.
7. Provision of special facilities/opportunities for persons from historically disadvantaged groups is also required by both constitutional provisions, because without it non-discriminatory results can never (or at least not in an acceptable time frame) be achieved. Here the complex problems of turning the concept of special supporting and enabling programmes into real, successful practice does rest to a large extent on tertiary education. Expanding and upgrading primary and secondary education is the long term basic answer, but not

one which can produce adequate results before the end of the next decade and, especially, not during the next five years. Further, all new teachers should be other tertiary diplomates or University graduates, and special tertiary level upgrading courses are needed for several thousand present teachers who are not at that level. Therefore, how fast and how well quantity and quality of tertiary entrants can be increased in the primary and secondary education sectors will to a large extent depend on tertiary education's performances.

8. Among the elements of enabling/supporting action likely to be needed and practicable are:
 - a. bridging courses for standard 10 leavers who have not passed matric/have achieved poor passes/or whose subject mix is well below optimal (especially in respect to mathematics and science and, in respect to these subjects, especially for Northern secondary school and female students);
 - b. completion/bridging courses for mature entry students (primarily past standard 8 or 10 leavers) both to fill gaps in their previous learning and to re-acquaint them with the habits, patterns and techniques of being a successful student;
 - c. adult education (primarily part time and using distance teaching plus 6 week residential combinations as well as more standard evening/weekend classes) to allow candidates to complete either standard 10 (or 8 if used for some "other tertiary" courses) or eligibility to enter a completion/bridging course;
 - d. a first year quantitative methods course in all tertiary education programmes because in Namibia (and SSA more generally) both technique and numeracy in the sense of feeling at home with quantities and magnitudes are frequently weak even in cases of highly able and otherwise well prepared students;
 - e. identification of numbers (perhaps 2000) and gap filling needs of UNIN and other overseas tertiary educated students who have failed to secure employment and provision of special (1 to 2 year) degree/diploma completion courses for them;

- f. development of evening/released time/distance plus vacation period residential courses for present holders of posts needing tertiary qualifications they (the holders) lack. This is particular relevant to primary and secondary education where the numbers may be of the order of 7,000. Full time courses are not likely to be practicable because the post holders cannot be spared from their present functions for 18 to 24 - or even 6 - consecutive months;
- g. released time or distance/vacation residential second degree/advanced diploma courses with special attention to public administration, accounting/auditing, economics, computer programming/systems analysis.
9. Over 1993-98 it is likely that enrolment (and especially graduates) can be doubled (or more) from normal entry levels if such bridging, additional opportunity provision affirmative access is articulated and implemented rapidly and effectively. In addition it can be shifted from under 50% to over 80% from historically disadvantaged communities.
10. Affirmative action has to date been discussed, and programmes for enabling access by historically underprivileged group members sketched in respect to ethnic groups (or even to black ethnic groups in a somewhat undifferentiated way). In fact this is too simple and too narrow a conceptualization. Certain black groups, e.g. the San and the Bahima have been much more historically underprivileged in access to education than others. Some geographic areas, e.g. the entire belt north of Otjiwarongo from the Atlantic to the Zambesia have had poorer quality secondary education - especially with respect to mathematics and science. The children of commercial farm workers have suffered disproportionately from lack of access. The basic areas for action are primary and secondary education with the evident tertiary education role within bridging course, adult education and teacher upgrading provision.
11. In respect to gender discrimination and especially to averting a worsening of the gender balance at tertiary level, the role of the university and other tertiary institutions may need to be more central.
12. It is true that of 1988/projected 1993 posts requiring tertiary level education about half are held by women. It is equally true that in

academic secondary and in tertiary course completed abroad during the struggle for independence about half the students were women (and their average results better than those of their male counterparts). This would appear to be a sound (for SSA uniquely sound) base. On examination, however, a number of less satisfactory facts and potential trends appear:

- a. the female post holders are disproportionately clustered in health and education;
- b. even in these sectors, the female personnel are clustered at the lower levels (although 32% of doctors are women) and discrimination in promotion clearly has existed within the education sector (discussed above);
- c. women are virtually absent (under 10%) or severely under-represented (under 25%) in fields such as engineering, life sciences, statistics-mathematics-computing-economics (except at the lower levels of computer programming), auditing/accounting, judges-lawyers, agricultural professionals. It appears that this is even more true among members of historically disadvantaged ethnic (or geographic) communities;
- d. present proportions of women in senior secondary school and in existing tertiary educational programmes in Namibia are significantly below 50% (again especially so among students from historically disadvantaged communities).

13. Action, to sustain the present gender balance among holders of posts requiring tertiary upgrading; to extend it to promotion/higher level posts and to broaden it sectorally and by community can include:

- a. ensuring balance among those chosen for upgrading courses (especially in respect to teaching);
- b. special attention to securing female students in adult education and bridging courses and within them in science subjects and mathematics;
- c. to break stereotypes as to "appropriate" posts for women among employers, teachers (at all levels from primary through tertiary),

parents and female students. The virtually absent or severely under-represented professions cited are, without exception, less physically demanding than peasant cultivation or, for that matter nursing. Senior positions normally require less physical exertion than junior (e.g. advising the Commission on Higher Education is much less physically demanding than teaching primary school students);

- d. in order to break stereotypes (and to demonstrate that qualified women will in fact be hired and promoted) special attention is needed to ensure appointment of qualified women to visible senior posts (as - e.g. - in that of a Minister, two Deputy Ministers, a Permanent Secretary, a Deputy Permanent Secretary and - one must hope - more than one senior University post, e.g. Officer, Dean, Head of Department, Professor).

14. The University/Tertiary Education sector have significant roles to play in each of these respects. In respect to stereotype breaking these include research on present perceptions, the reasons (or rationalisations) behind them and how they could be altered. In each area tertiary education must be a clear example of good conduct in respect to gender issues (which it has not been in the past in Namibia or - with some exceptions - more generally).

15. Fees-tuition-loans issues are of direct relevance to effective broadening of access. The positive contribution of enabling/bridging programmes can be largely or wholly eroded/wiped out by inappropriate fee/tuition/loan practices. Poor students, students from historically disadvantaged communities and female students will be disproportionately discouraged from seeking and financially barred from access to tertiary education (or special programmes leading to it) by high cash costs to students (or their families) even if linked to quasi commercial loan schemes. If for other reasons (some of which are compelling) significant tuition and cost covering fees are to be collected then a combination of employer funding and a loan scheme directly linked in amount and timing of repayment to subsequent income gains may be more consistent with effective affirmative action. (This issue is set out in more detail in Annex G.)

16. Affirmative action in the sense of quotas poses certain constitutional problems except in the case of expatriates. Barring discrimination and requiring the hiring or promotion of a somewhat less (in preference to a somewhat more) qualified citizen on the basis of redressing past ethnic or gender discrimination fit together rather uneasily and could give rise to complex litigation with uncertain results.
17. In the case of expatriates no such problem arises. Work permit legislation tied to lack of suitable citizen candidates and renewal/non-renewal of contracts (or recruiting/non-recruiting replacements) can allow fairly adequate use of expatriate numbers to balance citizen personnel shortages and to phase departures with reduced needs. This is less true of citizens who are likely to depart when significantly better opportunities/posts abroad (than in Namibia) are identified by them which is likely to be too early or too late and certainly too unpredictable overall and unbalanced (by age, ability and field of departures) from a national personnel perspective.
18. At some point tertiary education - especially the University - will need to make a special case for expatriate work permits. Any university (but especially a small one in a small country) needs the interaction with/stimulation of scholars from other settings (and of its scholars going abroad to teach/research/interact). Thus a case for a permanent 10% to 20% of expatriate academic staff (and comparable numbers of Namibian staff abroad temporarily on exchange or other contracts) exists. This is unlikely to be a general problem over the first two decades (more than 20% of expatriate academic staff are likely to be needed and developing Namibian replacements will be the priority task). However, it could occur within ten years in some faculties/schools (e.g. Law? Education?) and - judging by experience at Tanzanian universities - could be a very real problem by the end of twenty years.
19. Perhaps fortunately, quota type affirmative action is unlikely to be necessary (or sensible, barring a preference for vacancies or expatriates over citizens from historically privileged communities) within the next decade in more than a handful of fields/posts. For example it is true that as of 1992 the Standard 10 (12th Year/Matric Exam) students qualifying directly for tertiary education might number

about 1,250 of whom 500 of European ancestry - 250 from the Khomasdal/Rehoboth communities - 500 from historically underprivileged communities. Clearly the proportions are unsatisfactory. But the real problem is not squeezing out any of the 750 but of raising the 500 toward 3,750 to achieve the 'needed' (but clearly not attainable at that date) 4,500 entering students for tertiary education as a whole. That is a problem which cannot be tackled by excluding, but only by the access broadening/enabling/bridging programmes sketched earlier.

20. If - as seems virtually certain - at least 50% to 67% of the present citizen community of European ancestry leaves by 2003 and (as is slightly less certain) tertiary education entry candidates from that community fall pari passu from the 500 a year who as of 1993 could qualify (assuming they did not study outside Namibia at tertiary level as most have done to date), then neither in employment generally nor in tertiary education entry is there likely to be much need or use for quotas in the foreseeable future. In respect to promotions - especially to top posts (including Heads of Department, Deans etc) - there may be rather more need to give preferential treatment to qualified citizens from historically disadvantaged ethnic and gender groups. In that area the time lag for achieving acceptable (literally "looking right") balance without specific action by-passing seniority/experience would be too great. But - judging by experience elsewhere in SSA and in 1990-91 appointments to top Civil Service posts in Namibia - this is a manageable problem.

ANNEX B**REQUIREMENTS/SOURCES ESTIMATES**

1. To plan/design a national tertiary education strategy without rough estimates of posts requiring tertiary education and of expansion/replacement flow requirements at overall and at degree/diploma and sectoral levels is at the least undesirable. Similarly to produce a solely demand determined strategy without identifying practicable student (and institutional-staff-financial) supply is unwise. To some extent the use of initial estimates is iterative - demand (requirements) are to some extent flexible down (or in oversupply cases up) to achieve balance whereas gross shortfalls in student supply have direct implications for expanding direct or complementary channel entry flows.

