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A SOCIAL ACCOUNTING MATRIX FOR BANGLADESH ECONOMY 1992-93

A BASIS FOR FIXED PRICE AND FLEX PRICE MODELS

MAP TECHNICAL PAPER SERIES NO. 1

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CIRDAP

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1. INTRODUCTION

In this paper, the economy of Bangladesh is numerically specified within the framework of a social accounting matrix for the fiscal year 1992/93. The social accounting matrix has been developed around an input-output table which shows the inter-relationships between economic activities in the economy in the given period. It traces the inter-industry transactions and maintains consistency between supply of and demand for commodities. The social accounting matrix (SAM) may be considered as a generalisation of the input-output table which extends information beyond the structure of production to include: (a) distribution of value added generated by production activities; (b) formation of household and institutional incomes; (c) pattern of consumption, savings and investment; (d) government revenue collection and associated expenditures and transactions; and (e) role of the foreign sector in the formation of additional incomes for household and institutions.

The social accounting matrix, developed in the paper, will serve two basic purposes: (i) data system for descriptive analysis of the structure of the Bangladesh economy and (ii) basis for macroeconomic modelling. As a data framework, the SAM is a snapshot of the economy at a particular point in time (Pyatt and Thorbecke, 1976). In order to provide as comprehensive a picture of the structure of the economy as possible, the SAM approach has been used to bring together macroeconomic data (such as national accounts) and microeconomic data sets (such as household surveys), within a consistent framework[1]. The second purpose of the SAM is the provision of a macroeconomic data framework for policy modelling and

[1] Large discrepancies are often revealed between these two sources. Whilst the conflicting sources must somehow be reconciled, often by choosing the more reliable ones, the construction of SAM forces attention to the root of their causes (King, 1985). A consequence of this confrontation between data source is the highlighting of priority areas for improving and extending the statistical data base of a country (Hayden and Round, 1982).

development planning. The framework of the SAM can often help in establishing the sequence of interactions between economic agents and accounts which are being modelled.

As an analytical tool, the SAM provides an excellent framework for exploring both macroeconomic and multisectoral issues and is a useful starting point for more complex models (Robinson, 1989). In order to fulfill the above twin objectives, this paper provides the outline of the social accounting matrix for 1992/93. The paper specified the major macroeconomic relations within the detailed framework and provides a consistent macroeconomic data set for policy modelling. The choice of the year 1992/93 as the benchmark is based on two grounds: (i) availability of most of the relevant data for the year and (ii) availability of an input-output table for 1992/93.

In order to depict a comprehensive picture, compilation of the SAM requires numerous data that are collected and compiled by different agencies / departments of the government. For example, national accounts and trade statistics are reported by the Bangladesh Bureau of Statistics (BBS), input-output tables are prepared by the Planning Commission (although such tables is seldom updated by different agencies as well as individuals)[2], tax and non-tax revenue statistics are provided by the National Board of Revenue (NBR), industry statistics are reported by the Census of Manufacturing Industries, and household classification, income and expenditure patterns are presented by the Household Expenditure Surveys. Since sectoral classification and statistics of these different sources are not readily compatible, the exercise needs various assumptions, extensive data manipulation, reconciliation and

[2] The World Bank updated the 1976/77 input-output table to derive a 35 sector table for 1984/85. The updated table was then used in a general equilibrium revenue estimation model (1989). The Value Added Tax project, on the other hand, updated the 1976/77 table for 1988/89 in order to use in general equilibrium models to analysis revenue and equity aspects of the VAT system in Bangladesh (Mansur and Khondker, 1992). CIRDAP updated the 1986/87 augmented input-output table to 1992/93 as a data base for applied general equilibrium model (1996). Khondker (1996) updated an input-output table for 1988/89 using the 1986/87 table.

balancing in a way that can satisfactorily reveal the macroeconomic structure of the economy and depict the transactions between activities, factors, institutions, households and the rest of the world.

In particular, the social accounting matrix, presented in the paper, integrates the system of national accounts with input-output table and census of manufacturing industries data to show incomes by eight different categories of labour and distribution of operating surpluses between institutions such as government, corporation and households. It also bring together the national accounts, input-output and household expenditure survey data, within a consistent framework, for decomposition of 'households', distribution of household incomes, consumption expenditures and savings patterns. It also captures the flow of income from factors to the eight household groups which are distinguished by occupational categories. The linkage between factoral and household distribution of incomes constitute an important feature of the SAM which is essential to examine distributional consequences of policy reforms. It also clearly shows the three basic macro balances that are used to close the economic system e.g., balance of trade, saving-investment balance, and government surplus.

The paper consists of three sections. Section II briefly describes the methodologies and data used to reconcile and modify the input-output table of 1992/93 for the purpose of the SAM construction. Section III discusses various methods and procedures adopted to compile the SAM for 1992/93. The concluding observations are presented in section IV.

2. THE INPUT-OUTPUT TABLE FOR BANGLADESH FOR 1992/93

This section briefly discusses the procedures adopted to reconclie and adjust the input-output table for the Bangladesh economy for 1992/93. The procedures involve checking of data for different components of supply and demand and adjustment of some of these components to ensure consistency with major macro variables. The motivation for such adjustments is to construct the social accounting matrix around a consistent input-output table for policy modelling and analysis for recent years.

2.1 PRODUCTION ACCOUNTS

The 53 production sectors classified in the 1992/93 input-output (I-O) table are aggregated into 35 production sectors following simple aggregation as shown in Table 1. The sectors of the 1992/93 I-O table which constitute the new 35 sectors are grouped according to their similarities in use and in the pattern of sectoral trade. For example, cement and basic metal sectors are pure intermediate sectors and reveal no sectoral consumption in 1981/82, 1986/87, and 1992/93 I-O tables. Observing the similarities in use as intermediate sectors, the above two sectors are aggregated into one sector. On the other hand, since electricity, gas and petroleum mainly provide energy they are grouped into one sector. It may be relevant to note that in the exercise no distinction has been made between sectors (activities) and commodities and these are used synonymously.

Table 1 : Sectoral Aggregation Scheme

ggregated Sectors in the Present Study	Sectors in 1992/93 Input-Output Table
. Rice	Rice
. Wheat	Wheat , Coarse Grain
. Sugar Cane	Sugar Cane
. Vegetables	Vegetables , Potato
. Pulses	Pulses
. Fruits	Fruits
. Tea	Tea
. Other Crops	Other Crops
. Livestock	Livestock
0. Fish	Fish
1. Forestry	Forestry , Wood and Wood Products
2. Edible Oil	Edible Oil , Oil Seeds
3. Other Food	Other Food
4. Tobacco Products	Raw Tobacco , Tobacco
5. Sugar and Gur	Sugar and Gur
6. Salt	Salt
7. Cotton Yarn	Cotton , Cotton Yarn
8. Clothing	Cloth Millmade , Cloth Handloom
9. Readymade Garments	Readymade Garments
0. Jutetext Products	Jute , Jute Textiles
1. Pharm-Chem	Pharmaceuticals , Chemicals
2. Fertilizer	Fertilizer
3. Basic Metal & Cement	Basic Metal , Cement
4. Machinery	Metal Products, Machinery, Transport Equipments
5. Leather Products	Leather Products
6. Energy	Electricity, Gas , Petroloeum Products
7. Housing Services	Housing
8. Financial Services	Bank and Insurance
9. Miscellaneous Industries	Paper and Paper Products , Other Industries
0. Construction	Urban H/B, Rural H/B, Other Construction
1. Education	Education
2. Health	Health
3. Miscellaneous Services	Professional Services
4. Public Administration	Public Administration
5. Trade-Transport Services	Transport Services , Trade Services

2.2 RECONCILIATION AND ADJUSTMENT OF MACRO VARIABLES

While constructing the SAM, it is observed that there are some discrepancies between macro aggregates used in the 1992/93 I-O table and the National Accounts reported by the Bangladesh Bureau of Statistics. One plausible reason for such discrepancies is the preliminary nature of the macro aggregates during preparation of the 1992/93 I-O table which were revised later on.

In the process of SAM construction, these preliminary values have been replaced by their actual values to ensure consistency with the macro aggregates reported by major agencies such the Bangladesh Bureau of Statistics, the World Bank, and UN national accounts. The information collected to check and derive a reliable and consistent data set for 1992/93 include: (a) sectoral and total value added; (b) sectoral and total gross output; (c) public and private consumption; (d) gross capital formation; (e) sectoral and total imports; (f) sectoral and total exports; and (g) sectoral and total indirect taxes (e.g. excise tax, import duty and sales tax). The resulting total supply, total demand, and derived components under the two accounts are shown in Table 2.

Table 2 : Total Supply and Total Demand, 1992/93

(in million taka)

Components	National Accounts	I-O Accounts, 1992/93	I-O Accounts, revised
1. Intermediate Input	644,115	644,115	644,115
2. Gross Value Added	948,065	905,603	948,065
3. Gross Output	1,592,179	1,549,718	1,592,179
4. Imports, C.I.F.	173,494	141,699	173,494
5. Import Duty & Sales Tax	-	50,941	50,941
6. Imports at Market Prices	173,494	192,640	224,435
7. Total Supply (3+6)	**1,765,673**	**1,742,358**	**1,816,615**
8. Total Demand	**1,765,505**	**1,743,350**	**1,816,615**
9. Input Demand	644,115	644,115	644,115
10. Private Consumption	747,703	734,607	761,779
11. Public Consumption	134,304	131,575	131,575
12. Gross Investment	135,214	139,486	174,976
13. Exports	104,169	92,575	104,169

Note : Gross Investment estimates used in the I-O tables consists of Gross fixed capital formation and changes in stocks.

2.3 ESTIMATES OF PRIVATE CONSUMPTION

It has always been observed that there exist discrepancies between private consumption data reported by national accounts and the input-output tables. The input-output tables usually report higher consumption estimates than the national accounts. For instance, both 1981/82 and 1986/87 I-O tables report much higher estimates of private consumption (i.e., Taka 264,101 million and Taka 561,841 million respectively) than the national accounts (i.e., Taka 223,832 million and Taka 481,995 million respectively). Such discrepancy between the two estimates of private consumption may be due to the differences in the valuation of imports. Although both the sources calculate private consumption residually given the estimated total supply and all but the private consumption components of total demand, the observed discrepancy may lie in the fact that the national accounts value imports at c.i.f. prices while the I-O tables use the market or purchaser prices of imports. The imports valued at c.i.f. prices are converted into imports at market prices by adding relevant trade and transport margins and taxes. Similarly, the private consumption estimates derived from the I-O accounts (i.e., Taka 761,779 million) is higher than the total private consumption (i.e., Taka 747,703 million) reported in the national accounts. In this regard, it is also interesting to note that the treatment of margins on imports is a major problem which is dealt with separately in Appendix A_1.

The values of sectoral consumption for 1992/93 are not available. The sectoral consumption patterns with respect to total consumption observed in 1981/82 and 1986/87 I-O tables are used to estimate the sectoral consumption for 1992/93.

