

***APPENDIX L ECONOMY
AND FINANCE***

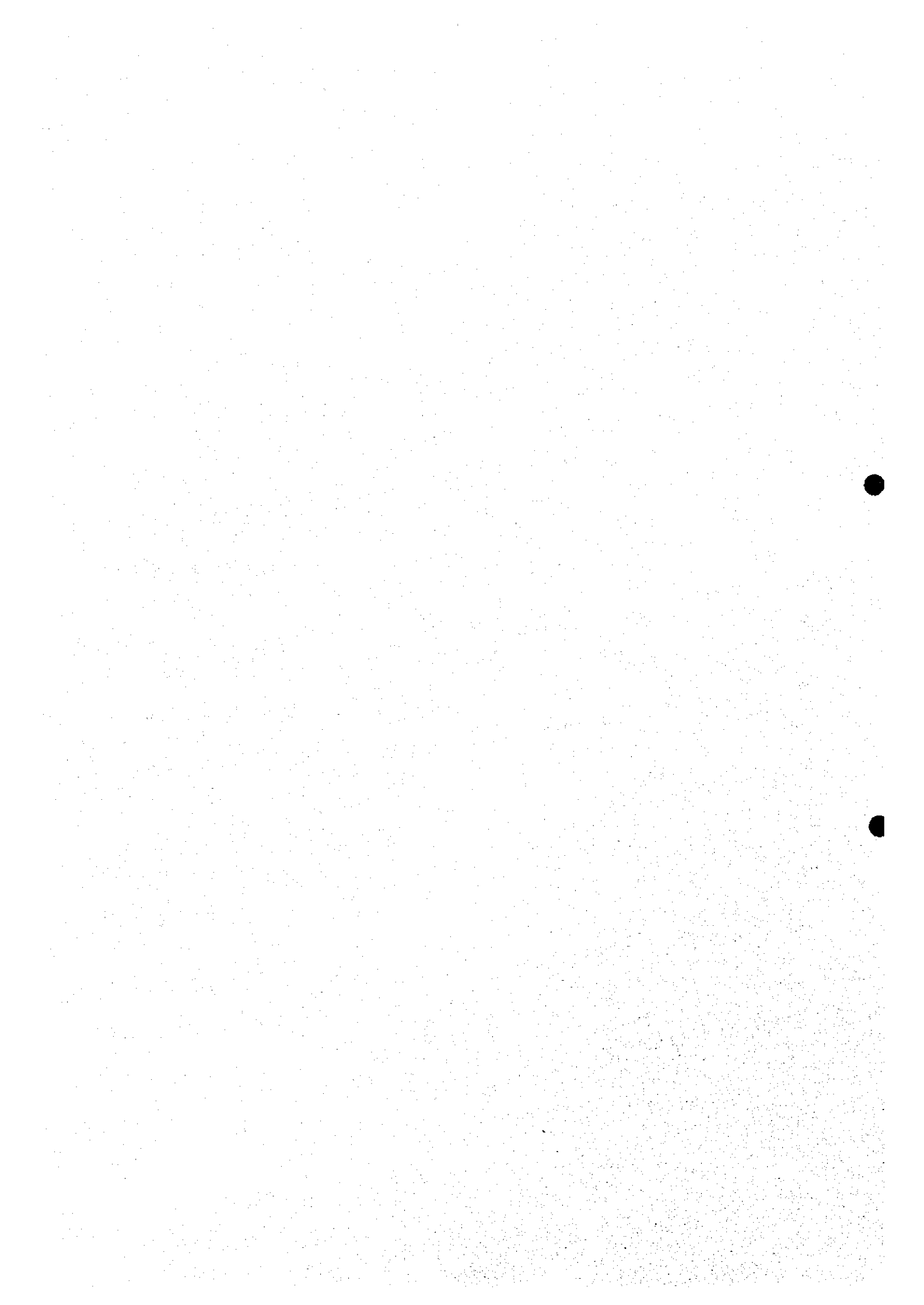


TABLE OF CONTENTS

I. SOCIO- ECONOMIC SCENES.....	L-1
1.1 General.....	L-1
1.1.1 Fiscal Year.....	L-1
1.1.2 Currency.....	L-1
1.2 Gross Regional Domestic Products.....	L-1
1.3 Financial Situation of Ho Chi Minh City.....	L-1
1.4 International Balance of Trade.....	L-3
1.5 Industrial Perspective.....	L-4
1.5.1 General.....	L-4
1.5.2 Manufacturing.....	L-4
1.5.3 Construction.....	L-4
1.5.4 Agriculture.....	L-5
1.5.5 Other Economic Activities.....	L-5
1.6 Price.....	L-6
1.6.1 Consumer Price.....	L-6
1.6.2 Exchange Rate.....	L-7
II. MASTER PLAN STUDY	
2.1 ECONOMIC EVALUATION OF URBAN DRAINAGE IMPROVEMENT WORKS.....	L-7
2.1.1 Basic Concept and Methodology.....	L-7
2.1.2 Inundation Damage.....	L-8
2.1.3 Identification of Economic Benefit.....	L-17
2.1.4 Identification of Economic Cost.....	L-19
2.1.5 Economic Evaluation of Urban Drainage System Improvement Works.....	L-21
2.1.6 Sensitivity Test for the Urban Drainage System Improvement Works.....	L-21
2.2 FINANCIAL EVALUATION OF SEWERAGE SYSTEM IMPROVEMENT.....	L-23
2.2.1 Basic Concept and Methodology.....	L-23
2.2.2 Tariff System.....	L-24
2.2.3 Financial Benefit.....	L-27
2.2.4 Financial Cost and, Operation/Maintenance and Replacement Cost.....	L-28
2.2.5 Financial Evaluation for Sewerage System Improvement Works.....	L-28
2.2.6 Recommended Tariff System for Sewerage and Waste Water Treatment Services.....	L-29
2.2.7 Repayability Analysis for the Project of Sewerage System Improvement Works.....	L-29
III. FEASIBILITY STUDY	
3.1 ECONOMIC EVALUATION OF URBAN DRAINAGE SYSTEM IMPROVEMENT.....	L-31
3.1.1 Identification of Economic Benefit.....	L-31
3.1.2 Identification of Economic Cost.....	L-33
3.1.3 Economic Evaluation of Urban Drainage System Improvement.....	L-34
3.1.4 Sensitivity Test for the Urban Drainage System Improvement.....	L-35
3.2 FINANCIAL EVALUATION OF URBAN DRAINAGE SYSTEM IMPROVEMENT WORKS.....	L-36