2. Demand projecting (both at stock and flow levels) is always problematic. There is a general upward required qualification creep partly related to structural changes, partly to greater supply and affordability and partly to fashion. However, it does not appear to be uniform by time or country. Structural change definitely alters both overall levels and, perhaps more drastically, makeup of demand. (The demand for veterinarians specialising on horses has been in decline in North America and Western Europe for up to 75 years whereas the reverse pertains for automotive engineers.) The overall rates of growth of output and of government revenue also affect demand growth (whether effective or social). Only if one assumes limited structural change, stable GDP and revenue growth rates and a constant creep factor is a straight line projection of the recent past likely to be a sound estimate either overall or sectorally. In the case of Namibia none of those conditions is likely to hold true. Adjustments to account for such changes can be made but their accuracy - especially in the medium or long term - is usually at order of magnitude (+ or - 10%) level or worse even when more data and less potential for radical structural change is present than in the case of Namibia. This is particularly true in cases in which the changes estimated relate to the success or otherwise of altered government policies as is the case on the supply side and some aspects of the demand side (e.g. education-health-agriculture) in Namibia.

3. This study does not attempt a formal mathematical modelling exercise. In principle with additional time and micro data one could be attempted - as has been done for Botswana. Such an exercise could not avoid the need for, or the relatively imprecise nature of, structural change assumptions nor the dependence of actual outturn on exogenous variables like the economic growth rate and both pre-tertiary and tertiary pass rates. What it could do is to indicate the range of variation resulting from plausible alternative assumptions - adjustments - external variable growth (or decline) rates, taken singly and in various combinations. This method of variability analysis is more sophisticated and potentially more accurate than the centre point subject to + or minus 10% variation approach used here. The University may well wish to consider commissioning a follow on study of this type.
4. Demand - Stock Levels 1988-93-03. It is possible to construct reasonably valid 1988 tertiary education level post estimates for Namibia and to project them to 1993 (the nominal likely opening year for the University is presumably 1992/93 or 1993). At macro level and at degree/other tertiary and sectoral three alternative data estimates/data bases exist and yield roughly comparable 1988 stock estimates. Projection to 1993 is largely qualitative in sources of information backed by scrappy sectoral or micro data, but is unlikely to be radically out of line and can be checked against the next Personnel ("Manpower") Survey.
5. Projections to 2003 (ten years from 1993 to provide a medium term tertiary education strategic planning parameter set) have been made on two bases
 - a. 1% annual "creep" plus 2.5% related to economic expansion (0.5 times average 1993-2003 annual GDP growth of 5%)
 - b. rough sectoral estimates.

These appear to give comparable results.
6. The results of these estimations are set out in Tables 1 and 2. Basically these speak for themselves and a detailed verbal gloss would add little. It should be noted that the University/Degree and Other Tertiary/Diploma division, at least in respect to projections to 2003,

is arbitrary and could change if Namibia were to generalise the award of degrees for most tertiary education. Further 1993 estimates are for posts requiring tertiary education and do not imply that all post holders had such qualifications (perhaps 10,000 did not including over 7,000 in education). Equally some persons (especially in the European ancestry community) hold degrees or diplomas which may well be useful in, but can hardly be considered essential to, their occupations.

TABLE 1

1988-1993-2003 Overall Tertiary Needs Projections

<u>Source</u>	<u>Base Year</u>	<u>Projections From Base Year</u>		
		<u>1988</u>	<u>1993</u>	<u>2003</u>
UNIN (1978) ¹	<u>1977</u>			
Degree	5,000	12,500	16,250	-
Diploma	<u>5,000</u>	<u>15,000</u>	<u>19,500</u>	-
Total	<u>10,000</u>	<u>27,500</u>	<u>35,750</u>	
Windhoek (1990) ²	<u>1985</u>			
Degree	9,600	10,560	13,720	-
Diploma	<u>15,400</u>	<u>16,940</u>	<u>22,030</u>	-
Total	<u>25,000</u>	<u>27,500</u>	<u>35,750</u>	
Manpower Survey ³	<u>1988</u>			
Total		28,500	37,500	-
This Study ⁴	<u>1993</u>			
Degree	-	-	17,500	25,000
Diploma	-	-	<u>20,000</u>	<u>30,000</u>
Total ⁵			<u>37,500</u>	<u>55,000</u>

Notes To Table 1

1. Manpower Estimates and Development Implications for Namibia. UNIN, Lusaka, 1978. 1977-88 change based on creep, growth and especially structural shift involving massive expansion of public service/services sectors. 1988-93 pro forma with 30% increase in Manpower Survey.
2. Fact and Figures - Windhoek, Namibia (based on May 1985 population survey). Windhoek education level data blown up on basis Windhoek total one third of national total which is ratio derived from Manpower Survey 1988 Table 3. 1985-88 projection 10% growth. This may be too high given outward drift of professionals and of ranchers over the period and the relatively low GDP and government employment growth rates. 1988-93 pro forma with 30% increase in Manpower Survey. This source in fact gives estimates of tertiary qualification holders not posts requiring them. There are 10,000 odd underqualified postholders and a lesser number of tertiary diploma/degree holders who either are in occupations not requiring them or are housewives not covered by the Manpower Survey. The latter group are predominately members of the European ancestry community and may total up to 5,000. Thus this source would yield an estimate of 41,000 odd on a post basis.

continued...../

3. Manpower Survey - 1988, Department of Economic Affairs, Windhoek, 1988 (?). The estimates here are derived from examining the 1988 recorded employment and 1989, 91, 93 additional hirings estimates. They exclude 1988 vacancies because it is reasonable to assume that those which were seriously impairing activities would have been included in 1989 hiring plans. The figures are not directly available from the text but represent rough estimates of posts requiring tertiary qualifications from each sub-category. The main relevant categories/sub-categories are Professional, Technical and Related Workers (accounting for about 22,000 of the 1988 and 29,000 of the 1993 totals), Administrative and Managerial Workers, Supervisors, Executive Officials and Bookkeepers (in Administrative, Clerical and Related Workers), Farm Managers and Proprietors, Production Supervisors (accounting for about 6,500 in 1988 and 8,500 in 1993).
 4. Based on Manpower Survey interpretation (Note 3) for 1993 and alternative projections on 4% annual growth (1.5% creep/2.5% production related) and rough key sector estimated increases of 5,000 for education, 1,500 for agriculture, 2,500 for health, 4,500 engineering and production professionals, 4,000 other. Breakdown for 2003 in Table 2.
 5. Uniformed Services not included (see Annex C).
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TABLE 2

1993 Tertiary Education Stock Requirements¹

<u>Sector</u>	<u>Degree</u>	<u>Diploma</u>	<u>Total</u>
Education	11,750	12,000	23,750
Primary/Secondary ²	(9,500)	(11,750)	(21,250)
Tertiary ²	(1,750)	(250)	(2,250)
Adult/Bridging-Completion ³	(500)	(Negl.)	(500)
Health	3,500	5,000	8,500
Public Administration ⁴	1,000	250	1,250
Legal	400	-	400
Agriculture	1,750	2,500	4,250
Agriculture Services ⁵	(500)	(1,250)	(1,750)
Enterprise Managers ⁶	(1,250)	(1,250)	(2,500)
Accountancy/Audit	500	750	1,250
Statistics/Computing/Economics	500	Negl. ⁷	500
Life Sciences	500	500	1,000
Communications ⁸	250	250	500
Religion ⁹	500	250	1,750
Engineering ¹⁰	1,000	2,000	3,000
Enterprise Managers ¹¹	1,250	1,500	2,750
Production Professionals ¹²	1,750	4,000	5,750
Other ¹³	350	500	1,850
Total ¹⁴	<u>25,000</u>	<u>30,000</u>	<u>55,000</u>

Notes To Table 2

- Derived from Table 1 on 4% annual growth projection (for overall requirements only) and, alternatively or complementarily, somewhat impressionistic key sector estimates (Education 5,750, Health 2,500, Agriculture 1,500, Production/Engineering 4,250, Other 3,500 with "Other" divided by sector in terms of least implausible creep and relative growth patterns.
- Based on UN 1989 1,750,000 population estimate. (This is broadly confirmed by electoral registration of over 700,000 which - given age distribution - could hardly substantially have exceeded 40% of population) projected to 2,600,000 in 2003. + or -5% variation would not affect the magnitudes radically.

Primary Age Group	625,000
96% Gross Enrollment	600,000 (includes 'catchup' over age)
Lower Secondary (5-6)	
Age Group	150,000
60% Gross Enrollment	75,000
Upper Secondary (7-10)	
Age Group	225,000
25% Gross Enrollment	66,250

Note 2 continued...../

Teachers	- Primary	600,000 divided by 40 =	15,000 (Standard 4)
(including	Lower		
Headmasters)	Secondary	75,000 divided by 30 =	2,500 (Standards 5-6)
	Upper		
	Secondary	66,250 divided by 20 =	3,300 (Standards 7-10)
Inspectors, Subject Advisers, Other Specialists			<u>400</u>
Total Primary/Secondary			<u>21,250</u>

(For primary school an average of 40 pupils per teacher requires that most urban and peri urban schools be on a two shift basis which would allow an average actual class size of 25.) Tertiary's total of 1,750 university graduate (and above) staff gives a nominal 15:1 student/staff ratio. This is higher than is attainable given research requirements and need to offer courses to some small streams. However, perhaps one fifth of students would need to be abroad (including other Southern African and South African Universities) reducing the effective ratio to 12/1 which is possible. A majority of staff to 2003 - and after - will need to be expatriate given second/third degree gap.

3. See Annex F.
4. Administration proper excluding public servants in specified categories.
5. Assumes extension/research services are graduate/diplomat staffed with no lower certificate level cadre.
6. Assumes 2,500-3,000 large scale agricultural production units (corporate, co-op or family farm) say two thirds of which will require a manager (including an owner/manager) with tertiary level qualifications and the larger units more than one.
7. There do not appear to be satisfactory diploma level qualifications in economics and statistics and in computing there is an increasing division into degree qualified systems analysts/programmers and secondary certificate level operating/supporting staff.
8. Print and electronic media. Excludes engineering, mechanical and printing personnel.
9. See Note to this Annex.
10. Including civil, mechanical, electrical, metallurgical, hydraulic, mining plus physical/town planners, architects, quantity surveyors, land surveyors, draughtsmen and architects.
11. Very rough estimate. Not readily divisible into degree/diploma categories which are likely to be in engineering, business administration/commerce, accounting. Excludes agricultural managers.
12. Half engineering cluster of courses related.

continued...../Note 13.

