

AN ANALYSIS OF RECURRENT COSTS IN GOB HEALTH AND POPULATION FACILITIES

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Glossary of Abbreviations

PHC	Primary Health Care
GOB	Government of Bangladesh
PER	Public Expenditure Review
ADP	Annual Development Plan
HEU	Health Economics Unit
MOHFW	Ministry of Health and Family Welfare
GDP	Gross Domestic Product
THC	Thana Health Complex

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Executive Summary

It is well appreciated within Bangladesh that the issue of sustainability is one of the most crucial concerns for planners and policy-makers in the health and population sectors. A key component of this is financial sustainability of outputs in the future. Any hospital or health centre, once constructed and staffed, requires regular maintenance and payment of salaries. Now, while GOB's foreign development partners are often extremely willing to invest in development expenditure, they are less willing to fund the operating costs of such investments. Hence, before committing new investments and resources to the health and population sectors it is important for GOB and its foreign development partners to examine GOB's current and expected liabilities.

Following the introduction, the methodology and economic theory behind an analysis of recurrent costs is set out in Section B. To attempt a comprehensive analysis of the recurrent cost implications for GOB would require much more data and time than has been allocated to the current study. Nevertheless, the report has tackled one of the key issues, the disaggregated composition of the ADP, in detail, while constructing a database on ADP population and health projects. The results of this exercise are detailed in Section C. This is not enough, however, to produce a full evaluation of recurrent cost implications. Ideally data is needed on forecast and actual outputs of the ADP along with actual and optimal unit costs of such facilities. Insufficient data currently exists on these topics. Section D, therefore, highlights the current composition of the Revenue Budget and its relationship with ADP investment before isolating some areas where unit costs are available. From this some indicative recurrent cost implications are drawn. Section E, compares these projected requirements with the likely GOB resource ceiling. It draws some conclusions and sets out an agenda for future research.

A brief summary of the main findings of the report is presented below:

The ADP Database

- The HEU has created a database on ADP health and population projects, detailing disaggregated allocations and expenditures. This will be an invaluable asset to all planning bodies concerned with the health and population sectors in Bangladesh. The database should be institutionalised within the GOB as quickly as possible.
- The coverage of the database for 1994/95 is 60% of ADP projects in the health and population sectors, and over 80% of expenditure. Furthermore, the database indicates that expenditures in the health and population sectors were over 80% of allocations. *Supplies*, *Construction* and *Salaries* are the largest specified categories in 1994/95.
- For health projects in the ADP, *Construction* was the largest category of expenditure in 1994/95, followed by *Purchase of Equipment*. Indeed, if the sample is representative of the total population, almost 80% of expenditure in the health sector was capital in nature.

- For the ADP population projects the largest line items in 1994/95 were *Supplies, Salaries and Allowances*. Indeed, recurrent activities amounted to approximately 80% of the expenditure incurred in such projects. A significant proportion of this was financed by donors.

The Revenue Budget

- While the funding of health activities in GOB's Revenue Budget is quite substantial that of the population sector is small. This implies a long-term commitment from donors to the sector and its running costs. Alternatively, if GOB wished to take on the present donor-funded recurrent commitments in the ADP then this would entail an expansion of the funding of the population sector in the Revenue Budget, from \$11 million to approximately \$67 million.

Recurrent Cost Implications in the Health Sector

- An initial analysis of the historical relationship between the ADP and the Revenue Budgets for the health sector would seem to indicate a three year lag between additional investment and an increase in operating costs. (No such relationship is evident for the population sector.) Having made recent investment into THC's it is likely that the Revenue Budget will have to expand in the next few years. An estimate of \$27 million has been arrived at for the associated recurrent costs, using unit cost data from UNICEF. This expansion of funding could be achieved by 2000, without reallocations from other sectors
- The UNICEF report *Indicative Cost of Essential Health and Nutrition Services in a District* is an important first-step toward estimating the implications of running an efficient programme of basic health and nutrition services. If such costs are accurate then GOB spending on recurrent costs needs to double from its present level within the next five years. However, the forecast increase in expenditure may not allow such a rapid expansion of funding. Further research is needed in this important area to assess fully the recurrent needs of the health and population sectors.

Recurrent Cost Implications in the Population Sector

At present, donors have taken on many of the costs associated with the operation of activities in the population sector. There are two options for GOB in this situation:

- To continue relying on external aid to fund much of the recurrent costs of the population sector. This assumes a long-term commitment by donors to the sector which can be met, regardless of the macro-economic position of donor countries, because of the outstanding need in Bangladesh. Furthermore, the current population activities in the ADP are not and should not be a permanent part of the GOB's family planning infrastructure. Once the population has stabilised, and this has been consolidated, then there will be no need for such activities. Hence the GOB should not be involved with expanding its infrastructure through the Revenue Budget only to have to reduce it again in the future and create political problems through the retrenchment of permanent staffing positions.

- Alternatively, GOB may decide that it does need to institutionalise more of the population sector in order to be able to guarantee sustainability. This may involve transferring some of the items out of the Development Budget and into the Revenue Budget. Even though many of the items in the ADP are developmental in nature, including some of the recurrent costs, it is wise to consider what infrastructure for family planning will need to be present once the population has stabilised. Contraceptives may still have to be distributed and information on family planning to be disseminated to avoid another population explosion.

Both options deserve full evaluation.

Future Tasks and Research

Improvement of the ADP database on allocations and expenditures

Although the initial data collection has been a useful and important step towards the development of a comprehensive Budget database, it needs to be refined. It is hoped that the MOHFW and the Budget Reform Project will analyse the database and improve it. In particular, the coverage of the database needs to be increased and outstanding problems with the current classification need to be resolved.

Data on the Outputs of the ADP

All the proposed and actual outputs of the ADP, or its constituent projects, need to be known for a comprehensive analysis of recurrent cost implications to be possible. This requires the GOB not only to have plans of projected targets for each programme or project but also a monitoring system for identifying how close to these targets the projects have arrived. Hence the former will help elicit data on the future planned recurrent costs implications of development projects while the latter will help determine the actual liabilities which the government must meet in the short to medium term.

Data on the Unit Costs of Outputs

Even where outputs have been monitored, the unit cost of maintaining them needs to be estimated. The UNICEF work in this area is a key starting point, especially for essential health and nutrition services. Where the outputs are similar to existing services or institutions the Revenue Budget can be used as a basis for deriving actual unit costs. Nevertheless, it may be decided that historical unit costs do not represent optimal running costs. Hence, the efficiency of existing health facilities needs to be assessed. Furthermore, in many instances project outputs are new to the health sector and much work is required to identify the optimal recurrent costs associated with them.

A. Introduction

It is often tempting for a government to invest heavily in priority sectors of its economy while putting aside an analysis of the future liabilities that such investment may produce. Any hospital or health centre, once constructed and staffed, requires regular maintenance and payment of salaries. Data on the expected future operating costs of completed outputs of the health and population sectors are very important for any government planning its investment programme. It is not sufficient for projects to be efficient, necessary and cost-effective strategies to counter a country's problems. Projects also need to have *outputs* which are *sustainable*, sooner or later, by the host government.

It is particularly timely, therefore, that the HEU can *start* to address this issue as part of the preparatory process for the 5th Population and Health Project. While foreign development partners are often extremely willing to invest in development expenditure, they are less willing to fund the operating costs of such investments. To have recurrent activities dependent on external assistance could, at best, risk progress made and, at worst, undermine investment in the sector. Indeed, it is GOB which should and does have the final liability for such investments. Hence, before committing new investments and resources to the health and population sectors it is important for GOB and its foreign development partners to examine GOB's current and expected liabilities. Should today's investments in the ADP feed through into tomorrow's Revenue Budget? Is this the only way whereby GOB can guarantee a health care system that will allow gains in the health and population sectors to be consolidated?

Despite its importance, several difficulties arise in the analysis of recurrent cost implications. In particular, the research ideally requires a significant amount of data in three different areas:

- Disaggregated data on ADP projects by expenditure type
- Data on the Outputs of the ADP
- Data on the Unit Costs of Outputs

Before the current study, there existed no comprehensive database on any of the topics outlined above. The HEU has attempted to create a database on disaggregated expenditure data of ADP Projects. Not only has this proved useful for the current study, but it will feed into a subsequent HEU Working Paper on the *Flow of Funds in the Health and Population Sectors*. The shortage of time for the current study has, however, prevented any systematic work on the collection and analysis of data on the outputs of the ADP and on unit costs. Still, given the pressing need for the results of a study on recurrent costs, we outline a few specific cases where data allow. In addition, in the final section we return to recommendations for future research which can guide a more comprehensive evaluation of the situation.

Section B outlines some of the economic theory and methodology used in the study and its analysis helps shape the format of the other sections. The results of the ADP data collection exercise are reviewed in Section C. Recurrent costs contained in the ADP health and population projects are then highlighted and discussed. Section D takes a broader macro view of the past.

relationship between the ADP and the Revenue Budget. In addition, it examines whether the Revenue Budget fully reflects all the GOB's liabilities. This section will conclude with some projections of recurrent costs. Still, even with these results it is not possible to draw any implications for planning until the resource envelope for future years is also calculated. Hence, in section E, we compare likely resource availability with GOB's liabilities to determine the sustainability of current initiatives. Finally, conclusions are drawn for the preparatory process of the 5th Population and Health Project and areas for further necessary research are highlighted.

