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I. RECURRENT GOVERNMENT REVENUES

The governments of St. Kitts/Nevis provides about half of all health care services free of charge to the population. The remaining services are provided through the private sector which is discussed in some detail in Section VII. The health services provided by the government are financed from general revenues, the largest portion of which is raised by import and consumption taxes. Table 1 shows how government revenues have grown over the past 5 years.

TABLE 1: RECURRENT GOVERNMENT REVENUES

YEAR	CURRENT \$ (\$000 EC)		PRICE ⁽¹⁾ INDEX	PURCHASING POWER ⁽²⁾ (\$000 EC)		% OVER OR UNDER
	ESTIMATE	ACTUAL		ESTIMATE	ACTUAL	
1981	46,715		155.5	46,715		
1980	46,972		140.1	52,135		
1979	31,189	40,323	116.6	41,594	53,776	+29
1978	26,678	34,602	106.0	39,136	50,760	+30
1977	23,569	27,633	97.7	37,513	43,981	+17
1976		29,367	83.0		55,019	
1975		22,064	72.1		47,586	
AVE:1 ⁽³⁾	18.7	16.3	13.7	5.6	3.1	+26

(1) The retail price index developed by Statistical Office, Planning Unit. January 1978=100. Figures used are for July of the indicated year. (See Notes for Tables B1, B2 and B3 in Appendix B.)

(2) These Revenue figures are expressed in terms of July 1981 E.C. dollars.

(3) Annual rate of increase except in the case of the last column, where the weighted average of the 3 entries in the column above was calculated.

In general, government revenues have risen rapidly. The largest portion of this increase, however was due to inflation. From 1977 to 1981, the purchasing power of estimated revenues rose at an average annual rate of 5.6%, while the purchasing power of actual revenues rose 3.1% per year during the period from 1975 to 1979. These rates of increase may seem small. It should be kept in mind, however, that an annual increase in purchasing power of 4% results in a \$2,000,000 annual increase in the total purchasing power of the government; or an increase of 40 per year for every citizen on St. Kitts/Nevis.

Table A1 in appendix A provides a breakdown of government revenues by source. Revenues have increased in all the categories shown. The increase in revenues from the health sector has been small, however, and has not kept pace with inflation.

In summary, government purchasing power is increasing. This should make it possible for the government to devote more financial resources to health services, should that be necessary, in order to achieve its objective of health for all by the year 2,000.

II. GOVERNMENT HEALTH SECTOR ALLOCATIONS

The Government of St. Kitts/Nevis demonstrates the priority it places on health care by the large proportion (12-15%) of its recurrent budget that is allocated to health services. This proportion is large compared to many other countries; allocations of 7 to 8% being much more common.

Analysis of expenditure information shows that the government's health budget experiences some difficulties in utilizing the resources allocated to it in the budget. While the government as a whole spends about 3% more than is budgeted, the health sector returns about 5% of its budget to the Ministry of Finance each year. As a result, government expenditures on health average between 11 and 12% of total government expenditures. Table 2 compares estimates with actual expenditures for both the health sector and the government as a whole.

TABLE 2: COMPARISON OF RECURRENT ESTIMATES AND ACTUAL EXPENDITURES

YEAR	TOTAL HEALTH ⁽¹⁾			TOTAL GOVERNMENT			% HEALTH	
	ESTIMATE	ACTUAL	% OVER/ UNDER	ESTIMATE	ACTUAL	% OVER/ UNDER	ESTIMATE	ACTUAL
1982	8,876			60,507			15	
1981	6,577			46,345			14	
1980	5,687	5,297	-7	46,987	48,137	+2	12	11
1979	4,951	4,584	-7	36,389	38,430	+6	14	12
1978	3,779	4,024	+6	29,732	32,491	+9	13	12
1977	3,533	3,204	-9	29,679	28,575	-4	12	11
1976		3,203			30,373			11
1975		2,702			21,944			12
AVE: (2)	20.2%	14.4%	-5	15.3%	17.0%	+3	13	12

(1) This includes government allocations for health services and water services plus that portion of the Ministry of Health Education and Social Affairs allocation which appears to support the delivery of health services. This portion is usually between 30% and 40% of the total for that ministry.

Table 3 shows how the purchasing power of the Governments' health budget has increased during recent years. From 1975 through 1980 the purchasing power of actual expenditures increased at only 0.2% per year. The 1982 estimate, however, represents a 24% increase in purchasing power over the 1980 estimate. If a comparable increase in actual expenditures is achieved, and inflation does not exceed the recent average of 13.7% per year, then the purchasing power of the governments health budget will have been increased significantly.

TABLE 3: RECURRENT HEALTH SECTOR ALLOCATIONS

YEAR	CURRENT \$ (\$000 E.C.)		PRICE ⁽¹⁾	PURCHASING POWER ⁽²⁾ (\$000 E.C.)		% OVER OR UNDER
	ESTIMATE	ACTUAL	INDEX	ESTIMATE	ACTUAL	
1982	8,876		176.8	7,807		
1981	6,577		155.5	6,577		
1980	5,687	5,297	140.1	6,312	5,879	-7
1979	4,951	4,584	116.6	6,603	6,113	-7
1978	3,779	4,024	106.0	5,544	5,903	+6
1977	3,533	3,204	97.7	5,623	5,100	-9
1976		3,203	83.0		6,001	
1975		2,702	72.1		5,827	
AVE.	20.2%	14.4%	13.7%	6.8%	0.2%	-5

- (1) The retail price index developed by the Statistical Office, Planning Unit. January 1980 = 100. Figures used are for July of the indicated year. Figure for 1982 was projected assuming the previously experienced average of 13.7% per year will continue into 1982. (See Notes for Tables B1, B2 and B3 in Appendix B.)
- (2) These budget and expenditure figures are expressed in terms of July 1981 E.C. dollars.
- (3) Annual rate increase except in the case of the last column, where the weighted average of the 4 entries in the column above was calculated.

III. SERVICE BREAKDOWN OF RECURRENT GOVERNMENT HEALTH EXPENDITURES

The Governments' health expenditures provide a broad range of services from water and sanitation services to specialized hospital care. Government health expenditures also support a training program for nurses and the maintenance of a health ministry that oversees the operation of the health system and its further development. Table 4 provides a rough breakdown of the governments' health expenditures by the type of service provided.

TABLE 4: CLASSIFICATION OF THE 1982 GOVERNMENT HEALTH BUDGET
BY TYPE OF SERVICE

	Preventive Services		Curative Services		Sub total Health Services		Training Support		Administrative Support		Sub total Support Services		Total	
	\$000 E.C.	%	\$000 E.C.	%	\$000 E.C.	%	\$000 E.C.	%	\$000 E.C.	%	\$000 E.C.	%	\$000 E.C.	%
Community based	2,477	32	1,605	21	4,082	54			199	54	199	15	4,281	48
Inpatient			3,474	46	3,474	46	952	100	170	46	1,122	85	4,596	52
Sub Total Health Services	2,477	33	5,079	67	7,556	85								
Training			952	100			952	72						
Administration	121	33	248	67					369	28				
Sub total Support Services	121	9	1,200	91							1,321	15		
Total	2,598	29	6,279	71									8,877	

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This breakdown is approximate. The dividing line between preventive and curative services is not clear. For example, early case detection is a curative service, in that sick children are identified and treated. It is also, however, a preventive service, since a major purpose is to prevent dehydration which frequently results from diarrhea.

The precise assumptions made in Table 4 are presented Appendix A, Tables A2, A3, A4, and A5. In general, all expenditures for water, sanitation, sector control, nutrition and school feeding and 1/2 of the expenditures for district health services except for District Medical Officers have been classified as preventive. The remaining half of expenditures for district health services, the salaries of District Medical Officers and 20% of the cost of the Alexandra and Joseph N. France general hospitals have been classified as out-patient or "curative - community based" expenditures. The remaining expenditures of the Alexandra and J.N.F. hospitals and all expenditures of other institutions with inpatient facilities have been classified as inpatient expenditures.