3.2.1 Identification of Financial Benefit.....	L-36
3.2.2 Identification of Financial Cost, Operation/Maintenance and Replacement Cost	L-36
3.2.3 Financial Evaluation of Urban Drainage System Improvement Works.....	L-36
3.3 FINANCIAL EVALUATION OF SEWERAGE SYSTEM IMPROVEMENT	L-38
3.3.1 Identification of Financial Benefit	L-38
3.3.2 Identification of Financial Cost and, Operation/Maintenance and Replacement Cost.....	L-39
3.3.3 Financial Evaluation for Sewerage System Improvement Works.....	L-40
3.3.4 Recommended Tariff System for Sewerage and Waste Water Treatment Services	L-41
3.3.5 Repayability Analysis for Sewerage System Improvement Works	L-41
3.3.6 Tariff System to Recover the Whole Works if the Sewerage System Improvement Works.....	L-42

LIST OF TABLES

Table L.1.1 Gross Domestic Products (GDP) in Ho Chi Minh City	L-44
Table L.1.2 Financial Situation of Ho Chi Minh City	L-45
Table L.1.3 Export and Import Turnover in Ho Chi Minh City	L-46
Table L.1.4 Gross Output of Industry in Ho Chi Minh City	L-47
Table L.1.5 Number of Establishment and Their Employees in Ho Chi Minh City	L-48
Table L.1.6 Gross Output of Construction, Investigation and Design, and Gross Outlays for Investment and Repair in Ho Chi Minh City	L-49
Table L.1.7 Share Rate of Gross Output of Construction, Investigation and Design, and Outlays for Investment and Repair in Ho Chi Minh City	L-50
Table L.1.8 Gross Output of Agriculture, Forestry and Fishery in Ho Chi Minh City	L-51
Table L.1.9 Cultivated Area and Their Agricultural Production in Ho Chi Minh City	L-52
Table L.1.10 Private Trade and Services.....	L-53
Table L.1.11 Private Trade and Services by Economic Sectors in 1998.....	L-54
Table L.1.12 Gross Output of Transport, Storage and Tele-communications and Number of Labors Engaged-In	L-55
Table L.1.13 Price Index and Exchange Rate in Ho Chi Minh City	L-56
Table L.2.1 (1/4) Estimation of Damages Due to 1-Year Flood in the Study Area by District.....	L-57
Table L.2.1 (2/4) Estimation of Damages Due to 1-Year Flood in the Study Area by District.....	L-58
Table L.2.1 (3/4) Estimation of Damages Due to 1-Year Flood in the Study Area by District.....	L-59
Table L.2.1 (4/4) Estimation of Damages Due to 1-Year Flood in the Study Area by District.....	L-60
Table L.2.2 (1/4) Estimation of Damages Due to 10-Year Flood in the Study Area by District.....	L-61
Table L.2.2 (2/4) Estimation of Damages Due to 10-Year Flood in the Study Area by District.....	L-62
Table L.2.2 (3/4) Estimation of Damages Due to 10-Year Flood in the Study Area by District.....	L-63
Table L.2.2 (4/4) Estimation of Damages Due to 10-Year Flood in the Study Area by District.....	L-64
Table L.2.3 Unit Damages to Buildings and Movables Due to Inundation by District	L-65
Table L.2.4 Damages to Buildings and Movables by Scale of Flood in Each Zone in Present Urbanized Situation.....	L-66

Table L.2.5	Distribution of Inundated Area in Future Urbanized Situation.....	L-67
Table L.2.6	Damages to Buildings and Movables by Scale of Flood in Each Zone in Future Urbanized Situation.....	L-68
Table L.2.7	Average Annual Damages to Buildings and Movables in Each Zone.....	L-69
Table L.2.8	Annual Average Damages to Public Facilities.....	L-70
Table L.2.9	Cultivated Area, Production, Output, Farm Gate Price of Paddy in Ho Chi Minh City.....	L-71
Table L.2.10	Cultivated Area, Production, Output, Farm Gate Price of Other Agricultural Products in Ho Chi Minh City.....	L-72
Table L.2.11	Percentage of Decrease in Yield of Paddy Due to Inundation by Growing Stage.....	L-73
Table L.2.12	Damages to Paddy by Scale of Flood in Each Zone in Present Urbanized Situation.....	L-74
Table L.2.13	Damages to Paddy by Scale of Flood in Each Zone in Future Urbanized Situation.....	L-75
Table L.2.14	Average Annual Damages to Paddy in Each Zone.....	L-76
Table L.2.15	Summary of Average Annual Direct Damages.....	L-77
Table L.2.16	Income by Source and Share Rate of Trading and Services in the Study Area.....	L-78
Table L.2.17	Number of Households Engaging in Trading and Services in Each Zone.....	L-79
Table L.2.18	Business Suspension Losses in Each Zone.....	L-80
Table L.2.19	Present Situation of Family Economy.....	L-81
Table L.2.20	Income Losses in Each Zone.....	L-82
Table L.2.21	Basic Data and Information on Medical Affairs.....	L-83
Table L.2.22	Saving Amount of Medical Fees in Built-Up Area in Each Area.....	L-84
Table L.2.23	Saving Amount of Medical Fees in Agricultural Area in Each Area.....	L-85
Table L.2.24	Estimation of Navigation Benefit in C-Zone.....	L-86
Table L.2.25	Summary of Indirect Benefit.....	L-87
Table L.2.26	Estimation of Standard Conversion Factor.....	L-88
Table L.2.27	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in C-Zone.....	L-89
Table L.2.28	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in N-Zone.....	L-90
Table L.2.29	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in W-Zone.....	L-91
Table L.2.30	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in S-Zone.....	L-92
Table L.2.31	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in NE-Zone.....	L-93
Table L.2.32	Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in SE-Zone.....	L-94
Table L.2.33	Annual Allocation of Economic Construction Cost for the Whole Works.....	L-95
Table L.2.34	Calculation of Economic Internal Rate of Return for the Works of C-Zone.....	L-96
Table L.2.35	Calculation of Economic Internal Rate of Return for the Works of N-Zone.....	L-97
Table L.2.36	Calculation of Economic Internal Rate of Return for the Works of W-Zone.....	L-98
Table L.2.37	Calculation of Economic Internal Rate of Return for the Works of S-Zone.....	L-99
Table L.2.38	Calculation of Economic Internal Rate of Return for the Works of NE-Zone.....	L-100
Table L.2.39	Calculation of Economic Internal Rate of Return for the Works of SE-Zone.....	L-101