B. Methodology

In assessing the recurrent cost liabilities of GOB it is important to examine the composition of expenditure in the ADP and the Revenue Budget. In the following section we isolate, from a theoretical standpoint, different types of expenditure contained in these budgets. Readers who are less interested in these theoretical aspects may skip to the next section without impairing their broader understanding of the overall study. Nevertheless, the classification that follows will provide the basis for our empirical analysis of recurrent costs.

Conventional economic theory would divide expenditure on facilities in the health care system into fixed and variable costs:

$$\text{Let } G = F + V \quad (1)$$

Where G is expenditure on GOB facilities

F is fixed costs

V is variable costs

Fixed costs represent the initial investment and the costs which *must* be paid through the lifetime of the facilities, regardless of any health output, while variable costs are related directly to the immediate outputs of the facilities. How do we relate such economic theory to GOB's Budgets? In terms of development and recurrent expenditure:

$$F = D + R_f \quad (2)$$

and

$$V = R_v \quad (3)$$

Where D is development expenditure, the amount of funds which are needed to set up a facility
 R_f is *fixed* recurrent expenditure which must be paid for the facilities to operate, such as salaries of technical staff.

R_v is *variable* recurrent expenditure which is dependent upon the number and type of activities of the facilities, such as drugs prescribed.

Hence, combining equations 1, 2 and 3:

$$G = D + R_f + R_v \quad (4)$$

Now development expenditure, D , can also be sub-divided:

$$D = C + R_p \quad (5)$$

Where C is capital expenditure on items such as construction and equipment

R_p is recurrent expenditure incurred in the operation of a *project*, to install the equipment/set up the facilities, which will disappear once the project is over.

Hence it is apparent that expenditure on GOB facilities can be broken down into four components:

$$G = C + R_p + R_r + R_v \quad (6)$$

Equation 6 merely disaggregates GOB expenditure into four components: *capital*, *project specific recurrent costs*, *fixed recurrent costs* which arise as a result of the existence and operation of constructed facilities, or are fixed by *supply*, and *variable recurrent costs* which relate to the precise activities of the facilities and are largely *demand* driven. Ideally, the ADP would consist of C and R_p , while the Revenue Budget would contain only R_r and R_v .

When looking at the recurrent cost implications of development expenditure we concentrate our analysis on the last two variables R_r and R_v . R_r is dependent upon the facilities that have been constructed and their standard requirements for operation, while R_v will be dependent upon GOB objectives in the health sector and the realised demand of patients.

$$R_r = f(Y) = K + L + M \quad (7)$$

$$R_v = f(O_g, D_p) = S \quad (8)$$

where Y is project outputs
 K is upkeep of capital stock
 L is salaries, allowances and training of staff
 M is upkeep of land and fixed materials
 O_g is GOB objectives
 D_p is effective patient demand
 S is variable supplies used in meeting demand

Equations 6, 7 and 8 reveal the informational requirements for a study of recurrent cost implications. There needs to be systematic information on the quantity and type of GOB facilities and their operating costs and on the coverage levels that are planned for certain medical initiatives. While comprehensive information on these areas is absent it is still useful to examine the ADP and the Revenue Budget. The ADP can give us vital data on C and R_p and may help us with information on R_r and R_v , while the Revenue Budget can highlight actual GOB contributions to R_r and R_v . Unfortunately there is often no simple relationship between C in one year and R_r in the future, because the link depends largely on the *type* of capital expenditure incurred. Still, an analysis of the ADP is a useful starting point for the study.

Even if all this information were available a further step would be required. This involves a methodological shift from what is actual to what is optimal. Indeed, the GOB is keen to maximise its health outputs given a certain budgetary constraint. The GOB is thus presented with a problem of *constrained optimisation*:

GOB wishes to find the maximum value of

$$H = f(G, NG, Z) \quad (9)$$

where H is health outputs in the sector
 G is expenditure on GOB facilities
 NG is expenditure on private sector, NGO or traditional health facilities
 Z is external factors
 $f(\dots)$ - "is a function of"

subject to a budget constraint:

$$G \leq B \quad (10)$$

where B is the maximum amount of funds that can be made available for GOB health facilities.

We can thus write the *Lagrangean* function as:

$$H = f(G, NG, Z) + \lambda[B - G] \quad (11)$$

where λ is a Lagrange multiplier (a mathematical device to help solve problems of constrained optimisation)

and solve for the simultaneous equations derived from the first derivatives by setting them equal to zero. This will give us stationary points. A maximum for H is reached where

$$d^2H/dG^2 < 0 \quad (12)$$

Now, there is no guarantee that *existing* operating costs, as contained in equation 6, are consistent with an *optimal* solution to equations 9 and 10. Instead, it may be possible both to increase health outputs and lower input costs into such facilities, by different expenditure patterns and investment strategies. In such cases R_f and R_v could be smaller than their current levels, thus reducing GOB liabilities in the sector.

Future HEU studies concerned with cost-effectiveness in key areas of the health sector should provide useful data on some of these issues. In addition, the introduction of National Health Accounts, with a sentinel budget tracking system could provide detailed micro-level costs for facilities and these would be an invaluable tool for furthering this analysis. In particular, it may allow us to model the optimal cost structure of certain facilities in the health and population sectors and with it set out more precise recurrent cost implications for GOB in the future.

C. ADP Projects: Development vs Recurrent activity

In some areas of the economy operating costs are much less important than in the health and population sectors. Often firms in industrial or service sectors, will at least start to cover their variable costs within a short period of time. In other sectors, revenue costs are not historically large and may be easily financed through healthy economic expansion. In contrast, many social sector activities neither produce short-run profits nor have minimal operating costs. The costs of running a fully-functional hospital are high, even after the completion of construction and purchase of equipment. It is vital, therefore, that planners understand how today's capital expenditure will feed through into operating costs tomorrow. In order to do this it is necessary to take a closer examination of the types of investment occurring in the ADP.

In theory the ADP should contain only projects with *development* activity, where GOB has an input. However, there have been suggestions that some of the ADP projects, in whole or in part, are not of a developmental nature. Instead they are involved with the operation and maintenance of various facilities. Such activities, it is often argued would be better in GOB's Revenue Budget and should only in exceptional circumstances be financed by external aid. This is a complex issue and one to which we shall return.

The disaggregation of the ADP between different types of expenditure is the first step toward looking at such issues of recurrent costs. These data have not previously existed in a comprehensive form. Despite the short time available for this study the HEU embarked on an exercise to gather information on allocated and actual funding, by financial year, from all those on-going projects in the ADP. Project Directors were requested for data on allocations and expenditure over the last five financial years, where appropriate, in the hope that this might yield a reasonable time-series. It is hoped that the Budget Sector Reform Team will be able to use the results and feedback from this exercise to help MOHFW prepare its next Budget, for the 1996/97 financial year. In particular, questions of definition and categorisation will have to be ironed out over the coming Budget cycle. Given that this is the first comprehensive exercise of its nature, attempting to create a consistent classification pattern, there are bound to be teething problems. Nevertheless, the good response of Project Directors has provided us a sample with which to work and their speedy response has been extremely encouraging and much appreciated.

The forms were designed with a trade-off in mind between collecting the maximum amount of data and requiring the least possible time for completion by Project Directors. The forms requested data on a spectrum of expenditure categories, ranging from construction of buildings to allowances. Where the categorisation used was not familiar to a Project Director he was requested to provide his own breakdown. Once HEU had collected all the forms such outliers were categorised in a consistent manner.

Results of the Survey

The results of the survey are aggregated in Tables 1 and 2. Table 1 summarises the allocations to the projects which returned completed forms, while Table 2 indicates expenditure patterns. Overall the survey results indicate that project expenditure is over 80% of their revised allocations. This disbursement rate does appear to be quite high but may be because not all the projects returned their forms. (It might be expected that those projects which had achieved good financial disbursement would be more likely to submit completed forms.)

This raises the question of the sample size and whether it is representative. A survey of the projects which did not return forms shows no common feature, other than a tendency to have project offices far from MOHFW headquarters. In all, 67 Project Directors returned completed forms and this amounts to 60% of the projects in 1994/95, falling to 53%, 44%, 28% and 17% for each earlier year back to 1990/91. The proportion of expenditure covered by the results of the survey is much higher; for 1994/95 it is 84%, 1993/94 it is 73% and 1992/93, 75%. Hence, in terms of expenditure the exercise has given us a fairly comprehensive base from which to work. While care is taken not to exaggerate the validity of the data, since there is no guarantee that the sample is representative, the database will still be useful for our analysis of recurrent costs.

The largest functional line item, in both Tables 1 and 2, is *Supplies*, which in the 1994/95 financial year accounted for 22% of all allocations and 26% of expenditure in the health and population sectors. The order then differs for each table. For ADP **allocations**, the second largest category is *Others*, 17%, closely followed by *Construction*, 16%, and *Salaries*, 13%. For **expenditure** in the ADP health and population projects, *Construction* is the second largest expenditure category, with 17%, followed by *Salaries* on 14% and *Allowances* and *Others*, 11% each. In future databases it is hoped that the *Others* category will be broken down into its constituent components. Perhaps further line items on travel and mass communication/information need to be added so that the remaining *Others* category assumes less importance.