"Training Support" includes primarily the stipends paid to nursing and pre-nursing students in the training programs at the 2 major hospitals. Since these students appear to be essential to the operation of these hospitals, "Training Support" expenditures were classified as "inpatient" and "curative", even though some of the students may eventually become public health nurses.

"Administrative Support" principally consists of that portion of the budget of the Ministry of Health, Education and Social Affairs which appears to be used for the support of health services.

"Community-based" services are those services which are delivered close to the place of residence of the person served. They include all preventive services and that portion of curative expenditures incurred in the delivery of out-patient services. "Community-based" services include and are generally limited to those services included in the concept of primary health care.

The "Total" column in Table 4 shows that roughly 48% of the 1982 government's health budget is allocated to "Community-based" services, while the remaining 52% is allocated to in-patient services. The "Total" row shows that approximately 29% of the budget is allocated to preventive services while the remainder is spent on curative services.

It is difficult to compare these figures with those of other countries. Epidemiology, general level of development, the level of health service development and the developmental history of the health systems will all affect the optimal distribution of budget allocations. At present given the limited information available, the distribution among the categories of "preventive," "curative," "community-based" and "inpatient" appears plausible. As the government proceeds with its plans to provide access to improved primary health care for all by the year 2000 there may be a gradual, but probably not very extensive shift towards increased allocations for community-based services, both "preventive" and "curative" (outpatient).

If the purchasing power of government health allocations increases at the rate recently experienced by government revenues, it may be possible to increase expenditures on "community-based" services without cutting back on expenditures for inpatient care. At present one can not be more precise.

A plan for achieving health for all by 2000 has not yet been formulated. When a plan is formulated a careful, thorough analysis of the recurring costs should be made, and the most cost-effective service delivery strategies selected.

Table 4 shows an allocation for "administration" of \$369,000, only 4.2% of the total government allocation for health services. This figure is probably an underestimate, since it does not include the office of the Chief Medical Officer. The figure does suggest, however, an area which should receive careful attention in any future planning exercise. Increased allocations for administrative support services; including planning and evaluation, budgeting and accounting, health statistics, personnel management, coordination and monitoring of externally funded projects, etc.; might prove to be the most cost-effective strategy to improve and increase the delivery of health services in the near future.

Tables A2, A3, A4 and A5 in Appendix A provide a breakdown of 1982 Draft Estimates in the government health sector by budget headings. The detailed notes associated with these tables state the precise assumptions made in classifying each line item in the 1982 Draft Estimates.

In summary, the relative allocations to various groups of health services appear appropriate to address current priorities. At the present time, increased allocations for administrative and planning activities appear to deserve priority consideration.

IV. COST OF SERVICES DELIVERED

Birth and death registration is carried out and hospital service information is recorded. Regular reporting from the health centers is effectively limited to public health nursing activities, and an annual report of these activities is available for 1980. Reports on curative activities carried out at health centers are infrequently submitted to the statistics office. No summary information on these activities is available for any recent year. It has been several years since an annual health statistics bulletin has been produced. Table 5 presents the currently available information on 4 important health status indicators for the past 5 years.

TABLE 5: HEALTH STATUS INDICATORS ON ST. KITTS/NEVIS⁽¹⁾

YEAR	BIRTH RATE/ (PER 1000 POP)	DEATH RATE (PER 1000 POP)	INFANT MORTALITY (PER 1000 BIRTHS)	MATERNAL MORTALITY (PER 1000 BIRTHS)
1980	26.3	11.1	53.0	0.8
1979	24.4	10.5	49.5	0.8
1978	21.8	9.6	41.6	0.9
1977	24.8	10.3	42.1	0.8
1976	27.2	9.8	33.3	1.5

(1) The information presented in this table came from unpublished records maintained by the health statistician, in the CMO's office.

The apparent rise in infant mortality is particularly disturbing. Health personnel felt that it did not result from improved reporting, but reflected a deterioration in the health status of the population. They cited an apparent increase in diarrhea among infants as the probable, but unproven cause. In the future, improved reporting of outpatient services at health centers would aid in the quick identification of probable causes of such important developments.

Estimating the unit cost of the various services provided will not be very accurate since the information available is limited, particularly as to the amount of time devoted to various types of service provided by the Public Health Nursing Service. Tables A7 and A8 in Appendix A present cost estimates of the Public Health Nursing service and District Medical Officer services, respectively.

Assuming that District Medical Officer clinics account for all of the allocation for District Medical Officer services (\$287,979) and 10% of the cost of Public Health Nursing Services (\$694,767), the total cost of District Medical Officer clinics is \$357,456. This money was expended on 547 reported clinic sessions at \$653 each. These clinic sessions delivered a total of 23,467 reported treatments at \$15.23 each.

The above figures should be used with considerable caution. On the one hand, many clinic sessions were probably unreported while on the other hand, many of the reported attendances may have been people who came and paid for a private consultation or whose expense was covered by the National Agricultural Corporation.

The other unit cost figures in Table 6 are also based on broad assumptions. First, reporting is assumed to be complete. (The Superintendent of Public Health Nurses said that the reporting rate was good, but there is no indication of the actual rate in the "1980 Annual Report.") Second, the number of units of service delivered is assumed to remain roughly constant between 1980 and 1982. Finally, the third and most arbitrary assumption is that the cost of public health nursing services could be allocated among the various activities as follows: Pre-natal clinics 20%, child and toddler's clinics 40%, District Medical Officers clinics 10%, school examinations 10%, Family Planning 10%, and home visits 10%. The 10% for immunization is derived from one fifth of the allocation for school examinations and child and toddlers' clinics.

Table 6 presents a summary of the activities of the Public Health Nursing Service taken from its "1980 Annual Report" together with estimated unit costs based on the assumptions described above.

TABLE 6: PUBLIC HEALTH NURSING SERVICES

TYPE OF SERVICE DELIVERED	UNITS	COST/UNIT(3)
1. Pre-natal Clinics, sessions	502	277
2. Pre-natal Clinics, attendances	5306	26
3. Laboratory, Tuberculosis H.B. and V.C.R.L. tests(1)	4347	
4. Home Deliveries	71	
5. Family Planning, active acceptors	3808	18
6. Home Visits	2703	26
7. Post-Natal Examinations	184	
8. Child Health Clinics, sessions at 21 centers	681	325
9. Child Health Clinics, sessions at 681 sessions	23,030	10
10. Toddlers' Clinics, sessions at 21 centers	173	325
11. Toddlers' Clinics, attendances at 173 sessions	4,145	14
12. Immunizations, doses	15,070	5
13. School Children Examined, examinations at 50 schools	2,451	28
14. District Medical Officer Clinics, sessions at 12 centers	547	653
15. District Medical Officer Clinics, injections(2)	50,100	
16. District Medical Officer Clinics, treatments provided at 547 sessions	23,467	15
17. Dental Services, fillings	1,940	
18. Dental Services, extractions	13,385	

- (1) Total compiled from Tables Ib, VIa and VIc in the "1980 Annual Report" of the Public Health Nursing Service.
- (2) Includes 35,505 insulin injections provided to 428 diabetics, 14,344 penicillin and 251 streptomycin injections.
- (3) In \$ E.C.

While the assumptions are somewhat arbitrary, the unit costs are probably not too far off. Public health nursing clinics cost around \$300 each, while District Medical Office clinics appear to cost twice as much. The cost per individual served appears to vary between \$10 and \$25 for the various types of services. Immunizations cost about \$5 per dose. The series of 3 polio and 3 DPT shots thus cost about \$30 per child.

As the information system is improved, it will become possible to refine the assumptions to the point that reliable comparisons between the various units of service can be made. The unit costs can then be used as a planning tool to answer the question: if the Ministry of Health's purchasing power increases by \$1000, what service does it want to buy; for example, 40 more school children examined at \$25 each or 67 more persons treated at District Medical Officers' clinics at \$15 each?

Unit costs for hospital services are somewhat easier to address. Table 7 shows a rough calculation of the cost per patient and the cost per patient at the principle inpatient institutions.