Table L.2.40 Calculation of Economic Internal Rate of Return for the Works of Whole Study Area.....	L-102
Table L.2.41 Willingness of People to Pay (WTP) and References of Affordability of People to Pay (ATP) for Sewerage and Waste Water Treatment Services.....	L-103
Table L.2.42 Affordability of People to Pay (ATP) for Sewerage and Waste Water Treatment Service.....	L-104
Table L.2.43 Estimation of Revenue of Sewerage Treatment Services.....	L-105
Table L.2.44 Annual Disbursement of Financial Construction Cost by Zone	L-106
Table L.2.45 Calculation of Financial Internal Rate of Return in Case of VND9,000 of Charge for Sewerage Treatment Services	L-107
Table L.2.46 Calculation of Financial Internal Rate of Return in Case of VND20,000 of Charge for Sewerage Treatment Services	L-108
Table L.2.47 Calculation of Financial Internal Rate of Return in Case of VND30,000 of Charge for Sewerage Treatment Services	L-119
Table L.2.48 Suitability Analysis of Service Charge in Case of VND9,000/Month of Charge for Sewerage Treatment Services.....	L-110
Table L.2.49 Suitability Analysis of Service Charge in Case of VND20,000/Month of Charge for Sewerage Treatment Services.....	L-111
Table L.2.50 Suitability Analysis of Service Charge in Case of VND13,184/Month of Charge for Sewerage Treatment Services.....	L-112
Table L.2.51 Suitability Analysis of Service Charge in Case of VND15,000/Month of Charge for Sewerage Treatment Services.....	L-113
Table L.2.52 Repayability Analysis for Sewerage System Improvement Works in Ho Chi Minh City in Case of OECF Loan.....	L-114
Table L.3.1 Damages to Buildings and Movables by Scale of Flood in C Zone in Present Urbanized Situation	L-115
Table L.3.2 Distribution of Inundated Area in Future Urbanized Situation.....	L-116
Table L.3.3 Damages to Buildings and Movables by Scale of Flood in C Zone in Future Urbanized Situation.....	L-117
Table L.3.4 Average Annual Damages to Buildings and Movables in C-Zone.....	L-118
Table L.3.5 Annual Average Damages to Public Facilities in C Zone.....	L-119
Table L.3.6 Summary of Average Annual Direct Damages in C Zone.....	L-120
Table L.3.7 Number of Households Engaging in Trading and Services in C Zone	L-121
Table L.3.8 Business Suspension Losses in C Zone	L-122
Table L.3.9 Income Losses in C Zone	L-123
Table L.3.10 Saving Amount of Medical Fees in C Zone.....	L-124
Table L.3.11 Summary of Indirect Benefit in C Zone.....	L-125
Table L.3.12 Annual Disbursement of Construction Cost and Estimation of Its Economic Cost in C Zone	L-126
Table L.3.13 Calculation of Economic Internal Rate of Return for the Works of C Zone.....	L-127
Table L.3.14 Calculation of Financial Internal Rate of Return in Case of VND6,000/III.Month in C Zone for Urban Drainage Works.....	L-128
Table L.3.15 Suitability of OM Charge for Urban Drainage Facilities in Case of VND1,000/III per Month Base.....	L-129

Table L.3.16 Suitability of OM Charge for Urban Drainage Facilities in Case of VND2,000/HH per Month Base.....	L-130
Table L.3.17 Suitability of OM Charge for Urban Drainage Facilities in Case of VND3,000/HH per Month Base.....	L-131
Table L.3.18 Suitability of OM Charge for Urban Drainage Facilities in Case of VND2,270/HH per Month Base.....	L-132
Table L.3.19 Financial Internal Rate of Return (FIRR) in Case of VND12,500/Month in THDNDT Zone for Sewerage Treatment Services	L-133
Table L.3.20 Suitability Analysis of Proposed Services Charge of THDNDT Zone for Sewerage Treatment Services.....	L-134
Table L.3.21 Repayability Analysis for Urban Drainage and Sewerage System Improvement Works in Ho Chi Minh City in Case of JBIC Loan.....	L-135

LIST OF FIGURES

Fig. L.1.1 Financial Mechanism of Vietnam.....	L-136
Fig. L.1.2 Expenditure Mechanism in budget for Ho Chi Minh City.....	L-137
Fig. L.2.1 Damage Rate Curve.....	L-138



[Faint, illegible text or markings at the bottom of the page, possibly bleed-through from the reverse side.]

CHAPTER I. ECONOMY AND FINANCE

I. SOCIO-ECONOMIC SCENES

1.1 General

1.1.1 Fiscal Year

Vietnam uses a fiscal year system as same as the calendar year starting at 1st of January of a year and ending at 31st of December of the same year. Therefore, annual statistical data excerpted in this report are for one year from January to December in the same year.

1.1.2 Currency

Vietnamese domestic currency is "Dong" (hereinafter expressed as VND = Vietnamese Dong). As of 1998, the exchange rate is VND13,453 in annual mid-rate against US\$1.00 as indicating in Clause 1.6.2 hereunder. In this report however, the exchange rate of VND13,956 per US\$ is applied for project evaluation as a mid-rate as of the end of July 1999 unless otherwise mentioned which is the rate of Japanese ¥113.39 against US\$1.00.

1.2 Gross Regional Domestic Products

In 1998, Gross Regional Domestic Product (GRDP or GDP) of Ho Chi Minh City grew to VND62,623 billion at current market price at an average annual growth rate of 22.48 % since 1994, while the real annual growth rate was 12.80 % in average during the same period as shown in Table L.1.1.

A difference between the 2 average annual growth rates at current market price and at 1994 constant price shown in the above mentioned Table L.1.1 seems to be caused by rather high increasing ratio of price. Price situation is studied in sub-clause 1.6.1 hereunder.

Per capita GDP at current market price amounted to VND12,498,000 (equivalent to US\$929.01) in 1998 at the average annual growth rate of 19.74 % since 1994, and the real growth rate was 10.27 % for the same period as also shown in Table L.1.1.

1.3 Financial Situation of Ho Chi Minh City

In Vietnam, even in big cities as Ha Noi or Ho Chi Minh and other provinces, they have no own budget except some little items. Sources of the Government revenue consist of the central Government owned companies, the Communist Party owned companies and institution of national defense, local administrative unit (as Ho Chi Minh City) owned companies, foreign investment sector companies, private sector companies and others.