2.4 Derivation of Input Demand and Final Reconciliation

Given the sectoral information on gross output, value added, intermediate consumption, imports, exports, investment, private and public consumption, sectoral input demands are calculated residually. This provides two sets of control totals i.e. row (intermediate consumption) and column (input demand) known as the 'RAS' multipliers to generate input-output flows for 1992/93 using the input-output coefficient matrix of 1986/87. The estimation procedure results in a consistent inter-industry data set for 1992/93 with sectoral supply corresponding to sectoral demand. The resulting I-O table for 1992/93 is given in Table 3.

ble 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS)

(In Million Taka)

ctor o	Sectors	1 RICE	2 WHEAT	3 SUGAR CANE	4 VEGETABLES	5 PULSES	6 FRUITS
1	RICE	10118.650	0.000	0.000	0.000	0.000	0.000
2	WHEAT	0.000	244.509	0.000	0.000	0.000	0.000
3	SUGAR CANE	0.000	0.000	7.542	0.000	0.000	0.000
4	VEGETABLES	0.000	0.000	0.000	623.491	0.000	0.000
5	PULSES	0.000	0.000	0.000	0.000	107.718	0.000
6	FRUITS	0.000	0.000	0.000	0.000	0.000	5.156
7	TEA	0.000	0.000	0.000	0.000	0.000	0.000
8	OTHER CROPS	0.000	0.000	0.000	0.000	0.000	0.000
9	LIVESTOCK	13586.631	778.159	331.561	804.636	403.616	61.170
10	FISH	0.000	0.000	0.000	0.000	0.000	0.000
11	FORESTRY	1971.469	39.345	3.642	4.453	1.134	24.566
12	EDIBLE OIL	0.000	0.000	0.000	0.000	0.000	0.000
13	MANUFACTURED FOOD	0.000	0.000	0.000	0.000	0.000	0.000
14	TOBACCO PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
15	SUGAR AND GUR	0.000	0.000	0.000	0.000	0.000	0.000
16	SALT	0.000	0.000	0.000	0.000	0.000	0.000
17	COTTON YARN	0.000	0.000	0.000	0.000	0.000	0.000
18	BASIC CLOTHING	0.000	0.000	0.000	0.000	0.000	0.000
19	READYMADE GARMENTS	0.000	0.000	0.000	0.000	0.000	0.000
20	JUTETEXT PRODUCTS	79.117	23.638	0.191	24.828	18.834	11.409
21	PHARM-CHEM	1983.165	6.744	0.751	1.567	0.454	0.193
22	FERTILIZER	11432.994	914.040	705.723	451.635	62.635	2.779
23	BASIC METAL AND CEMENT	0.000	0.000	0.000	0.000	0.000	0.000
24	MACHINERY	5294.611	311.961	438.427	239.344	103.143	58.050
25	LEATHER PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
26	ENERGY	4170.881	238.107	8.032	0.518	138.560	9.754
27	HOUSING SERVICE	0.000	0.000	0.000	0.000	0.000	0.000
28	FINANCIAL SERVICES	1039.878	59.095	2.116	0.578	0.952	4.073
29	MISCELLANEOUS INDUSTRIES	160.517	3.282	0.000	0.000	1.984	0.000
30	CONSTRUCTION	853.914	18.753	0.000	0.000	0.363	0.000
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.000
32	HEALTH	0.000	0.000	0.000	0.000	0.000	0.000
33	MISCELLANEOUS SERVICES	689.664	13.527	1.970	2.815	2.270	6.784
34	PUBLIC ADMINISTRATION	55.061	9.665	1.449	3.628	1.595	11.936
35	TRADE-TRANSPORT SERVICES	2293.903	154.855	867.921	761.310	784.615	2059.402
36	TOTAL INPUT	53730.455	2815.680	2369.325	2918.803	1627.873	2255.272
37	VALUE ADDED	122526.000	4018.000	5646.000	10018.000	9408.000	10639.000
38	INDIRECT TAXES	0.000	0.000	0.000	0.000	0.000	0.000
39	TOTAL OUTPUT	176256.455	6833.680	8015.325	12936.803	11035.873	12894.272
40	IMPORT C.I.F	0.100	5218.000	0.000	439.400	0.000	756.400
41	IMPORT DUTIES	0.012	376.000	0.000	330.000	0.000	511.000
42	IMPORT AT MARKET PRICE	0.112	5594.000	0.000	769.400	0.000	1267.400
43	TOTAL SUPPLY (39+42)	176256.567	12427.680	8015.325	13706.203	11035.873	14161.672

Contd.

Table 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS)

(In Million Taka)

ector No	Sectors	7 TEA	8 OTHER CROPS	9 LIVESTOCK	10 FISH	11 FORESTRY	12 EDIBLE OIL
1	RICE	0.000	0.000	4993.553	0.000	0.000	0.000
2	WHEAT	0.000	0.000	65.930	0.000	0.000	0.000
3	SUGAR CANE	0.000	0.000	0.000	0.000	0.000	0.000
4	VEGETABLES	0.000	0.000	0.000	0.000	0.000	0.000
5	PULSES	0.000	0.000	4.869	0.000	0.000	0.000
6	FRUITS	0.000	0.000	0.000	0.000	0.000	0.000
7	TEA	5.736	0.000	0.000	0.000	0.000	0.000
8	OTHER CROPS	0.000	139.375	0.000	0.000	0.000	0.000
9	LIVESTOCK	0.000	461.695	0.000	0.000	2.406	170.457
10	FISH	0.000	0.000	0.000	727.377	0.000	0.000
11	FORESTRY	100.903	3.488	1043.087	707.012	6277.020	1.806
12	EDIBLE OIL	0.000	0.000	2466.555	78.406	0.000	8556.510
13	MANUFACTURED FOOD	0.000	0.000	0.000	0.000	0.000	0.000
14	TOBACCO PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
15	SUGAR AND GUR	0.000	0.000	31.352	0.000	0.000	0.000
16	SALT	0.000	0.000	1520.354	0.000	0.000	0.000
17	COTTON YARN	0.000	0.000	0.000	0.000	0.000	0.000
18	BASIC CLOTHING	0.000	0.000	0.000	290.050	11.755	0.000
19	READYMADE GARMENTS	0.000	0.000	0.000	0.000	0.000	0.000
20	JUTETEXT PRODUCTS	1.608	11.660	2.890	845.091	2.383	64.556
21	PHARM-CHEM	2.124	1.375	46.440	192.039	22.437	43.584
22	FERTILIZER	100.229	229.738	0.000	0.000	0.783	389.462
23	BASIC METAL AND CEMENT	0.000	0.000	0.000	0.000	13.396	23.206
24	MACHINERY	33.551	72.087	111.643	1565.413	409.871	469.500
25	LEATHER PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
26	ENERGY	307.326	119.741	906.481	3076.179	135.092	281.823
27	HOUSING SERVICE	0.000	0.000	0.000	0.000	0.000	0.000
28	FINANCIAL SERVICES	15.368	60.992	44.145	86.135	5.403	40.094
29	MISCELLANEOUS INDUSTRIES	15.225	17.199	257.605	1489.562	262.017	8.051
30	CONSTRUCTION	4.300	0.000	44.254	20.894	37.893	3.619
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.000
32	HEALTH	0.000	0.000	0.000	0.000	0.000	0.000
33	MISCELLANEOUS SERVICES	5.488	5.787	78.990	158.536	9.053	24.296
34	PUBLIC ADMINISTRATION	184.434	3.441	27.950	22.847	829.816	11.684
35	TRADE-TRANSPORT SERVICES	403.819	1626.492	4424.539	9525.469	4973.540	1284.193
36	TOTAL INPUT	1180.111	2753.070	16070.637	18785.010	12992.865	11372.841
37	VALUE ADDED	3052.000	8502.000	31613.000	40127.000	33186.000	6984.000
38	INDIRECT TAXES	140.870	0.000	16.682	0.000	32.146	314.756
39	TOTAL OUTPUT	4232.111	11255.070	47683.637	58912.010	46178.865	18356.841
40	IMPORT C.I.F	0.000	1000.400	10.000	0.000	103.800	8602.400
41	IMPORT DUTIES	0.000	0.000	7.000	0.000	62.000	4510.000
42	IMPORT AT MARKET PRICE	0.000	1000.400	17.000	0.000	165.800	13112.400
43	TOTAL SUPPLY (39+42)	4232.111	12255.470	47700.637	58912.010	46344.665	31469.241

Table 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS) Contd.

(In Million Taka)

ector No.	Sectors	13 MANUFAC. FOOD	14 TOBACCO PROD.	15 SUGAR AND GUR	16 SALT	17 COTTON YARN	18 BASIC CLOTHING
1	RICE	0.000	0.000	0.000	0.000	0.000	0.000
2	WHEAT	3197.785	0.000	0.000	0.000	0.000	0.000
3	SUGAR CANE	0.000	0.000	6681.655	0.000	0.000	0.000
4	VEGETABLES	0.000	0.000	0.000	0.000	0.000	0.000
5	PULSES	0.000	0.000	0.000	0.000	0.000	0.000
6	FRUITS	225.261	0.000	0.000	0.000	0.000	0.000
7	TEA	0.000	0.000	0.000	0.000	0.000	0.000
8	OTHER CROPS	305.411	0.000	0.000	0.000	0.000	0.000
9	LIVESTOCK	2005.724	94.515	0.000	0.000	20.113	0.000
10	FISH	64.063	0.000	0.000	0.000	0.000	0.000
11	FORESTRY	613.701	155.236	251.981	19.025	1.371	60.307
12	EDIBLE OIL	4947.928	0.000	0.000	0.000	0.000	0.000
13	MANUFACTURED FOOD	903.441	0.000	0.000	0.000	0.000	0.000
14	TOBACCO PRODUCTS	0.000	3608.911	0.000	0.000	0.000	0.000
15	SUGAR AND GUR	3345.965	0.000	0.000	0.000	0.000	0.000
16	SALT	8.540	0.000	0.000	0.000	0.000	65.948
17	COTTON YARN	0.000	0.000	0.000	0.000	3537.764	16421.375
18	BASIC CLOTHING	0.000	0.000	0.000	0.000	0.000	1479.201
19	READYMADE GARMENTS	0.000	0.000	0.000	0.000	0.000	0.000
20	JUTETEXT PRODUCTS	23.412	11.445	92.110	4.972	2.107	4.667
21	PHARM-CHEM	1343.823	122.457	310.832	125.804	24.511	6227.078
22	FERTILIZER	0.000	169.356	0.000	0.000	1.491	0.000
23	BASIC METAL AND CEMENT	427.141	0.000	0.000	0.000	0.000	0.000
24	MACHINERY	670.648	459.875	941.716	27.709	52.958	725.076
25	LEATHER PRODUCTS	0.000	0.000	0.000	0.000	1.321	4.188
26	ENERGY	802.379	87.403	675.763	25.243	400.370	527.672
27	HOUSING SERVICE	0.000	0.000	0.000	0.000	0.000	0.000
28	FINANCIAL SERVICES	258.811	34.825	124.250	3.915	1.124	30.439
29	MISCELLANEOUS INDUSTRIES	1753.118	208.128	165.903	129.716	5.374	670.021
30	CONSTRUCTION	142.935	75.567	8.909	7.899	9.775	39.802
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.000
32	HEALTH	0.000	0.000	0.000	0.000	0.000	0.000
33	MISCELLANEOUS SERVICES	317.981	10.422	171.031	4.007	15.591	103.248
34	PUBLIC ADMINISTRATION	96.367	3.271	67.969	3.261	2.063	11.852
35	TRADE-TRANSPORT SERVICES	408.879	967.653	1868.265	482.364	23.025	6699.404
36	TOTAL INPUT	21863.313	6009.064	11360.384	833.915	4098.958	33070.278
37	VALUE ADDED	6892.000	11883.000	3137.000	1394.000	2276.000	9211.000
38	INDIRECT TAXES	137.592	8617.184	585.724	0.000	5.527	151.738
39	TOTAL OUTPUT	28755.313	17892.064	14497.384	2227.915	6374.958	42281.278
40	IMPORT C.I.F	525.200	55.400	981.900	0.000	10349.500	31163.200
41	IMPORT DUTIES	529.000	19.000	589.000	0.000	764.000	256.000
42	IMPORT AT M. P.	1054.200	74.400	1570.900	0.000	11113.500	31419.200
43	TOTAL SUPPLY (39+42)	29809.513	17966.464	16068.284	2227.915	17488.458	73700.478

Table 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS) Contd.