TABLE 7: 1982 PROJECTED COST OF INPATIENT SERVICES⁽¹⁾

INSTITUTION	# BEDS	INPATIENT BUDGET (\$000 E.C.)	# PATIENT DAYS	COST/DAY (\$E.C.)	AVE. LENGTH OF STAY	COST/PATIENT (\$E.C.)
Joseph N. France General Hosp.	164	2,832	39,830	71.10	11	782
Alexandra Hospital & Infirmary	85	952	21,382	44.52	-	-
Pogson Hospital	30	283	5,833	48.52	7	340
Cardin Home	89	255	31,045	8.21	(365)	(2,998)
Hansen Home	6	52	1,990	26.13	(365)	(9,538)

(1) This table is based on information contained in Tables A2 and A9 in Appendix A. Detailed notes on the assumptions made follow Table A9.

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The unit costs presented in Table 7 should be used with caution. 1982 budget estimates have been applied to 1981 and 1980 service statistics. This appears to be a fair assumption, however, since the number of service units has remained roughly constant in the past and the rate of expenditure of budgeted funds has been very high, frequently being over 100%. It should be noted that low cost per patient day at the Alexandra Hospital is due to the low unit cost in the associated infirmary. (See notes for Table 7 in Appendix A.)

Hospital and Ministry personnel expressed an interest in knowing the unit cost of feeding patients at the various inpatient facilities. Table 8 provides a projection of the cost of the food provided to the patients. This projected cost does not include the cost of storage and preparation.

TABLE 8: 1982 PROJECTED INPATIENT DIETARY COSTS (\$E.C.)

INSTITUTION	DRAFT BUDGET ⁽¹⁾ FOR FOOD	DEDUCTION FOR ⁽²⁾ STAFF FOOD	BUDGET FOR PATIENT FOOD	PROJECTED # OF ⁽³⁾ PATIENT DAYS	COST PER PATIENT DAY
Joseph N. France	\$300,000	\$45,000	\$255,000	\$40,000	\$6.38
Alexandra	90,000	13,500	76,500	20,000	3.83
Pogson	30,000	2,250	27,750	6,500	4.27
Cardin Home	80,000	6,000	74,000	32,000	2.31
Hansen Home	12,000	-	12,000	1,800	6.67

(1) From the 1982 Draft Estimates

(2) Assumed to be 15% of total for the Joseph N. France and Alexandra hospitals which have nurse training programs. Assumed to be 7.5% of total for all other institutions except the Hansen Home where it is assumed that the staff don't eat at the institution.

(3) Rough averages over the past 4 to 5 years. See Table A9 in Appendix A.

The unit costs presented in Table 8 are probably fairly accurate. The biggest question arises in the amount of food consumed by staff and trainers. Hospital administrators may be able to improve upon the rather arbitrary assumption made in this analysis. The dietary budget for the Alexandra Hospital covers the associated infirmary. Patients in the infirmary probably cost less to feed than those in the inpatient wards.

As in the case of District Medical Office clinics, little consolidated information exists on the delivery of outpatient and casualty services at the hospitals. Casualty and outpatient attendance was available for the Joseph N. France Hospital for the last 4 years, however, as shown in Table 9.

TABLE 9: CASUALTY AND OUTPATIENT ATTENDANCE AT J.N.F. HOSPITAL

YEAR	OUTPATIENT ATTENDANCE	CASUALTY ATTENDANCE	TOTAL
1981	15,436	5,107	20,543
1980	12,924	4,928	17,852
1979	15,140	4,776	19,916
1978	11,860	4,551	16,411

- (1) The figures for 1978 and 1979 are from the micrographed "Annual Report" for the Joseph N. France General Hospital. Those for 1980 and 1981 were provided by the head of the records department of the hospital in a telephone conversation and should be considered preliminary.

Casualty attendance is increasing rather regularly, while outpatient attendance is much more variable, but also appears to be increasing. The annual rate of increase in total attendance from 1978 through 1981 is 7.8%. If this rate of increase is applied to 1981 total attendance, 1982 total attendance is estimated as 22,145. In Table A2 of the Appendix A, the outpatient budget for 1982 was estimated to be \$465,000, yielding a figure of \$21.00 per attendance.

The unit costs presented in this section are not definitive. They are generally based on broad assumptions. Those who are more familiar with the health system in St. Kitts/Nevis should be able to refine the assumptions and develop better unit cost estimates. If routine reporting and analysis is upgraded, the information produced would greatly aid the preparation of more accurate estimates.

For the planner, it is not sufficient, however, to know the number and cost of services delivered. He must also know something about the quality of the service. Outpatient or casualty patients may get seven or eight minutes of a doctor's time while patients at one of the District Medical Officer's clinics may get only two or three minutes. Quality of care is difficult to evaluate and was beyond the scope of this analysis. The health planner, working to bring about health for all by the year 2000, however, must consider quality issues as well as those pertaining to quantity and cost.

V. USES OF FUNDS

The Government of St. Kitts/Nevis breaks its budget down into three broad categories; personal emoluments, other charges and non-recurrent charges. Table 10 shows the distribution of funds in the 1982 Draft Estimates for government health expenditures among these three categories.

TABLE 10: USES OF FUNDS IN 1982 DRAFT ESTIMATES

CATEGORY	AMOUNT (\$000 E.C.)	%
Personal Emoluments	5,587	62.9
Other Charges	3,205	36.1
Non-Recurrent Charges	85	1.0
TOTAL	8,877	100.0

There are no generally applicable rules which say what the optimal distribution of financial resources should be. Seventy per cent is a round figure used for salary cost in hospitals in the United States. In less developed countries, however, one would expect the salary share to be much less, since salary scales are much lower, while the cost of materials and supplies, for example drugs and X-ray film, may be similar to that in the United States.

In general, government-financed health systems are plagued by chronic shortages of medicines and supplies. St. Kitts/Nevis does not appear to be an exception. Health personnel reported that shortages of drugs and other supplies occur frequently. This could not be easily verified or quantified, however, since the Central Drug Purchasing Unit does not develop reports that indicate the frequency and duration of stock outs. The Hospital Administrator at the Joseph N. France Hospital pointed out her fuel allocation was insufficient to keep 1 vehicle in operation, a problem she shares with other health administrators around the world.

It is beyond the scope of this study to recommend an optimum ratio between salaries and other charges for St. Kitts/Nevis. At this point, however, it is clear that careful consideration should be given to providing existing personnel with greater material support, before new service-delivery personnel are hired.

VI. CAPITAL EXPENDITURES

The basic health infrastructure is in place on St. Kitts/Nevis. As a result, health does not account for a large proportion of the Governemnt's capital budget, as indicated in Table 11, below.

TABLE 11: CAPITAL ESTIMATES

YEAR	CAPITAL ESTIMATES (\$000 E.C.)		%
	TOTAL	(1) HEALTH	
1981	58,247	(2) 1,426	2.4
1980	49,144	677	1.4
1979	45,352	425	0.9
1978	31,057	545	1.8
1977	25,256	318	1.3
AVE. (3)	23.2%	45.5%	1.6

- (1) Water projects are not included.
- (2) Includes \$750,000 E.C. for the construction of a Nurse's hostel and \$150,000 for the construction of a poly clinic at Molyneaux.
- (3) The annual rate of growth is given in the first 2 columns; a weighted average in the third.

The numbers presented in Table 11 should be treated with considerable caution. While the government usually expends all of its recurrent budget, it has apparently not managed to expend more than 44% of the funds in its capital budget in any of the last 4 years. Table 12 illustrates this problem for the Government as a whole and for the Ministry of Health, Education and Social Affairs. Note that estimates are compared to revised estimates, themselves probably over-estimations of actual expenditures. Data on actual expenditures was not available.