Items of revenue consist of revenues on capital utilization, taxes on license, taxes on special sales, taxes on ordinary sales, taxes on profit, taxes on income (including personal income

taxes), taxes on agriculture, taxes on housing and land use (there is no private land in Vietnam, but people has a right to use land which may trade each other and for foreign investors), fees on transportation, lottery, revenue on land use and rental, revenue on house sales, fees on registry, and others.

These are the central Governmental taxes, fees and revenues even those companies and/or traders located in Ho Chi Minh City. Ho Chi Minh City gets a distributed amount of budget consisting of ordinary budget and some subsidies if necessary from the Government of Vietnam and these are the main sources of revenue of Ho Chi Minh City.

Revenue of Ho Chi Minh City consists of the ordinary budget from the central Government, revenue from individual traders and collectives, foreign investment sector companies, balance from the previous term, subsidies from the central Government, and others. Detail mechanism of financial situation in Vietnam is shown in Fig. L.1.1.

Therefore, almost of the companies and/or traders should pay their taxes and fees and revenue in case of state owned companies additionally to Ho Chi Minh City. For example, the Water Supply Company of Ho Chi Minh City set a tariff for its water sales consisting of ordinary fee for the central Government and additional levy for Ho Chi Minh City. This is to say that the said companies and traders transfer their duties to subscribers, customers and/or consumers.

In 1998, the scale of finances of Ho Chi Minh City amounted to VND4,364 billion (equivalent to US\$324 million) in revenue and VND3,364 billion (US\$250 million) in expenditure with their rise rates of 17 % and 24 % per annum since 1994 respectively as shown in Table L.1.2, and summarized below:

Finance of Ho Chi Minh City

						(VND billion)
Revenue/expenditure	1994	1995	1996	1997	1998	Average annual growth rate(%)
Revenue	2,319	2,625	2,959	3,849	4,364	17.13
Expenditure	1,421	1,633	1,803	3,021	3,364	24.03
Surplus/deficit	898	992	1,156	828	1,000	-

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

Among the revenues, source category of "others" contributes quite high rate to the total revenue as 25 % in 1994 and 72 % in 1998 with increasing ratio of around 30 % per annum, but the statistical data issued in Ho Chi Minh City do not make to clear its detail. Expenditure of Ho Chi Minh City consists of 3 categories as (1) construction expenditure (capital expenditure for developing infrastructure and repairing its), (2) ordinary expenditure (they call it as "frequent expenditure") and (3) others.

The construction expenditure has grown with a rate of around 54 % per annum since 1994 and it shares at 21 % in 1994 to 50 % in 1998 to the total amount of expenditure.

As shown in Fig.L.1.2, there are several branch offices of the central Government located in Ho Chi Minh City, and they also have own construction budget for developing and repairing the infrastructure in Ho Chi Minh City managed by the central Government like national road.

Therefore, whole amount of these 2 kinds of construction budget is for the total development and repairing the infrastructure located in Ho Chi Minh City.

The ordinary expenditure consists of education expenditure, health expenditure, administration expenditure and subsidies to wards and communes and it shares at 65 % in 1994, 55 % in 1995, 54 % in 1996, 35 % in 1997 and 32 % in 1998 to the total expenditure.

1.4 International Balance of Trade

In Vietnam, the Government and the local administration unit manage all international trading businesses. In Ho Chi Minh City, the international trading activities have grown from US\$1,694 million in 1994 to US\$3,072 million in 1998 with 16 % of annual growth ratio in export, and from US\$1,977 million in 1994 to US\$2,713 million with 8 % of annual increasing ratio in import. Among them, around 60 % of export activities are managed by the central Government, and 35 % of import activities are also managed by the central Government in 1998.

Table L.1.3 shows a detail of these international-trading activities. According to this data, industrial products show the highest share rate to the total export amount as 72 % with a sum of US\$2,209 million in 1998 reflecting activities in 2 export processing zones located at Tan Thuan in District 7 and at Linh Xuan in Thu Duc District of Ho Chi Minh City. Reflecting the same situation, raw materials and fuels show the highest share rate to the total import amount as 74 % amounting to US\$2,004 million in same year.

Table below shows the international balance of trade in Ho Chi Minh City summarized from said Table L.1.3:

Export/import	1994	1995	1996	1997	1998	Average annual growth rate(%)
Export	1,694	2,368	3,473	3,296	3,072	16.04
Import	1,977	2,378	3,180	3,066	2,713	8.24
Balance of trade	-283	-10	293	230	359	

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

According to the said Table L.1.3, the most important country of destination is Japan with a rate of contribution of 24 % to the total export amount, and Singapore is the most important and, Japan, Taiwan and Korea are the 2nd important countries of origin for import with rates of contribution of 18 % and, 11 %, 11 % and 10 % respectively in 1998.

1.5 Industrial Perspective

1.5.1 General

In Vietnam, all industries are classified by (1) state owned industries, (2) private and/or individual industrials and (3) foreign investment activities in Vietnam. The state owned industries are further classified by type of management as those managed by (1-1) the central Government and (1-2) the local administrative unit including big cities as Ho Chi Minh City or provinces.

In foreign investment sector, both the enterprises owned by Vietnamese and the enterprises with full foreign capital invested by foreigners are trading by a currency of US Dollars which is only the authorized foreign currency.

1.5.2 Manufacturing

Gross output of whole industries in Ho Chi Minh City has grown from VND25,928 billion in 1994 to VND63,506 in 1998 at current prices with growth rate of 25 % per annum (actual growth rate was 16 % per annum at 1994-constant price) as shown in Table L.1.4, and manufacturing activities are the top industrial sector with share rate of 95 % to 97 % to the total gross output of whole industries since 1994.

Among them, state owned industries has shared more than 50 % since 1994 as 63 % in 1994, 60 % in 1995, 57 % in 1996, 54 % in 1997 and 52 % in 1998. Furthermore, the state owned industries managed by the central Government has shared ranging from 38 % to 46 % to the total gross output during the same period.

From the viewpoint of type of industrial activities, manufacturing in "foodstuff and beverage" shows the highest output as share rate of 22 % to 29 % since 1994 till 1998.

Number of establishments has increased with a rate of 6 % per annum from 23,624 firms in 1994 to 24,399 firms in 1998 as shown in Table L.1.5. Number of employees for these establishments has grown with a rate of 9 % per annum from 344,000 persons in 1994 to 491,000 persons in 1998. Growth rate of employment is a little bit higher than that for the number of establishment. It may say that the scale of industries were become gradually larger year by year.

1.5.3 Construction

Construction categories include a construction works for several kinds of building construction, development of infrastructures and their repairing.