(In Million Taka)

ctor lo.	Sectors	19 RDMD GARMENTS	20 JUTETEXT PROD.	21 PHARM-CHEM	22 FERTILIZER	23 B.METAL AND CEMENT	24 MACHINERY
1	RICE	0.000	0.000	0.000	0.000	0.000	0.000
2	WHEAT	0.000	0.000	81.106	0.000	0.000	0.000
3	SUGAR CANE	0.000	0.000	0.000	0.000	0.000	0.000
4	VEGETABLES	0.000	0.000	0.000	0.000	0.000	0.000
5	PULSES	0.000	.000	0.000	0.000	0.000	0.000
6	FRUITS	0.000	0.000	0.180	0.000	0.000	0.000
7	TEA	0.000	0.000	0.000	0.000	0.000	0.000
8	OTHER CROPS	0.000	49.337	7.816	0.000	0.000	0.000
9	LIVESTOCK	0.000	706.989	7404.418	0.000	0.000	0.000
10	FISH	0.000	0.000	0.000	0.000	0.000	0.000
11	FORESTRY	29.996	82.942	2809.320	12.996	103.662	451.041
12	EDIBLE OIL	0.000	0.000	9.782	0.000	0.000	0.000
13	MANUFACTURED FOOD	0.000	0.000	5.644	0.000	0.000	0.000
14	TOBACCO PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.000
15	SUGAR AND GUR	0.000	0.000	280.744	0.000	0.000	0.000
16	SALT	0.000	0.177	157.020	0.000	0.000	0.000
17	COTTON YARN	565.080	66.183	0.000	0.000	0.000	0.000
18	BASIC CLOTHING	49106.875	0.000	23.993	0.000	0.000	26.506
19	READYMADE GARMENTS	184.145	0.000	0.000	0.000	0.000	0.000
20	JUTETEXT PRODUCTS	0.000	5168.772	2.642	250.374	36.017	2.606
21	PHARM-CHEM	0.000	240.551	14299.992	1953.872	77.164	809.304
22	FERTILIZER	0.000	418.150	0.000	0.000	0.000	0.000
23	BASIC METAL AND CEMENT	0.000	0.000	0.000	0.000	3191.193	2656.576
24	MACHINERY	145.685	111.095	2660.676	546.693	903.771	2918.982
25	LEATHER PRODUCTS	0.000	0.000	22.585	0.000	0.000	4.671
26	ENERGY	286.458	835.699	1685.466	2788.482	681.808	739.430
27	HOUSING SERVICE	0.000	0.000	0.000	0.000	0.000	0.000
28	FINANCIAL SERVICES	503.396	1004.781	364.310	28.262	25.977	314.041
29	MISCELLANEOUS INDUSTRIES	1209.832	173.399	11597.307	1411.151	879.905	691.808
30	CONSTRUCTION	0.000	279.918	458.449	41.345	82.875	451.997
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.000
32	HEALTH	0.000	0.000	0.000	0.000	0.000	0.000
33	MISCELLANEOUS SERVICES	544.238	2060.241	518.094	58.707	30.875	97.122
34	PUBLIC ADMINISTRATION	70.582	300.279	159.603	11.842	16.269	25.490
35	TRADE-TRANSPORT SERVICES	252.315	1953.737	9929.087	2206.889	1920.883	4784.305
36	TOTAL INPUT	52898.602	13452.250	52478.234	9310.613	7950.399	13973.879
37	VALUE ADDED	5914.000	11157.000	15416.000	2202.000	2880.000	3259.000
38	INDIRECT TAXES	0.375	139.831	1094.653	0.000	55.055	822.714
39	TOTAL OUTPUT	58812.602	24609.250	67894.234	11512.613	10830.399	17232.879
40	IMPORT C.I.F	150.100	0.000	14820.500	2138.600	12497.600	28763.300
41	IMPORT DUTIES	150.000	0.000	8462.000	0.000	2686.000	17922.000
42	IMPORT AT M. P.	300.100	0.000	23282.500	2138.600	15183.600	46685.300
43	**TOTAL SUPPLY (39+42)**	**59112.702**	**24609.250**	**91176.734**	**13651.213**	**26013.999**	**63918.179**

able 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS)

Contd.
(In Million Taka

ector No.	Sectors	25 LEATHER PROD	26 ENERGY	27 HOUSING SERV	28 FINANCIAL SERV	29 MISC.INDUS.	30 CONSTRUCTIC
1	RICE	0.000	0.000	0.000	8.640	12.438	0.0
2	WHEAT	0.000	0.000	0.000	1.645	0.000	0.0
3	SUGAR CANE	0.000	0.000	0.000	0.000	0.000	0.0
4	VEGETABLES	0.000	0.000	0.000	1.579	0.000	0.0
5	PULSES	0.000	0.000	0.000	0.789	0.000	0.0
6	FRUITS	0.000	0.000	0.000	0.636	0.000	0.0
7	TEA	0.000	0.000	0.000	0.921	0.000	0.0
8	OTHER CROPS	0.000	0.000	0.000	0.526	29.278	0.0
9	LIVESTOCK	3246.626	0.000	0.000	11.886	1061.229	0.0
10	FISH	13.522	0.000	0.000	73.443	0.000	0.0
11	FORESTRY	122.302	2.577	188.438	26.140	7633.627	6128.0
12	EDIBLE OIL	0.000	0.000	0.000	3.355	0.000	0.0
13	MANUFACTURED FOOD	0.000	0.000	0.000	4.057	0.000	0.0
14	TOBACCO PRODUCTS	0.000	0.000	0.000	0.000	0.000	0.0
15	SUGAR AND GUR	0.000	0.000	0.000	4.737	40.048	0.0
16	SALT	16.816	0.000	0.000	0.000	75.165	0.0
17	COTTON YARN	0.000	0.000	0.000	0.000	139.060	0.0
18	BASIC CLOTHING	16.606	0.000	0.000	18.552	652.002	0.0
19	READYMADE GARMENTS	0.000	0.000	0.000	0.000	0.000	0.0
20	JUTETEXT PRODUCTS	0.000	0.000	0.000	0.000	64.005	94.31
21	PHARM-CHEM	739.273	198.656	0.000	658.989	16483.823	6228.7
22	FERTILIZER	0.000	0.000	0.000	0.000	0.000	0.0
23	BASIC METAL AND CEMENT	0.000	1.443	0.000	0.000	1577.204	32702.91
24	MACHINERY	55.568	4939.486	0.000	62.653	3812.431	16135.0
25	LEATHER PRODUCTS	2423.748	0.000	0.000	0.000	0.243	0.0
26	ENERGY	140.047	25095.972	0.000	168.267	6616.693	724.6
27	HOUSING SERVICE	156.841	0.000	0.000	0.000	0.000	0.0
28	FINANCIAL SERVICES	290.818	44.844	6803.040	0.000	528.819	0.0
29	MISCELLANEOUS INDUSTRIES	240.978	739.524	0.000	606.468	10713.982	24693.5
30	CONSTRUCTION	78.730	328.728	18573.459	155.723	596.032	0.0
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.0
32	HEALTH	0.000	0.000	0.000	117.127	0.000	0.0
33	MISCELLANEOUS SERVICES	1049.980	759.824	0.000	813.792	1214.357	0.0
34	PUBLIC ADMINISTRATION	330.277	194.780	0.000	282.740	152.198	6.4
35	TRADE-TRANSPORT SERVICES	507.405	2698.681	0.000	250.899	11334.766	121.6
36	TOTAL INPUT	9429.537	35004.515	25564.937	3273.564	62737.400	86835.0
37	VALUE ADDED	1868.000	21803.000	87378.000	19607.000	12059.000	56717.0
38	INDIRECT TAXES	49.825	4903.122	0.000	675.914	510.021	31.5
39	TOTAL OUTPUT	11297.537	56807.515	112943.000	22880.564	74796.400	143552.0
40	IMPORT C.I.F	13.400	13924.300	0.000	0.000	10186.000	0.0
41	IMPORT DUTIES	10.000	8355.000	0.000	0.000	5403.000	0.0
42	IMPORT AT M. P.	23.400	22279.300	0.000	0.000	15589.000	0.0
43	**TOTAL SUPPLY (39+42)**	**11320.937**	**79086.815**	**112943.000**	**22880.564**	**90385.400**	**143552.0**

Table 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS) Contd.

(In Million Taka)

ctor lo.	Sectors	31 EDUCATION	32 HEALTH	33 MISC. SERV.	34 PUBLIC ADMIN.	35 TRDE-TRNSPT SERV.	36 INPUT DEMAND
1	RICE	0.000	334.812	0.000	679.502	0.000	16147.595
2	WHEAT	0.000	34.253	0.000	84.004	0.000	3709.232
3	SUGAR CANE	0.000	0.000	0.000	0.000	0.000	6689.197
4	VEGETABLES	0.000	12.626	0.000	119.343	0.000	757.039
5	PULSES	0.000	34.052	0.000	46.231	0.000	193.659
6	FRUITS	0.000	6.112	0.000	33.775	0.000	271.120
7	TEA	0.000	4.918	0.000	44.377	0.000	55.952
8	OTHER CROPS	0.000	6.198	0.000	41.075	0.000	579.016
9	LIVESTOCK	0.000	72.303	0.000	107.698	0.000	31331.832
10	FISH	0.000	18.795	0.000	401.016	0.000	1298.216
11	FORESTRY	6.788	4.501	11.015	31.342	536.044	29460.000
12	EDIBLE OIL	0.000	16.264	0.000	60.193	0.000	16138.993
13	MANUFACTURED FOOD	27.877	36.698	0.000	17.032	16.307	1011.056
14	TOBACCO PRODUCTS	0.000	0.000	0.000	0.000	0.000	3608.911
15	SUGAR AND GUR	0.000	12.396	0.000	56.949	0.000	3772.191
16	SALT	0.000	0.834	0.000	1.912	0.000	1846.766
17	COTTON YARN	0.000	0.000	0.000	0.000	16.965	20746.427
18	BASIC CLOTHING	45.052	255.305	98.285	1331.022	1177.509	54533.000
19	READYMADE GARMENTS	0.000	0.000	0.000	0.000	0.000	184.145
20	JUTETEXT PRODUCTS	4.167	11.979	0.000	20.045	16.252	6896.091
21	PHARM-CHEM	106.647	1928.361	1355.808	283.295	0.000	55819.852
22	FERTILIZER	0.000	0.000	0.000	0.000	0.000	14879.015
23	BASIC METAL AND CEMENT	0.000	0.000	0.000	0.000	0.000	40593.075
24	MACHINERY	79.685	707.546	303.790	4304.517	6947.014	56620.185
25	LEATHER PRODUCTS	0.000	0.000	0.000	0.000	98.663	2555.419
26	ENERGY	98.755	123.928	340.992	1606.496	15668.067	69512.522
27	HOUSING SERVICE	0.000	0.000	0.000	0.000	0.000	156.841
28	FINANCIAL SERVICES	0.000	0.000	354.011	0.000	1720.749	13795.241
29	MISCELLANEOUS INDUSTRIES	206.128	603.894	674.900	3654.387	1374.150	64619.029
30	CONSTRUCTION	69.362	44.061	251.335	589.937	3610.500	26881.328
31	EDUCATION	0.000	0.000	0.000	0.000	0.000	0.000
32	HEALTH	0.000	0.000	0.000	0.000	0.000	117.127
33	MISCELLANEOUS SERVICES	0.000	7.737	471.783	2182.123	334.373	11764.706
34	PUBLIC ADMINISTRATION	51.240	3.221	385.822	991.358	1648.411	5978.861
35	TRADE-TRANSPORT SERVICES	28.635	15.372	226.148	2420.287	3330.615	81591.346
36	TOTAL INPUT	724.336	4296.166	4473.889	19107.916	36495.619	644114.989
37	VALUE ADDED	30533.000	10787.000	96175.000	54736.000	195062.000	948065.000
38	INDIRECT TAXES	0.000	0.611	2348.588	34.419	772.017	21440.895
39	TOTAL OUTPUT	31257.336	15083.166	100648.889	73843.916	231557.619	1592180.052
40	IMPORT C.I.F	0.000	0.000	31794.000	0.000	0.000	173493.500
41	IMPORT DUTIES	0.000	0.000	0.000	0.000	0.000	50941.012
42	IMPORT AT M. P.	0.000	0.000	31794.000	0.000	0.000	224434.512
43	**TOTAL SUPPLY (39+42)**	**31257.336**	**15083.166**	**132442.889**	**73843.916**	**231557.619**	**1816614.564**

Table 3 : INPUT- OUTPUT FLOW TABLE FOR BANGLADESH , 1992-93 (35X35 SECTORS) Contd.