TABLE 12: COMPARISON OF ESTIMATES WITH REVISED ESTIMATES

YEAR	(1) MIN. HEALTH, ED. SOC. AFF.		%	TOTAL GOVERNMENT		%	(1) % HEALTH & ED.	
	ESTIMATE	REVISED		CHANGE	ESTIMATE		REVISED	CHANGE
1981	6,708			58,247				
1980	3,982	558	-86	49,144	21,381	-56	8	3
1979	2,552	220	-91	45,352	13,958	-69	6	2
1978	4,662	5,061	+9	31,057	7,863	-75	15	64
1977	4,400	553	-87	25,256	5,999	-76	17	9
1976		12			6,497			
AVE.	11.1%		-64	23.2%	34.7%	-69	12	20

(1) This column does not include water projects which come under the Ministry of Public Works and Utilities, nor does it include some health-related projects that come under the Ministry of Nevis Affairs (1981). Education projects are, however, included and account for the majority of the budget.

VII. PRIVATE SECTOR EXPENDITURES

It is very difficult to get an accurate estimate of the size of the private sector's share of health financing on St. Kitts/Nevis. The private health sector includes the National Agricultural Corporation (NACO), several pharmacies, the private practices of about sixteen doctors, the St. Kitts/Nevis Family Planning Association and the Red Cross. It also includes several companies that provide health insurance and the transportation sector which provides patients with transportation services (for a variable fee) to health service delivery points. Each of these institutions or groups are discussed briefly, below.

The National Agricultural Corporation provides health care to its employees, and also to the dependents of a small group of managers. In most cases the employee must get written authorization from his supervisor to seek medical assistance from a doctor. On presenting this authorization to the doctor he is entitled to free treatment (consultation and drugs). The doctor bills NACO directly. In general, no cost breakdown is provided between the cost of the consultation and the cost of any drugs provided. If the doctor can not provide the drugs directly he may write out a prescription which the patient can have filled at a pharmacy and then be reimbursed by NACO. Table 13 is a summary of Table A10 in Appendix A and shows the magnitude of NACO's effort to purchase health services for its employees.

TABLE 13: NACO HEALTH EXPENDITURES

YEAR	TOTAL EXPENDITURE \$ E.C.	TOTAL # OF EMPLOYEES	EXPENDITURE PER EMPLOYEE \$ E.C.	# OF DOCTORS
1980	634,000	4,620	137	14
1979	429,000	4,315	99	8
1978	408,000	4,105	99	10
GROWTH RATE	24.7%	6.1%	17.6%	-

Actual government expenditures on health in 1980 were 5.3 million dollars. NACO's expenditures were, therefore, about 12% of the government's. NACO's expenditures, however, go almost entirely for outpatient services. From Table 4 it is possible to estimate that 19% of the government's 1982 Draft Estimates is allocated to outpatient services. Applying this ratio to the government's 1980 expenditure on health we can estimate its 1980 expenditure on outpatient services was almost exactly 1 million dollars. In 1980, NACO spent an amount equal to 63% of the government's expenditure on out-patient services.

NACO feels that it is paying too much for the services being provided. At the time this report was being prepared, a new arrangement was being worked out which NACO felt would reduce costs. There may be a message, however, for the government's health sector. NACO served only 4,620 people with curative services. For the government to serve the remaining 44,000 people with the same level of care at the same per capita cost would result in an expenditure of over \$6 million for out-patient services alone, over three times the amount included in the 1982 Draft Estimates. The NACO data suggest that the demand for these services is much greater than the capacity of the public health sector.

Pharmacies appear to be doing well in St. Kitts. Table 14 presents an estimation of private sector drug sales. The following important assumptions have been made. First, the government's import statistics are accurate and smuggling of drugs, in order to avoid import taxes of 30 to 37%, is not significant. Second, the private sector applies an average mark-up of 75% to the total of C.I.F. cost plus import taxes averaging 33% of C.I.F. cost.

TABLE 14: ESTIMATION OF PRIVATE SECTOR DRUG SALES⁽¹⁾
(\$000 E.C.)

YEAR	TOTAL IMPORTS (CIF)	GOVERNMENT IMPORTS (CIF)	OTHER IMPORTS (CIF)	IMPORT TAXES	CIF & IMPORT TAXES	ESTIMATED RETAIL SALES
1980	1,586	400	1,186	391	1,577	2,760
1979	1,123	350	873	288	1,161	2,031
1978	1,176	311	865	285	1,150	2,012
1977	961	157	804	265	1,069	1,871
1976	928	198	730	241	971	1,699
GROWTH RATE	14.3%	19.2%	12.9%	12.9%	12.9%	12.9%

(1) Table 4 is repeated as Table All in Appendix A, together with detailed assumptions and explanations.

Table 14 indicates that the growth of the private sector drug market has been irregular. From 1976 to 1979 it apparently grew by only 20%, while the following year it leaped ahead by 36%. It will be interesting to see what happened in 1981. Using the 12.9% annual rate of increase, continues private sector sales for 1982 can be projected to be \$3,518,000 E.C. or almost 6 times the amount the Government expects to spend on drugs.

The magnitude of the doctor's role in the private sector is difficult to quantify. Doctors are permitted to have a private practice and most do. They are not expected, however, to report the number of patients they see nor the financial compensation they receive. Informal conversations with a broad range of Kitticians indicated that they thought most doctors probably saw a minimum of 30 private patients per day, 5 days per week, at an average cost including drugs, of \$20.00. This figure would include NACO patients. Fees paid to 16 doctors in their private practices are, therefore, estimated to be \$2,496,000 E.C..

While there is no way, short of doing a survey of health expenditures by the population or getting the doctors to volunteer the information, of checking the estimate developed above, most people indicated that they spent somewhat more for drugs than for doctor's consultation when they got sick. This conforms with the independent estimates of retail drug sales and private practice consultation fees, in which the former exceeds the latter by 40%.

The St. Kitts/Nevis Family Planning Association is supported primarily by International Planned Parenthood Federation and USAID funding. Its budget is about \$136,000 per year. The Red Cross, in addition to its non-routine and un-budgeted function of disaster relief, spends about \$1,000 per year to support a school for the deaf. Finally, the Ministry of Health collects about \$110,000 per year in fees charged for special services, for example private and semi-private wards at the general hospitals. Table 15 summarizes the estimates of spending by the private sector.

TABLE 15: ESTIMATED 1982 PRIVATE SECTOR HEALTH SPENDING
(\$ E.C.)

ITEM	AMOUNT
Retail drug sales	\$3,518,000
Doctor's consultation fees	2,496,000
Family Planning Association	136,000
Fees paid to the government	110,000
Red Cross	1,000
Total	\$6,261,000

NACO expenditures have not been included in Table 15, because they cannot easily be separated from retail drug sales and doctor's fees. Estimates for these 2 items include NACO expenditures.

Two potentially significant items were not included in Table 15. Health insurance is increasingly popular on St. Kitts/Nevis. Information on the total amount being paid for premiums and the amount paid out in benefits was not available. Since the amount paid in benefits is spent to procure the services listed in Table 15, the difference between premiums paid and benefits received is the amount that should be added to Table 15.

Transportation costs incurred by people seeking health services should also have been included in Table 15. It was not possible, however, to estimate the amount paid for these services. It should be noted that these costs are borne by the person seeking health services, irrespective of whether the services sought are in the public or private sector.

The total in Table 15 is a little more than 70 of total projected government health spending as indicated by the 1982 Draft Estimates. When insurance and transportation costs are included, private sector spending may equal or exceed government spending. Two related conclusions can be drawn.

1. There is a large proven demand for curative services which is not being met through government-provided services.
2. There is a demonstrated willingness to pay for these services on the part of a large proportion of the population.

Future planning exercises in the context of providing health for all by 2000 should take into account the people's demonstrated willingness and ability to contribute financially towards the cost of certain health services. A plan that ignores the private sector ignores a valuable resource which could be of great help in achieving the plan's goals.

VIII. SUMMARY AND RECOMMENDATIONS

This report has presented a preliminary analysis of financing in the health sector of St. Kitts/Nevis. Spending is increasing in both the public and private sectors. Government spending for 1982 is projected to be in the range of \$200 per capita. Private sector spending is difficult to estimate, but appears to be at least \$150 per capita and may even exceed government spending.

While funding levels are relatively high, one should also assess the cost-effectiveness of the services that are being delivered. Infant mortality is also relatively high and has been increasing during the past five years raising doubts about the quality of services being delivered.