Since 1994, the gross output in construction sector has grown with rate of 26 % per annum from VND4,461 billion in 1994 to 11,258 billion in 1998 as shown in Table L.1.6. On the other hand, the output on investigation and design for construction show rather low increasing rate as 9 % comparing with that for the actual construction.

Table L.1.7 shows share rates of investment by type of management together with actual outlays for them by type of economic activities. According to this data, more than 60 % of construction works were made by Ho Chi Minh City during the period from 1994 to 1998, and almost of them were spent for industrial facilities as 36 % in 1994, 48 % in 1995, 44 % in 1996, 36 % in 1997 and 30 % in 1998 to the total outlays in each year.

1.5.4 Agriculture

The central Government and the local administrative units also manage agricultural activities. Gross output from agricultural production has grown from VND1,539 billion in 1994 to VND2,380 billion with an annual growth rate of 12 % (actual growth rate is 1.05 % at 1994-constant price). Among them, 98 - 99 % to the total output in every year since 1994 were managed by Ho Chi Minh City as shown in Table L.1.8.

Among the agricultural product, paddy has shared at 25 % in 1994 and 21 % in 1997. The share rate was decreased by 4 % per annum, but it still shows the highest production. Vegetables, beans and flowers and condiment crops show the second highest share rate to the total products at 15 % in 1998.

Table L.1.9 shows cultivated area and production volume. According to this data, productivity of paddy was almost 3 tons per ha during past 5 years since 1994. This productivity rate is not so much high, but not low considering agro-technical situation in Vietnam.

Among food crops, paddy shared the highest cultivated area with a rate of 98 % in total crops. Among industrial crops, peanuts shared the highest cultivated area with the other rate of around 50 % in total industrial crops.

1.5.5 Other Economic Activities

People's economy is usually supported by private trading and service activities in the world. This may be the same in Vietnam too even if almost of the economic activities are managed by the state.

Table L.1.10 shows a situation of trading and service activities in private sector. This trading and services in private sectors consist of quite manifold type of activities, but mainly classified by 3 categories as (1) trading, (2) alimentation and (3) services. The trading category consists of 12 types of activities as "food", "foodstuffs", "garments", "daily articles", "articles for culture life and education", "medicaments and medical instruments", "means of transportation", "metal", "wood and construction materials", "fuels", "agricultural materials", and "others".

The alimentation category consists of 33 type of activities as "eating", "drinking", and combined activities of them. Service category consists of personal services and repairing services for consumer goods.

The gross monthly sales amount of trading category activities has grown from VND1,239 billion in 1994 to VND1,589 billion in 1996 with a growth rate of 13 % per annum. And number of households engaging in trading category has also grown from 69,000 in 1994 to 98,000 in 1996 with a rate of 19 % per annum. However, an average monthly sales amount per household (HH) engaging in trading category has decreased from VND18 million per HH in 1994 to VND16 million per HH with a rate of 5 % per annum. This means that fixed scale of market (consumers are usually not so much increased in one or 2 years) was shared by wider private traders year by year.

On the other hand, data compiling method has been changed based on economic activities since 1998 as shown in Table L.1.11. Following table shows 2 key indicators for private trade and services based on the data shown in Table L.1.10 connecting with the Table L.1.11:

Number of HHs and Monthly Income per Labour Engaged in Private Trade and Services

Item	1994	1995	1996	1997	1998	Annual increasing ratio (%)**
Number of households engaged	102,927	114,724	138,964	-	126,370	5.26
Monthly income per labour engaged*	962,000	979,000	1,125,000	-	1,008,000	1.17

(Note): * Lack of data. *: VND. **: Since 1994.

As shown in the above Table, monthly income of labors working in trading and services in private sector has grown from VND962,000 in 1994 to VND1,008,000 in 1998 with a rate of 1.17 % per annum.

Transportation, storage and tele-communication services are also important economic activities. Table L.1.12 shows gross output of these activities and number of labors engaging in these categories. According to this data, the gross output of these economic activities has been grown from VND4,205 billion in 1994 to VND7,816 billion in 1998 with an increasing ratio of 17 % per annum. Number of labors were also increased from 82,000 persons in 1994 to 103,000 persons in 1998 with the annual increasing rate of 6 % during the same period.

1.6 Price

1.6.1 Consumer Price

Table L.1.13 (A) shows a consumer price index since 1994 by kind of consumable goods and services and summarized below:

Consumer Price Index in Ho Chi Minh City (Dec. 1993 = 100)

Item	1994	1995	1996	1997	1998	Annual increase (%)
General index	109.15	123.25	132.00	135.18	147.37	7.80%
Consumable goods	107.85	122.80	131.43	134.56	146.86	8.02%
Services	115.26	125.09	134.74	139.57	151.87	7.14%

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

The average annual increasing rate of consumer price index was 7.7 % since 1994. Among the consumable goods, foodstuffs shows the highest increasing rate as 13.5 % per annum, and fuel shows the second highest one as 11.1 % per annum since 1994 as shown in the said Table.

1.6.2 Exchange Rate

The monthly fluctuation of exchange rates against US Dollars during the period from 1994 to 1997 is shown in Table L.1.13 (B) and summarized below:

Exchange Rate Since 1994
 (Mid-rate of December in each year)

Item						(VND/US\$)
	1994	1995	1996	1997	1998	Average annual decreasing rate (%)
US\$	10,852	11,045	11,182	12,908	13,453	6.04

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

II. MASTER PLAN STUDY

2.1 ECONOMIC EVALUATION OF URBAN DRAINAGE IMPROVEMENT WORKS

2.1.1 Basic Concept and Methodology

As mentioned in previous Chapter, an economic analysis appraises a project under study in terms of a national and/or a regional social economy by comparing and measuring its economic costs and benefits. In other words, economic analysis evaluates a degree of economic impacts on a project under study that would bring about in the national and/or regional social economy.

Damages should be estimated first by damageable items as (1) buildings including residential, commercial, industrial and institutional buildings, (2) indoor movables as furniture of residential buildings stored goods or materials of commercial and/or industrial buildings, and office furniture of institutional buildings, (3) public facilities, (4) agricultural damages in agricultural area, (5) business suspension losses for commercial activities due to inundation, and if possible, (6) medical cost (if living environment will be improved by completion of the Project, some of water borne diseases may be controlled and decreased, so that people's burden for medical cost and/or fees will be decreased). Using these damages, the annual average damages should be estimated by using a concept of probability of flood.

These annual average damages may become an economic benefit when the Project will be executed because that these damages may be mitigated by the Project.