(In Million Taka)

:tor o.	Sectors	37 Private Consumption	38 Public Consumption	39 Gross Fixed Investment	40 Stock Change	41 Export	42 Total Demand
1	RICE	174909.975	0.000	0.000	-14801.003	0.000	176256.567
2	WHEAT	21195.485	0.000	0.000	-12477.037	0.000	12427.680
3	SUGAR CANE	4260.722	0.000	0.000	-2934.594	0.000	8015.325
4	VEGETABLES	44649.274	0.000	0.000	-32013.330	313.220	13706.203
5	PULSES	14104.457	0.000	0.000	-3262.243	0.000	11035.873
6	FRUITS	16059.414	0.000	0.000	-2219.572	50.710	14161.672
7	TEA	4848.407	0.000	0.000	-2270.638	1598.390	4232.111
8	OTHER CROPS	23151.373	0.000	0.000	-11604.059	129.140	12255.470
9	LIVESTOCK	40623.731	0.000	0.000	-24290.326	35.400	47700.637
10	FISH	33938.851	0.000	0.000	16672.154	7002.790	58912.010
11	FORESTRY	40288.000	0.000	2282.130	-25714.034	28.120	46344.665
12	EDIBLE OIL	13905.362	0.000	0.000	1424.884	0.000	31469.239
13	MANUFACTURED FOOD	23782.415	0.000	0.000	5016.042	0.000	29809.513
14	TOBACCO PRODUCTS	10104.213	0.000	0.000	2973.819	1279.530	17966.473
15	SUGAR AND GUR	13573.231	0.000	0.000	-1285.928	8.790	16068.284
16	SALT	9109.102	0.000	0.000	-8727.953	0.000	2227.915
17	COTTON YARN	0.000	0.000	0.000	-3267.799	9.830	17488.458
18	BASIC CLOTHING	4652.000	0.000	0.000	14516.168	0.000	73700.478
19	READYMADE GARMENTS	11382.941	0.000	0.000	-9727.000	57272.660	59113.000
20	JUTETEXT PRODUCTS	1248.832	0.000	0.000	2217.787	14246.540	24609.250
21	PHARM-CHEM	22111.151	0.000	0.000	13120.431	125.300	91176.734
22	FERTILIZER	0.001	0.000	0.000	-3279.213	2051.410	13651.213
23	BASIC METAL AND CEMENT	0.000	0.000	0.000	-14584.996	5.920	26013.999
24	MACHINERY	16062.098	0.000	39925.801	-49420.255	730.350	63918.179
25	LEATHER PRODUCTS	2496.166	0.000	0.000	106.572	6162.780	11320.937
26	ENERGY	6354.728	0.000	0.000	1789.655	1429.910	79086.815
27	HOUSING SERVICE	57299.358	0.000	0.000	55486.738	0.000	112942.937
28	FINANCIAL SERVICES	6047.239	0.000	0.000	3038.084	0.000	22880.564
29	MISCELLANEOUS INDUSTRIES	10818.917	0.000	0.000	14852.844	94.610	90385.400
30	CONSTRUCTION	0.000	0.000	98270.297	18401.000	0.000	143552.000
31	EDUCATION	8521.443	22670.373	0.000	65.520	0.000	31257.336
32	HEALTH	10431.422	11289.000	0.000	-6755.000	0.000	15083.166
33	MISCELLANEOUS SERVICES	63398.236	0.000	0.000	45685.947	11594.000	132442.889
34	PUBLIC ADMINISTRATION	1175.371	97615.493	0.000	-30925.809	0.000	73843.916
35	TRADE-TRANSPORT SERVICES	51275.579	0.000	0.000	98690.694	0.000	231557.619
	TOTAL	761779.248	131575.000	140478.228	34498.000	104169.400	1816614.508

3. THE COMPILATION OF THE SOCIAL ACCOUNTING MATRIX FOR 1992/93

This section describes the compilation of a SAM for 1992/93. The accounting relations of the matrix bring together the structure of production, income generation by factors of production, distribution of income by institutions in return for factor services and savings and investment patterns. In particular, the matrix identifies the economic relations through four types of accounts: (i) production activity accounts for 35 sectors (described in the I-O table); (ii) nine factors of productions with eight different types of labour and one capital; (iii) current account transactions between four main institutional agents; households and unincorporated capital, corporate enterprises, government and the rest of the world; and (iv) one consolidated capital accounts to capture the flows of savings and investment by institutions and sectors respectively. The methodology and statistical procedures adopted to compile the Social Accounting Matrix for Bangladesh are based primarily on a fully disaggregated Malaysian SAM, compiled by Pyatt, Round and Denes (1984)[3].

3.1. AN OUTLINE OF AGGREGATE SAM OF BANGLADESH

For the purpose of exposition, the main economic relations are presented in an aggregate SAM for Bangladesh in Table 4. Fifty six sets of accounts contain four broad groups of accounts as follows; production (accounts 1-35), factors (accounts 36-44), institutions current accounts (accounts 45-55), and the consolidated capital account (account 56). The aggregate SAM satisfies the convention that the totals of corresponding rows and columns are equal and there is no leakage and injection

[3] With reference to the Malaysian SAM, Dhanani argues that ' besides its extensive disaggregation and coverage, the study offers a detailed discussion on the conceptual difficulties arising from the fundamental objective of a SAM, which is to integrate social statistics with major economic data under a common base, and on ways of dealing with numerous sources of data varying in quality and coverage.' (Dhanani, 1988)

Table 4 : An Aggregate Social Accounting Matrix for Bangladesh , 1992-93 (In Million Taka)

	C U R R E N T A C C O U N T								TOTAL
	Production	F a c t o r s		I n s t i t u t i o n s				Consolidated Capital A/C	
	1.....35	Labour	Capital	Corporate Sector	Government	Households	Rest of the World		
		36...43	44	45	46	47...54	55	56	
C u r r e n t A c c o u n t	Intermediate Demand				Government Consumption	Household Consumption	Exports	Gross Investment	Total Demand
Production Activities 1 1...35	644115				131575	761779	104169	174976	1816615
F a c t o r s 2	Value Added by Labour								Labour Income
36...43 Labour	421096								421096
	Value Added by Capital								Capital Income
44 Capital	505528								505528
I n s t i t u t i o n s 3			Corporate Capital						Corporate Income
			26390						26390
45 Corporate Sector	Indirect Taxes		Government Capital	Corporate Tax		Direct Tax			Government Income
46 Government	72382		28667	10629		6667			118345
		Labour Income	Unincorporated Capital	Dividend Payment	Government Transfer	Inter-household Transfer	Remittances		Household Receipts
H o u s e h o l d s		421096	450471	-	1520	-	36984		910071
47.....54	Imports c.i.f.								Payments to Abroad
55 Rest of the World	173494								173494
56 Consolidated 4				Corporate Savings	Government Savings	Household Savings	Foreign Savings		Savings
Capital Account				15761	-17479	141625	32341		172247
	Total Supply	Labour Factor Payment	Capital Factor Payment	Corporate Expenditure	Government Expenditure	Household Expenditure	Total Current Receipts from Abroad	Total Investment	
T O T A L	1816615	421096	505528	26390	115616	910071	173494	174976	

into the system. Therefore, the aggregate SAM is a square matrix. The matrix presentation allows each transaction in the accounts to be represented by a single cell in the matrix[4]. The main objective of presenting the aggregated matrix is to summarise and to show the circular flow in Bangladesh's economy. It also provides a useful basis for describing the basic structure of accounts upon which subsequent discussion follows (Pyatt and Round, 1985). The disaggregated and detailed SAM is presented in Appendix A_2.

3.2. Derivation of Labour Income and Operating Surplus

It is observed from the aggregate SAM that the value added at factor cost (Taka 926,621 million) is decomposed into labour income (Taka 421,096 million) and operating surplus (Taka 505,528 million). The I-O table shows total as well as the sectoral breakdown of the gross value added, value added at factor costs and domestic indirect taxes. However, in the aggregate SAM all types of indirect taxes are combined for the purpose of presentation. The total indirect tax of Taka 72,382 million comprises domestic indirect tax of Taka 21,441 million and import duty and value added tax of Taka 50,941 million. To split the sectoral value added at factor cost (V'_i) into labour income and operating surplus, sectoral labour income by factors (L_{il}) is estimated first adopting the procedure as follows: (i) the employment coefficient matrix of 1986/87 I-O table and the vector of labour employment for 1992/93 derived from different published sources are used to derive the estimates of sectoral employment by categories for 1992/93. The estimation procedure may be expressed as:

$$\Omega_{il} = \Omega'_{il} \cdot T_i$$

[4] A SAM is a single entry system because the transactions are shown once only as elements of the matrix, so that the element (i, j) is the expenditure from account j which is received by account i. In contrast to the double-entry system, the accounts have to be 'fully articulated' in a SAM. In other words, both the origin and destination of each transaction (in terms of the accounts of the system) have to be specified. A display of origin and destination of each set of transactions can greatly facilitate understanding of inter-relationships between various parts of the macro economy (Hayden and Round, 1982).

where, Ω_{il} is the estimated employment matrix for 1992/92, Ω'_{il} denotes employment coefficient matrix of 1986/87 and T_l is the vector of employment by labour categories for 1992/93; (ii) the value added share by major occupational categories of labour are based on available data on wages and productivity of labour. The wages of different categories of labour engaged in agriculture sector are based on various reports and surveys. The labour share of various industries are adopted from available Census of Manufacturing Industries (CMI) reports and information collected from other sources.

The labour share for construction sectors are estimated on the basis of wages by skills of construction workers. The wages of various categories of labour of electricity and gas sectors are obtained from relevant sources. The wages by occupational groups in health, education and public administration sectors are complied from the budget and other documents. The wages of different categories of labour in other services sectors are based on available reports and information collected from establishments and institutions (CIRDAP, 1996). The compiled vector of sectoral wages for 1992/93 and estimated employment matrix of 1992/93 are then used together to derive the sectoral labour income by factors for 1992/93. The derivation of sectoral labour income by factors is shown as:

$$L_{il} = \Omega_{il} \cdot W_{il}$$

where, W_{il} is a vector of sectoral wages for 1992/93. The sectoral labour income is then deducted from sectoral value added at factor costs to derive sectoral operating surplus (K_i) residually. The derivation of operating surplus may be expressed as:

$$K_i = V_i - \sum_l L_{il}$$

The distribution of sectoral value added into sectoral labour income and operating surplus is shown in Table 5.

Table 5: Distribution of Value added at Factor Cost, 1992/93

(In Million Taka)

Sectors	Value Added at Factor Cost 1	Labour Income 2	Operating Surplus 3=1-2
1. Rice	122,526	70,289	52,237
2. Wheat	4,018	2,957	1,061
3. Sugar Cane	5,646	1,838	3,808
4. Vegetables	10,018	5,275	4,743
5. Pulses	9,408	1,918	7,490
6. Fruits	10,639	451	10,188
7. Tea	2,911	293	2,618
8.Other Crops	8,502	3,447	5,055
9. Livestock	31,596	23,752	7,844
10. Fish	40,127	20,415	19,712
11. Forestry	33,154	5,551	27,603
12. Edible oil	6,669	3,301	3,368
13. Other Food	6,754	4,571	2,183
14. Tobacco Products	3,266	2,074	1,191
15. Sugar-Gur	2,551	2,100	451
16. Salt	1,394	1,157	237
17. Cotton Yarn	2,270	1,500	770
18. Clothing	9,059	7,500	1,559
19. Readymade Garments	5,914	4,500	1,414
20. Jutetext	11,017	6,537	4,481
21. Pharm-Chem	14,321	3,597	10,725
22. Fertiliser	2,202	1,200	1,002
23. Basic Metal & Cement	2,825	536	2,289
24. Machinery	2,436	2,152	284
25. Leather Products	1,818	724	1,094
26. Energy	16,900	5,043	11,857
27. Housing	87,378	0	87,378
28. Financial Services	18,931	10,819	8,112
29. Misc. Industries	11,549	5,447	6,102
30. Construction	56,685	11,739	44,946
31. Education	30,533	29,304	1,229
32. Health	10,786	6,521	4,266
33. Miscellaneous Services	93,826	42,573	51,253
34. Public Administration	54,702	53,148	1,554
35. Trade and Transport	194,290	78,865	115,426
Total	926,624	421,096	505,528

3.3. Returns to Corporate, Unincorporated and Government Capital

The estimated returns to capital or operating surplus stand at Taka 505,528 million. This consists of returns to unincorporated capital, corporate capital and government capital. The decomposition of operating surplus is depicted in the aggregate SAM where unincorporated returns are Taka 450,471 million, corporate returns are Taka 26,390 million and government returns are Taka 28,667 million. Following methods are adopted to disaggregate the sectoral operating surpluses.