Table 1: Survey Results: ADP Allocations to Health and Population Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.61	12.29	16.50	15.75	33.69
Purchase of Equipment	8.31	10.28	13.07	18.94	20.35
Purchase of Land	1.08	0.17	0.14	0.10	0.92
Training	1.22	1.71	2.97	5.99	11.36
Technical Assistance	1.55	2.81	2.40	4.60	5.42
Supplies	6.37	25.56	28.62	40.37	46.47
Operation and Maintenance	3.64	5.93	6.56	6.97	7.46
Salaries	17.33	23.31	24.02	24.32	26.35
Allowances	21.36	14.29	19.43	18.93	20.14
Others	2.67	4.15	31.44	27.32	34.69
Total	64.15	100.50	145.15	163.30	206.84

Source: GOB

Table 2: Survey Results - Expenditure in Health and Population Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.54	10.39	15.48	12.10	31.47
Purchase of Equipment	8.47	7.77	9.55	15.93	18.34
Purchase of Land	1.05	0.17	0.09	0.03	0.92
Training	0.93	1.14	2.56	5.49	9.47
Technical Assistance	1.15	1.13	1.25	3.47	5.30
Supplies	9.51	21.85	27.22	39.62	48.07
Operation and Maintenance	2.83	3.86	4.45	5.02	5.81
Salaries	17.21	23.35	22.03	25.12	26.41
Allowances	20.85	13.66	17.79	17.96	19.81
Others	0.83	1.87	13.24	15.13	20.20
Total	63.36	85.20	113.66	139.86	185.79

Source: GOB

An initial reaction to the data is that recurrent items such as salaries, allowances and supplies account for a significant proportion of total funding for both allocations and expenditures. Yet before we analyse recurrent costs in a more systematic fashion it will be revealing to examine separately the results of the survey for the health and population projects. It is interesting to note that the coverage of the population projects in the survey, averaging over 85% of ADP expenditure for the latest three years, is much better than that of the health projects, with 60% of expenditure in 1992/93 - 1994/95.

Isolating the *health* projects from the survey, the aggregated results are shown in Tables 3 and 4, detailing allocations and expenditures. On average, over the sample period health expenditures were equal to 88% of allocations. Again, this appears to be quite high and may be an indication of bias in the sampling. The most striking feature of both Tables 3 and 4 is the importance of construction activities to the health sector. Indeed, the past few years have seen a large increase in the amount of funds directed to improving the rural health infrastructure, through the construction of almost 400 health complexes at the Thana level. This is clearly highlighted by the tables, where *Construction* accounts for 45% of allocations to health sector projects in 1994/95 and 47% of expenditures. The next largest category of allocation and expenditure is the *Purchase of Equipment*. Indeed, it is only logical that having built facilities it is important to equip them properly. What perhaps is more surprising is that equipment purchases were large, even back in 1990/91, before the construction activities began. This may be a reflection of insufficient data for early years. Notwithstanding, it can be seen that construction and the purchase of equipment account for over two thirds of allocations and expenditure in 1994/95.

Table 3: Survey Results: Allocation to Health Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.61	11.73	15.76	14.02	31.24
Purchase of Equipment	8.27	8.00	9.84	15.00	15.96
Purchase of Land	1.08	0.17	0.11	0.10	0.92
Training	0.60	0.50	1.15	2.42	3.49
Technical Assistance	1.32	1.16	1.14	2.87	3.70
Supplies	0.29	1.73	1.74	3.56	4.50
Operation and Maintenance	2.13	2.22	1.81	2.03	2.56
Salaries	1.02	1.15	1.68	1.73	2.08
Allowances	3.96	0.46	0.28	0.96	0.82
Others	0.92	0.75	0.96	3.58	3.84
Total	20.18	27.86	34.46	46.28	69.10

Source: GOB

Table 4: Survey Results: Expenditure in Health Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.54	10.39	15.45	12.05	30.57
Purchase of Equipment	8.43	7.65	8.73	12.01	14.48
Purchase of Land	1.05	0.17	0.06	0.03	0.92
Training	0.36	0.08	0.75	2.42	3.51
Technical Assistance	1.15	1.04	1.09	2.62	3.91
Supplies	0.13	1.22	1.59	3.38	4.10
Operation and Maintenance	1.46	1.50	1.46	1.84	2.29
Salaries	0.80	0.70	0.95	1.41	1.82
Allowances	3.57	0.30	0.21	0.43	0.67
Others	0.49	0.29	0.51	2.69	3.12
Total	17.97	23.35	30.79	38.87	65.39

Source: GOB

In contrast to the projects in the health sector those in the *population* sector are not focused on new construction and equipping of facilities. Much of this may reflect the fact that the infrastructure for delivery of population control activities is already in place. Yet, this in turn might raise the question of exactly what activities are being funded in population projects. The first step towards analysing this is to set out the results of our survey in Tables 5 and 6.

Table 5: Survey Results: Allocation to Population Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.00	0.56	0.74	1.73	2.45
Purchase of Equipment	0.05	2.28	3.23	3.94	4.40
Purchase of Land	0.00	0.00	0.03	0.00	0.00
Training	0.62	1.22	1.82	3.56	7.86
Technical Assistance	0.23	1.65	1.26	1.73	1.72
Supplies	6.08	23.83	26.88	36.81	41.97
Operation and Maintenance	1.52	3.71	4.75	4.94	4.90
Salaries	16.32	22.16	22.34	22.59	24.27
Allowances	17.40	13.83	19.15	17.97	19.33
Others	1.75	3.40	30.47	23.74	30.85
Total	43.98	72.63	110.68	117.03	137.74

Source: GOB

Table 6: Survey Results: Expenditure in Population Projects

Units: US\$ million

	<u>1990/91</u>	<u>1991/92</u>	<u>1992/93</u>	<u>1993/94</u>	<u>1994/95</u>
Construction	0.00	0.00	0.03	0.04	0.90
Purchase of Equipment	0.04	0.12	0.83	3.92	3.85
Purchase of Land	0.00	0.00	0.03	0.00	0.00
Training	0.56	1.06	1.81	3.07	5.96
Technical Assistance	0.00	0.09	0.16	0.85	1.39
Supplies	9.38	20.62	25.63	36.25	43.97
Operation and Maintenance	1.37	2.36	2.99	3.18	3.52
Salaries	16.41	22.65	21.07	23.71	24.59
Allowances	17.28	13.36	17.58	17.53	19.14
Others	0.34	1.58	12.73	12.43	17.07
Total	45.39	61.85	82.88	101.00	120.40

Source: GOB

The largest single category of both allocation and expenditure on the population projects is *Supplies*. These account for 30% of allocations and 37% of expenditures. Other categories which take more than 10% of total funding are *Salaries*, with 18% of total allocations and 20% of expenditures; *Allowances*, 14% of allocations and 16% of expenditures, and *Others*, 22% of allocations and 14% of expenditure. The bias toward recurrent activities in the population sector would appear to be extremely strong. Indeed, it is to the breakdown of the ADP between capital and recurrent that we now turn.

Capital versus Recurrent Activity in the ADP

One of the most important exercises for this study is to disaggregate ADP population and health projects into capital and recurrent activity. Capital expenditure has a lagged effect on GOB's Revenue Budget - any new facility or item of equipment needs maintaining. In contrast recurrent activity in ADP Projects may reflect GOB liabilities which are not currently in the Revenue Budget. However, recurrent items may also reflect project costs which will disappear at some point in the future, see section B. To facilitate the analysis of these activities, it is useful to disaggregate the ADP into capital and recurrent expenditure before assessing their impact on the Revenue Budget.

There are always some definitional problems when attempting to identify capital and recurrent expenditure. However, the categories used in the survey have to a large extent removed these problems. The *Purchase of Equipment*, *Purchase of Land* and *Construction* are clearly capital items. Similarly, *Operation and Maintenance*, *Salaries* and *Allowances* are recurrent items. We have taken the decision to keep *Others* as a separate category, as there are probably both recurrent and capital items therein. The remaining three categories are slightly more problematic. While the bulk of *Training* and *Technical Assistance* is undoubtedly capital, there will also be some recurrent elements. Assigning a division between the two will always be somewhat arbitrary at the macro level, without a project-by-project classification. In both cases, we have assumed that the capital component will be 75%. This assumption can be modified, if required, without affecting any of the main conclusions in this section. With *Supplies*, we have assumed that all items will be recurrent in nature (especially given that *Purchase of Equipment* is another category). Using the survey data for 1992/93, 1993/94 and 1994/95 we now estimate the division between capital and recurrent activities for projects in the health and population sectors. It is felt that the survey data gained for these three years are more representative than 1990/91 and 1991/92. The results are shown in Table 7 and Diagrams 1 and 2. The actual figures given are scaled up, according to the coverage of the sample, and translated into constant prices for ease of comparison.