Future planning exercises should develop better estimates of current unit costs and then seek to design service-delivery strategies which provide quality services at a reduced cost. Attention should also be given at this time to evaluating the range of services provided and the appropriate level of personnel to deliver each type of service.

The following are tentative recommendations, based on an all-to-brief study, which should help the government's health service reach the announced goal of providing health for all by 2000.

1. Encourage one or more personnel to get professional masters-level training in public health and place this person(s) in a senior leadership position upon his return. The government's health service does not appear to have a public health orientation at this time. Such an orientation is implicit and central to the primary health care strategy.
2. Expand the central planning and administrative capacity of the Ministry. Brief, but frequent and timely health statistics reports are an essential supporting component of a public health service. These statistics and financial information should be important inputs in future planning activities. Increased planning and administrative capacity should increase and improve utilization of the capital budget.
3. Develop a phased plan for achieving the goal of health for all by 2000. This plan should enumerate the types of services to be delivered at each level in the health service and the type of personnel who should deliver those services.
4. Integrate into the planning process a thorough financial analysis. This analysis should carefully project the future operating costs of the planned health service delivery system. Sources of funding should be identified, and a combination of sources (government revenues, insurance, user fees, etc.) designed that will adequately fund all operating costs.

APPENDIX A: SUPPORTING TABLES

TABLE A1: GOVERNMENT OF ST. KITTS/NEVIS REVENUES (\$000 F.C.)

YEAR	CUSTOMS			INLAND REVENUE			HEALTH & MEDICAL			ALL OTHER			TOTAL		
	ESTIMATE	ACTUAL	%	ESTIMATE	ACTUAL	%	ESTIMATE	ACTUAL	%	ESTIMATE	ACTUAL	%	ESTIMATE	ACTUAL	%
1981	7,083			26,256			131			13,245			46,715		
1980	5,973			25,360			100			15,539			46,972		
1979	4,966	5,978	+20	16,853	24,217	+44	131	106	-19	9,239	10,022	+8	31,189	40,323	+29
1978	4,600	5,149	+12	13,454	21,636	+61	113	99	-12	8,511	7,718	-9	26,678	34,602	+30
1977	4,400	4,351	-1	12,106	14,954	+24	110	113	+3	6,953	8,215	+18	23,569	27,633	+17
1976		4,429			16,236			95			8,607			29,367	
1975		3,684			12,510			82			5,788			22,064	
AVE. % ⁽¹⁾	12.6	12.9	+11	21.4	18.0	+43	4.5	6.6	-10	17.5	14.7	+5	18.7	16.3	+26

(1) Weighted averages are given for all % columns while average annual rates of growth are given all "Estimate" and "Actual" columns.

Source: St. Kitts/Nevis Estimates for 1977 through 1981, except the "All Other" and % columns which were calculated from data contained in this table.

TABLE A2: BREAKDOWN OF 1982 DRAFT ESTIMATES FOR HEALTH (1)
 BY INSTITUTION OR PROGRAM AND TYPE OF SERVICE
 (\$000 E.C.)

	PREVENTIVE	OUTPATIENT	INPATIENT	TRAINING	ADMINISTRATION	TOTAL
Water Services	773					773
Ministry of Health, Ed. & Soc. Aff.	223	18			124	365
Health Dept. Administration	6	12	25		217	260
District Medical Offices	35	218				253
Health	1,222	557	4		6	1,789
Central Drug Purchasing	1	13	18			32
Family Planning	49					49
Joseph N. France Gen'l Hospital		465	2,114	723		3,302
Pogson Hospital, Sandy Point			283			283
Hansen Home			52			52
St. Kitts Infirmary & Mental Wards			255			255
Nevis Health Department	168	162			19	349
Alexandra Hospital & Infirmary		160	723	229	3	1,115
TOTAL	2,477	1,605	3,474	952	369	8,877

(1) This table is a summation of Tables III, IV and V.

TABLE A3: BREAKDOWN OF PERSONAL EMOLUMENTS BY INSTITUTION OR PROGRAM
AND TYPE OF SERVICE IN 1982 DRAFT ESTIMATES (\$000 E.C.)

	A PREVENTIVE	B OUTPATIENT	C INPATIENT	D TRAINING	E ADMINISTRATION	F TOTAL
Water Services	393					393
Ministry of Health, Ed. & Soc. Aff.					99	99
Health Dept. Administration					201	201
District Medical Offices		183				183
Health	432	446				878
Central Drug Purchasing	1	13	18			32
Family Planning	17					17
Joseph N. France Gen'l Hospital		337	1,348	660		2,345
Pogson Hospital, Sandy Point			179			179
Hansen Home			36			36
St. Kitts Infirmary & Mental Wards			133			133
Nevis Health Department	140	81			17	238
Alexandra Hospital & Infirmary		128	512	213		853
TOTAL	983	1,188	2,226	873	317	5,587

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Notes for Table A3

- (1A) pg. XVII
- (2E) pg. 142: 50% of (1-5) + 33% of (6) + 18% of (28)
- (3E) pg. 164: 100% of (1-9) + 15% of (35)
- (4B) pg. 164: 100% of (10) + 14% of (35)
- (5B) pg. 164: 100% of (11,12,25-28) + 50% of (13-17,29,30) + 34% of (35)
- (5A) pg. 164: 100% of (18-24) + 50% of (13-17,29,30) + 33% of (35)
- (6A) pg. 166: 4% of (31-33) + -% of (35)
- (6B) pg. 166: 40% of (31-33) + 1% of (35) Salaries apportioned in same ratio
- (6C) pg. 166: 56% of (31-33) + 1% of (35) as 1980 drug distribution
- (7A) pg. 166: 100% of (34) + 1% of (35)
- (8D) pg. 166: 100% of (47,48,62,72,76) + 28% of (85)
- (8B) pg. 166: 20% of (36-85 less (8D), above)
- (8C) pg. 166: 80% of (36-85 less (8D), above)
- (9C) pg. 168: 100% of (86-96)
- (10C) pg. 170: 100% of (97-103)
- (11C) pg. 170: 100% of (104-111)
- (12A) pg. 170: 100% of (112,113,115) + 50% of (116-118) + 59% of (119)
- (12B) pg. 170: 50% of (116-118) + 34% of (119)
- (12E) pg. 170: 100% of (114) + 7% of (119)
- (13D) pg. 172: 100% of (127,136) + 25% of (145)
- (13B) pg. 172: 20% of (120-145 less (13D), above)
- (13C) pg. 172: 80% of (120-145 less (13D), above)

These notes and the notes for Tables A4 and A5 provide complete information regarding the assumptions made in appointing the budgetary allocations, when used in accompaniment with a copy of the 1982 Draft Estimates. The first number, given in parentheses, refers to the row and column in Table A3. The page number refers to the page from which the information was obtained in the 1982 Draft Estimates. The numbers that follow in parenthesis refer to item numbers found on the particular page. Thus (10C) pg. 170: 100% of (91-103) indicates that the entry in row 10 column C of Table 3A equals 100% of items 97 through 103 found on page 170 of the 1982 Draft Estimates.

TABLE A4: BREAKDOWN OF "OTHER CHARGES" BY INSTITUTION OR PROGRAM AND TYPE OF SERVICE IN 1982 DRAFT ESTIMATES (\$000 E.C.)

	A PREVENTIVE	B OUTPATIENT	C INPATIENT	D TRAINING	E ADMINISTRATION	F TOTAL
Water Services	346					346
Ministry of Health, Ed. & Soc. Aff.	223	18			25	266
Health Dept. Administration		8	25		16	49
District Medical Offices	35	35				70
Health	790	111			6	911
Central Drug Purchasing(1)	(25)	(239)	(336)			(600)
Family Planning	32					32
Joseph N. France Gen'l Hospital		127	763	58		948
Pogson Hospital, Sandy Point			87			87
Hansen Home			16			16
St. Kitts Infirmary & Mental Wards			118			118
Nevis Health Department	28	81			2	111
Alexandra Hospital & Infirmary		31	201	16	3	251
TOTAL	1,454	411	1,214	74	52	3,205

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(1) This row represents medicines and medical supplies. They have been apportioned to the institutions and programs in the same ratio as the 1980 drug distribution. To avoid double counting this row has not been included in column totals.