13. Totally non-homogeneous ranging from archaeologists through creative/performing artists. (See Annex D.)
 14. Excludes Uniformed Services. (See Annex C.)
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Demand Levels - Flows 1993-2003

7. Demand flow projections are more directly relevant to determining tertiary education sector parameters than stock requirement levels. They have three main components: replacement of wastage, increase in stock levels required and upgrading.
8. A possible fourth component-vacancy filling is not used here. Experience elsewhere in SSA suggests that a substantial proportion of vacancies are reported (especially, but not only, in the public services) on a relatively speculative basis and have little to do with ability to complete tasks, clear intent to hire if personnel become available or subsequent actual hirings. Since the vacancy levels shown in the 1988 Manpower Survey are low (about 2,250-2,500) and 1988-93 hiring projections (about 9,000) for tertiary education required posts much higher, the genuine vacancies have been taken as subsumed in the hiring plans.
9. Wastage is extremely hard to calculate even in the absence of structural change. In Namibia there are no readily available data on past wastage rates, nor on the age structure of present tertiary level post personnel. Even more critical, independence marks a structural shift which will - whatever present assertions - affect wastage by departure from the country. But by how much is virtually totally unpredictable.
10. The assumptions used in Table 3 are of 6% a year (on base levels) wastage of personnel of European ancestry. That includes 2% a year normal retirement, disability and death and 4% a year departure abroad. The comparable Zimbabwe figure over 1980-1990 appears to have been of the same order of magnitude. Any crisis of this community's confidence (however well or ill founded) would be likely to precipitate much higher rates (90% over 24 months in the case of Mozambique which represents the opposite extreme from Zimbabwe). Personnel of European

ancestry comprise both citizen and expatriates. Until citizenship applications are processed, it is not practicable to estimate the division between these two components. In the case of expatriates only net wastage and not roll-over replacement of one contract expatriate with a successor (or a quasi successor in a new expansion related post with the previously expatriate post citizenised) is included in the 6% estimate.

11. Wastage for other Namibian personnel is estimated at 2.5% a year including a notional 0.5% a year going abroad for economic gain or other reasons. In a stable stock 2.5%, would be a normal wastage rate without such departures, but Namibian tertiary level personnel have a lower average age distribution which will hold down initial period retirement rates.
12. Over a ten year period wastage also takes place on new entrants. However, few, if any, will reach normal retiring age by 2003. A somewhat arbitrary 5% total rate (for total entrants for the period) has been used.
13. Increase in required stock levels have been estimated in two ways:
 - a. 1.5% a year creep (or structural employment pattern shift) plus half the rate of growth of GDP (here estimated as averaging 5% a year over 1993-2003).
 - b. 5,000 for education, 2,500 for health, 1,500 for agriculture, 4,500 for engineering and production professionals, 4,000 other estimates of attainable targets consistent with national strategic goals in the first four categories.

The 5% GDP growth estimate is used because it appears an attainable medium term trend (comparable to Zimbabwe 1980-1990 or 1985-90; about one half Botswana 1977-1990) and partly because - given present inequality and absolute poverty levels - any lower rate would generate such severe social and political tensions as to be likely to invalidate any medium term projections. A separate government revenue growth related rate has not been calculated because, given the economic structure and tax patterns, government revenue is likely to rise at least as fast as GDP.

14. Upgrading under normal circumstances only creates a net flow demand to the extent personnel taking upgrading courses increase. Base period upgrading levels are already included in employment plus full time students not on an employment roster personnel and those entering and completing within a period cross cancel. However, in Namibia there is an overhang of 10,000 seriously underqualified job holders urgently needing upgrading (using a narrower definition than might be used for new entrants since on a new entry basis about 10,500 teacher alone are underqualified but 3,500 of them probably have adequate education to continue without a major upgrading course). This is not normal. In any case the net personnel undertaking upgrading estimate is not appropriate for tertiary educational education planning. For that purpose the gross is needed to determine required enrollments albeit by definition effective demand for upgrading serving personnel generates an equal supply of students.

15. The results of a projection exercise for 1993-2003 carried out on the basis set out above are presented in Table 3. They are - as noted above - subject to wide errors of estimations; perhaps +25% (high wastage plus 7% annual economic growth) to -10% (2% economic growth without additional wastage by emigration).

TABLE 31993-2003 Tertiary Completion Flow Requirements¹

A. Wastage - 1993 Personnel	
European Ancestry Community (60% of 17,500 base level)	10,500
Majority Namibian Communities (25% of 20,000 base level)	5,000
- 1993/2003 flows (5%) ²	2,000
	<hr/>
Subtotal	17,500
	<hr/>
	<hr/>
B. Increase In Stock Levels ³	17,500
	<hr/>
C. Upgrading	
Overhang	10,000
Normal - say 2½% a year ⁴	11,300
	<hr/>
Subtotal	21,300
	<hr/>
	<hr/>
D. Second/Third Degrees ⁵	2,200
	<hr/>
	<hr/>
Total	58,500
	<hr/>

Notes To Table 3

1. Methodology set out in text.
2. Estimated on base of 40,000 (15,500 wastage; 17,500 increase, 6,000 estimated number of upgrading personnel not in base stock level and 1,000 estimated level of secondary/tertiary degree completers not in based stock level).
3. 1.5% annual creep/structural change plus 2.5% output growth related yields 17,250. Alternatively 5,750 education; 2,500 health; 1,500 agriculture, 4,250 Engineering/production professionals; 4,500 other yields 17,500.
4. Excludes second/third degrees. Rough breakdown assumed to be 5,300 other tertiary (diploma) to degree level and 6,000 from secondary to tertiary level.
5. Excludes medical doctorates. Assumes roughly 1,200 1993 personnel and 1,000 new 1993/2003 entrants to tertiary education complete second or third degrees during period.

16. The breakdown of the 58,500 among other tertiary, first degree (university) and second/third degree levels poses problems because persons of European ancestry are disproportionately represented at university degree holding level (probably of the order of 14,000 of 17,500) and have particularly high wastage rates. On that basis the division might be:

Other Tertiary	28,150
First Degree	28,150
Second/Third Degree	<u>2,200</u>
	<u>58,500</u>

17. These levels require an annual output/hiring of tertiary level completers (upgraders) of 5,850 by 1998. That in turn (assuming an average of 3 years other tertiary with 10%, 5% and 10% failure rates; 4 years university first degree with 10%, 5%, 5% and 10% failure rates; 2 years advanced degree with 5% and 10% failure rates requires)

	<u>Enrollment 1998</u>	<u>Entering Class 1995/6</u>
Other Tertiary (1996)	11,000	3,650
University-First Degree (1995)	15,000	3,850
Advanced Degree	<u>765</u>	<u>260</u>
Total	<u>26,765</u>	<u>8,760</u>

These totals include up to 2,000-2,250 upgrading completions. They relate to tertiary level completion by Namibians needed, without reference to whether the studies are pursued in Namibia or externally.

Supply - Possible Entry/Enrollment/Completion Levels

18. Supply estimates are much more problematic and subject to error than demand projections. The structural transformation and expansion of secondary schools' impact on Standard 10 enrollment and - equally crucially - passes at University/Other Tertiary entrance standards is not readily or reasonably accurately quantifiable particularly over 1991-1996. Similarly the potential entrants from Affirmative Action complementary/alternative entry programmes can, at best, be rough orders of magnitude estimates (see Annex A).
19. Table 4 presents rough estimates of possible 1993, 1996, 1998 and 2003 Namibian tertiary level student population and entrants.

TABLE 4

Potential Namibian Tertiary Student Population Parameters

	<u>1993</u>	<u>1996</u>	<u>1998</u>	<u>2003</u>
Continuing Students ¹	1,250	5,500	8,000	16,000
<hr/>				
New Entrants ²				
Direct Matric ³	1,400	1,850	2,250	8,000
Bridging ⁴	()	1,000	750	500
Completion ⁴	(100)	750	600	500
Adult Educating ⁴	()	150	250	500
Tertiary Upgrading ⁴	1,000	-	-	-
Overhang Upgrading	2,000	2,000	1,000	-
Normal Upgrading ⁵	300	500	1,000	1,250
Overseas Secondary ⁶	150	250	500	250
<hr/>				
Total New Entrants	4,950	6,500	6,350	11,000
<hr/>				
Total Students ⁷	6,200	12,000	14,350	27,000
<hr/>				
Completions ^{8,9}	500	4,000	5,500	7,000 ⁹
<hr/>				
Nominal Completion Target from Table 3	4,800	5,300	5,850	6,900 ⁹
<hr/>				
Shortfall (Surplus)	4,300	1,300	350	(100)
<hr/>				

Notes To Table 4

1. 1993 from defunct Academy; 1996, 1998, 2003 from previous year University/Other Tertiary (enrollment less completions/failures).
2. All sources except recycled "failures". (Repeaters would raise enrollment and thus facility requirements but would not affect completion numbers significantly.)
3. 1993 base rough estimate from 1987-1989. Assumed growth 10% a year 1993-98 and 20% thereafter. Such a sharp shift is unlikely if taken literally; a rising rate of increase following completion of overhang upgrading is likely. 2003 consistent with 10,000-12,000 2003 Standard 10 enrollment and 66.6% to 75% pass rate at tertiary entry level.
4. See Annex E (Bridging, Upgrading, Gap Filling) for more detailed identification.

continued...../

5. Phased to rise slowly until peak of overhang upgrading past to reduce strain on in service personnel and on tertiary education staff-facility-budget build-up.
 6. Nominal estimate of overseas secondary completions entering Namibian tertiary education (in Namibia or abroad).
 7. Continuing plus new enrollment, in Namibia or abroad.
 8. Approximately 25% of students other than Tertiary Upgrading/Overhang Upgrading categories which dominate 1996 and 1998 with about 3,000 in each year. As with total in Namibia or abroad.
 9. "In service" periods during courses are assumed to be desirable. However, to 2003 it is necessary to avoid average diploma course length exceeding 3 years or first degree length exceeding 4 years including "in service" periods. Assuming 3 12 week terms and 2 inter-terms of 2 weeks each, 12 weeks long 'vacation' is available to allow 24 week for diplomats and 36 weeks for degree candidates to work as part of their education training. If more time is wanted for diplomate in service experience either one term each in second/third years or $\frac{1}{2}$ time for two terms in second/third years should be feasible bringing work experience total to 44 weeks (with 70 weeks classes-labs-practicals). The full term each year (possibly first to allow 22 week 'vacation'/term chunk in service) might be most suitable for technical polytechnics including agriculture and the half time times four terms for primary/secondary education and nursing.
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20. The broad implications of the figures are straightforward:

- a. through 1996 very severe shortages of students will constrain enrollment and completion despite maximum use of complementary/alternative entry channels;
- b. by 1998 near balance can be achieved - including overhang upgrading completions;
- c. balance from sustainable entry flows may be attainable about 1991.
- d. the student/staff ratios at all levels of education are tight especially given that geographic scatter (especially at primary level) and small streams (at tertiary) will require some classes/streams below the average. However, significant reductions would almost certainly grossly overload tertiary education until after 2003;
- e. "In service"/work experience components can be provided only up to 36 weeks for University and 44 weeks for Polytechnic students if 4

and 3 year average degree/diploma lengths, including work experience are to be maintained.