Table 7: Types of ADP expenditure for the health and population sectors

Units: US\$ million (1994/95 prices)

	1992/93		1993/94		1994/95	
	US\$ mn	%	US\$ mn	%	US\$ mn	%
Health						
- Capital	51.34	83	54.86	72	73.15	79
- Recurrent	9.36	15	16.36	21	15.24	16
- Other	1.01	2	5.30	7	4.43	5
Population						
- Capital	2.86	3	8.45	7	11.02	9
- Recurrent	81.76	82	99.82	81	99.89	77
- Other	15.36	15	15.20	12	18.32	14

Source: GOB

Diagram 1: Health: Type of Expenditure in the ADP

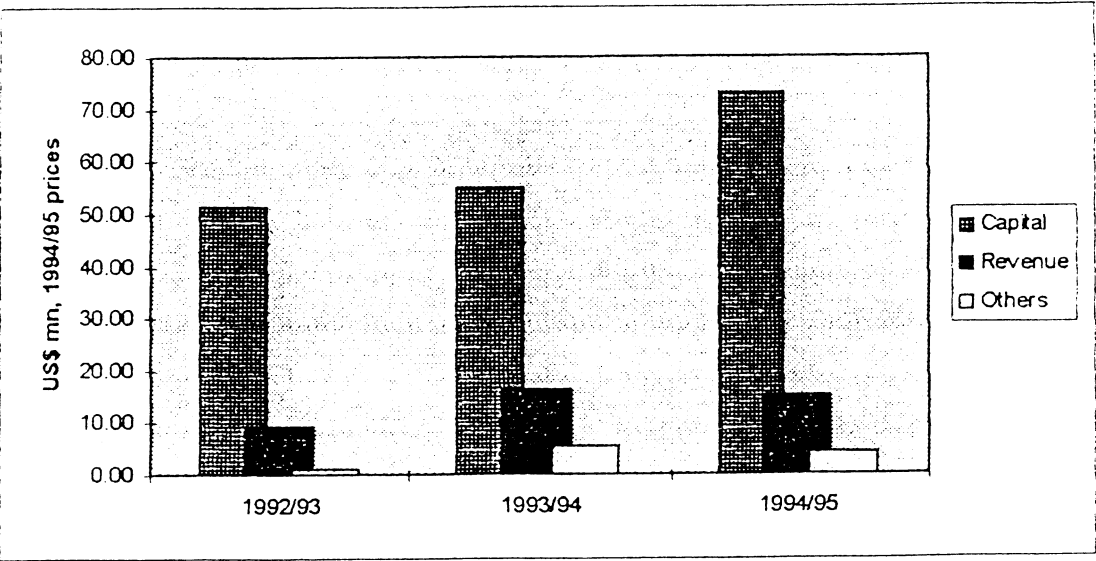
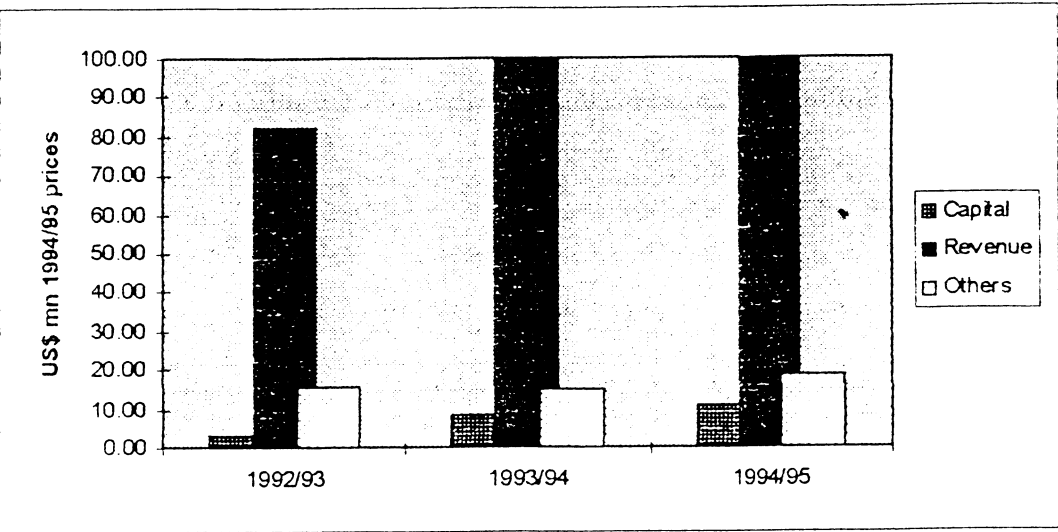


Diagram 2: Population: Type of Expenditure in the ADP



It is immediately apparent that recent ADP projects in the health sector have concentrated on capital expenditure, while population projects are involved predominantly with recurrent activities. Of particular interest is the extremely large amount of funds being targeted to *recurrent* activities in the *population* projects. According to the survey data, recurrent activities account for 80% of expenditure on population projects between 1992/93 and 1994/95. In contrast, over the same time period, GOB has only funded approximately 33% of all ADP expenditures in this sector. Hence, a sizeable 47% of population projects amounts to donor funded, recurrent activity. Such a funding pattern implies that donors are quite willing to fund the vast proportion of the population sector in Bangladesh. Is this a problem, or part of the necessary solution?

Today's recurrent spending in the ADP does not equate to the likely increase in tomorrow's Revenue Budget. Many recurrent activities in the ADP are project specific i.e. they relate to the

operations of a project not to the outputs of a project itself. It is only the outputs of the project which have recurrent cost implications for the government. Some of the associated costs of the project outputs may well be contained in the ADP, and these need to be identified, but many are definitely not. How can we go about differentiating between those costs which are only project specific and those which will end up as GOB liabilities? There is no easy answer to this question. The most satisfactory method of procedure would be to examine each and every project, but time does not allow us to adopt this strategy.

Despite these problems it is clear that for the *population sector* **there are substantial recurrent costs which are being funded by donors** in the ADP. It has been argued in some quarters that to guarantee future sustainability of these initiatives the GOB will, at some stage, have to take on these costs. The opposing line of thought counters that the recurrent costs in the ADP population projects are, in actual fact, project specific and should not, therefore, be seen as a GOB liability. The resolution of this issue, at least at a practical level, is dependent upon several factors:

- The willingness of donors to continue funding this type of activity
- The resource base of GOB
- GOB's policy in the population sector

These issues are important to raise at this stage so that all GOB key policy makers and planners are aware of them. They cannot be resolved without extensive dialogue with GOB's foreign development partners. It may only be possible to phase some of these items over time into the Revenue Budget given macro-economic resource constraints. However, it is not clear whether this is a desirable path for the GOB to follow. The advantages and disadvantages of each approach are summarised later in the report.

As noted above, in the *health sector* the recurrent cost concerns relate to the effect that recent investment will have on the Revenue Budget. Judging by the size of recurrent costs in the ADP, they are largely project specific rather than GOB liabilities. It is at this stage that we would optimally turn to an outline of GOB's forecast and expected outputs in the health sector. In tandem, we would formulate historical, expected and optimal units costs for each type of facility. Future liabilities would then be projected for the health sector. However, the extremely short time given for the development of this study combined with the paucity of information on existing costs, not to mention optimal costs, and actual rather than planned outputs precludes us from performing this analysis in full.

Nevertheless, interesting information on unit costs has come out of the UNICEF report, *Indicative Cost of Essential Health and Nutrition Services in a District*. According to the UNICEF exercise in costing essential health and nutrition services, the annual cost of providing these services through a Thana Health Complex is approximately \$70,000. Now GOB and its foreign development partners have recently been involved in constructing almost 400 Thana Health Complexes, as part of the recent health infrastructure development. According to the unit cost data the cost of running these facilities would be \$27 million. This alone is equal to a 21% increase in the Revenue Budget allocations to the health sector. This would not be manageable all in one block but could be phased into the Revenue Budget over a number of years. Before

matters of such timing can be considered it is vital to examine the size and scope of the Revenue Budget and its relationship with the ADP, and it is to this matter that we turn in the next section.

Summary

- In preparing this report the HEU has created a database on ADP health and population projects, detailing disaggregated allocations and expenditures. This will be an invaluable asset to all planning bodies concerned with the health and population sectors in Bangladesh. The database should be institutionalised within the GOB as quickly as possible.
- The coverage of the database for 1994/95 is 60% of the number of ADP projects in the health and population sectors, and over 80% of expenditure. It is hoped that MOHFW and the Budget Reform Team will be able to expand this coverage to 100% and will iron out any initial problems of categorisation.
- The database indicates that expenditures in the health and population sectors are over 80% of allocations. *Supplies*, *Construction* and *Salaries* are the largest specified categories of both allocations and expenditure.
- For health projects in the ADP, *Construction* is the largest category of expenditure in 1994/95, followed by *Purchase of Equipment*. Indeed, if the sample is representative of the total population, almost 80% of expenditure in the health sector is capital.
- For the ADP population projects the largest line items in 1994/95 are *Supplies*, *Salaries* and *Allowances*. Indeed, recurrent activities amount to approximately 80% of the expenditure incurred in such projects. A significant proportion of this is financed by donors.