The economic internal rate of return (EIRR) is calculated using the above mentioned annual average benefit and the economic cost estimated in the future, and used as an index of economic feasibility. This EIRR is defined by the following formula:

$$\sum_{t=1}^{T-1} \frac{C_t}{(1+R)^t} = \sum_{t=1}^{T-1} \frac{B_t}{(1+R)^t}$$

Where, T = the last year of the project life,
 C_t = an annual economic cost flow of the project under study in year t ,
 B_t = an annual benefit flow derived from the project in year t , and
 R = the Economic Internal Rate of Return (EIRR).

The project life is assumed at 50 years after completion of the said drainage system improvement works.

2.1.2 Inundation Damages

(1) Damages to Buildings and Their Indoor Movables

For estimation of damageable value, followings should be cleared first:

- i) inundated area by land use and by district,
- ii) share rates of residence by type of house building as permanent, semi-permanent, and temporary,
- iii) unit construction price by type of buildings as residential building consisting of the said housing type, commercial building, industrial and/or institutional building,
- iv) average depreciation rate of buildings used,
- v) value of indoor movables expressed by percentage (%) of value of buildings by type of buildings, and
- vi) building density per unit area (ha).

Habitual inundated area is already estimated as mentioned in Appendix E as 3,461.57 ha in built-up area of the study area excluding Thu Duc District, District 9, and Nha Be District. These excluded areas are also inundated in fact, and may be suffered damages to agricultural products.

According to the Statistical Yearbook issued by Ho Chi Minh City, share rates of residential buildings are 34.9 % for permanent houses, 63.0 % for semi-permanent houses, and 2.1 % for temporary houses in whole Ho Chi Minh City. Unit construction prices have been already cleared as VND1,200,000/m² for commercial buildings, VND1,500,000/m² for permanent houses, VND1,000,000/m² for semi-permanent houses, VND500,000/m² for temporary houses, and VND1,200,000/m² for industrial and/or institutional buildings based on the field investigation and getting an agreement of PMU of the Chief Architect Bureau of Ho Chi Minh City.

Average depreciation rate of buildings are assumed at 22.9 % as a standard rate and, value of indoor movables expressed by percentage for commercial, residential and industrial/institutional buildings are assumed as 137.5 %, 60.0 % and 83.0 % respectively based on both the similar projects in developing countries.

According to an information from PMU of Chief Architect Bureau of Ho Chi Minh City, building density at present is ranging from 35.14 % in Tan Binh District to 79.00 % in Binh Chanh District at present built-up area, and is ranging from 24.00 % in District 9 to 48.00 % in District 3 in future urbanized situation in 2020. So the average building density of 56.23 % is applied for estimation of damageable value per unit area (ha) in present urbanized situation and 35.18 % in future urbanized situation. It is assumed that housing space shares at 90 % to the total housing area in average in Ho Chi Minh City according to the Regulation on Building Construction of the City.

Here, Fig. L.2.1 together with a table show several relationships between damage rates and inundation depth, which are usually used for the similar project in developing countries developed by the Ministry of Construction, Japan.

On the other hand, construction schedule for improvement works of urban drainage systems is to be made by catchment area. Each catchment area consists of several districts, and relationships of districts and catchment areas are already cleared.

Damageable values per unit area (ha) due to inundation can be estimated by using the above-mentioned factors, and damages may be estimated by these damageable value multiplying inundated areas of districts expressed by ha and damage rates corresponding to inundation depth in each catchment area.

In this case, damage conditions in minimum level and maximum level resulted by the said Flood Damage Survey made by JICA Study Team in 1998 are assumed to correspond to 1-year flood and 10-year flood in return period respectively.

Table L.2.1 shows the damages corresponding to 1-year flood and Table L.2.2 shows those corresponding to 10-year flood by both the districts. Table L.2.3 shows unit damages per ha by district in 1-year flood and 10-year flood in present

Table L.2.4 shows damages to buildings and indoor movables by catchment area in each zone converted from the above-mentioned damages by district in present urbanized situation.

For estimation of damages in future urbanized situation, it is assumed that present agricultural areas will be urbanized by 50 % in 2020 as shown in Table L.2.5. Using this assumption, the damages are estimated in future urbanized situation as shown in Table L.2.6. In this case, it is assumed too that an area presently classified as the agricultural area is actually developed as built-up area.

Both damages resulted as mentioned above are summarized below:

**Damages to Buildings and Indoor Movables by Zone
 Corresponding to Flood Scale in Present Urbanized Situation
 (million VND)**

Zone	1-year flood	10-year flood
C-Zone	391,169	414,894
N-Zone	233,313	242,207
W-Zone	44,852	45,142
S-Zone	36,118	38,647
SE-Zone	23,197	26,008
Total	728,649	766,898

**Damages to Buildings and Indoor Movables by Zone
 Corresponding to Flood Scale in Future Urbanized Situation
 (million VND)**

Zone	1-year flood	10-year flood
C-Zone	470,383	497,167
N-Zone	335,797	350,282
W-Zone	308,310	322,965
S-Zone	520,261	549,198
NE-Zone	135,069	142,436
SE-Zone	711,560	751,919
Total	2,481,381	2,613,966

Design flood scale is 10-year flood according to the design criteria. Therefore, based on the flood damages mentioned above, annual average flood damages are estimated by means of flood probability corresponding to 10-year flood as shown in Table L.2.7 (A) for present urbanized situation and (B) for future urbanized situation. The resulted annual average damages in each zone and summarized below:

**Annual Average Damages to Buildings and Indoor
 Movables in Each Zone
 (million VND)**

Zone	Amount of damages	
	In present situation	In future situation
C-Zone	362,728	435,398
N-Zone	213,984	308,736
W-Zone	40,497	284,074
S-Zone	33,644	481,257
NE-Zone	0	124,877
SE-Zone	22,142	658,566
Total	672,996	2,292,906

(2) Damages to Public Facilities

According to an information from the Department of Transportation and Public Works, there are roads with 1,500 km in total length including secondary and tertiary roads. Among them, 1,300 km of roads are belonging to the Ho Chi Minh City.

On the other hand, the City has spent their budget for developing infrastructure located in the City area at sums of VND20,800 million in 1996, VND42,900 million in 1997, and VND30,600 million in 1998. And among these amounts, around amounts of one eighth (1/8) were used for rehabilitating the inundated roads.