It is assumed that no operating surplus originates in the agricultural sectors, forestry, construction, and trade and transport sectors. Therefore, all returns to capital or operating surpluses in these four sectors are assigned to unincorporated capital. The fourteen manufacturing sectors together creates operating surplus of Taka 72,496 million (Table 5). This consists of returns to unincorporated, government and corporate capitals since industries are owned by individual, government and private or corporate firms[5]. The information of CMI are used to distribute the total manufacturing operating surplus. The CMI shows breakdown of consolidated manufacturing operating surplus by government, private and individual firms. The CMI also provides the breakdown of the manufacturing operating surpluses by government and private firms at three-digit industry groups. These information are aggregated according to the I-O sector classification to derive the distribution of manufacturing operating surplus by government and private firms for the eight manufacturing sectors. The estimated sectoral operating surpluses of private corporation are further disaggregated into operating surpluses by individual and private corporations, following assumptions and data manipulations.

[5] In the 'CMI report' no distinctions are made between private and public limited corporations and both private and public limited corporations are treated as private or corporate firms. We retain this definition.

On the other hand, some of the sectors such as energy, health, education, and public administration are mostly controlled by the government. So, the operating surpluses of these sectors are assigned to the government capital. Housing sector, which consists of urban and rural house-building, is dominated by individuals and small firms as is the 'miscellaneous service' sector, which includes professional service of doctors, lawyers, accountants and consultants. Thus, the operating surpluses of these two sectors are treated as accruing to as unincorporated capital. The banking and insurance sectors are controlled both by corporate firms and government. The operating surpluses of banking and insurance sectors are distributed between government and corporate capital on the basis of published information.

The sectoral distribution of operating surpluses between unincorporated, corporate and government capital is shown in Table 6.

Table 6 : Distribution of Capital Income among Institutions, 1992/93

(In Million Taka)

Sectors	Capital Income	Unincorporated	Corporate	Gover-nment
1. Rice	52,237	52,237	0	0
2. Wheat	1,061	1,061	0	0
3. Sugar Cane	3,808	3,808	0	0
4. Vegetables	4,743	4,743	0	0
5. Pulses	7,490	7,490	0	0
6. Fruits	10,188	10,188	0	0
7. Tea	2,618	2,618	0	0
8. Other Crops	5,055	5,055	0	0
9. Livestock	7,844	7,844	0	0
10. Fish	19,712	19,712	0	0
11. Forestry	27,603	27,603	0	0
12. Edible oil	3,368	3,288	80	0
13. Other Food	2,183	239	1,443	502
14. Tobacco Products	1,191	118	1,004	0
15. Sugar-Gur	451	16	96	339
16. Salt	237	34	34	0
17. Cotton Yarn	770	184	330	256
18. Clothing	1,559	166	1,004	389
19. Readymade Garments	1,414	201	1,213	0
20. Jutetext	4,481	1,349	1,797	1,334
21. Pharm-Chem	10,725	1,518	9,178	18
22. Fertiliser	1,002	1	7	994
23. Basic Metal & Cement	2,289	291	1,761	236
24. Machinery	284	28	167	90
25. Leather Products	1,094	155	939	0
26. Energy	11,857	0	0	1,1857
27. Housing	87,378	87,378	0	0
28. Financial Services	8,112	0	2,758	5,354
29. Misc. Industries	6,102	1,452	4,410	238
30. Construction	44,946	44,946	0	0
31. Education	1,229	0	0	1,229
32. Health	4,266	0	0	4,266
33. Miscellaneous Services	51,253	51,253	0	0
34. Public Administration	1,554	0	0	1,554
35. Trade and Transport	115,426	115,426	0	0
Total	**505,528**	**450,471**	**26,390**	**28,667**

3.4. Corporate Profits, Taxes, Dividends and Savings

Total corporate tax collection in 1992/93 was Taka 10,629 million (Statistical Year Book of Bangladesh, 1994). The corporate tax is levied on profits of the corporate establishments. It is observed that corporate profit originated in 16 sectors and the total corporate profit is Taka 26,390 million (Table 6). Since information on the sectoral breakdown of total corporate tax is not available, the proportions of corporate profit of each of the 16 sectors with respect to total corporate profit are used to distribute the total corporate tax among these 16 sectors. Sectoral corporate savings are derived by deducting sectoral corporate taxes and dividend payments from sectoral profits (Table 7).

Table 7 : Corporate Profits, Taxes and Savings, 1992/93

(In Million Taka)

Corporate Sectors	Profit Amount	Profit %	Tax	Savings
12. Edible oil	80	0.30	32	48
13. Other Food	1,443	5.47	581	862
14. Tobacco Products	1,004	3.80	404	600
15. Sugar-Gur	96	0.36	39	57
16. Salt	203	0.77	82	121
17. Cotton Yarn	330	1.25	133	197
18. Clothing	1,004	3.80	404	600
19. Readymade Garments	1,213	4.60	489	724
20. Jutetext	1,797	6.81	724	1,073
21. Pharm-Chem	9,178	34.78	3,697	5,481
22. Fertiliser	7	0.03	3	4
23. Basic Metal & Cement	1,761	6.67	709	1,052
24. Machinery	167	0.63	67	100
25. Leather Products	939	3.56	378	561
29. Misc. Industries	2,758	10.45	1,111	1,647
30. Construction	4,410	16.72	1,776	2,634
Total	26,390	100.00	10,629	15,761

3.5 GOVERNMENT ACCOUNT

The collection of government revenue involves the tax and non-tax sources. The main sources of tax revenue are: (i) indirect taxes on imports and domestic production and (ii) direct taxes in the form of corporate and income taxes. The main sources of non-tax revenue are the income from government owned corporations, financial institutions and other sources. The total government revenue is reported at Taka 118,345 million in 1992/93. On the other hand, total government expenditure is Taka 133,095 million (Statistical Yearbook of Bangladesh, 1994). Therefore, the estimated government savings is (-) Taka 14,750 million.

3.6 HOUSEHOLD CLASSIFICATION AND ACCOUNTS

An important feature of the SAM is the decomposition of the households into eight groups. The household groups differ with respect to employment status, income levels and expenditure patterns. Pyatt and Thorbecke (1976) have suggested location, sociological and wealth criteria to classify household groups[6]. However, the classification of households depends on availability of information and the issues that need to be addressed. For example, since information on income levels are readily available, households are seldom classified by levels of income. Indeed, grouping of households by income levels is an informative approach to describe income distribution issues at a point in time. However, if the purpose is to provide a basis for diagnosis and policy formulation, then the grouping criteria should correspond to constituencies which can be influenced differentially by means of policy. It is argued that household groups based on income levels alone cannot be

[6] For instance, the location criterion which distinguishes a household as urban or rural is useful since it captures many aspects of duality. Depending on this distinction, individuals with otherwise similar characteristics are likely to be paid different wages, have different job opportunities and employment expectations and generally be subject to different sets of parameters in their socio-economic behaviour (Pyatt et al. 1984).

legislated for as such, on the ground that household units are mobile between these groups, there is a need to identify target households with respect to observable characteristics (Pyatt and Thorbecke, 1976).

In the present SAM, socio economic groups based on occupational status of the principal earner of the households has been used to classify households. This criterion is likely to capture differences in employment practice, life style and assets among the household types which in turn have different relationships with factors markets, as noticed in the SAM for other countries (e.g., for Malaysia, see Pyatt, Round and Denes 1984). The virtue of this criterion is that two households who have similar income levels, may be significantly different in other aspects, especially according to living standards and patterns of consumption expenditure. According to the above two criteria, six different household groups are distinguished and the households are divided into eight categories.

The main source of information for the above disaggregation of household groups is the household distribution tables from the 1991/92 Household Expenditure Survey of the Bangladesh Bureau of Statistics. Usually, the HES provides a breakdown of earners by employment status of head of households and employment status of other than head of households according to the 16 income groups. Although information on income and expenditure patterns by 31 occupational groups are collected under the HES, these are not reported in published statistics. The unpublished information collected from the source, have been compiled to generate two matrices to: (i) distribute consumption expenditure by 31 occupational households and 16 income groups in terms of HES commodity classification; (ii) allocate incomes of 31 occupational household groups by 44 major sources.

Observing the similarities in the employment characteristics, the 31 household groups are then reclassified into eight occupational household groups. The

distribution of the households into eight groups is provided in Table 8.

Table 8 : Household Classification by Occupational Groups

SAM Classification	HES Classification
01 Professional (PHH)	13. Occupational Officer
	14. Executive/ Admn. Officer
	15. Other Officials Employee
02 Services (SHH)	16. Teacher
	17. Salesmen
	18. Businessmen
	22. Servior, Sports, Newspaper and Others
	27. Broker
03 Agricultural Labour (AGRL)	05. Agricultural Labour (Landless)
	06. Con. Agricultural Labour (Landless)
	09. Fishermen
	10. Forest and Poultry Worker
	11. Servant and Maid Servant
	12. Others
04 Agricultural Family Labour: Small Farm (AGRSF)	03. Agricultural Worker (Own Land)
	04. Agricultural Worker (Own and Other Land)
	07. Borga Cultivator (Own and Borga Land)
05 Agricultural Labour: Large Farm (AGRLF)	01. Owner Cultivator (Not Self Employed)
	02. Owner Cultivator (Self Employed)
	08. Tenant (Others)
06 Workers: Skilled (PTWSK)	19. Production Labour (Cottage and Mills)
	20. Electricity, Gas and Water Labour
	21. Construction Worker
07 Workers: Semi-skilled (PTWSS)	23. Blacksmith
	24. Potter
	25. Carpenter
	26. Spainer
08 Workers: Unskilled (PTWUS)	28. Communication Labour
	29. Daily Labour
	30. Servant and Maid Servant
	31. Others

3.6.1 Distribution of Labour Income among Households

The total labour income generated by the eight labour categories is Taka 421,096 million. Households are the recipient of this total labour income. The 1991/92 HES, unpublished tables provide information on sources of income by 31 occuaptional household groups. These include labour income from agriculture, non-agriculture, service, administrative and professional, production and transport activities. The tables also show capital income from various heads such as bank deposits, insured money, dividend, and other assets. In addition, household income from remittances and transfers from other household groups are reported. In line with the nine I-O factor classification and observed HES and I-O classifications, the HES sources are regrouped into nine factors. Finally, the derived household to factor income matrix is adjusted so that household's income from each of these nine factors corresponds to the factors reported earlier.

Table 9 : Distribution of Factor Income by Household Groups, 1992/93

(In Million Taka)

Occupational Groups	Professional	Service	Agr-HL	Agr-FLSF	Agr-FLLF	Workers-Skilled	Workers-Semi-Skilled	Workers-unskilled	Capital	Total Income
PHH	4,151	5,119	16,286	6,210	18,961	2,054	352	1,847	63,921	118,902
SHH	1,330	13,592	5,537	2,626	6,219	5,664	45	903	138,101	174,016
AGRL	3,005	10,720	4,466	2,985	14,355	10,638	944	1,760	19,496	68,369
AGRSF	7,264	3,115	13,931	5,566	4,314	1,130	461	352	50,927	87,059
AGRLF	7,055	99,570	5,319	4,555	4,235	24,861	1,172	2,630	138,396	287,792
PTWSK	2,929	1,817	3,018	4,799	538	14,750	0	2,346	22,117	52,314
PTWSS	2,257	1,350	843	2,554	116	10,718	68	737	4,970	23,612
PTWUS	13,033	5,175	3,887	8,683	989	2,586	9,281	3,325	12,542	59,501
Total	41,024	140,457	53,287	37,977	49,728	72,401	12,322	13,900	450,471	871,567

3.6.2 HOUSEHOLD INCOME FROM OTHER SOURCES

Besides labour and unincorporated capital incomes, households also receive incomes from other sources, namely remittances or factor incomes from abroad, government transfers in the form of pension. Information of the HES unpublished tables on income sources of households are used to distribute remittances among the eight households.