D. Recurrent Cost Implications

It was noted in the previous section that different types of expenditure in ADP projects have or at least, should have, particular effects on the Revenue Budget. It is useful, therefore, when trying to estimate recurrent commitments to focus on the Revenue Budget and its historical relationship with the Development Budget. In particular, this will highlight any liabilities which need to be incorporated in the Revenue Budget, which have not already been transferred. In addition, the inter-relationship between the two Budgets will at least provide us with a benchmark against which we can compare the recurrent costs highlighted in Section C.

Revenue Funding of Health and Population Activities

Since 1986/87 the combined allocations to the recurrent activities in the health and population sectors have averaged 5.3% of GOB's Revenue Budget. Funding has grown from \$104 million in 1986/87, in constant 1992/93 prices, to almost \$150 million in 1993/94, as shown in Diagram 3. Table 8 highlights this expansion over the last five years and reveals that there is much more funding of the health sector than of the population sector. Indeed, allocations to the health sector are more than ten times larger than those to the population sector. Nevertheless, as we have seen in the previous section, a significant proportion of funding of ADP population projects is actually going to recurrent items.

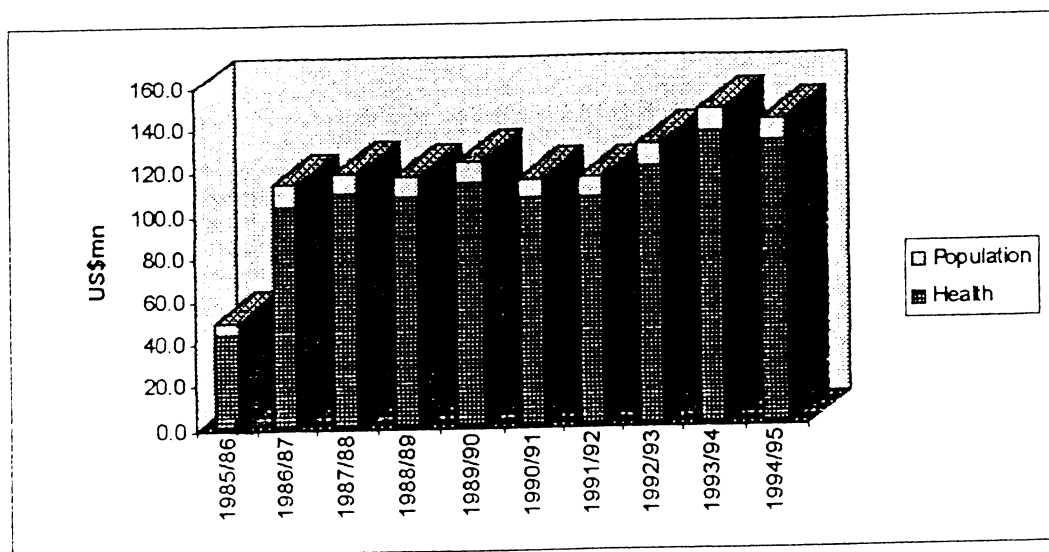
Table 8: Revised Allocations to the Health and Population sectors in the Revenue Budget
Units 1992/93 US\$ million

	1990/91	1991/92	1992/93	1993/94	1994/95
Health	107.1 (4.4%)	106.9 (4.5%)	121.7 (5.0%)	137.8 (5.5%)	132.8 (5.2%)
Population	8.7 (0.4%)	9.5 (0.4%)	10.2 (0.4%)	10.4 (0.4%)	10.8 (0.4%)
Total	115.8 (4.7%)	116.3 (4.9%)	131.9 (5.5%)	148.3 (6.0%)	143.5 (5.6%)

Source: GOB, IMF

The major beneficiary of growth in health care funding in the late 1980s was Primary Health Care activities, as discussed in the *Public Expenditure Review of the Health and Population Sector*. While PHC received only 20% of health care revenue in the 1985/86 Revenue Budget this increased to more than 50% in the early 1990s. In contrast, over the last five years there has been no significant change in *shares*. Between 1991/92 and 1994/95 the funding of the health activities under the Revenue Budget increased by an average annual compound growth rate of 7%, or 24% in total. Nevertheless, given the massive investment in health infrastructure during this period it is expected that the Revenue Budget will have to expand accordingly. Now it is understood that some of these recurrent costs have already been put in place with the establishment of positions for doctors at the Thana Health Complexes. Nevertheless, the creation of these posts will not be the only recurrent costs involved. If the facilities are to operate efficiently they will need to be properly maintained and have regular medical supplies. We address this issue more fully later in the report.

Diagram 3: Revenue Budget Allocations for Health and Population



As noted earlier the funding of the *population* sector in the Revenue Budget is small compared to that of the health sector. Indeed, the proportion of the Revenue Budget allocated to population activities never exceeded 0.5%, over the last decade compared to an average of 4.7% for the health sector. This may reflect a deliberate policy not to fund the running costs of many population activities, because of their developmental nature or it may indicate that, because of tight resource availability, GOB is not willing to fund such activities. Of the items that are funded, rural facilities take the largest share, around 60%.

In order that appropriate comparisons can be made with the functional items and expenditure categories identified in the ADP, it is useful to assess the expenditure categories in the Revenue Budget. At present there are seven categories of expenditure type in the Revenue Budget:

- Pay of Officers
- Pay of Establishment
- Allowances, honoraria, etc.
- Contingencies
- Medical Supplies
- Grants-in-Aid
- Maintenance

The first three apparently relate to the pay package that GOB employees receive. Tables 9 and 10 summarise the revised Revenue allocations by expenditure category for the population and health

sectors, between 1991/92 and 1994/95 and using 1985/86 as a base year for comparison. We can now identify and compare the expenditure categories in the ADP *and* the Revenue Budget.

Table 9: Health: Composition of the Revenue Budget

Units: US\$ million

	1985/86	1991/92	1992/93	1993/94	1994/95
Pay of Officers	6.2	12.5	12.7	11.8	12.4
Pay of Establishment	7.6	36.2	36.1	39.8	40.9
Allowances	9.5	26.7	37.5	39.8	40.7
Contingencies	8.6	14.1	14.7	14.6	15.1
Medical Supplies	13.8	19.2	23.0	24.4	23.6
Maintenance	0.3	2.3	2.7	12.9	5.0
Grants-in-aid	1.9	2.2	2.3	2.7	2.9
Total	47.9	113.2	129.0	146.1	140.7

Source: GOB, IMF

Table 10: Population: Composition of the Revenue Budget

Units: US\$ million

	1985/86	1991/92	1992/93	1993/94	1994/95
Pay of Officers	0.2	2.1	1.9	1.9	2.1
Pay of Establishment	1.1	3.3	3.4	3.6	3.7
Allowances	1.2	3.4	4.2	4.3	4.4
Contingencies	1.8	1.1	1.2	1.1	1.1
Medical Supplies	0.2	0.1	0.1	0.2	0.1
Maintenance	0.0	0.0	0.0	0.0	0.0
Grants-in-aid	0.0	0.0	0.0	0.0	0.0
Total	4.6	10.0	10.8	11.1	11.4

Source: GOB, IMF

Both tables show the importance of the funding of salaries and allowances. In 1994/95, these accounted for 67% of allocations to health and almost 90% of those to population. This compares with US\$ 3 million of salaries in the ADP health projects and US\$ 44 million in the population projects in the same year. These figures merely reinforce our earlier conclusion about the structure of the ADP and Revenue Budgets in these sectors, that many recurrent items are being funded in the ADP. It is also interesting to note the importance of *Medical Supplies* for the health sector in the Revenue Budget. These accounted for US\$ 24 million in 1994/95, whereas they were only US\$ 0.1 million in the population sector. Instead, *Supplies* to the population sector were the single largest expenditure item in the *Development Budget*. Again, it is apparent that recurrent items in the population sector are being funded through the ADP.

Historical Relationship between ADP and the Revenue Budget

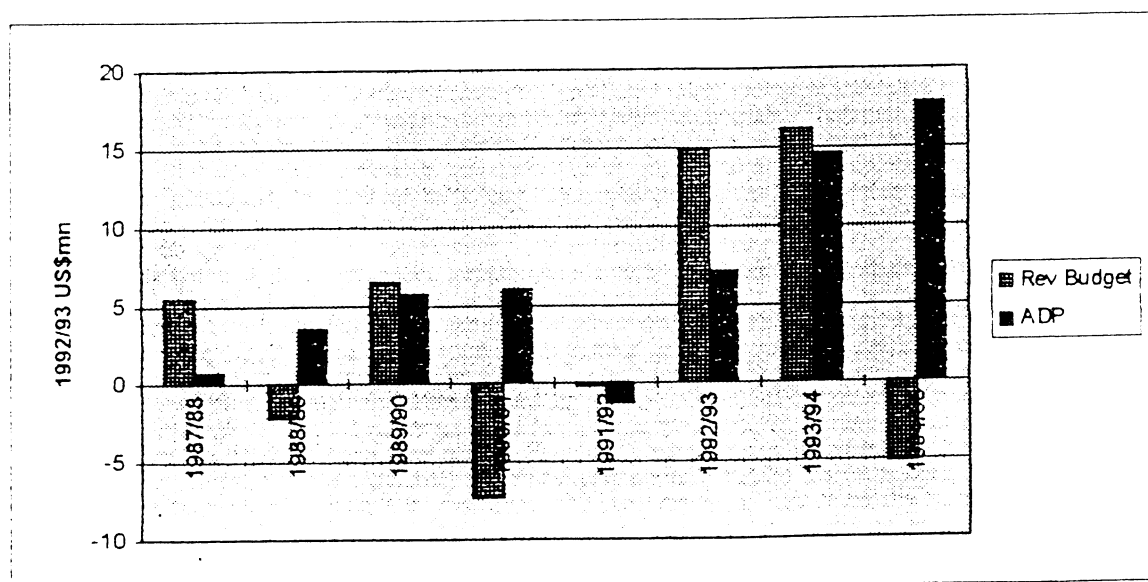
The size and composition of the Revenue Budget allocations have been outlined in the previous section. To a large extent these allocations depend on the project activity on-going in the health and population sectors. In particular, the outputs of the projects (i.e. hospitals, newly trained

health workers) will have recurrent costs which are in the long-run the liability of the GOB. Hence, in this section we examine the impact that investment in health and population projects has had on recurrent activities in the Revenue Budget. What type of relationship is there between the Development and Revenue Budgets?