A share rate of public facility consisting mainly roads is 32.5 %, so the area of inundated roads is 1,125.01 ha (= 3,461.57 x 0.325). From this figure, unit cost of roads for rehabilitation may be estimated at VND3.5 million/ha (= (20,800 + 42,900 + 30,600) / 3/8/1,125.01).

According to the above conditions, the annual average damages to public facilities can be estimated as shown in L.2.8, and summarized below:

**Annual Average Damages to Public Facilities
 in Each Zone**

Zone	Amount of damages (million VND)	
	In present situation	In future situation
C-Zone	3,248	4,294
N-Zone	2,571	4,666
W-Zone	420	4,039
S-Zone	277	6,933
NE-Zone	0	1,857
SE-Zone	215	9,680
Total	6,730	31,469

(3) **Agricultural Damages**

In Ho Chi Minh City, productivity of paddy has been kept at 2.91 tons/ha during these several years as shown in Table L.2.9, and paddy is the main agricultural products in the City. For estimation of damages to paddy, the farm gate price of it should make clear first of all. Damage rate for paddy should depend on its growing stages, so that its cropping pattern is also necessary to make clear.

According to the statistic data, in Ho Chi Minh City, paddy is cultivated in 3 times as "Winter-Spring crops" (the first crops), "Summer-Autumn crops" (the second crops) and "Winter crops" (the third, the last crops).

The said Table L.2.9 shows the cultivated area of paddy, its total yield, and gross output of paddy by district concerned to the Study area. Calculated farm gate price of paddy has increased from VND1,431,000/ton in 1994 to 1,673,000/ton in 1998 with an increasing ratio of 2.60 % per annum. From this, the said farm gate price of paddy amounting to 1,673,000/ton as of 1998 is applied for estimation of damages to paddy.

In Ho Chi Minh City, they are cultivating the other agricultural products as "vegetables and beans" and "sugar cane". Table L.2.10 shows their cultivated area, total yields, and gross outputs of those products. And, their farm gate prices can also be calculated as shown in the said Table.

In this study, damages to paddy is applied as the agricultural damages as a representative agricultural crops because that the other agricultural crops are negligible little in their yield.

When the inundated agricultural areas are cleared, the damages to paddy can be estimated by using the above-mentioned data and damage rate. In this case, damage rates for paddy

by inundation depth has already been developed based on Japanese experience as shown in Table L.2.11, and this rates may be applied for the second crops because that almost of inundation has occurred in autumn when the paddy is just in maturing stage.

Tables L.2.12 and 13 show the damages to paddy representing as agricultural damages, and summarized below:

Damages to Paddy by Zone Corresponding to Flood Scale in Present Urbanized Situation
 (million VND)

Zone	1-year flood	10-year flood
C-Zone	0	1,142
N-Zone	1,292	2,232
S-Zone	4,171	7,254
NE-Zone	3,016	5,210
SE-Zone	13,925	23,975
Total	22,404	39,813

Damages to Paddy by Zone Corresponding to Flood Scale in Future Urbanized Situation
 (million VND)

Zone	1-year flood	10-year flood
C-Zone	0	571
N-Zone	923	1,595
S-Zone	2,086	3,627
NE-Zone	1,508	2,605
SE-Zone	6,962	11,987
Total	11,479	20,385

By the same manner of the damages to buildings and indoor movables, the annual average damages to paddy is estimated as shown in Table L.2.14, and summarized hereunder.

Annual Average Damages to Paddy in Each Zone
 (million VND)

Zone	Amount of damages	
	In present situation	In future situation
C-Zone	514	257
N-Zone	1,586	1,133
W-Zone	0	0
S-Zone	5,141	2,571
NE-Zone	3,702	1,851
SE-Zone	17,055	8,527
Total	27,998	14,339

Table L.2.15 shows a summary of annual average direct damages consisting of those to buildings and indoor movables, to public facilities and to paddy which are to be converted into the economic benefit, and summarized hereunder too. In this case, a part of benefit corresponding to the other project as city planning should be remained for the future in proportion of both the costs.

Annual Average Direct Damages by Zone
 (million VND)

Zone	Amount of damages	
	In present situation	In future situation
C-Zone	366,490	439,949
N-Zone	218,141	273,371
W-Zone	40,917	117,531
S-Zone	39,062	117,918
NE-Zone	3,702	64,670
SE-Zone	39,412	127,463
Total	707,724	1,140,904

(4) Business Suspension Losses

In Ho Chi Minh City, there were around 126,370 HHs engaged in private trade and service activities as registered ones in 1998 as mentioned in previous sub-clause, and their total sales amounts are also reported in the same sub-clause based on the statistical data issued by Ho Chi Minh City. According to these data, their sales amounts can be estimated at VND926,165/HH.day in 1996.

According to a field investigation in some habitual inundation area, one of shop owner reported to a expert of the JICA Study Team that he could not avoided to close his shop for 3 days because of cleaning his inundated shop when an inundation occurred in September of this year (1998). He reported also that he has suffered more than VND 3 million of damages to his shopping articles (stored goods) caused by that inundation, but he forgot to remember his expected profit if he could continue his business for 3 days has been lost.

These kind of losses should be added to his direct damages to stored goods, office furniture and so on for estimation of total damages due to inundation, and these losses are called as "business suspension losses".

For estimation of the business suspension losses, number of HHs engaging in private trade and services or its share rate to the total HHs in inundation area should be cleared first. This rate may be estimated by analyzing the results of the aforementioned mentioned "Flood Damage Survey". There are questions on "income" and "income source" in the survey sheets of questionnaire. If their income sources are salaries or wages, they are worker or labor. If the income sources are trading or selling goods, they are engaging in self-employed trading activities or shop owners.

Table L.2.16 shows a result of the said analysis, and summarized below:

Share Rate of Trading and Services in the Study Area

District	Share rate (%)	District	Share rate (%)	District	Share rate (%)
District 1	46.81	District 11	58.82	District 2	26.42
District 3	66.00	Go Vap	41.51	District 9	33.33
District 4	82.35	Tan Binh	46.77	District 7	46.00
District 5	66.67	Binh Thanh	68.75	Binh Chuang	55.56
District 6	48.15	Phu Nhuan	42.31	Nha Be	23.26
District 8	59.32	District 12	40.38	Average rate	49.19
District 10	41.26	Thu Duc	38.00		

Based on the above mentioned share rates, number of households engaging in trading and services is estimated for base year, 2010, and 2020 as shown in Table L.2.17. In this case, it is assumed that the family size is 5.71 persons per HH based the said Social Survey. Flood vulnerable population mentioned in Chapter E is applied too as a basic data.