Notes for Table A4

- (1A) pg. XVII: "other charges"
- (2E) pg. 146: 15% of (2,4-6)
- (2A) pg. 146: 100% of (7,8) (Nutrition Surveillance Unit 23,000 + School Feeding Programme 200,000)
- (2B) pg. 146: 100% of (10,15,29,30,34)
- (3E) pg. 174: 100% of (2,3)
- (3B) pg. 174: 100% of (4)
- (3C) pg. 174: 100% of (5)
- (4B) pg. 174: 50% of (6-8)
- (4A) pg. 174: 50% of (6-8)
- (7A) pg. 174: 100% of (17) + 100% of (76)
- (5A) pg. 174: 100% of (9-12,16,18-20,23,24) + 50% (14,15) + 2.6% of (21)
- (5B) pg. 174: 50% of (14,15) + 16.6% of (21)
- (5C) pg. 174: 100% of (22)
- (5E) pg. 174: 100% of (13)
- (8D) pg. 176: 37% of (37) + 100% of (39) + 15% of (33)
- (8B) pg. 176: 20% of (25-32,34-36,38,40,41 and 63% of (37)) + 20% of 43.5% of (21)
- (8C) pg. 176: 80% of (25-32,34-36,38,40,41 and of 63% of (37)) + 80% of 43.5% of (21) + 85% of (33)
- (9C) pg. 176: 100% of (42-48) + 7.5% of (21)
- (10C) pg. 176: 100% of (49-56) + 0.1% of (21)
- (11C) pg. 176: 100% of (57-66) + 1.3% of (21)
- (12A) pg. 176: 100% of (70,72,73,75) + 50% of (68,69,74) + 1.5% of (21)
- (12B) pg. 176: 50% of (68,69,74) + 11.5% of (21)
- (12E) pg. 176: 100% of (71)
- (13E) pg. 180: 100% of (87)
- (13D) pg. 180: 15% (84) + 28% of (86)
- (13B) pg. 180: 20% of (77-81,83,85,72% of 86, 88-90, 15.4% of 21)
- (13C) pg. 180: 80% of (77-81,83,85,72% of 86, 88-90, 15.4% of 21) + 100% of (82) + 85% of (84)

TABLE A5: BREAKDOWN OF "NON-RECURRENT" BY INSTITUTION OR PROGRAM
AND TYPE OF SERVICE IN 1982 DRAFT ESTIMATES (\$000 E.C.)

	A PREVENTIVE	B OUTPATIENT	C INPATIENT	D TRAINING	E ADMINISTRATION	F TOTAL
Water Services	34					34
Ministry of Health, Ed. & Soc. Aff.						
Health Dept. Administration	6	4				10
District Medical Offices						
Health						
Central Drug Purchasing ⁽¹⁾						
Family Planning						
Joseph N. France Gen'l Hospital		1	3	5		9
Pogson Hospital, Sandy Point			17			17
Hansen Home						
St. Kitts Infirmary & Mental Wards			4			4
Nevis Health Department						
Alexandra Hospital & Infirmary		1	10			11
TOTAL	40	6	34	5		85

Notes for Table A5

- (1A) pg. XVII: 100% of non-recurrent costs in line 24
- (3A) pg. 180: 100% of (92,95) + 50% of (91,93,94,96)
- (8D) pg. 182: 100% of (97)
- (8B) pg. 182: 20% of (98,99)
- (8C) pg. 182: 80% of (98,99)
- (9C) pg. 182: 100% of (100,101)
- (11C) pg. 182: 100% of (102)
- (13B) pg. 182: 20% of (103, 105-107)
- (13C) pg. 182: 80% of (103, 105-107) + 100% of (104)

TABLE A6: DISTRIBUTION OF DRUGS AND MEDICAL SUPPLIES IN 1980
AMONG FACILITIES ON ST. KITTS/NEVIS

INSTITUTION OR PROGRAM	AMOUNT IN \$ E.C.	%
Joseph N. France Hospital	194,433	43.5
Government Dispensary	74,055	16.6
Alexandra Hospital	68,851	15.4
Newtown Dispensary	51,521	11.5
Pogson Hospital	33,704	7.5
Public Health Nursing-St. Kitts	11,638	2.6
Public Health Nursing-Nevis	6,523	1.5
Infirmary	5,687	1.3
Hansen Home	371	.1
TOTAL DISTRIBUTED	446,783	100.0

Obtained from Mr. Robert Bowry from the account books he maintains at the Central Drug purchasing Unit.

It should be noted that Mr. Bowry's accounts were complete and up-to-date. Information of the kind presented in this table is very important when assessing the operating costs of various institutions. Unfortunately, information such as this is almost never available or even retrievable. It is a real tribute to Mr. Bowry and his clerk that this information was immediately available.

TABLE A7: ESTIMATED PUBLIC HEALTH NURSING SERVICE COSTS FOR 1982

ITEM	AMOUNT \$ E.C.	AMOUNT \$ E.C.
Personal Emoluments ⁽¹⁾ 1 Superintendent of Public Health Nurses at \$19,000 2 Supervisors at \$16,500 1 Family Planning Programme Administrator at \$15,500 10 Health Sisters at \$14,500 22 District Nurses at \$10,000 1 Midwife at \$9,000 Other Charges ⁽²⁾	\$19,000 33,000 15,500 145,000 220,000 9,000	\$441,500 253,268
TOTAL PUBLIC HEALTH NURSING SERVICE COSTS		\$694,767

(1) Approximations based on 1982 salary scale

(2) Approximation made by applying the health sector ratio of 5,587,000/3,205,000 (See Tables A3 and A4) to personal emoluments in the public health nursing service. This method probably overestimates the actual allocation to other charges for public health nursing.

TABLE A8: ESTIMATED DISTRICT MEDICAL OFFICER COSTS FOR 1982

ITEM	AMOUNT \$ E.C.
Personal Emoluments(1)	\$183,000
Other Charges(2)	104,979
TOTAL DISTRICT MEDICAL OFFICER, SERVICE COSTS	\$287,979

(1) From 1982 Draft Estimates

(2) Calculated using the same methodology used for "Other Charges" in Table A7. In the case of District Medical Officer services, this method almost certainly underestimates the amount actually used. About \$125,000 worth of drugs was issued to the government and Newtown dispensaries. Much of this was probably used at District Medical Officer Clinics, since nurses can prescribe only a very limited range of drugs.

TABLE A9: IN-PATIENT SERVICE STATISTICS ON ST. KITTS/NEVIS

YEAR	VARIABLE	JOSEPH N. FRANCE GENERAL HOSPITAL	POGSON HOSPITAL	CARDIN ⁽¹⁾ (10) HOME	HANSEN ⁽¹⁾ (10) HOME	ALEXANDRA HOSPITAL	INFIRMARY ⁽¹⁾ (10)
	# of Beds	164	30	87-108	6-10	54	25-30
1981	Patient Days Occupancy Rate Average Length of Stay	39,830 ⁽¹¹⁾ 66.5 ⁽¹¹⁾ 11 ⁽¹¹⁾					
1980	Patient Days Occupancy Rate Average Length of Stay	39,704 ⁽⁶⁾ 66.3 ⁽⁶⁾ 10 ⁽⁶⁾	5,833 ⁽⁸⁾ 53.3 ⁽⁸⁾ (3) 7 ⁽⁸⁾	31,045 95.6	1,990 90.9	10,067 ⁽⁵⁾ 51.1 ⁽⁵⁾ 10 ⁽⁵⁾	11,315 100
1979	Patient Days Occupancy Rate Average Length of Stay	44,726 ⁽⁷⁾ 74.7 ⁽⁷⁾ 14 ⁽⁷⁾	6,519 ⁽⁸⁾ 59.5 ⁽⁸⁾ 8 ⁽⁸⁾	29,161 91.8	1,401 64.0	7,250 ⁽⁵⁾ 36.8 ⁽⁵⁾ 9 ⁽⁸⁾	10,505 92.8
1978	Patient Days Occupancy Rate Average Length of Stay	43,247 ⁽⁷⁾ 72.2 ⁽⁷⁾ (2) 13 ⁽⁷⁾	6,476 ⁽⁸⁾ 59.1 ⁽⁸⁾ 9 ⁽⁸⁾	34,310 100	1,313 59.9	8,677 ⁽⁸⁾ 44.0 ⁽⁸⁾ 8 ⁽⁸⁾	9,490 100
1977	Patient Days Occupancy Rate Average Length of Stay	48,394 80.8 14	6,068 59.4 ⁽⁴⁾ 17	39,420 100	2,356 64.5	10,779 54.7 11	9,490 100