We shall concentrate our analysis on the question of *timing*. How long a lag is there between investment in projects in the health and population sectors and the recurrent needs of those projects appearing in the Revenue Budget. This does depend on the mix of projects that are underway in the sectors. All the operating costs associated with the running of facilities may not surface for a number of years after the initiation of construction of such facilities. Nevertheless, it is extremely important to identify these costs. Merely because these costs will appear in the future makes them no less vital to the planning process. Indeed, if the planning and finance authorities can predict *when* there will be increased demand for revenue funds this will help with budgeting and with the allocation of resources to different sectors and different end-uses in the economy.

Now it has also been the GOB practice in the health and population sectors to create posts for facilities which are not yet constructed. In this way GOB anticipates some of the liabilities of its development activity. The rapid expansion in the Revenue Budget in the late 1980s may be seen as an example of this. Capital expenditure will, however, still have a lagged impact on GOB's liabilities but it may be smaller than first conceived. Only *fixed* recurrent costs can effectively be incorporated into the Revenue Budget before facilities become operational, such as salaries of technical staff. *Variable* recurrent costs will be dependent upon the effective demand of patients and can only be realised once the construction of facilities has been completed (Section B assesses the methodological distinction between these types of recurrent costs in more detail).

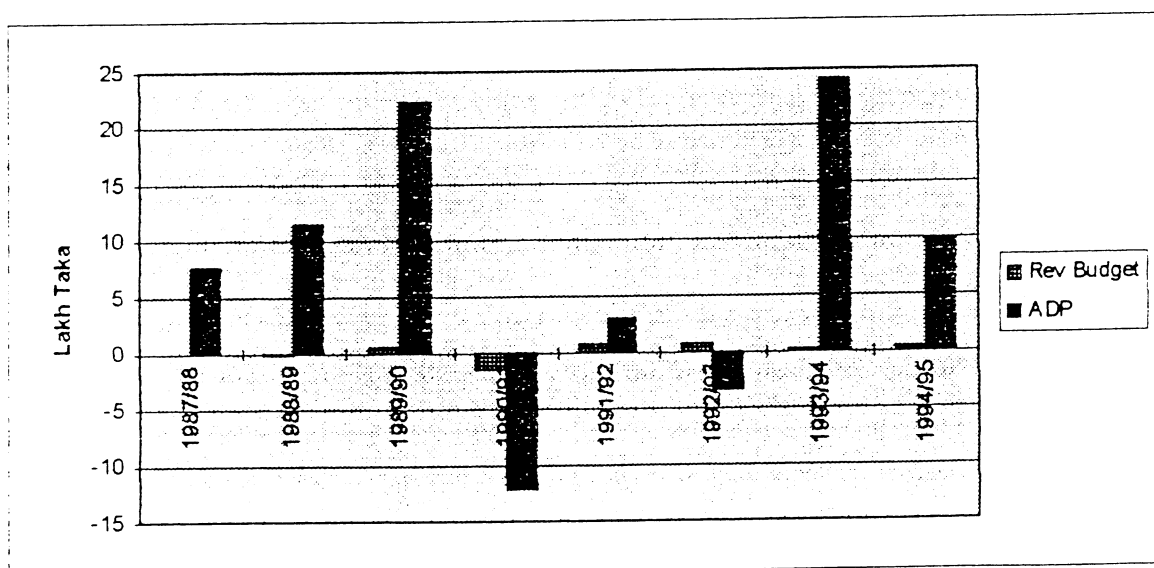
Diagram 4: Health - Changes in the ADP and the Revenue Budget



Health

To address the issue of timing we set out below, in Diagram 4, the changes that have occurred in the Development and Recurrent Budgets in the health sector. Diagram 4 highlights the real changes in funding that have occurred, on an annual basis, over the past eight years. At first inspection there appears to be no relationship between the Development and Recurrent Budgets. While the ADP seems to have expanded by increasing amounts over the period, apart from in 1991/92, the Revenue Budget has not. As was discussed above this may be more to do with a pre-emptive expansion of the health items funded in the Revenue Budget between 1985/85 and 1986/87. Still, this expansion concerns fixed recurrent costs and we might also expect the activities in the Development Budget to impact on the Revenue Budget through variable recurrent costs (again, for a discussion of this distinction see section B). Our search for a direct relationship between the two is unlikely to prove fruitful as the type of capital expenditure may vary from year to year and this will in turn alter the effect on the Revenue Budget. Nevertheless, there is some evidence to suggest a three-year time lag between changes in the ADP and the Revenue Budget. However, more evidence is needed before this can be asserted with any assurance. The last three financial years, 1992/93, 1993/94, and 1994/95 have seen increasing growth in health sector allocations, as GOB has sought to boost the infrastructure of rural health services. If the three year lag were to hold between the two Budgets then it might be expected that there would be a consequent increase in the Revenue Budget over the next three financial years. Still, the size of this increase may depend more on utilisation rates and the effective demand of patients.

Diagram 5: Population - Changes in the ADP and the Revenue Budget



Population

In performing the same analysis for the population sector, it is apparent, both from Section B and the *Public Expenditure Review of the Health and Population Sectors*, that the items funded in the Revenue Budget do not reflect the recurrent activity in the sector. Now, there is substantial debate as to whether this implies that GOB liabilities are being fully met or not. Indeed, for every

additional ten dollars spent in the ADP on populations projects in the last ten years, the Revenue Budget has increased by only fourteen cents per year! This is no mistake and seems to reflect the notion that activities in the population sector are project specific i.e. that the recurrent activities incurred are not liabilities of the GOB. Of course, the implication of this is that the population activities are largely dependent on donor funding and are, therefore, not part of the permanent infrastructure of the health system. Implicitly, the donors are committing themselves to funding such activities in the sector until the population has stabilised. This is a long-term commitment, as even when the Net Replacement Rate equals one, this has to be consolidated. However, it is more than likely that even when this goal has been reached that there will still be a need to deliver family planning services to the population.

The changes in the funding of *population initiatives in the ADP and Revenue Budget* are shown in Diagram 5. No relationship is discernible from the data. Indeed, the funding of activities appears completely unconnected to the activities in the ADP. As discussed earlier this is because many recurrent items are actually funded in the ADP and not the Revenue Budget.

Recurrent Cost Implications

Drawing together the information from the last two sections and using some UNICEF cost data it is possible to indicate some recurrent cost liabilities of GOB. Much work in this area is still required but our analysis will at least give planners in the sectors sufficient food for thought. It is clear from the preceding analysis that in the *population* sector there is a sizeable amount of recurrent expenditure in the ADP which might be shifted to the Revenue Budget. The amount of funding in excess of current GOB funding activity in the ADP is equal to 47% of the total spent by population projects. This amounts to US\$56 million. Given that the Revenue Budget funding of population activities is nearer US\$11 million, this would be a sizeable expansion. Indeed, this would require the expenditure on population activities to increase by over 500%. Hence, it is unlikely that sufficient resources could be made available from the Revenue Budget immediately, especially as this expansion will in no way increase the coverage of any of the services. Instead, such a transfer of funding would have to be phased into the Revenue Budget. The degree to which this is possible will depend upon the availability of resources, which we discuss in the next section.

In the *health* sector, recent infrastructure investment is likely to start to feed through into the Revenue Budget over the next three years. It has been estimated that to run essential services through these new facilities an extra \$27 million will be needed. If this is phased over three years then the Revenue Budget allocation to the health sector will have to grow by an average of 6.5% per year.

Hence, two potential areas for GOB action have been highlighted here, to make sure that Revenue allocations to Thana Health Complexes increase appropriately and to move some of the donor funded recurrent items in the population sector into the Revenue Budget.