21. Conclusion "a" is unlikely to be altered favourably by any likely re-assessment of demand or supply parameters and could, in fact, be substantially worse. Conclusion "b", and especially "c", are optimistic both as to attainable entry levels and low failure rates.
22. The estimates are not of enrollment or completions in Namibia but of Namibians in Namibia or abroad. It is likely that up to 1998 over 25% of placements would need to be abroad and up to 20% as of 2003. The slow decline relates to the fact that tertiary upgrading and overhang upgrading programmes are - with limited exceptions - not likely to be handleable other than in Namibia. This implies of the order of 1,250, 2,500, 3,600, 5,000 Namibian students abroad in 1993, 1996, 1998 and 2003 respectively. These figures are not comparable to present rough estimates of external enrollment as discussed below.
23. Student supply constraints point to a cumulative deficit of the order of 9,000 completions over 1993-1998. This is a serious shortfall. Possible steps toward narrowing it would include:
 - a. returning Namibian students now studying abroad (1,500-2,500);
 - b. inducing normal retirement age employees to stay on temporarily on contract (2,000-2,500 cumulative net);
 - c. replacing existing or extending contracts of most existing expatriates to 1998 so that most of run-down comes over 1998-2003 (1,500-2,000);
 - d. recruiting additional expatriates (1,500-2,000) - especially for Tertiary Education;
 - e. allowing vacancy levels to rise temporarily (1,500-2,000).

These sources, of which "d" and "e" are the least desirable on cost and functional efficiency grounds total 7,500 to 11,000 which suggests that if the tertiary education flow required/student supply gap can be held to orders of magnitude indicated in Tables 3 and 4 the situation will be manageable. However it is prudent to underline that Table 3's

requirements estimates are significantly firmer than Table 4's student supply ones which are distinctly optimistic even assuming immediate priority attention to enhancing both direct and complementary/alternative entry flows.

24. A special problem arises in evaluating 1989 Namibian tertiary students abroad. Data provided to the 1990 Turner Study suggested a total of 7,227 - 3,227 in the Republic of South Africa and 4,000 (evidently a rough guesstimate) overseas. The meaning of these figures is problematic:

- a. of the order of 2,500 to 3,000 are probably from the community of European ancestry and another 500 to 750 from the Khomasdal/ Rehoboth community most of whom have relatives and other connections in RSA. Of these the majority are unlikely to return to Namibia;
- b. of the remainder probably 50% or more (say 2,000-2,500) are not in fact university or other tertiary but specialised secondary or technical training courses. Certainly that was the case with UN and bilateral training/education provisions (other than UNIN) during the 1980s.

25. This suggest that the following deductions need to be made:

a. non-returning minority community students	2,250-2,750
b. non-returning majority community students	250- 500
c. non-tertiary completions	2,000-2,500
d. failures to complete (excluding a/b/c)	<u>250- 500</u>
Subtotal	<u>4,750-5,750</u>
Returning Tertiary Completions	<u>1,477-2,477</u>

26. In addition perhaps 1,000-1,500 of those completing non-tertiary courses and 250 of those failing tertiary courses would be qualified entrant to tertiary education in Namibia. Given the probable 1992-93 or 1993 commencement of the University and most Other Tertiary institutions, limiting further government sponsored external bursaries/placements to courses not or not yet practicable in Namibia would appear more effective than calling present students back prior to the normal completion time of their courses.

2004 And After - Starting Position for University Decade Two

27. The position as of 2004, if the targets set out in Table 1, the flows in Tables 2 and 3 and the tertiary education dynamic of Table 4 are met is set out in Table 5. It is to be stressed, that while Tables 1 and 2 are relatively realistic (assuming additional tertiary educated personnel are available and used prudently), Tables 3 and 4 assume both maximum effort and good luck (including with scholarship funds/low cost placements for several thousand students in regional universities/polytechnics). Even so they leave a "backlog" of 9,000 odd places (of which probably 1,000 at second degree and 750 at third degree level assuming tertiary education can achieve a relatively high student/staff ratio and maintain quality with 50% third and 50% second degree staff). Of these vacancies and delayed retirements will require urgent attention to cut perhaps 4,000-4,500 gap fillings and gaps to - say - 500 in 5 years. Especially in the case of the University/ Polytechnics expatriate phasing down (from 3,500 to 4,000) above target to - say - 1,000 over 10 years will also be a priority. So too will be reduction of target student/teacher ratios in primary/secondary schools (and perhaps of double streaming in the former). Over 2004-2008 these backlog and structural shift needs could readily absorb a nominal surplus of up to 1,000 graduates/diplomates a year either directly or into second/third degree programmes.
28. The possible parameters of the 2004 position - entering the second University of Namibia decade - are set out in Table 5.

TABLE 52004 Consolidated Flows: Into Decade Two

Opening Tertiary Level Personnel Posts		<u>55,000</u>
Wastage ¹ - 3½% Annually	1,925	
Expansion ²		
Creep/Structural Shift - 2% Annually	1,100	
Growth Related - 3% annually	<u>1,650</u>	
Basic New Tertiary Educated Personnel Required	4,675	
Plus Upgrading/Advanced Degrees ³		
To First Degree/Diploma - 2½% Annually	1,375	
Second Degree	500	
Third Degree	<u>100</u>	<u>1,975</u>
Total Completions Needed		<u>6,650</u>
Opening Tertiary Students	17,500	17,500
Entrants		
Matric ⁴	8,400	
Bridging/Completion/Adult ⁵	1,350	
Upgrading/Secondary/Tertiary-Net ⁶	<u>750</u>	<u>10,500</u>
Total Students		<u>28,000</u>
Completions		<u>7,500</u>
First Degree/Diploma	7,000	
Second/Third Degree	<u>500</u>	
Surplus/Deficit		850
Backlog Reduction First Degree ⁷	950	
Deficit Second/Third Degree ⁸	<u>(100)</u>	

Notes To Table 5

1. The lower proportion of expatriates and citizens of communities particularly likely to emigrate will reduce the % somewhat while the increasing numbers of 50 years of age and above majority community members in post will increase it.
2. The 2% structural shift/creep parameter is nominal or parametric assuming an acceleration of upgrading globally reinforced by increasing technical complexity of Namibian production patterns. The 3% growth related element assumes a 6% average annual GDP growth rate.

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31. The main challenges to tertiary education from 2004 are likely to be qualitative and structural rather than bluntly quantitative:
- a. more comprehensive staff development;
 - b. rigorous study of how the 3,500 to 4,000 odd undergraduate and 500 to 750 odd second degree students abroad could be reduced by broader/deeper coverage and/or how the Namibian tertiary education sector could serve regional students by selected specialised facilities (e.g. Water? Marine Fisheries? Environmental Management?);
 - c. consideration of the desirability of some schools becoming separate universities. (With total enrollment in Namibia of the order of 22,500-23,000, economies of scale would hardly posit a single institution - indeed would suggest viability for up to 5.)
 - e. consideration of longer "sandwich" periods of work experience during tertiary education at the expense - if necessary - of lengthening the average completion time (a luxury not affordable in the first decade);
 - f. evaluation of the actual campus spread with a view to providing some basic first degree/diploma facilities in - say - eleven centres (e.g. Windhoek, Otjiwarongo, Okahandja, Oshakati-Ondangwa-Ongwediva, Rundu, Katima, Malilo, Grootfontein-Tsumeb-Otavi, Rehoboth-Mariental, Keetmanshoep, Luderitz, Swakopmund-Arandis-Walvis Bay). This implies that at least the first two years of undergraduate education - social sciences - natural sciences and diploma education - engineering may need to be taught in Schools (separate Universities) primarily focused on other sectors.
32. While these issues will deserve some attention over 1993-2003 they cannot have top priority during that period because of the overriding needs of expansion of graduates and of upgrading training/education. At most, quantitative targeted decisions can be modified marginally to limit quantitative problems at the next decade (e.g. after an initial satisfactory 3 year term expatriate tertiary education staff could be given rolling 5 year contracts to enhance their feeling of security but not tenured posts prior to - say - 51 years of age; polytechnic

establishment should be targeted to reach at least 4 centres by 1996 and 8 by 2000 as should diploma level education and perhaps 2 years of basic BA/BSc instruction).

33. Much more detailed exploration of "2004 and After" now would be likely to be of low marginal value. The shifts in requirements for tertiary trained/educated personnel globally, quite as much as for Namibia, cannot be projected with much accuracy a decade in advance. Nor can it be supposed that the 1993-2003 projections/targets will prove to be 'exactly' attainable (nor even that they have such clear and detailed foresight as to make such a result optimal). What can be said is that by 2004 the immediate special "Independence and After" establishment/quantitative adequacy drive can be largely attained and the 'normal' problems of a dynamic tertiary education sector in any country become central.

Note To Annex B

- A. It is not self-evident that the University of Namibia should have a Faculty of Religious Studies/Theology. But nor is the converse self-evident. Diverse public and private secular universities, e.g. University of Edinburgh, University of Ghana, Yale University do. Religious studies (including, but not limited to, theology) is a legitimate field of intellectual endeavour. Indeed modern universities trace their origins to Buddhist, Christian, Islamic and Jewish educational foundations whose original teaching and research centred on theology (including philosophy and normative social science).
- B. To the extent Namibian religious groups (realistically Christian ones given the minute size of the Judaic and Islamic communities) wish to increase the numbers of degree level religious professionals and to utilise university facilities for that purpose (presumably with separate diploma and post or parallel to degree ordination programmes), the University should be open to considering establishing a Faculty of Religious Studies/Theology, which could also offer courses to students in certain other faculties/schools in that religion is a major fact of Namibian life. Financing would need special consideration albeit there is no particular reason full cost pricing to theological students or their employers is more (or less) appropriate than for - say - engineering students.

ANNEX C UNIFORMED SERVICES

1. None of the sources used in preparing this study covers the uniformed services (Defence plus Police - Prisons - Probation). Nor do its basic supply/demand estimates.
2. This is not a serious exclusion at overall level but nor is it necessarily a trivial one.