Average Occupancy Rates (%)

72.1

57.8

96.8

69.8

46.6

98.2

- (1) The Cardin Home and Infirmary are homes for the aged and mentally disabled. The Hansen Home is for sufferers of Hansen's disease. All 3 institutions have very long, but unreported, average lengths of stay. The number of beds reported varies with the number of patients.
- (2) The occupancy rate reported for 1977 was 80%. This appeared to be an error.
- (3) The reported occupancy rate was 47%. The number of patient days (5833) reported may have been too high, or the number of beds available may have been greater than 30.
- (4) The number of beds available was 28.
- (5) From the 1980 Annual Report for the Alexander Hospital (typed draft).
- (6) From a typed page of statistics for Joseph N. France General Hospital for 1980.
- (7) From the 1979 Annual Report for the Joseph N. France General Hospital (typed draft).
- (8) Obtained from an interview with Miss Hendrickson, health statistician, at the Health Center in Basseterre.
- (9) All figures for 1977 are either from or derived directly from the table on page 9 of the 1977 Statistical Report of the Health Department.
- (10) Data for 1978, 1979 and 1980 were obtained from an interview with Miss Hendricksen, health statistician, at the Health Center in Basseterre.
- (11) Received over the phone from the head of the records section at the Joseph N. France Hospital.

ASSUMPTIONS MADE IN TABLE 7

The Cardin Home on St. Kitts is for geriatric and psychiatric patients, as is the infirmary attached to the Alexandra Hospital on Nevis. The Hansen Home is for sufferers of Hansen's disease. At these institutions the number of beds varies with the number of patients. The average length of stay has not been reported, but it is very long.

A budgetary breakdown for the Alexandra Hospital and its associated infirmary was not available. Patient days were added together but no average length of stay was calculated.

In the cases of the Joseph N. France and Alexandra hospitals, training program costs were included, since the trainers perform work that is essential to the maintenance of an acceptable level of service. Administrative support costs were, however, not allocated because they are so small relative to the total cost.

The cost per patient day is low at the Alexandra hospital because of the associated infirmary. If the cost per patient day at the Alexandra infirmary is similar to that at the Cardin home, then the cost per patient day in the hospital itself is \$85, \$14 higher than at the Joseph N. France hospital.

TABLE A10: NATIONAL AGRICULTURAL CORPORATION (NACO) HEALTH EXPENDITURES⁽¹⁾

TIME PERIOD	# MOS.	CONSULTATION ⁽²⁾ FEES (\$ E.C.)	DRUG COSTS ⁽³⁾ (\$ E.C.)	TOTAL (\$ E.C.)	ANNUAL ⁽⁴⁾ EXPENDITURES RATE (\$ E.C.)	NUMBER OF EMPLOYEES (5)			ANNUAL EXPENDITURE ⁽⁶⁾ RATE PER EMPLOYEE (\$ E.C.)	# DRS. CONSULTED
						FIELD	FACTORY	TOTAL		
1980	12	600	34	634	634	3,830	790	4,620	137	14
1979	12	411	18	429	429	3,575	740	4,315	99	8
7/1978-12/1978	6	171	9	180	360	3,262	777	4,039	89	7
9/1977-6/1978	9	319	23	342	456	3,400	771	4,171	109	14
Average rate ⁽⁷⁾ of growth					24.7%			6.1%	17.6%	

(1) The information presented in this table was provided by NACO officials on the 28th of January. They stressed that the figures are not exact, but felt they represented a close approximation to actual expenditures. They estimate that 1981 expenditures will show a 15% increase over 1980.

(2) "Consultation fees" include, in addition to the Dr's consultation fees, the cost any drugs, injections etc. that may have been provided by the Dr. The latter probably represents a significant share of the total, but exactly how much could not be determined, since itemization of charges was not required.

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- (3) "Drug costs" represent only expenditures made for drugs at private pharmacies.
- (4) The Annual expenditure rate is calculated by dividing the number months in the time period into the total expenditures and multiplying by 12.
- (5) The number of field workers varies according to season. To get the number covered by NACO health benefits, the high end of the range of number of employees was used.
- (6) Per capita expenditure is actually slightly less since the families of some 55 managerial staff are also covered by NACO health benefits.
- (7) The Average rate of growth from 1978 to 1980 was calculated using a 1978 extrapolated figure calculated as the average of the annual expenditure rates (and Total # of employees) for the time periods from July 1978 to Dec. 1978 and Sept. 1977 to June 1978.)

TABLE All: ESTIMATES OF PRIVATE SECTOR DRUG SALES
ON ST. KITTS/NEVIS (\$000 E.C.)

YEAR	TOTAL ⁽¹⁾ IMPORTS	GOVERNMENT ⁽²⁾ IMPORTS	OTHER ⁽³⁾ IMPORTS	IMPORT ⁽⁴⁾ TAXES	PRIVATE ⁽⁵⁾ SECTOR COSTS	PRIVATE ⁽⁶⁾ SECTOR SALES
1980	1,586	400	1,186	391	1,577	2,760
1979	1,123	350	873	288	1,161	2,031
1978	1,176	311	865	285	1,150	2,012
1977	961	157	804	265	1,069	1,871
1976	928	198	730	241	971	1,699
AVE. GROWTH RATE	14.3%	19.2%	12.9%	12.9%	12.9%	12.9%

- (1) Provided in a meeting in the Statistics Section of the Planning Unit C.I.F. cost.
- (2) Taken from the "Estimates" for St. Christopher Nevis Anquilla for the years 1982, 1981, 1980, 1979 and 1978. (The Figure for 1980 is from the "Draft Estimates for 1982".) All figures represent actual expenditures. For 1977 and 1976 the figures represent the sum of the "Drugs, chemicals, and surgical supplies" line items found in italics as the last line item in the budget for "other charges" for each major health institution.
- (3) Calculated as the difference between "Total Imports" and "Government Imports".
- (4) Two import taxes apply. The import duty varies from 15% to 22% depending upon the item. The consumption tax is 15%. The taxes are both applied to the CIF cost. An average import tax of 33% was used.
- (5) Private sector cost equals the sum of the "Other Imports" and "Import Taxes" column.
- (6) Private sector sales were estimated as the Private sector cost plus a 75% mark-up by the private sector retailers. This covers their overhead, as well as their profit.

APPENDIX B: SALARY SCALES

A well functioning health system will have dedicated and motivated personnel. Many factors influence the level of dedication and motivation of health personnel. These include the frequency and quality of supervision, the adequacy of material supplies and recognition for superior performance. Another important factor is level of financial compensation. Chart B1 and accompanying tables show what has happened to the purchasing power of salaries paid to three important categories of health workers from 1977 to 1982.

Two revisions in salary scales were made, one in 1978 and the other in 1982. If one assumes that another revision is not likely for several years then the most comparable years are 1977 and 1981, the years preceding a major revision, and 1978 and 1982, both years of major revisions.