While such strategies concern themselves with immediate priorities, it is important to consider the objectives toward which the GOB wishes to move. In the Fourth Five Year Plan, GOB states that its overall goal is the achievement of Health for All by the year 2000, to be achieved through

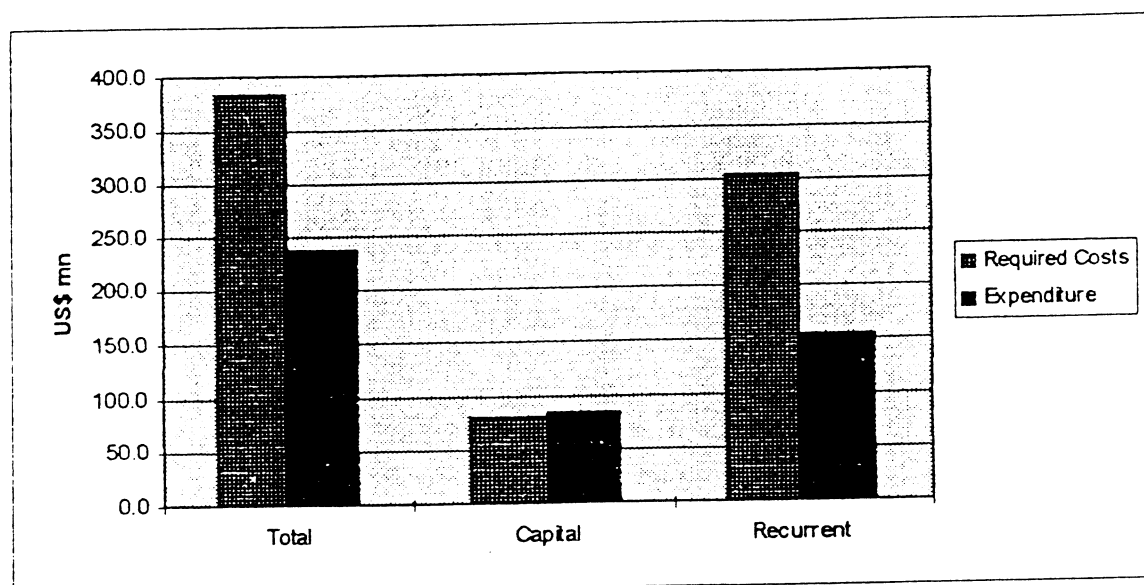
the bolstering of the National Health System and Primary Health Care activities, in particular. In light of this it is important to examine the annual cost of provision of basic services. The UNICEF study, cited earlier, attempts to calculate the costs of the provision of essential health and nutrition services in a district, under certain conditions. It arrives at an indicative cost for the year equal approximately to US\$5.1 million or just over Tk200 million. Alternatively the cost of delivery of essential services is equal to \$3.2 per capita. Some of the main assumptions of the study are that:

- The district has a well functioning health delivery system
- Demographic, administrative and financial characteristics of the district are similar to other districts
- The package of essential health and nutrition (and family planning) services are developed based on the epidemiological profile of the district and prioritisation process
- The defined strategies and interventions are the most cost-effective.

From this starting point, it is interesting to see what these results might imply about the overall funding requirements for an essential national health and nutrition programme. To do this, we take the costs of running these services at a district level and expand them to the national level. Now, some of the assumptions, outlined in the bullet points above, may well not hold in practice. For instance, it is unclear whether the defined strategies are the most cost-effective. Nevertheless, we will assume that the UNICEF cost data provides us with a good base for our projections, for the sake of ease of analysis.

We assume that the expenditure at the district level can give us a constant per capita figure of the amount needed to provide essential health and nutrition services. On the basis of estimates of the total population of Bangladesh we can, therefore, make estimates of the total national costs and also the required division between capital and recurrent expenditure. The results are shown in Diagram 6, where we compare the current expenditure of GOB and its foreign development partners in the ADP and Revenue Budget with the costed requirements for essential health and nutrition services.

Now it is important to remember that the required resources only refer to those costs incurred in the provision of essential health and nutritional services, whereas the expenditure figures refer to all health and population activity in the ADP and Revenue Budget, regardless of end-use. The data suggests that the recurrent costs needed for the provision of such services are far in excess of current funding patterns. Indeed, Diagram 6 implies that while current capital expenditure is in line with the requirements of these essential services, recurrent expenditure will have to increase sharply, for the facilities to operate at an effective level. Indeed, expenditure on recurrent items would have to double. This may perhaps overstate the need for additional funds but, alternatively, it may show either that important services in the health and population sectors are being underfunded or that funds are not currently being targeted properly.

Diagram 6: Current Expenditure and Basic Needs in the Health and Population Budgets

Further work is required in this area to establish, on an on-going basis, not only the operating costs of different facilities in GOB's health and family planning delivery services, but also their optimal operating costs. To do this a system of *National Health Accounts*, with a sentinel reporting system for *Budget Tracking*, may be a useful starting point. For such work it may also be interesting and useful to develop production cost models of basic health facilities.

Summary

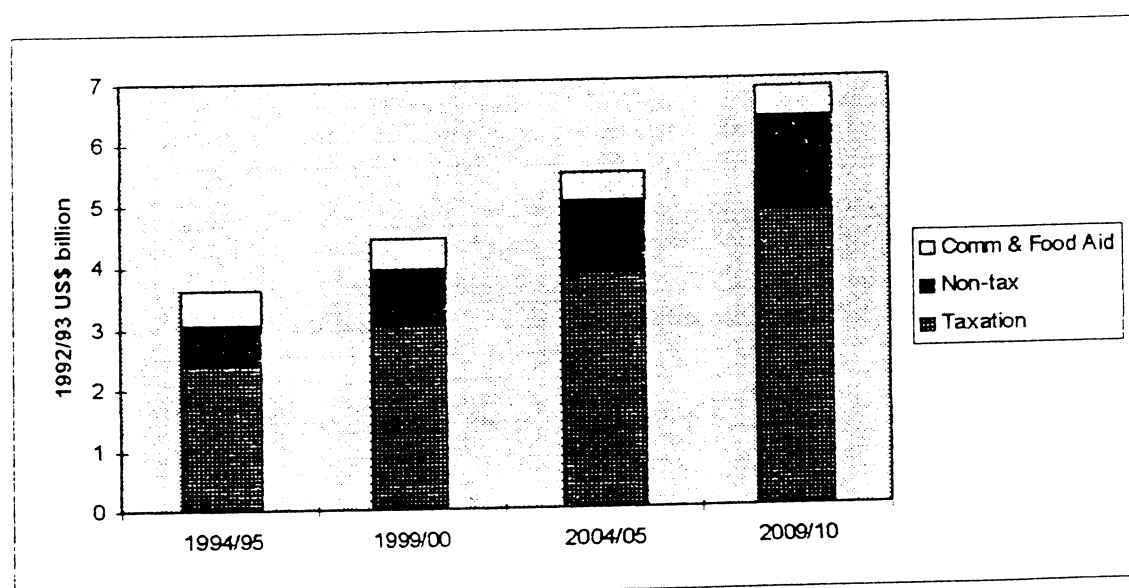
- While the funding of health activities in GOB's Revenue Budget is quite substantial that of the population sector is small. This implies a long-term commitment from donors to the sector and its running costs. Alternatively, if GOB wished to take on the present donor-funded recurrent commitments in the ADP then this would entail an expansion of the funding of the population sector in the Revenue Budget, from \$11 million to approximately \$67 million.
- An initial analysis of the historical relationship between the ADP and the Revenue Budgets for the health sector would seem to indicate a three year lag between additional investment and an increase in operating costs. (No such relationship is evident for the population sector.) Having made recent investment into THCs it is likely that the Revenue Budget will have to expand in the next few years to meet such costs. An estimate of \$27 million has been arrived at for the additional recurrent costs, using unit cost data from UNICEF. However some of these costs may already be included as GOB's liabilities in the Revenue Budget.
- UNICEF have conducted important work in the area of unit costing. The report *Indicative Cost of Essential Health and Nutrition Services in a District* is an important first-step toward estimating the implications of running an efficient programme of basic health and nutrition services. If such costs are accurate then GOB spending on recurrent costs need to double from their present level. Further research is needed in this important area to assess fully the recurrent needs of the health and population sectors.

E. Future Resource Availability and Conclusions

The analysis of recurrent cost implications of development projects often focuses on the liabilities that GOB will have to meet in the future. This study has been involved in projecting some of these liabilities by estimating likely GOB expenditure on operating costs in the health and population sectors. Even with such information, however, it is not possible to discuss different strategies without first examining future resource availability. Indeed, an expansion in revenue activities may not in itself be a problem if GOB's resource base is projected to grow at a higher or equal rate. If this is not achieved, then GOB will have a number of options, including: reallocating resources to revenue activities; changing its pattern of investments and sharing costs with other parties. This section will attempt to address such issues and draw up alternatives for future actions of GOB.

Readers familiar with the *Public Expenditure Review of the Health and Population Sectors* will be aware that HEU has recently been involved in forecasting the future GOB resource base. These forecasts are shown in Diagram 7, detailing projections for revenue from taxation, non-tax sources and receipts from commodity aid and food aid. The latter are included in our forecasts as they can boost the effective level of resources that GOB has at its disposal. The forecasts are intended to give an indication of the likely future resources that GOB will have. This is particularly important when considering revenue activities, as these are solely funded by GOB. The forecasts for taxation revenue were based on a partial equilibrium analysis, using various regressions and estimates of the growth in GDP. More accurate results would have to rely on the development of a macro-economic model for Bangladesh, the formulation of which would take a substantial amount of resources and time. However, in its absence the revenue projections give us a useful rule-of-thumb estimate of the likely future resource constraints.