Assuming:

- a. a Defence Force of 10,000;
- b. a Police - Prisons - Probation service of 7,500;
- c. paramilitary and parapolice units contained in above totals;
- d. an emphasis on lower numbers of personnel with relatively high average skills

then total requirements might be:

	<u>University</u>	<u>Other Tertiary</u>
Defence	750	1,500
P-P-P	<u>650</u>	<u>1,350</u>
Total	<u>1,400</u>	<u>2,850</u>

and the 2003 annual new entry requirements:

Defence	40	75
P-P-P	<u>35</u>	<u>65</u>
Total	<u>75</u>	<u>140</u>

These totals would not structurally alter overall tertiary education magnitudes as they are about 8% of non-uniformed needs. However, if these are necessary uniformed sector levels; their tertiary education needs are among the five largest sectoral categories. Alternatively, if the evolution of Southern Africa/South Africa is peaceful and tension levels are low after 1995 then a total of 7,500 - 12,500 not 17,500 could be targeted. The problem in going beyond this point is that the relation of uniformed service tertiary education (and especially upgrading and other tertiary training) to overall higher education is very diverse among countries globally and within SSA.

3. A possible pattern at University level would be to offer degrees in Public Administration which included military courses taught by the uniformed services and administration and social science courses (or engineering and mathematics courses) taught by the relevant University components. A similar set of degrees could be developed for the P-P-P services (but with law more and engineering less prominent).
4. Other tertiary (diploma) courses probably pose greater problems. Uniformed services academies calling on tertiary education institutions for administration, law, social science and engineering courses might be practicable and efficient.
5. The immediate need is for discussion between the Tertiary Education sector and the Ministries of Defence and of Home Affairs. For both social and cost (especially in terms of scarce personnel) reasons, a totally separate uniformed services tertiary education sector is probably undesirable.

ANNEX D**NUMERICALLY SMALL PROFESSIONS/HIGHER DEGREES**

1. Numerically small professions cannot be estimated accurately in macro surveys without a disproportionate expenditure of time and effort with little benefit in terms of estimating overall parameters of tertiary graduates required. In this exercise perhaps 3% of total estimated 2003 posts requiring tertiary qualifications fall into these categories. However, counting subspecialties within areas cited the actual "small profession" group is rather higher.
2. Provision of national tertiary education for professions requiring only a handful of personnel and in some cases one or less new entrants a year is frequently impossible or impracticable. Exceptions to that generalisation are possible if:
 - a. a substantial research capacity exists in the field and research staff can provide instruction as an adjunct to their basic work; and/or
 - b. most undergraduate or basic diploma course work for the profession overlaps that appropriate to other professions.

For example the number of professional geologists needed will be small. But mining engineers, water engineers, some secondary science teachers and some agricultural professionals will need basic and intermediate courses in geology. In addition geological research needs to be conducted in Namibia. Therefore, personnel to instruct a handful of geology degree students by seminars, tutorials, field work and directed reading instruction complementary to (and possibly enriching) their other duties are likely to be in place. If so a BSc geology should be provided.

3. Other professions may admit of partial instruction in Namibia followed by further study abroad. An example is archaeology. For cultural and social reasons an archaeological service (perhaps linked to Conservation whose operations have greater physical similarities than those of Culture) is of some priority. Its establishment might include 1 advanced degree, 2 or 3 degree and 5 to 7 diploma holders. Fairly clearly complete degree and even normal diploma courses in archeology are not feasible even in the medium term (unless, somewhat implausibly,

a SADCC Region oriented Institute or Department were to be agreed upon for location at the University of Namibia and even then the number of annual degree level new personnel needed regionally could hardly be much above 10 given likely financial constraints on prospective employers). However, there are practicable possibilities:

- a. degree courses centred on history, sociology and geology to be followed by diploma courses in archaeology either in RSA or overseas;
 - b. diploma courses with general (e.g. history, sociology, geology) components taught by appropriate Tertiary Education institutions and specialist archaeological components taught (on a 1 to 1 or 1 to 2 basis) by degree holding Service staff;
 - c. parallel elements of archaeology training for interested amateurs conducted by the Service especially for civil, construction and mining engineers (and perhaps agricultural and water field staff) to increase identification and preliminary study of sites (especially those revealed during construction and needing immediate attention if they are not to be destroyed or reburied).
4. As the above observations and examples suggest, few generalisations are possible (except ones inapplicable to most actual cases!). The way forward probably lies in the University making one person responsible for conducting discussions with members of small professions or their employers to identify what, if anything, it is practicable/desirable for the Namibian higher education sector to do in respect to education/training for that profession. While this is by no means a top priority nor one in respect to which instant programme implementation will usually be feasible, it will take an extended period for exploratory exercises whenever started so that an early start is desirable.
5. Higher degrees pose issues in many respects similar to small professions. Numbers of degrees required will in most cases be small and numbers of staff needed to carry out reasonably strong courses relatively large whatever the student numbers. Further questions of access to broad based library facilities, and frontier knowledge and avoidance of inbreeding/parochialism do strengthen the case for use of

foreign Universities (including those of Anglophone Africa which offer appropriate second degree courses) at second and third degree levels.

6. At second/master's degree and post degree certificate level certain exceptions to this general proposition are likely to arise. They are cases characterised by a relatively large demand for the degree/certificate, an adequate undergraduate teaching/research based faculty cadre to offer it and very clear advantages to a Namibian degree because the substance of the material covered or its applied use has very high specifically Namibian content.
7. Possible examples include:
 - a. Applied Development Studies/Development Administration with an applied economics/social science core and 'specialisations'/'options' in agriculture, commerce and industry, social services, infrastructure directed to government and large enterprise requirements. (In principle arts/culture/literature could be options but whether they would need similar 'core' courses is another issue.) The demand could be 10 to 15/year (including upgrading) so that a year to 18 month course taught full time and half (evenings-Saturdays) time might be viable in terms of numbers and could draw on staff in relevant undergraduate teaching and/or research posts;
 - b. Public Administration probably affords comparable opportunities at Masters Degree/Post Graduate Certificate level although it is less easy to define a core curriculum without a more detailed survey of actual user (employer/employee) requirements.

Purely in terms of numbers, Education would appear to be a third exception focussed on the Head-Inspector-Subject Adviser (Curriculum Development) cadre. However this is a case in which the benefits of access to a broader array of experience (and therefore faculty, students and library material) than will be available in Namibia are likely to be particularly high and the need for a range of 'specialisations' (e.g. remedial education/distance education/linguistics teaching/teaching for physically handicapped) beyond core topics particularly hard to meet from undergraduate teaching/research staff.

Other proposals from staff and users will doubtless arise once the University is functioning.

8. In the initial establishment of such Masters Degree/Post Graduate Certificate programme's a cooperative relationship with an external University is likely to prove particularly useful (e.g. with the University of East Anglia or Williams College or the Institute of Social Studies-the Hague or IDS-Sussex in Development Studies). This could include: use of curriculum, library and other materials from the external partner, 1 or 2 full time partner staff seconded to the University of Namibia, a series of visiting appointments of U of N staff to the partner for teaching/research/course development experience and - if necessary - a brief (say 3 months), targeted component of the course at the partner institution's campus.
9. The foregoing approach in terms both of Namibian capacity building and of relevance/quality is likely to be far better than ad hoc external contractor crafted training programmes outside the national tertiary education context, basically autonomous of Namibian peer group monitoring and leaving behind no national capacity. These have proliferated in Africa, but more because they are attractive to financially pressed Northern academic or quasi academic institutions and to donors than because African governments - let alone Universities - have evaluated either their short term substantive or cost effectiveness or their national institution decapacitating impact nor explored the alternative of genuine joint venture programmes integrated into the national tertiary education strategic development context. The issue is one of some urgency because precisely such a proposal in respect to development studies/applied economics has been made (by an institute with minimal teaching and limited broad based development experience) and is apparently under serious consideration.
10. Doctoral (third degree) level programmes carried out in full by the University of Namibia are unlikely to be substantively desirable (or in most cases practicable) or economically viable for some years. The potential exception is Medicine and even in this case it may well be that the School of Medicine (or Health Sciences and Medicine) would opt for at least a portion of doctors' education/training at external universities.

11. The problem is not primarily one of course work, at least in areas in which a second degree programme has been established. Even PhD/DSc programmes with substantial course work usually concentrate this in the first two years analogous to a separate MA/MSc programme. Most PhD/DSc work does consist of individual research, directed reading and one on one dialogue with academic supervisors. Rather different problems arise: easy access to a broad range of source material, and to "frontier knowledge"; participation in a large community of scholars specialising in the same or related fields; avoidance of parochialism (three degrees from the same University is likely to result in the general deficiencies of inbreeding especially if applied to the University's own staff development programme, which will be the consumer of a majority of PhD's and probably DSc's).
12. However, a strong case - particularly but not only in the social sciences - exists for University of Namibia involvement. This arises from the desirability of most (not necessarily all) PhD research having a Namibian (or comparative) substantive element and a field research component in Namibia. In respect to these elements Namibian tertiary educational institutions can (and should) develop a comparative advantage over external ones.
13. A possible interim approach would involve:
 - a. co-supervision by the external University and the University of Namibia;
 - b. teaching, directed reading, seminars and thesis outline development/writeup at the external University;
 - c. field research (and its supervision) and a seminar on preliminary conclusions in Namibia;
 - d. Namibian participation in the final PhD examination (e.g. an 'external' examiner from the U of N).

There are some cases of analogous approaches being carried out successfully and increasing willingness (at least in principle) of external Universities to explore them. Such a cooperative venture

could be capacity building for the University of Namibia and evolve toward a larger Namibian involvement and joint or Namibian PhD/DSc awards.

ANNEX E BRIDGING, UPGRADING, GAP FILLING

1. To achieve adequate numbers of entering students with adequate knowledge and learning skills bases - especially from historically disadvantaged communities - the tertiary education sector of Namibia will need to develop effective programmes of "non-traditional" access to tertiary institutions. Analogous programmes will be required to cope with upgrading personnel without adequate tertiary education preparation for posts they now hold and for recipients of external tertiary education whose qualifications have not proven to be fully adequate to secure employment in Namibia despite vacancies in the sectors in which they have studied.

2. Main programmatic elements to such an upgrading - gap filling - bridging strategy have been sketched in Annex A (Affirmative Action). What follows are selected additional elements. An articulated programme design will require much more detailed data as well as dialogue among principal actors particularly the Ministry of Education, employers needing upgrading training for employees, potential students and civil society groups (notably CCN) now active in adult education at secondary level. Possible numbers and timing of tertiary education entrants from these programmes are, at present, and will remain, until at least a sample survey is conducted, highly speculative. In respect to upgrading somewhat firmer numbers of prospective students exist or could be secured fairly easily but the balance among employer (notably Ministry of Education) and tertiary education institution provision and the type (scope and length) of courses needed requires analysis, and dialogue and an agreed division of implementation responsibilities.