The pension income is very limited in Bangladesh. Persons who are employed in government, semi-government and autonomous establishments are eligible for pension income. This is a transfer of resources from government to persons or households in accordance to their contributions made during their working years. Hence pension income is distributed only among the three household groups (e.g., professional, service, and skilled workers) according to their shares in total labour income.

Table 10 : Sources of Households Income, 1992/93

(In Million Taka)

HH Groups	Total Factor Income	Remittances	Government Transfer	Total Receipts
PHH	118,902	2,747	524	122,173
SHH	174,016	5,110	766	179,892
AGRL	68,369	17,723		86,092
AGRSF	87,059	2,430		89,489
AGRLF	287,793	5,759		293,552
PTWSK	52,314	1,125	230	53,669
PTWSS	23,612	935		24,547
PTWUS	59,501	1,156		60,657
Total	**871,567**	**36,984**	**1,520**	**910,071**

3.6.3 Derivation of Household's Expenditure on Goods and Services

The aggregated I-O table depicts sectoral breakdown of consumption expenditure on goods and services. The HES unpublished tables, on the other hand, provide detailed breakdown of expenditure by 31 occupational household groups and HES commodities. In particular, the HES identifies 40 sectors which are somewhat different than the I-O sector classification. So, the HES sectors are mapped to the I-O sectors according to the mapping scheme used by the Mansur and Khondker (Mansur and Khondker 1992). However, sectoral consumption from HES estimates are found to be different from the I-O sectoral consumption estimates. Therefore, sectoral consumption expenditures by the 31 groups are adjusted using sectoral scaling factors so that the sectoral consumption corresponds to the I-O sectoral consumption estimates. The consumption expenditures by I-O sectors and the 31 household groups are converted into sectoral consumption expenditure by the eight household groups using Table 8. The distribution of consumption expenditures by the eight household groups are shown in Appendix A_4.

3.6.4 Total Receipts, Outlays and Savings by Households

Personal savings by the eight household groups are derived in this section. The personal savings of each household group is calculated residually by deducting household's total outlays and income taxes from household's total receipts. The total income tax collection was Taka 6,667 million in 1992/93. No information is available to determine the amount of income tax paid by each household group. It has been assumed that only three groups (e.g., professional, service, and skilled workers) operating in the formal sector are eligible for income tax payment. Hence total income tax is distributed among these household groups according to their shares

in total income. The total personal savings is estimated at Taka 141,625 million. Total receipts, outlays and savings by the household groups are shown in Table 11.

Table 11 : Total Receipts, Outlays and Savings by Household Groups, 1992/93

(In Million Taka)

Sources	PHH	SHH	AGRL	AGRSF	AGRLF	PTWSK	PTWSS	PTWUS	**Total**
Total Receipts	122,173	179,892	86,092	89,489	293,552	53,669	24,547	60,657	**910,071**
Expenditure	83,898	148,449	81,699	81,109	260,757	33,165	14,223	58,474	**761,775**
Tax	2,296	3,361				1,010			**6,667**
Total Outlay	86,194	151,810	81,699	81,109	260,757	34,175	14,223	58,474	**768,442**
Savings	*35,979*	*28,082*	*4,393*	*8,380*	*32,795*	*19,949*	*10,324*	*2,183*	***141,630***

4. CONCLUSION

This section discusses the salient features of the numerical specification of the Bangladesh economy within the framework of an input-output table and a social accounting matrix. The main features of this exercise are summarized as follows:

- The exercise has provided the compilation of a SAM as an outcome of integration of different data sources and the input-output table. The exercise provides a quantitative description of the processes of production, income generation by factors of production, distribution of income by institutions and savings and investment patterns within a detailed framework. The present SAM provides a useful framework for exploring both macroeconomic and multisectoral issues in Bangladesh which are not readily observable from different disconcerted data sources.

- The SAM integrates numerous data that are collected and compiled by different agencies and departments of the government. Since sectoral classification and statistics of these different sources are not readily compatible, the exercise has adopted various assumptions, extensive data manipulation, reconciliation and balancing foetors to compile the SAM. The methodology and statistical procedures used to compile the SAM are discussed in detail. The exercise thus provides a framework to generate and extend future social accounting matrices in Bangladesh.

- The exercise highlights the importance of the SAM as a useful aid to policy analysis which can focus on socio-economic linkages in the economy and on simulation of policy reforms using both SAM-based fixed-price models and flex price computable general equilibrium models. The present SAM is also suitable for income distribution analysis as it shows the linkages between factoral distribution of income by nine factors and personal distribution of income by the six household groups.

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APPENDIX A_1

Problems with Treatment of Margins on Imports in Bangladesh

The transactions in I-O table are usually expressed in value terms either at producers' or at purchasers' prices (market prices). "The difference between the two sets of values gives the distributive trade and transport margins. The gross output of the distributive trade and transport units is equal to the value of their gross margins on internal and external trade (system of material products balance, UN aggregate account)". The I-O tables of Bangladesh (e.g., 1976/77, 1981/82 and 1986/87) are based on transactions valued at purchasers' prices. This implies that all internal as well as external transactions or trade are valued at purchasers' prices (market prices). In published trade statistics the values of exports and imports are recorded at f.o.b. and c.i.f. prices respectively. In the I-O tables of Bangladesh, exports at f.o.b. prices are treated as equivalent to exports at market prices. However, imports valued at c.i.f. prices are converted into imports at market prices by adding domestic margins to c.i.f. imports. The margins added to the c.i.f. imports are; (i) transport margin (domestic); (ii) trade margin (domestic); (iii) import duty and (iv) other margins (e.g. the 'scarcity premium' on restricted imports).

Identification of Problems and Possible Ways of Treating These Margins

A detailed inspection of I-O table of 1986/87 reveals a major problem in the treatment of these margins added to c.i.f. imports to derive imports at market prices and the corresponding domestic sources of supply of these margins.

- The treatment of import duty is straightforward; it is a transfer of resources from the private sector (in Bangladesh, most of the official imports are exempt from such duties) to the government sector.

- The transport and trade margins are from domestic activity and the sources of supply of these margins are the transport and trade sectors in Bangladesh. The transport and trade sectors generate a composite activity which then is distinguished according to its usage i.e. transport and trade margins on internal and external trade. The I-O table of 1986/87 shows substantial trade and transport margins on c.i.f. imports but the corresponding supplies are not reflected in the flows of trade and transport sectors. The I-O table of 1981/82 (from which the 1986/87 was updated) is, however, consistent in this regard. It shows that the gross output of the distributive trade and transport unit is equal to the value of their gross margins on internal and external transactions or trade.

- Scarcity premium is a pure rent activity which accrues to the import license holders when importation of certain items is restricted. If these license holders are public agencies then the treatment of scarcity premium is straightforward and is treated like an import duty; these are transfer of resources from private to public sector. In Bangladesh, like in other developing countries, these quota rents are in practice appropriated by private import license holders or agencies who in turn lobby for such licenses. Being a domestic private sector activity, these rents should be reflected in the flows of I-O table of 1986/87. However, no equivalent entries for scarcity premium added to c.i.f. imports are shown in the flows of I-O table of 1986/87. The text of I-O table of 1986/87 does not provide any explanation of the domestic treatment of these margins. Also the consistent 1981/82 I-O table fails to take account the appropriate treatment of the scarcity premium. However, assuming that commercial importers are a subset of the trading activity these margins may then be considered an activity of trade sector.

The Adjustment Procedures

Having identified the problems, the next step is to derive a consistent I-O table for Bangladesh that maintains the material balance conditions and subsequently be consistent with the macro aggregates (e.g. private and public consumption, gross fixed capital formation, change in stocks, exports etc.). The macro aggregates published by the United Nations are used for this purpose.

- The I-O table of 1986/87 depicts that substantial amounts (Taka 39,306 million) of transport and trade margins are added to c.i.f. imports. However, the total activity produced and supplied by the transport and trade sector as reported in I-O table is significantly lower. For example, total value added of transport and trade sector reported in the UN accounts (also in national accounts) is much higher (Taka 107,784 million) than the corresponding value added (Taka 68,392 million) in 1986/87 I-O table. Therefore, we decided to boost the value added of the transport and trade sector to be consistent with the UN accounts and at the same time augment the supply of the transport and trade sector by adding the sectoral transport and trade margins added to the sectoral c.i.f. imports. Through such an adjustment, we arrived at a consistent data set except for the treatment of the other margins. The data set is consistent in terms of total value added, sectoral value added (i.e. transport and trade sector) and other macro aggregates.

- The reported scarcity premia of Taka 21,789 million in 1986/87 appears to be very high considering the import trade regime of Bangladesh. Assuming that the value of all imports in 1986/87 (i.e. Taka 80,088 million) is binding (in terms of quota) and the average scarcity premia is 20 percent, the total scarcity premia is Taka 16,018 million which is smaller than Taka 21,879 million reported in 1986/87 I-O table[7]. Although no estimate is available regarding the

[7] A study by the Planning Commission reported that the overall scarcity premium is 35 percent, of which 15 percent may be considered as the normal profit margin. Therefore, the average (pure) scarcity premium is around 20 percent.

value of importables under the restricted list, it is believed that the value of restricted imports as a proportion of total import value is quite low[8]. Therefore this estimate appears to be spurious and hence reliability of such estimate is in question. At this stage this problem may be handled in two possible ways; (a) drop the scarcity premium assuming that the scarcity premium is being included in the transport and trade margin; or (b) add the scarcity premium to the value added of the transport and trade sector, which in turn would generate a higher sectoral (i.e. transport and trade) as well as total value added.

We have adopted the first approach since it is consistent with the macro aggregates and at the same time maintains the material balance condition. The second approach might lead to some double counting.

[8] The World Bank estimated that roughly 20 percent of all imports categories (i.e. 1192 items) at the four digit SITC level are under the restricted list of imports in 1984/85.

Disaggregated Social Accounting Matrix for Bangladesh, 1992/93

(In Million Taka)