Diagram 7: Projected Future Revenue Sources of the GOB



For the purposes of this projection, it is assumed that the Revenue Budget grows at the same rate as the GOB revenue base. This gives us total growth in the Budgets of 4.3% in the latter half of the 1990s, 4.4% between 2000 and 2005 and 4.5% thereafter, until 2010. Now if we presume that the health and population sectors take a fixed proportion of the ADP and Revenue Budget, in line with current allocations, then we can calculate how much of the additional GOB liabilities highlighted earlier can be accommodated. Hence what are the financing options open to GOB?

Projecting forward the available resources for the Revenue Budget, we can compare these with the target requirements involved in:

1. Operating essential services through the newly constructed THC's at an efficient level
2. Transferring the recurrent costs in the ADP population projects to the Revenue Budget
3. Meeting the operating costs of the essential health and nutrition services, outlined in the UNICEF report.

Summarised forecast data is highlighted in Table 11. Here the probable growth path of the Revenue Budget is displayed, against the target allocations needed for each of the above scenarios.

Table 11: Projected Resource Availability against Requirements in the Revenue Budget
Units: US\$mn

	1994/95 Allocation	1997/98 Projection	Target Allocation
Health	141	159	167
Population	11	13	67
Total	152	172	302

Source: GOB, UNICEF

Continued growth in the Revenue Budget will allow the Thana Health Complexes to provide essential services by 1999/00. As has been argued earlier, the expansion in the Revenue Budget in the late 1980s may well have included some of the fixed recurrent costs of these THC's. Hence, a sizeable proportion of the required \$27 mn may well have been met already. Given this, sufficient finances may be available sooner to run these essential services through the additional THC's. This does not equate to full sustainability of outputs in the health sector, but it does say that there will be sufficient funds to run such facilities. Nevertheless, it may be of some concern that the resources needed to operate these THC's are not immediately and fully available.

Table 11 also highlights that the natural growth rate of the funding of the population sector in the Revenue Budget would not be able to cope with a transfer of recurrent activities from the ADP to the Revenue Budget in the foreseeable future. As we have remarked earlier this may not be a problem if donors are willing to continue funding all the recurrent activities associated with this programme. Assuming that this target could be achieved by the year 2000, what proportion of the Revenue Budget would have to be allocated to the population sector? Using the forecasts it is apparent that the share of the Revenue Budget directed to such activities would have to increase

from 0.3% to 2.0%. Such a reallocation is not unfeasible, especially given that the health sector currently takes just over 5%. However, it does assume that coverage of current population activities does not increase. This is clearly not the case. Hence, the 2% figure should be seen as the minimum requirement for this option.

The third target is associated with the provision of essential health and population services to the entire population, on the basis of the UNICEF costings data. Now, the target amount actually shown, in Table 11, is based upon a population of 120 million. According to projected growth in funding and allocations this could not be achieved before 2010, without a reallocation of GOB funds. However, in the interim Bangladesh's population is likely to keep growing, albeit at an ever decreasing rate. Hence, by 2010 actual needs will have expanded further. If the costings are correct then there is a need for further resource mobilisation. According to such a scenario the health and population sectors would require an increase in the share of the GOB Budget from just under 6% to almost 9% to reach the target level by 2000. If this is not possible then GOB may well have to look to other agencies to assist. In addition further work may be needed in the area of the costing of requirements. While, the UNICEF report is an important first stage it may need to be further developed. A system of National Health Accounts would, when successfully implemented, yield important and regular data on the unit costs of operating basic facilities. Such data could feed into economic models which could provide information on the optimal resource use in such facilities.

Conclusions and Strategies

The ADP Database

- In preparing this report the HEU has created a database on ADP health and population projects, detailing disaggregated allocations and expenditures. This will be an invaluable asset to all planning bodies concerned with the health and population sectors in Bangladesh. The database should be institutionalised within the GOB as quickly as possible.
- The coverage of the database for 1994/95 is 60% of ADP projects in the health and population sectors, and over 80% of expenditure. It is hoped that MOHFW and the Budget Reform Team will be able to expand this coverage to 100% and will iron out any initial problems of categorisation.
- The database indicates that expenditures in the health and population sectors were over 80% of allocations. *Supplies*, *Construction* and *Salaries* are the largest specified categories of both allocations and expenditure.
- For health projects in the ADP, *Construction* was the largest category of expenditure in 1994/95, followed by *Purchase of Equipment*. Indeed, if the sample is representative of the total population, almost 80% of expenditure in the health sector was capital in nature.
- For the ADP population projects the largest line items in 1994/95 were *Supplies*, *Salaries* and *Allowances*. Indeed, recurrent activities amounted to approximately 80% of the

expenditure incurred in such projects. A significant proportion of this was financed by donors.

The Revenue Budget

- While the funding of health activities in GOB's Revenue Budget is quite substantial that of the population sector is small. This implies a long-term commitment from donors to the sector and its running costs, that will be honoured regardless of other factors. Alternatively, if GOB wished to take on the present donor-funded recurrent commitments in the ADP then this would entail an expansion of the funding of the population sector in the Revenue Budget, from \$11 million to approximately \$67 million.

Recurrent Cost Implications in the Health Sector

- An initial analysis of the historical relationship between the ADP and the Revenue Budgets for the health sector would seem to indicate a three year lag between additional investment and an increase in operating costs. (No such relationship is evident for the population sector.) Having made recent investment into THCs it is likely that the Revenue Budget will have to expand in the next few years to meet the variable recurrent costs associated with such facilities. An estimate of \$27 million has been arrived at for the associated recurrent costs, using unit cost data from UNICEF. This expansion of funding could be achieved by 2000, without reallocations from other sectors
- The UNICEF report *Indicative Cost of Essential Health and Nutrition Services in a District* is an important first-step toward estimating the implications of running an efficient programme of basic health and nutrition services. If such costs are accurate then GOB spending on recurrent costs needs to double from its present level within the next five years. However, the forecast increase in expenditure may not allow such a rapid expansion of funding. Further research is probably needed in this important area to assess fully the recurrent needs of the health and population sectors.

Recurrent Cost Implications in the Population Sector

At present, donors have taken on many of the costs associated with the operation of activities in the population sector. There are two options for GOB in this situation:

- To continue relying on external aid to fund much of the recurrent costs of the population sector. This assumes a long-term commitment by donors to the sector which can be met, regardless of the macro-economic position of donor countries, because of the outstanding need in Bangladesh. Furthermore, the current population activities in the ADP are not and should not be a permanent part of the GOB's family planning infrastructure. Once the population has stabilised, and this has been consolidated, then there will be no need for such activities. Hence the GOB should not be involved with expanding its infrastructure through the Revenue Budget only to have to reduce it again in the future and create political problems through the retrenchment of permanent staffing positions.

- Alternatively, GOB may decide that it does need to institutionalise more of the population sector in order to be able to guarantee sustainability. This may involve transferring some of the items out of the Development Budget and into the Revenue Budget. Even though many of the items in the ADP are developmental in nature, including some of the recurrent costs, it is wise to consider what infrastructure for family planning will need to be present once the population has stabilised. Contraceptives may still have to be distributed and information on family planning to be disseminated to avoid another population explosion.

Both options deserve full evaluation.

Future Tasks and Research

Improvement of the ADP database on allocations and expenditures

Although the initial data collection has been a useful and important step towards the development of a comprehensive Budget database, it needs to be refined. It is hoped that the MOHFW and the Budget Reform Project will analyse the database and improve it. Important tasks include:

- Definitions of categories of allocations and expenditures need to be widely circulated and applied, with all problems of classification ironed out.
- Project Directors need to be sensitised about the use of such data and trained to provide the information on a regular basis
- Improvement of the *coverage* of data to include all projects in the health and population sectors
- The division of the *Others* category by possible addition of further specified line items.

Data on the Outputs of the ADP

All the proposed and actual outputs of the ADP, or its constituent projects, need to be known for a comprehensive analysis of recurrent cost implications to be possible. This requires the GOB not only to have plans of projected targets for each programme or project but also a monitoring system for identifying how close to these targets the projects have arrived. Hence the former will help elicit data on the future planned recurrent costs implications of development projects while the later will help determine the actual liabilities which the government must meet in the short to medium term.

Data on the Unit Costs of Outputs

Even where outputs have been monitored, the unit cost of maintaining them needs to be estimated. The UNICEF work in this area is a key starting point, especially for essential health and nutrition services. Where the outputs are similar to existing services or institutions the

Revenue Budget can be used as a basis for deriving actual unit costs. Nevertheless, it may be decided that historical unit costs do not represent optimal running costs. Hence, the efficiency of existing health facilities needs to be assessed. Furthermore, in many instances project outputs are new to the health sector and much work is required to identify the optimal recurrent costs associated with them.