3. Bridging courses (perhaps one year to 18 months) for recent Standard 10 leavers who failed, passed but at below tertiary entry level or had unsuitable subject mixes can provide a substantial flow of entrants within two years of being instituted and could, not unreasonably, be targeted to reach 1,000 entrants a year in the mid 1990's before gradually declining as the quality-quantity-mix of subjects of Standard 10 completers rises. This implies an immediate priority for planning, designing in 1991/92 and instituting this programme in 1992.

4. Realistically given the burdens on the secondary system proper, the University - either via Adult Education or a special "Pre-Tertiary

Faculty" - should undertake responsibility for operating this sector. The most evident problems to surmount include:

- a. staffing - degree/certificate level holders, especially in maths and science, of the order of 100-150 will be needed. As this is a clear shortage area this will increase expatriate (including non-Namibian African) teachers needed by a similar number whether directly for this sub-sector or to replace Namibians entering it instead of staying/going into main stream secondary teaching;
- b. curriculum development - especially in subject areas but also learning orientation and skills. A straight repeat of ordinary Standard 10 teaching (except perhaps in cases in which the gap is absence of mathematics of sciences or their having initially been taught very badly) may not be the best available option.
- c. location/facilities - the courses will need to be residential in large part but also provided in several centres to increase access and reduce residential costs. A possible target might be: Windhoek, Swakopmund/Arandis/Walvis Bay, Luderitz, Keetmanshoep, Katima Mulilo, Rundu, Oshakati, Okahandja, Otjiwarongo. However, very small units will pose serious staffing problems as classes will be too small to create plausible staff/student ratios. Where possible, more intensive use of ordinary secondary school facilities by joint rostering for standard secondary and bridging courses to utilise classrooms and laboratories for a 14 hour day (07:00 - 21:00) would reduce both facility costs and delays in putting new structures in place. However, in respect to laboratories additional facilities (jointly planned with the mainline secondary system) are urgently needed especially north of Windhoek.
- d. Finance. This programme will not be low cost. At a rough guess it will have operating costs per student slightly above Standard 9-10 plus significant capital and expatriate recruitment costs. As soon as programme design allows rough costing it - together with the other bridging/access elements - should be put to a conference of interested funding agencies.

5. Completion courses (from 18 months to 3 years) for Standard 8 leavers and non-recent (say 5 years out of school) Standard 10 leavers/completers who show potential for tertiary entry if they can secure intensive full time education to fill gaps, increase knowledge and learning skills and - given the gap since they were students - reacquire the habits of educational life (a non-trivial point since the demands of most non-academic or even school teaching jobs are very different from those of full time study!). As with bridging courses, an immediate priority exists for 1991/92 preparation and 1992 inauguration of teaching. Because the courses will need to be longer, no large number of tertiary entrants could be expected before three years after course inauguration. Peak - mid 1990's - levels might be 750 completions, tailing off after 2000.
6. As with bridging, the University can best be responsible for this programme via the Adult Education or a "Pre Tertiary Faculty". Since Adult Education will need to operate nationally, will cater primarily to pre or non-tertiary students and will be providing permanent "parallel" or "alternative" entry channels the former would appear preferable. The basic problems (and probably the quantitative magnitudes in respect to staff and finance) are also parallel to bridging.
7. Both bridging and completion are uncertain as to possible numbers of successful completions. There are substantial numbers of candidates for entry. If (see Annex G) charges and their cover do not bar poor students, there will be large numbers of applicants. However, many will have such poor foundations that they will be very unlikely to succeed. How to screen requires attention - easy entry would result in very high fail rates and increase personnel-facilities-finance needs to unhandleable levels. But devising ways to test effectively for ability and determination as much as actual present achievement is not simple and requires early, expert attention including pre-use testing of proposed examinations/interviews.
8. Adult education as a normal parallel route to tertiary education will initially be less important quantitatively than bridging/completion courses. it is hard to suppose it could qualify more than 100 to 150 candidates a year by the mid 1990's. However, unlike them, it can be a

permanent feature of access to higher education settling down at 5% to 10% of all tertiary entrants after 2000.

9. For this stream part time study focussed on night/released time/weekend lectures, distance methods (including substantial use of TV and/or video) plus vacation or released time residential courses (say 6 weeks per year) would appear appropriate. Students could start at any level (basically Standard 5 or above for tertiary entry in a realistic time span) and proceed at their own pace. The model is implicitly that of the UK's Open University but at secondary level.
10. Adult Education should not be a monopoly of the University's Institute of Adult Education nor should it necessarily rely primarily on full time teaching staff. Civil society bodies (notably CCN and its affiliates) have demonstrated their present and future potential. Part time tutors (e.g. secondary school teachers, subject specialists in non-academic employment) are one way of reducing unachievable demands for scarce personnel and of lowering costs. An Adult Education Council led by the Institute and comprising the Ministry of Education, civil society group members, Local Government and student representatives could play a useful coordination role as to strategy, implementation, financial mobilisation and monitoring. Evidently it should be broader in scope than complementary tertiary entry channel which is the topic directly addressed here.
11. Tertiary adult education is desirable and inherently feasible. However, it should be a medium term priority because secondary and primary adult education should be the short term priorities. The initial steps might be for the Institute to assist interested faculties, departments and schools to devise correspondence/video plus 6 week residential courses they believed could be alternative ways of completion of the first or first and second years of degree/diploma courses with subsequent direct entry into the final or last two years at a full time tertiary institution. However, the tertiary sector will until the late 1990s be able (subject to financial, facility and staff constraints) to offer full time places to all qualifying Namibians and part time/in service upgrading courses should cover most secondary level post holders desiring to acquire tertiary qualifications.

Therefore, until well after 2000 the student pool for normal adult education at tertiary level is likely to be very small.

12. Tertiary completion/gap filling courses probably offer the greatest potential for short term enhancement of enrolment and of degree/diploma winners. It is likely that of the order of 2000 external tertiary course completers (or non-completers), including several hundred from UNIN, do not have employment or are in jobs which do not make use of their qualifications. The reasons vary, but for most there are real problems of gaps in knowledge and skills (not least in numeracy broadly defined) relevant in Namibia. In most of these cases, 6 month to 2 year courses should be able to complete relevant tertiary qualification at a level usable in Namibia. To waste what has been done would both be a human tragedy for the students and a waste of past human investment/early tertiary educated personnel flow enhancement possibilities.
13. The numbers, fields and completion needs of these students should be analysed in 1991/92 to allow design of completion programmes (largely in standard classes in the areas of their weaknesses) for the University's first (1992/93) academic year. Additional costs would be negligible in the sense that neither special faculty nor facilities should be required beyond those for an equal number of direct Matric entrants. It is possible to envisage 750-1,000 entrants in 1993, a comparable number in 1994 and 250-500 in 1995 by which time the pool will be largely empty.
14. Gap filling/upgrading for present holders of posts who need - but do not have - diploma/degree education is a massive challenge and - potentially - one way to increase tertiary education numbers during the interim period before admissions of 'new' students build up. At a rough guess there are at least 10,000 such persons including 7,000 odd in Education. To this may be added perhaps 2,500 who could with moderate additional training be promoted to degree/diploma posts.
15. In the case of education the rapid achievement of such upgrading is crucial to increasing the numbers of direct entry (matric) students as well as to raising the proportion of them coming from historically underprivileged groups and areas. However, a series of problems - well beyond the obvious ones of finance and teaching personnel exist:

- a. to take over one quarter of all tertiary level post holders (and two thirds in primary/secondary education) away from post for one to three years is simply not practicable. Even over 10 years it would mean 2,500 plus badly needed persons "out of action" until 1994 if the courses averaged two years.
 - b. returning most of these experienced mature professionals to full time residential study for one to three years would lead to problems (especially for ones with families) both humanly and in terms of success rates;
 - c. to devise part time/in service courses will therefore be necessary - especially in education where the process has begun albeit on a relatively small scale;
 - d. if these courses are to be completed over a plausible time scale they would seem to require perhaps ten hours of study a week (reading, video, exercises and essays); a full day (video plus instructors from qualified personnel at same workplace) class on each weekend and an annual 6 week residential course for perhaps one to four years;
 - e. that model is feasible but requires specialised expertise on designing correspondence - video components, weekend class tutor training, 6 week component design. Further, because starting levels (and therefore gap filling needs) are very unequal, different courses will be needed in each field. That is a secondary teacher with Standard 8 education plus one year's teacher training and a University graduate with no specialised educational training are both, in a sense, "unqualified". But neither the quantity nor nature of the additional training needed is even roughly the same.
16. Tertiary education clearly has a major role to play. So does the Ministry of Education and probably other major employers. Coordination of strategic planning and implementation (especially in respect to teachers (requires early priority attention because multiple, partial, uncoordinated programmes are unlikely to be efficient either in achieving an adequate pace of upgrading or in getting value in numbers upgraded for expenditure of funds or personnel. Single subject

technical assistance programmes centred on a few expatriates (costing about \$100,000-\$200,000 per person year) dealing with handfuls of teachers (or other professionals) on imported curricula not fully adapted/restructured to host country needs and possibilities have a particularly poor average track record. Tentatively the following division of labour may be feasible:

- a. Ministry identification of needs, curriculum content, numbers;
- b. Adult Education development of correspondence/video components and training of tutors for weekend classes;
- c. Faculty of Education/Higher Teachers Training Colleges design and operation (using own staff and facilities during long vacation) of 6 week residential courses.

In each case - hopefully evidently - the lead body would act in close consultation with the other two.