Description	Sector No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Rice	1	10118.65	0	0	0	0	0	0	0	4993.553	0	0	0	0	0	0	0	0	0	0	0	0
Wheat	2	0	244.509	0	0	0	0	0	0	65.93	0	0	0	3197.785	0	0	0	0	0	0	0	81.106
Sugarcane	3	0	0	7.542	0	0	0	0	0	0	0	0	0	0	0	6681.655	0	0	0	0	0	0
Vegetables	4	0	0	0	623.491	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pulses	5	0	0	0	0	107.718	0	0	0	4.869	0	0	0	0	0	0	0	0	0	0	0	0
Fruits	6	0	0	0	0	0	5.156	0	0	0	0	0	0	225.261	0	0	0	0	0	0	0	0.18
Tea	7	0	0	0	0	0	0	5.736	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Othercrops	8	0	0	0	0	0	0	0	139.375	0	0	0	0	305.411	0	0	0	0	0	0	49.337	7.816
Livestock	9	13586.63	778.159	331.561	804.636	403.616	61.17	0	461.695	0	0	2.406	170.457	2005.724	94.515	0	0	20.113	0	0	706.989	7404.418
Fish	10	0	0	0	0	0	0	0	0	0	727.377	0	0	64.063	0	0	0	0	0	0	0	0
Forestry	11	1971.469	39.345	3.642	4.453	1.134	24.566	100.903	3.488	1043.087	707.012	6277.02	1.806	613.701	155.236	251.981	19.025	1.371	60.307	29.996	82.942	2809.32
Edible oil	12	0	0	0	0	0	0	0	0	2466.555	78.406	0	8556.51	4947.928	0	0	0	0	0	0	0	9.782
Other Food	13	0	0	0	0	0	0	0	0	0	0	0	0	903.441	0	0	0	0	0	0	0	5.844
Tobacco Prod	14	0	0	0	0	0	0	0	0	0	0	0	0	0	3608.911	0	0	0	0	0	0	0
Sugar & Gur	15	0	0	0	0	0	0	0	0	31.352	0	0	0	3345.965	0	0	0	0	0	0	0	280.744
Salt	16	0	0	0	0	0	0	0	0	1520.354	0	0	0	8.54	0	0	0	0	65.948	0	0.177	157.02
Yarn	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3537.764	16421.38	565.08	66.183	0
Clothing	18	0	0	0	0	0	0	0	0	0	290.05	11.755	0	0	0	0	0	0	1479.201	49106.88	0	23.993
RMGarments	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	184.145	0	0
Jutetext	20	79.117	23.638	0.191	24.828	18.834	11.409	1.608	11.66	2.89	845.091	2.383	64.556	23.412	11.445	92.11	4.972	2.107	4.667	0	5168.772	2.642
Pharm-Chem	21	1983.165	6.744	0.751	1.567	0.454	0.193	2.124	1.375	46.44	192.039	22.437	43.584	1343.823	122.457	310.832	125.804	24.511	6227.078	0	240.551	14299.99
Fertiliser	22	11432.99	914.04	705.723	451.635	62.635	2.779	100.229	229.738	0	0	0.783	389.462	0	169.356	0	0	1.491	0	0	418.15	0
Basic metal	23	0	0	0	0	0	0	0	0	0	0	13.396	23.206	427.141	0	0	0	0	0	0	0	0
Machinery	24	5294.611	311.961	438.427	239.344	103.143	58.05	33.551	72.087	111.643	1565.413	409.871	469.5	670.648	459.875	941.716	27.709	52.958	725.076	145.685	111.095	2660.676
Leather Prod	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.321	4.188	0	0	22.585
Energy	26	4170.881	238.107	8.032	0.518	138.56	9.754	307.326	119.741	906.481	3076.179	135.092	281.823	802.379	87.403	675.763	25.243	400.37	527.672	286.458	835.699	1685.466
Housing service	27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Financial serv	28	1039.878	59.095	2.116	0.578	0.952	4.073	15.368	60.992	44.145	86.135	5.403	40.094	258.811	34.825	124.25	3.915	1.124	30.439	503.396	1004.781	364.31
Misc. Industries	29	160.517	3.282	0	0	1.984	0	15.225	17.199	257.605	1489.562	262.017	8.051	1753.118	208.128	165.903	129.716	5.374	670.021	1209.832	173.399	11597.31
Construction	30	853.914	18.753	0	0	0.363	0	4.3	0	44.254	20.894	37.893	3.619	142.935	75.567	8.909	7.899	9.775	39.802	0	279.918	458.449
Education	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Health	32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Misc. Service	33	689.664	13.527	1.97	2.815	2.27	6.784	5.488	5.787	78.99	158.536	9.053	24.296	317.981	10.422	171.031	4.007	15.591	103.248	544.238	2060.241	518.094
Pub Admin	34	55.061	9.665	1.449	3.628	1.595	11.936	184.434	3.441	27.95	22.847	829.816	11.684	96.367	3.271	67.969	3.261	2.063	11.852	70.582	300.279	159.603
Trade-Transport	35	2293.903	154.855	867.921	761.31	784.615	2059.402	403.819	1626.492	4424.539	9525.469	4973.54	1284.193	408.879	967.653	1868.265	482.364	23.025	6699.404	252.315	1953.737	9929.087
Administrative	36	0	0	0	0	0	0	0	0	0	0	93	99	328	64	297	126	205	914	1142	155	1109
Service	37	0	0	0	0	0	0	0	0	0	0	94	68	240	115	339	66	160	908	294	306	1158
Agri-Hired	38	33483	1006	880	1230	478	82	293	810	5353	4931	1599	255	0	146	0	0	63	0	0	2678	0
Agri-FLSF	39	12577	794	257	1889	449	165	0	1095	7203	11610	870	517	0	109	0	0	25	0	0	417	0
Agri-FLLF	40	24230	1158	702	2156	991	204	0	1542	11196	3874	1647	1046	0	159	0	0	89	0	0	734	0
Workers-Skilled	41	0	0	0	0	0	0	0	0	0	0	970	726	1865	539	881	417	545	3762	687	1285	751
Workers-Semi	42	0	0	0	0	0	0	0	0	0	0	156	381	1292	196	265	244	247	1198	1151	564	370
Workers-unskil	43	0	0	0	0	0	0	0	0	0	0	123	210	846	746	318	305	167	718	1226	398	208
Capital	44	52236.56	1060.527	3808	4743.458	7490	10188	2618.13	5055	7844.167	19712.41	27602.56	3368.46	2183.408	1191.338	451.276	236.629	770.0063	1559.262	1413.625	4480.614	10724.7
Corporate	45																					
Government	46	0.012	376	0	330	0	511	140.87	0	23.682	0	94.146	4824.756	666.592	8636.184	1174.724	0	769.527	407.738	150.375	139.831	9556.653
PHH	47																					
SHH	48																					
AGRL	49																					
AGRSF	50																					
AGRLF	51																					
PTWSK	52																					
PTWSS	53																					
PTWUS	54																					
Rest of World	55	0.1	5218	0	439.4	0	756.4	0	1000.4	10	0	103.8	8602.4	525.2	55.4	981.9	0	10349.5	31163.2	150.1	0	14820.5
Capital Account	56																					
Total Supply	57	176257.1	12428.21	8016.325	13706.66	11035.87	14161.67	4232.111	12255.47	47700.49	58912.42	46345.37	31470.46	29809.51	17965.99	16068.28	2228.544	17488.99	73700.48	59112.7	24609.7	91176.09

Disaggregated Social Accounting Matrix for Bangladesh, 1992/93

(In Million Taka) Continued

Description	Sector No.	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42
Rice	1	0	0	0	0	0	0	8.64	12.438	0	0	334.812	0	679.502	0							
Wheat	2	0	0	0	0	0	0	1.645	0	0	0	34.253	0	84.004	0							
Sugarcane	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Vegetables	4	0	0	0	0	0	0	1.579	0	0	0	12.626	0	119.343	0							
Pulses	5	0	0	0	0	0	0	0.789	0	0	0	34.052	0	46.231	0							
Fruits	6	0	0	0	0	0	0	0.636	0	0	0	6.112	0	33.775	0							
Tea	7	0	0	0	0	0	0	0.921	0	0	0	4.918	0	44.377	0							
Othercrops	8	0	0	0	0	0	0	0.526	29.278	0	0	6.198	0	41.075	0							
Livestock	9	0	0	0	3246.626	0	0	11.886	1061.229	0	0	72.303	0	107.698	0							
Fish	10	0	0	0	13.522	0	0	73.443	0	0	0	18.795	0	401.016	0							
Forestry	11	12.996	103.662	451.041	122.302	2.577	188.438	26.14	7633.627	6128.014	6.788	4.501	11.015	31.342	536.044							
Edible oil	12	0	0	0	0	0	0	3.355	0	0	0	16.264	0	60.193	0							
Other Food	13	0	0	0	0	0	0	4.057	0	0	27.877	36.698	0	17.032	16.307							
Tobacco Prod	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Sugar & Gur	15	0	0	0	0	0	0	4.737	40.048	0	0	12.396	0	56.949	0							
Salt	16	0	0	0	16.816	0	0	0	75.165	0	0	0.834	0	1.912	0							
Yarn	17	0	0	0	0	0	0	0	139.06	0	0	0	0	0	16.965							
Clothing	18	0	0	26.506	16.606	0	0	18.552	652.002	0	45.052	255.305	98.285	1331.022	1177.509							
RMGarments	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Jutetext	20	250.374	36.017	2.606	0	0	0	0	64.005	94.314	4.167	11.979	0	20.045	16.252							
Pharm-Chem	21	1953.872	77.164	809.304	739.273	198.656	0	658.989	16483.82	6228.739	106.647	1928.361	1355.808	283.295	0							
Fertiliser	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Basic metal	23	0	3191.193	2656.576	0	1.443	0	0	1577.204	32702.92	0	0	0	0	0							
Machinery	24	546.693	903.771	2918.982	55.568	4939.486	0	62.653	3812.431	16135.01	79.685	707.546	303.79	4304.517	6947.014							
Leather Prod	25	0	0	4.671	2423.748	0	0	0	0.243	0	0	0	0	0	98.663							
Energy	26	2788.482	681.808	739.43	140.047	25095.97	0	168.267	6616.693	724.638	98.755	123.928	340.992	1606.496	15668.07							
Housing service	27	0	0	0	156.841	0	0	0	0	0	0	0	0	0	0							
Financial serv	28	28.262	25.977	314.041	290.818	44.844	6803.04	0	528.819	0	0	0	354.011	0	1720.749							
Misc. Industries	29	1411.151	879.905	691.808	240.978	739.524	0	606.468	10713.98	24693.51	206.128	603.894	674.9	3654.387	1374.15							
Construction	30	41.345	82.875	451.997	78.73	328.728	18573.46	155.723	596.032	0	69.362	44.061	251.335	589.937	3610.5							
Education	31	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Health	32	0	0	0	0	0	0	117.127	0	0	0	0	0	0	0							
Misc. Service	33	58.707	30.875	97.122	1049.98	759.824	0	813.792	1214.357	0	0	7.737	471.783	2182.123	334.373							
Pub Admin	34	11.842	16.269	25.49	330.277	194.78	0	282.74	152.198	6.46	51.24	3.221	385.822	991.358	1648.411							
Trade-Transport	35	2206.889	1920.883	4784.305	507.405	2698.681	0	250.899	11334.77	121.674	28.635	15.372	226.148	2420.287	3330.615							
Administrative	36	714	134	483	68	1048	0	6876	450	60	5492	1303	2918	13193	3953							
Service	37	288	149	288	37	1980	0	3986	251	473	23786	5218	39655	27443	33155							
Agri-Hired	38	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Agri-FLSF	39	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Agri-FLLF	40	0	0	0	0	0	0	0	0	0	0	0	0	0	0							
Workers-Skilled	41	175	170	779	371	1502	0	118	2865	8451	20	0	0	9436	36086							
Workers-Semi	42	17	35	320	142	304	0	22	1325	1594	4	0	0	1780	715							
Workers-unskil	43	6	47	282	105	208	0	17	557	1158	2	0	0	1297	4956							
Capital	44	1002	2288.529	283.9201	1094.175	11857.25	87378	8112.086	6101.554	44946.13	1229	4265.389	51253.41	1553.581	115425.2							
Corporate	45																					
Government	46	0	2741.055	18744.71	59.825	13258.12	0	675.914	5913.021	31.531	0	0.611	2348.588	34.419	772.017							
PHH	47															4151.208	5119.298	16286.37	6210.348	18961.06	2054.136	351.5177
SHH	48															1330.187	13592	5536.962	2625.563	6218.98	5664.331	44.63025
AGRL	49															3004.757	10719.62	4465.55	2984.961	14354.88	10637.97	944.4485
AGRSF	50															7264.119	3114.522	13930.92	5565.711	4314.19	1129.693	460.5353
AGRLF	51															*7055.02	99569.6	5319.216	4554.941	4235.5	24860.71	1172.099
PTWSK	52															2928.57	1817.125	3018.265	4799.049	537.8062	14750.39	0
PTWSS	53															2257.409	1349.867	843.0092	2553.53	116.3148	10717.78	67.87363
PTWUS	54															13032.73	5174.975	3886.706	8682.898	989.2691	2585.98	9280.895
Rest of World	55	2138.6	12497.6	28763.3	13.4	13924.3	0	0	10186	0	0	0	31794	0	0							
Capital Account	56																					
Total Supply	57	13651.21	26012.58	63917.81	11319.94	79086.19	112942.9	22880.56	90385.97	143552	31257.34	15083.17	132442.9	73844.92	231557.8	41024	140457	53287	37977	49728	72401	12322