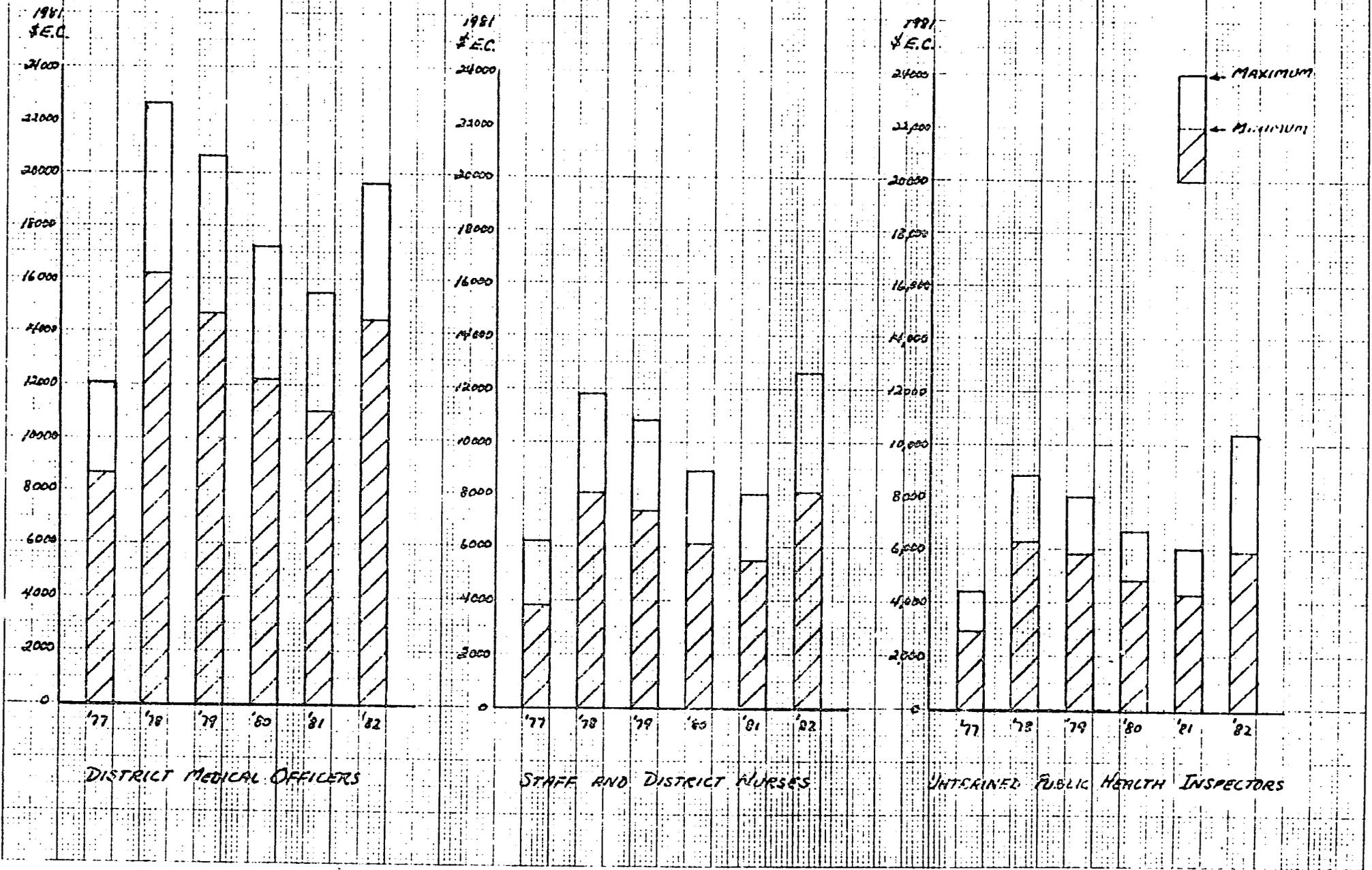
Comparing 1981 to 1977, all categories of personnel were better off in 1981 than they had been in 1977. Comparing 1982 to 1978, however, we find that the purchasing power of the salary of District Medical Officers is a little more than 10% less than it was in 1978. Untrained Public Health Inspectors in the lowest grades are also slightly worse off than they were in 1978. Staff and District Nurses, on the other hand, are slightly better off than they were in 1978, primarily due to the fact that the civil service grade of this personnel category was increased.

This general pattern of salary management must be discouraging to some workers. Inflation has averaged nearly 14% per year since 1975. If it continues at that rate, workers now face three or four years of 14% cuts in their purchasing ability before their salaries are again adjusted. Smaller, but more frequent adjustments based on price index data would seem to be a better way of maintaining staff morale and motivation. This is not an issue to be addressed by the Ministry of Health alone, however, but is the responsibility of the government as a whole and of the Ministry of Finance in particular.

Here, it is sufficient to conclude that financial compensation is currently as good as it has ever been, except in the higher grades. The situation is, however, not likely to remain this way for long, if inflation continues and the government raises salaries only once every four years.

CHART B1: SALARY SCALES

ADJUSTED BY PRICE INDEX



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TABLE B1: SALARY SCALES FOR DISTRICT MEDICAL OFFICER

YEAR	CURRENT \$ E.C.				PRICE INDEX	1981 CONSTANT \$ E.C.	
	MINIMUM		MAXIMUM			MINIMUM SALARY	MAXIMUM SALARY
	GRADE	SALARY	GRADE	SALARY			
1982	29	16,080	36	21,840	172.9	14,462	19,642
1981	29	11,040	36	15,480	155.5	11,040	15,480
1980	29	11,040	36	15,480	140.1	12,254	17,182
1979	29	11,040	36	15,480	116.6	14,723	20,644
1978	29	11,040	36	15,480	106.0	16,195	22,709
1977	29	5,700	36	7,920	101.7	8,715	12,110
GAIN (LOSS) OVER 5 YEARS	0	10,380	0	13,920	70%	5,747	7,532

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TABLE B2: SALARY SCALES FOR STAFF AND DISTRICT NURSES

YEAR	CURRENT \$ E.C.				PRICE INDEX	1981 CONSTANT \$ E.C.	
	MINIMUM		MAXIMUM			MINIMUM SALARY	MAXIMUM SALARY
	GRADE	SALARY	GRADE	SALARY			
1982	17	9,060	25	13,980	172.9	8,148	12,573
1981	15	5,520	23	8,040	155.5	5,520	8,040
1980	15	5,520	23	8,040	140.1	6,127	8,924
1979	15	5,520	23	8,040	116.6	7,362	10,722
1978	15	5,520	23	8,040	106.0	8,098	11,795
1977	15	2,520	23	4,080	101.7	3,853	6,335
GAIN (LOSS) OVER 5 YEARS	2	6,540	2	9,900	70%	4,295	6,335

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TABLE B3: SALARY SCALES FOR "UNTRAINED" PUBLIC HEALTH INSPECTORS

YEAR	CURRENT \$ E.C.				PRICE INDEX	1981 CONSTANT \$ E.C.	
	MINIMUM		MAXIMUM			MINIMUM SALARY	MAXIMUM SALARY
	GRADE	SALARY	GRADE	SALARY			
1982	10	6,540	17	11,580	172.9	5,882	10,397
1981	10	4,320	17	6,000	155.5	4,320	6,000
1980	10	4,320	17	6,000	140.1	4,795	6,660
1979	10	4,320	17	6,000	116.6	5,761	8,002
1978	10	4,320	17	6,000	106.0	6,337	8,801
1977	10	1,920	17	2,880	101.7	2,936	4,404
GAIN (LOSS) OVER 5 YEARS	0	4,620	0	8,700	70%	2,946	5,993

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Notes for Tables B1, B2, and B3

The price index is derived from the Annual Digest of Statistics for 1979 and for 1980 and 1981 from information provided over the phone by the Statistical Office. The figures used are for July of the indicated year. The 1982 figure is based on a simple projection of the average rate of increase (11.2%/year) experienced from July 1977 through July 1981.

It may be worth noting that the derived figure for 1977 is not the same in this table as the one used in Table 1. The discrepancy lies in the figures published in the Annual Digest of Statistics. Table 55 says the January and July 1978 indices (April 1964 = 100) were 306.6 and 312.2 respectively. This does not agree with Table 56 which says the July index was 106 with January set at 100.