17. The released time/distance education/annual residential course model has a permanent role in providing parallel tertiary education. Priority areas would be likely to include public administration, accounting/auditing, economics, computer programming/systems analysis, education. (Natural sciences, health sciences, engineering and agriculture are much harder to handle by this route because of their laboratory/"practical" component.) Experiments should be begun early in the life of the Adult Education Institute (linking with the relevant schools and faculties for instructional and substantive content input) but this will, at least until the late 1990's, be a lower priority than the initial upgrading of present post holder qualifications.
18. Achieving high completion rates in secondary education is crucial to efficiency in meeting graduate/diplomate needs and to efficiency in resource costs per successful completion. African experience warns that with direct entrants from weak secondary schools and parallel entrants whose initial backgrounds were weak, very high failure/repetition rates (well over 50%) are a real danger. If rates of 10% in initial year and at final examination and 5% a year in intervening years are to be achieved, special measures will be needed. These will be especially important for students from historically underprivileged

groups who will comprise nearly 100% of the "at greatest risk" categories (weak secondary, complementary entry programmes). Possible components include:

- a. a first year quantitative methods course - a field in which SSA university students are fairly uniformly (and often appallingly) weak whatever their ability or their level of achievement in other areas;
 - b. seminars/workshops in study methods and, more particularly, reading for speed and comprehension;
 - c. at least monthly student meetings with a designated faculty member to achieve early identification of and attempts to resolve problems (backed by faculty reports to designated 'tutors' when a student's performance showed serious problems);
 - d. intensive 6 to 10 week remedial courses during long vacations for students whose performance in the prior year (or final examination) was unsatisfactory but could - with this extra input - probably be salvaged.
19. The potential overall importance of the parallel entry programmes can be illustrated by potential 1993, 1996 entry target patterns:

	<u>1993</u>	<u>1996</u>
Total Entrants	<u>2,500</u>	<u>3,750</u>
Direct Matric	<u>1,400</u>	<u>1,850</u>
Bridging	()	1,000
Completion	(100)	750
Adult Education	()	150
Tertiary Upgrading	1,000	-

Further, the division between historically underprivileged groups and others would be very different for direct matric and other entrants:

	<u>1993</u>		<u>1996</u>	
	<u>Historically</u> <u>Underprivileged</u>	<u>Other</u>	<u>Historically</u> <u>Underprivileged</u>	<u>Other</u>
Direct Matric	800	600	1,350	500
Parallel Entry	<u>1,100</u>	<u>Negl.</u>	<u>1,875</u>	<u>25</u>
Total	<u>1,900</u>	<u>600</u>	<u>3,225</u>	<u>525</u>

ANNEX F**EDUCATIONAL INTERRELATIONSHIPS**

1. To sketch a strategic perspective of tertiary educational requirements is moderately easy - albeit different societies at any one time and most societies over time, view significantly different levels of education as needed for similar posts. This difference is partly independent of the income per capita level of the country which is broadly positively correlated with educational 'requirements'. To outline the divisions between University/Other Tertiary or Degree/Diploma is much harder because there are no standard global patterns. In, for example, Australia, Canada, Korea, the Philippines and USA almost all tertiary education is degree (not diploma) oriented. Except in the first two cases, quality differentials among institutions are very wide and not linked closely to titling as University, College, School or Institute. In the UK traditionally university education has been limited in content and numbers with other tertiary larger but lower cost and lower quality - indeed fairly widely perceived as "cheap and nasty". The more recent raising of institutional titles and broadening of degree granting (often with little substantive change in content) has not necessarily altered this division structurally. The North European (and in Africa, Tanzanian) pattern of fairly broad university coverage with universities sometimes offering diplomas as well as degrees paralleled by other tertiary institutes usually offering diplomas only, but perceived by themselves and employers as different from rather than inferior to universities, may be more appropriate to Namibia than either of the first two.

2. But what is needed - whichever pattern is followed - is a strategic overview of the tertiary education sector. University/other tertiary relationships functionally and institutionally, relationships among tertiary educational institutions, the Ministry of Education, sectoral Ministries as employers of tertiary graduates and other employers need detailed study, dialogue and working consensus on ways forward. These issues do not appear to have been explored systematically or deeply in Namibia to date. Not to do so over 1991-92 is likely to lead to fragmented, mutually contradictory and inefficient initiatives, e.g. both the University and The Ministry of Education launching diploma and upgrading courses for teachers; the University plans for a School of Agriculture and Veterinary Science in separate channels from those of

the Ministry of Agriculture for diploma level Agricultural, Veterinary and Rural Development extension in its own four specialised education/research facilities, perhaps with ultimate evolution to an agricultural university (on the Edgerton College to Kenya agricultural university general pattern); random initiatives (especially from donors and large employers) leading to totally non-coordinated polytechnic initiatives which seem in practice to mix other tertiary, and other secondary education and craft training (which may be justified but only as a deliberate sectorally related decision). Whatever the desirable patterns of operating institutions there is a good deal to be said for a coherent strategic vision and an agreed division of labour in tertiary education. In the Namibian context the catalytic and intellectual - if not necessarily institutional - leadership role needs to be played by the University as no satisfactory alternative exists.

3. A related set of vertical issues exists within major specialised education sectors. What should be the relationships among specialised tertiary education, specialised technical education and craft/skill training? For example, post primary health training/education includes programmes (e.g. for community health workers, auxiliaries) which are clearly not tertiary in nature. Engineering and related craft training/education runs from D.Eng through to skills training which may not necessarily require complete primary school as an entry qualification. Agriculture runs from farmer training centres through trainer training to diplomas, first degrees and advanced degrees. Just as uncoordinated fragmentation of tertiary education is undesirable so too horizontal coordination at tertiary level without attention to complementary holistic sectoral strategies and structures can lead to serious inefficiencies.
4. The horizontal and vertical relationship issues are general. However, the priority areas for facing and resolving them over 1991-92 are Education, Engineering/Crafts, Agriculture and Health. This is partly because all are large sectors, partly because in each sector specialised non-tertiary education is (or could be) significant and partly because in each case even superficial discussion with concerned parties indicates that strategic conceptualization, forward planning and initiatives uncoordinated with other ministries, Education or the University establishment process already exist.

5. In education degree level tertiary is - in Africa - usually university based and is oriented to upper and sometimes all secondary school teachers. However, diploma education is frequently in colleges of education and in some cases is not really tertiary (e.g. is well below Standard 10 plus 2 to 3 year additional general and pedagogical diploma course). Similarly, extensive upgrading courses have usually been somewhat ad hoc in both content and institutional structure, and - for that matter - results

With the balance of degrees versus diplomas uncertain, the nature of upgrading course still to be determined but the scale of need massive and the relationship of diploma granting bodies to the Faculty (or School) of Education and to the Ministry yet to be decided, the need for dialogue among the University (especially the Faculty/School of Education) and the Ministry (as sectoral employer at least as much as in its national education system leadership role) is important and urgent.

6. In the Engineering/Craft field the problems are more complex. Two of the most directly concerned sectoral ministries (Mines and Industry) desire a common approach to polytechnic and craft education/training. However, they have not undertaken detailed study of strategies and short term goals either individually or collectively. Nor has there been discussion with other major users (Transport, Works and Water), nor with employers outside the mining sector nor with Labour which might be a manager of craft/artisanal training institutions at sub-secondary/lower secondary level (as it is successfully in Tanzania). There is some danger that acting in response to well intentioned employer initiatives (in the immediate instances Rossing for a Polytechnic/artisanal training centre at Arandis) may pre-empt a serious planning of the whole degree-diploma-certificate educational/training needs of the sector and a national pattern aimed at maximising access through geographic spread of secondary/Polytechnic institutions. The need for relationship with the School of Engineering is accepted but the nature of that school's relationship to polytechnic type work (e.g. Coordinate? Provide? has not been explored.
7. In Agriculture pre-University and Ministry thinking appear to be on rather different lines. The Ministry seems - at least implicitly - to

foresee continued/renewed certificate and diploma training at its one or more of four centres perhaps building up toward an agricultural university. The possibility of a Faculty or School of Agricultural and Veterinary Science at the University from its inception (and therefore its relationship to the Ministry and its centres) does not seem to have received any detailed consideration. A related issue is whether a limited training extension cadre is useful or whether (as Kenyan and Tanzanian experience suggests) a more limited number of diploma/degree staff plus direct farmer training (at training centres) is more effective. That approach - which is, tentatively, being instituted in principle and at the farmer training level - is very unusual in Africa but has been followed in the USA since the establishment of the Land Grant Colleges/ Universities in the 1860s.

8. Health specialised education/training is frequently ministry operated except for the University (degree) level which is usually in a - relatively autonomous - School of the University. Health personnel planning and specialised institution development suggests it anticipates a similar pattern in Namibia. This may well prove sound, but it is not self-evident that degree (doctors-dentists-medical officers of Tanzanian para-doctor type), diploma (professional hospital-clinic-public health nurses, clinic directors, midwives, pharmacists, some technicians), certificate (nursing assistants, other technicians) and other (part time community or employment unit based primary health workers, dispensers) education/training should be divided either on degree/other or on degree/diploma/other lines. In particular, sharing of basic science courses with other university/polytechnical institutions and a sectoral leadership/coordination role for the School of Medicine would appear to merit serious exploration.

It is relatively easy to spell out a set of desirable means/intermediate ends/processes:

- a. consultation involving the University, the Ministry of Education, sectoral ministries (on their own sectors), Manpower (Personnel) Development, employers, professionals;

- b. agreement on an overall strategic consensi in respect to tertiary educational horizontally and to sectoral specialised education vertically;
 - c. continued user involvement in educational design and monitoring;
 - d. ongoing tertiary and sectoral coordination fora;
 - e. a broadly agreed division of labour, with continuing working relations and dialogue, among institutions (particularly at tertiary level).
9. Alternative patterns of structuring tertiary and specialised sectoral education are less self-evident (at least as to desirability and practicability in Namibia). Indeed, there is no a priori reason to assume that a single pattern would fit all sectors equally well. For example, Agriculture, Education and Health are Ministries which frequently operate sectoral other tertiary institutions sometimes very effectively, and it is not self-evident whether such institutions should in Namibia be either directly institutionally linked to the University or to the main line primary-general secondary schools of the Ministry of Education. Similarly, engineering related polytechnic education (unlike most other specialised upper secondary/other tertiary fields) has in several SSA countries been run effectively by the Ministry of Education with few linkages to Faculties (or Schools) of Engineering at the universities.
10. Two broad patterns merit exploration:
- a. a federal/confederal university with a relatively high degree of autonomy for schools combined with fairly close institutional links (up to unified units/staffs) between degree and diploma level work in at least some schools;
 - b. a more narrowly defined university with an array of diploma or diploma/certificate specialised institutions led by sectoral ministries or consortia of main government ministry/enterprise employers.
11. The second pattern is in a sense a "market solution" albeit the relevant sections of international institutions (notably the World

Bank) otherwise noted for advocating market solutions tend to criticise it for non-coordination, anarchy and lack of firm hierarchical control as well as for a tendency to proliferation of small and/or overlapping programmes. The most evident African example is Tanzania where total specialised secondary/tertiary institution enrollment is of the same order of magnitude as that of the Ministry of Education's mainline secondary schools plus the University and the largest such institution (Institute of Finance Management) has an enrollment of over 2,500 and a programmes range from secondary through other tertiary to de facto (not de jure because the Universities have a degree monopoly) degree and post graduate specialised seminars.