Description	Sector No	43	44	45	46	47	48	49	50	51	52	53	54	55	56	Total DD.
Rice	1					10876.07	30270.77	27709.42	20623.59	61087.89	6785.559	3432.32	14124.37		-14801	176256.6
Wheat	2					1609.762	4206.718	3592.104	2589.016	6311.3	789.9324	471.6249	1624.544		-12477	12427.19
Sugarcane	3					549.2566	331.7673	59.21642	177.6493	902.4582	310.5917	0	1930.061		-2934.59	8015.604
Vegetables	4					3747.655	8527.234	6271.819	4713.508	14457.11	2121.011	850.2416	3960.42	313	-32013.3	13705.71
Pulses	5					1397.732	2901.695	1698.578	1402.722	4475.027	652.2969	292.0649	1283.885		-3262.24	11035.42
Fruits	6					2084.506	3704.869	1583.536	1400.271	5059.075	677.7918	281.6942	1267.257	51	-2219.57	14161.55
Tea	7					707.2783	1227.654	429.0145	335.7818	1199.6	349.4297	63.59037	535.6514	1598	-2270.64	4231.314
Othercrops	8					1681.269	4151.181	3003.955	2773.364	8276.676	913.3878	480.8012	1870.367	129	-11604.1	12254.96
Livestock	9					5799.475	10030.82	3067.408	3026.328	13421.8	1799.671	724.2858	2754.215	35	-24290.3	47700.51
Fish	10					3623.418	7241.656	4037.504	3203.55	10727.1	1632.83	680.0445	2792.903	7003	16672.15	58912.37
Forestry	11					1632.743	3592.226	1860.723	1665.782	6488.308	1028.646	358.0837	1661.488	28	-23432	46344.26
Edible oil	12					1331.543	2937.149	1653.518	1407.377	4532.836	631.1134	268.6906	1142.774		1424.884	31468.88
Other Food	13					4085.61	6952.068	1650.117	1422.131	5203.745	1258.224	449.7262	2760.379		5016.042	29809.1
Tobacco Prod	14					1179.501	2131.083	1408.325	997.3541	2705.173	559.542	169.591	953.4305	71	2973.819	16757.73
Sugar & Gur	15					1585.585	2909.201	1432.177	1360.635	4467.642	630.2906	251.621	935.8485	9	-1285.93	16068.26
Salt	16					561.9888	1579.843	1465.425	1105.468	2991.315	362.0683	199.4	843.4916		-8727.95	2227.813
Yarn	17					0	0	0	0	0	0	0	0	10	-3267.8	17488.63
Clothing	18					2469.871	5348.964	3138.92	2424.908	9584.245	1246.587	509	1929.911		14516.17	73701.29
RMGarments	19					1198.47	2691.492	845.2442	805.9395	4517.415	545.288	157.9897	621.1619	57273	-31727	37113.1
Jutetext	20					115.7463	250.67	147.1001	113.6391	449.1491	58.41913	23.83438	90.44197	14247	2217.787	24609.88
Pharm-Chem	21					2322.632	5106.954	2102.933	1979.1	7518.136	936.4381	549.4785	1595.328	125	13120.43	91176.28
Fertiliser	22					0	0	0	0	0	0	0	0	2051	-3279.21	13650.8
Basic metal	23					0	0	0	0	0	0	0	0	6	-14585	26014.08
Machinery	24					2844.232	3532.477	838.8436	924.8587	6196.36	582.4048	132.29	1010.534	730	-9494.25	63917.93
Leather Prod	25					361.8573	598.2471	201.1027	162.4179	858.9393	127.8211	34.62445	150.9901	6163	106.5717	11320.99
Energy	26					642.4128	1217.251	984.5024	728.1556	1863.672	288.5591	129.925	500.5217	1430	1789.655	79087.18
Housing service	27					8476.78	15868.08	3573.739	3701.186	19018.2	2410.94	1041.173	3208.907		55486.74	112942.6
Financial serv	28					894.5896	1674.624	377.1514	390.6014	2007.069	254.4364	109.8793	338.6492		3038.084	22880.32
Misc. Industries	29					2250.236	2227.218	511.9917	822.1735	3943.551	331.0338	100.7722	632.024	1303	14852.84	91593.87
Construction	30					0	0	0	0	0	0	0	0		138670.7	165552
Education	31				22670	1785.886	2302.446	175.9979	444.1539	2953.529	347.2691	99.78047	411.9367		65.5205	31256.52
Health	32				14018	1095.716	2409.237	992.0718	933.6527	3546.727	441.7704	259.2199	752.6058		-9483.39	15082.74
Misc. Service	33					7501.103	4170.807	5016.646	5214.251	33670.33	2578.346	1359.237	3887.275	11594	45685.95	132442.7
Pub Admin	34				97615	173.8288	325.3982	73.28475	75.89824	389.996	49.43986	21.35079	65.80334		-30925.8	73843.05
Trade-Transport	35					9385.846	8123.175	2149.538	14181	12039	2255.125	709.8647	2431.618		98690.69	231557.2
Administrative	36															41024
Service	37															140457
Agri-Hired	38															53287
Agri-FLSF	39															37977
Agri-FLLF	40															49728
Workers-Skilled	41															72401
Workers-Semi	42															12322
Workers-unskil	43															13900
Capital	44															505528.4
Corporate	45		26390													26390
Government	46		28667	10629		2296	3361				1010					118344.9
PHH	47	1846.975	63921.08		524									2746.589		122172.6
SHH	48	902.7766	138101.1		766									5109.712		179892.2
AGRL	49	1760.003	19496.39											17722.97		86091.55
AGRSF	50	352.2714	50927.2											2429.788		89488.95
AGRLF	51	2630.245	138395.9											5759.423		293552.6
PTWSK	52	2345.815	22117.23		230									1124.879		53669.13
PTWSS	53	736.5462	4969.84											935.0407		24547.21
PTWUS	54	3325.368	12542.32											1155.602		60656.74
Rest of World	55															173493.5
Capital Account	56			15761	-14750	35903.97	27988.23	4039.644	8382.49	32689.26	19702.87	10335.01	2584	32341		174977.5
Total Supply	57	13900	505528	26390	121073	122172.6	179892.2	86091.55	89488.95	293552.6	53669.13	24547.21	60652.79	173494	172246.8	4146510

Appendix A_3

Sectoral Aggregation Scheme

Sectors of the Present Study	Sectors of Household Expenditure Survey
1. Rice	Rice and Rice Flour
2. Wheat	Wheat and Wheat Flour
3. Sugar Cane	Sugar Cane and Date Juice
4. Vegetables	Leafy Vegetables, Potato, Banana, Papiya, Brinjal and All Others
5. Pulese	Masoor, Khesari, Gram, Maskalai and All Others
6. Fruits	Mango, Jackfruits, Banana and All Others
7. Tea	Tea
8. Other Crops	Chillis, Onion, Turmeric, Betal Leaf, Betal Nut and All Others
9. Livestock	Mutton, Beef, Chicken, Eggs, Milk and All Others
10. Fish	Fish : Sweet, Saline, Dry and All Others
11. Forestry	Fire Wood, Wood Other
12. Edible Oil	Mustard Oil, Soyabean Oil, Vegetable Ghee and All Others
13. Other Food	Beverage, Ovaltine, Horlicks, Bread, Biscuit, Milk Powder, Sweet and All Others
14. Tobacco Products	Tobacco and Tobacco Products
15. Sugar and Gur	Sugar and Gur
16. Salt	Salt and All Others
17. Cotton Yarn	
18. Clothing	Wearing Apparel : Male and Female
19. Readymade Garments	Household Clothing
20. Jutetext Products	Other Textile Products
21. Pharm-Chem	Medicine, Homeopathy,Unani and Others
22. Fertilizer	
23. Basic Metal & Cement	
24. Machinery	Furnitures, Kitchen Equipment, Crokery and Other Ware
25. Leather Products	Shoes : All Kind, Repairs and All Others
26. Energy	Electricity, Gas, Water Charges, Other Charges and All Others
27. Housing Services	Rental House, Owner Occupied House, Rent Free House and Repair
28. Financial Services	Insurance Charges
29. Miscellaneous Industries	Paper, Radio, Television and Other Household Effects
30. Construction	
31. Education	Tution Fees, Private Tution, Hostel Charge, Other Charge : Male and Female
32. Health	Doctor's Fee, Hospital Charge, Laboratory Charges, Teeth Care and Others
33. Miscellaneous Services	Personal Effects, Personal Care, Newspaper, Cinema, Sports, Photography and Others
34. Public Administration	
35. Trade-Transport Services	

APPENDIX A4

Distribution of Household Expenditure by SAM Sectors, 1992/93

(In Million Taka)

HH Groups	Rice	Wheat	Sugarcane	Vegetables	Pulses	Fruits	tea	Othcrops	livestock	fish	forestry
AGRL	27,709	3,592	59	6,272	1,699	1,584	429	3,004	3,067	4,038	1,861
AGRSF	20,624	2,589	178	4,714	1,403	1,400	336	2,773	3,026	3,204	1,666
AGRLF	61,088	6,311	902	14,457	4,475	5,059	1,200	8,277	13,422	10,727	6,488
PHH	10,876	1,610	549	3,748	1,398	2,085	707	1,681	5,799	3,623	1,633
SHH	30,271	4,207	332	8,527	2,902	3,705	1,228	4,151	10,031	7,242	3,592
PTWSK	6,786	790	311	2,121	652	678	349	913	1,800	1,633	1,029
PTWSS	3,432	472	0	850	292	282	64	481	724	680	358
PTWUS	14,124	1,625	1,930	3,960	1,284	1,267	536	1,870	2,754	2,793	1,661
ALL Groups	174,910	21,195	4,261	44,649	14,104	16,059	4,848	23,151	40,624	33,939	18,288

HH Groups	Edible oil	Oth food	Tobacco prod	Sugar & gur	Salt	Clothing	RMG	Jute Textiles	Pharm-chem	Machinery	Leather prod	Energy
AGRL	1,654	1,650	1,408	1,432	1,465	3,139	845	147	2,103	839	201	985
AGRSF	1,407	1,422	997	1,361	1,105	2,425	806	114	1,979	925	162	728
AGRLF	4,533	5,204	2,705	4,468	2,991	9,584	4,517	449	7,518	6,196	859	1,864
PHH	1,332	4,086	1,180	1,586	562	2,470	1,198	116	2,323	2,844	362	642
SHH	2,937	6,952	2,131	2,909	1,580	5,349	2,691	251	5,107	3,532	598	1,217
PTWSK	631	1,258	560	630	362	1,247	545	58	936	582	128	289
PTWSS	269	450	170	252	199	509	158	24	549	132	35	130
PTWUS	1,143	2,760	953	936	843	1,930	621	90	1,595	1,011	151	501
ALL Groups	13,905	23,782	10,104	13,573	9,109	26,652	11,383	1,249	22,111	16,062	2,496	6,355

Distribution of Household Expenditure by SAM Sectors, 1992/93 (Contd.)

HH Groups	Housing	Finance	Other industry	Education	Health	Mis. Service	Public admin	Trp-trade	Total
AGRL	3,574	377	512	176	992	5,017	73	2,150	82,052
AGRSF	3,701	391	822	444	934	5,214	76	2,039	68,965
AGRLF	19,018	2,007	3,944	2,954	3,547	23,670	390	14,181	253,006
PHH	8,477	895	2,250	1,786	1,096	7,501	174	9,386	83,973
SHH	15,868	1,675	2,227	2,302	2,409	14,171	325	18,123	168,543
PTWSK	2,411	254	331	347	442	2,578	49	2,255	32,956
PTWSS	1,041	110	101	100	259	1,359	21	710	14,212
PTWUS	3,209	339	632	412	753	3,887	66	2,432	58,069
ALL Groups	57,299	6,047	10,819	8,521	10,431	63,398	1,175	51,276	761,775

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C I R D A P

The Centre on Integrated Rural Development for Asia and the Pacific (CIRDAP) is a regional, inter-governmental, autonomous institution, established in July 1979 at the initiative of the countries of the Asia-Pacific Region and the Food and Agriculture Organization (FAO) of the United Nations with support from several other UN bodies and donors. Its member countries include Afghanistan, Bangladesh (Host State), India, Indonesia, Lao PDR, Malaysia, Myanmar, Nepal, Pakistan, the Philippines, Sri Lanka, Thailand and Vietnam.

The main objectives of CIRDAP are to (i) assist national action; (ii) promote regional cooperation, and (iii) act as a servicing institution for its member countries for promotion of integrated rural development through research, action research, pilot project, training and information dissemination. Amelioration of rural poverty in the Asia-Pacific region has been the prime concern of CIRDAP. The Centre is committed to the WCARRD Follow-up Programmes. The programme priorities of CIRDAP are set under four areas of concern: (1) agrarian development; (2) institutional/ infrastructural development; (3) resource development including human resources; and (4) employment.

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