12. It is quite likely that Namibia would opt for a mixed solution. Tanzania in fact has done this as diploma education in Health and Agriculture is within the university system (in a School and an ex-School, now Agricultural University, respectively) while Engineering related Polytechnic education is largely in the University and Ministry of Education system other tertiary colleges. What is important is not so much the model or complete consistency across sectors, but serious consideration of options and deliberate decisions rather than a haphazard set of ad hoc responses rapidly congealing into bricks, mortar and (even more un-malleable) institutional vested interests which subsequently prove to be very sub-optimal but even more resistant to structural transformation.
13. Either approach (or a mixed one) can be strengthened by the use of serious councils at institutional, faculty and school level perceived as functional contributors to educational strategy, programme design, monitoring and review. Their membership should include major users of graduates/diplomates, professionals, students and sectoral ministries. In the case of the University these could be Committees of the University Council with a core of Central Council members on each Faculty or School Council (or vice versa, each Faculty or School Council could select a member of the central University Council).
14. The most logical body to catalyse discussion on these issues would appear to be the University. It could well begin the process through the Vice Chancellor designate (in his interim capacity as Higher Education Advisor to the President) plus a small staff group.

ANNEX G TUITION, FEES AND LOANS

1. Tuition and fees have direct implications for affirmative action in respect to facilitating and broadening access both at the level of bridging courses and of tertiary education. Nor are calculations of the average discounted present value of earnings streams resulting from completion of tertiary education relevant to present access. In the first place, for any individual the laws of probability do not apply and - especially at bridging course level - the chance of failure is significant. Second, the overwhelming majority of the prospective students and their families do not have and cannot raise funds to cover high tuition and fees - for a commercial lender a future income stream is not an attractive security for a loan. Third, a normal state guaranteed loan system using market interest rates will lead to obligations which are dauntingly high and cumulate vertiginously - especially from the perspective of a poor prospective student and her/his family. Finally, in respect to female prospective students present social attitudes - particularly in rural areas and among poor households - would militate against raising funding and especially incurring of substantial loan obligations toward their education.

2. These considerations do not, by themselves, determine how tertiary education should be costed nor in particular what proportion of current (and/or capital) expenditure the institutions should charge in respect to tuition and to fees/charges (room, board, texts, educational materials, etc.). They relate to who should pay these fees, charges, tuition to the tertiary institutions.

3. For students sponsored by present or future employers the case for employer payment is strong. (This is the way the bulk of specialised secondary/non-university tertiary education is funded in Tanzania. Since that sector is comparable in size to the Ministry of Education Secondary/University sector, it is evident that employer funding has not insubstantial potential.) Such funding - whether by the government (e.g. for teachers, nurses, agricultural extension personnel) or an enterprise (e.g. for accountants, management trainees, engineering technicians) can reasonably take the form of a contract so that if a student does not take up/continue employment with the funding employer he/she must repay the expected employer's costs with interest but that

these are written off 20% a year over five years at the end of which time the student is free to seek alternative employment with no financial obligation to his/her former employer. Provisions could also cover failure to complete and non-hiring or continuation of employment by the employer (in which case presumably the financial obligation is deemed to be discharged by the non-commencement/termination of employment).

4. State or enterprise or civil society or individual scholarships are another potential source of funding. However, doubts must arise as to their adequacy and they do sidestep the fact that a successful student will reap a very considerable flow of income gains. This latter point is particularly relevant in a country such as Namibia in which tertiary level employment or self-employment incomes are - on average - of the order of 20 times the absolute poverty line below which over half of all Namibian households are forced to survive.
5. For tertiary education these considerations suggest a loan scheme. However, a government guaranteed, commercial bank, commercial interest rate scheme along USA lines has grave drawbacks. It is administratively complex (especially if time of payment or amount to pay is variable with respect to income) and results in high non-payment rates (commercial banks have limited ability to trace persons as contrasted with fixed assets or enterprises). Presumably largely for these reasons UK commercial banks have declined to participate in a proposed similar scheme.
6. A possible alternative scheme could be linked with the income tax system and with actual future earnings:
 - a. eligibility up to tuition and fees/charges (or to - say - 90% thereof) to be automatic on admission;
 - b. payment to commence in respect to the tax year in which graduate enters into employment/self-employment;
 - c. payment to be computed on annual (tax year) net income:

i.	R0 - 12,000	0%
ii.	R12,000 - 24,000	10% (R1200 at 20,000)
iii.	R24,001 - 36,000	20% (R1200 + 4,000 + R5,200 at R36,000)
iv.	R36,001 and up	30% (R5,200 + 4,200 + R9,400 at R50,000)

- d. these payments either to be deductible from taxable income or 25% to be a credit against income tax (the latter benefits lower income households relative to the former);
- e. payments to be deducted for six tax years (including the first which is likely to be a partial year with low payment);
- f. in the event of taking a second degree payments to be recessed while studying and resumed on returning to work and if loans used for the second degree, total payment years to be extended by 2 times the years of additional loan financed study;
- g. in the event of a past loan financed student leaving Namibia permanently or indefinitely before completion of payments, the balance to be payable before departure (analogous to accrued income tax) on the following basis:
 - i. total loans drawn
 - ii. plus interest at 12% a year cumulative on balance outstanding
 - iii. less payments made

(The numbers used are illustrative. Assuming relatively full cost tuition - fees - charges and a marginal cost of funds to the government of 12% - 15% they could allow substantial recovery to full breakeven. The bands would need - like those of income tax - to be adjusted from time to time for inflation.)

- 7. This type of loan scheme could:
 - a. reduce disincentives to take loans;
 - b. avoid negative differential incentives for women who might fear marriage-children-late or part time work would make normal fixed payments disproportionately burdensome (or a 'modern' variant of lobula for educated women!);
 - c. link collection to existing procedures and data flows thereby reducing administrative headaches, costs and non-collection;
 - d. relate collections (cost recovery) to individual student income gains;

- e. provide a fail safe if large numbers of minority community citizens used loans to fund tertiary education and then departed abroad to seek higher incomes.
8. No scheme can be perfect (or clever evader proof). The proposed model probably could overcome many of those associated with 'guaranteed business loan' type schemes. Its limitations include:
- a. for 5 to 6 years after initiation payments will be negligible relative to loans paid out;
 - b. so long as inflation is significant and/or the number of borrowers grows, loan outgoings will always exceed payments - especially if implicit interest on the stock of loans is taken into account;
 - c. special provisions will be needed for students who fail to complete their courses.
9. For bridging courses the above procedure appears overly elaborate especially as the failure rate will probably be much higher and the cost per student significantly lower. In these cases a straight scholarship scheme might be preferable:
- a. eligible on admission to approved bridging course (full or part time, residential, non-residential, correspondence/distance or mixed);
 - b. scholarship to equal 90% of tuition and fees/charges.
- A possible variant would be for full time (pre-university/polytechnic) courses:
- c. on successful completion of course and of tertiary level course the total years of payment (at Para 6) would be for 7 tax years (rather than 6).
10. While the prior discussion is in the context of Affirmative Action it evidently is also in the context of certain underlying assumptions:
- a. however they are funded, tertiary institutions should break down their costs (including allocation of overheads) by course,

research, outreach (e.g. adult and public education) and other specified services as a financial management and monitoring device;

- b. it is reasonable to seek to recover some portion of these costs to the institution from beneficiaries (or their surrogates) where benefits can be estimated and the beneficiaries (or their surrogates) have the capacity to pay;
- c. in cases in which tertiary education has a high personal future financial payoff to the student (and especially in cases in which her/his future income will be several times that of the average economically active person), equity suggests payments should be made roughly proportional to, and at the time of, the income gains (in principle a supplementary income tax);
- d. but because tertiary education also has national social and economic payoffs and because present charges/future debts in respect to uncertain future gains represent barriers to poor and historically disadvantaged groups, a.) some general state funding of instructional costs is justified and, b.) cost recovery should be at a time and on a basis consistent with broad access and affirmative action. (Indeed a cost recovery scheme inconsistent with affirmative action would, arguably, be not merely inconsistent and undesirable but - in Namibia - unconstitutional as well.)

ANNEX H**TERMS OF REFERENCE**

Secretary Namibia Commission On Higher Education
To Consultant - May 5, 1991

The task we have set you is as follows:

To analyse Namibia's national requirements for post-secondary trained personnel by sector, level and field of study

- to fill vacancies
- to replace expatriates
- to express affirmative action
- to upgrade skills
- to meet expansion demand

In undertaking the task we would appreciate your assessment of the available evidence, such as it is, including the 1988 Manpower Report and the documents generated for the Commission on Higher Education. We have no exaggerated expectations of the accuracy of any estimates you are able to make on the basis of the evidence available to you and the assumptions you make about economic performance, skilled labour force structure, employers' recruitment practices, affirmative action and other key variables. The most we expect is to be advised according to your best assessment of the situation, intuitive and otherwise.

The Commission is taking higher education to mean all post-secondary education (that is, post-Matric presently and post-IGCSE in a few years' time). The levels of post-secondary training and education we are considering correspond broadly to craft, technician, technologist and graduate (plus postgraduate), but non-certificated continuing professional education, in-service training and adult education comes under our remit.

The Commission's terms of reference do not specify the time horizon for its recommendations. Some of its proposals will imply immediate action. Others will require the usual lead time for project preparation and financing. Others will indicate a desirable shape of things to come, without suggesting dates. The Commission is chiefly concerned with the strategy and structure of higher education, and with transitional arrangements from the present set up to a new national program. I trust you can take your bearings from those necessarily vague reflections.

MAIN SOURCES USED

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Especially those of Vice Chancellor designate and of Akademy
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- Windhoek City (1990) Facts and Figures - Windhoek Namibia
- UNICEF/NISER (1991) Situation Analysis Of Children And Women In Namibia
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- UNIN (1978) Manpower Estimates and Development Implications for Namibia
- *UNIN (1986) Namibia: Perspectives for National Reconstruction and Development (Especially Chapter 18 'Labour and Employment' and Chapter 14 'Education and Culture')
- *Green, R. H. (1989) Personnel, Employment And Economic Transition, UN Council for Namibia - Vienna Contingency Planning Seminar

Tertiary level personnel requirement calculations in these two sources are lower because they projected (pre transition and pre reconciliation respectively) much higher initial departures and therefore used both a key sector/bare bones approach and one assuming freedom (indeed necessity) of total restructuring of administration and of health.