Table L.2.18 shows the resulted business suspension losses by zone, and summarized below. In this case, it is assumed that the business suspension days are 1 day and 1.5 days in case of average flood duration of less than 8 hours and more than 8 hours respectively.

Business Suspension Losses by Zone

Zone	In VND (million VND)			Equivalent to US\$ (1,000 US\$)		
	Base year	2010	2020	Base year	2010	2020
C-Zone	73,638	74,788	76,626	5,276	5,359	5,491
N-Zone	3,822	5,513	7,723	274	395	553
W-Zone	4,071	4,601	5,144	292	330	369
S-Zone	1,219	1,841	2,959	87	132	212
SE-Zone	322	752	1,628	23	54	117
Total	83,073	87,495	94,081	5,952	6,269	6,741

(Note) Base year: 1998. Exchange rate: VND13,936/US\$ (mid-rate as of the end of July 1999)

(5) Income Losses Due to Inundation

Personal income losses should also be counted as a loss due to inundation. If a flooding is occurred, and this flooding is bigger than some specified scale, some workers or labors can not come to their working places, so that their income will be decreased. Even their salaries or wages are not deducted from their fixed amount of salaries or wages, owners of shops, offices or such working places should pay the salaries or wages to their employees without any productive activities made by their employees. These are also the other kind of business suspension losses.

For estimation of these personal income losses, population in the inundated area, number of workers or labors in these areas and their income level per day should be cleared first. Among them, population in the inundated areas is already compiled by district. And, average number of working persons per HH and their average income level are also estimated by analyzing the other interview survey called "Social Survey of Relocation/Resettlement" made also by JICA Study Team in 1998 as shown in Table L.2.19.

As shown in this Table, average number of working persons is 2.12 persons per III as of 1998 and their daily average income is VND37,578 per persons in built-up area. However, according to the statistical data as shown in Table L.1.11, the daily average income per labor may be calculated at VND40,320 per person. So the later one is applied for estimation of income losses due to inundation. In this case, the daily average income in agricultural area is separately estimated at VND27,405 as shown in Table L.2.20.

Tables L.2.20 and L.2.25 (A) show a result of the analysis on income losses due to inundation, and summarized below:

Income Losses Due to Inundation by Zone

Zone	In VND (million VND)		Equivalent to US\$ (1,000 US\$)	
	Base year	2020	Base year	2020
C-Zone	12,537	13,559	898	972
N-Zone	2,584	9,389	185	673
W-Zone	1,659	5,967	119	428
S-Zone	1,769	6,862	127	492
NE-Zone	3,200	10,732	229	769
SE-Zone	5,334	27,586	382	1,977
Total	27,083	74,095	1,941	5,309

(Note) Base year: 1998. Exchange rate: VND13,956/US\$ (mid-rate as of the end of July 1999).

(6) Saving Amount of Medical Cost

The Project is a combined project of improvement of urban drainage systems and improvement of sewerage systems in Ho Chi Minh City, so that it may contribute to improve the people's living environment.

If living environment will be improved by these kind projects, some of water borne disease may be decreased and, people's burden for medical cost or fees, or some amount of budget to use for hospitals may be decreased too.

According to an information from Department of Health, a distributed amount for hospitals in Ho Chi Minh City was VND293 billion, revenue of hospitals from patients was VND21 billion and amount of medical fees from insurance systems to hospitals was VND50 billion in 1998. And, total patients were; 852,690 persons (inpatients: 490,817 persons, outpatients: 361,873 persons) in 1994, 993,685 persons (in. : 522,025 persons, out. : 471,660 persons) in 1995, 1,175,264 persons (in. : 554,447 persons, out. : 620,817 persons) in 1996, and 1,328,115 (in. : 586,992 persons, out. : 741,123 persons) in 1997 with patients' average staying days of 7.95 days in hospitals for inpatients, and average visiting days of 13.28 days for outpatients per case. Details are shown in Table L.2.21.

If (1) suffering rate of water borne disease to the total number of diseases, and (2) effect rate of these kind of project (%) to the water borne disease are made clear, an average saved amount of public cost per patient as of 1998 can be estimated by using the above mentioned data by extra-poration.

Here, the suffering rate of water borne disease was already cleared as 28.22 % as of 1997 by the said information from the Department of Health as shown in Table L.2.21. On the other hand, as the effect rate of the Project to the water borne disease, a rate of 30 % may be used which is already used in several similar projects, and this rate may be not so much different by nation.

If people suffer diseases and should go to a hospital, they should not come to their working places. But in Vietnam, if they can get a certificate from such hospitals, salaries or wages are not deducted. However, by the same reason mentioned in the case of personal income losses due to inundation, owners of shops, offices or such working places should pay salaries or wages to their employees without any productive activities of them. These personal income losses of VND40,320/person.day in built-up area and VND27,405/person.day as mentioned in previous sub-clause should be counted as a kind of personal income losses caused by getting diseases. Following table shows a result of estimation:

Saving Amount of Medical Fees Caused by Water Borne Disease by Zone

Zone	In VND (million VND)		Equivalent to US\$ (1,000 US\$)	
	Base year	2020	Base year	2020
C-Zone	10,729	11,693	769	838
N-Zone	1,803	5,015	129	359
W-Zone	990	3,448	71	247
S-Zone	1,008	3,779	72	271
NE-Zone	519	1,742	37	125
SE-Zone	1,056	5,503	76	394
Total	16,105	31,180	1,154	2,234

(Note) Base year: 1998. Exchange rate: VND13,956/US\$ (mid-rate as of the end of July 1999).

Detail of estimation processes of these saving amount of medical fees including income losses caused by getting water borne disease is shown in Tables L.2.22 and L.2.23 for built-up area and for agricultural area respectively, and Table L.2.25 (B) shows a result of the estimation.

(7) Saving an Amount of Inland Waterway Transportation

According to an information of "Pre-Feasibility Study on Improvement, Construction and Rehabilitation of Tau Hu - Doi - Te Canals", the average waiting time of ships and/or boats for harboring to load or to unload their goods transported was 7 hours, and existing harboring rate is only 75% caused by shallow river bed of the canals.

Therefore, a lot of consignors should pay extra fees and/or charges for inland waterway transportation to the firms of ship owners to use ships and/or boats.

By the Project, it is planned to excavate the riverbed of Tau Hu - Be Nghe Canal so to improve the discharge capacity of the said canals. The depth of excavation is already mentioned in previous Chapter that based on the design criteria.

By means of this excavation, existing waiting time of 7 hours for harboring can be saved, and harboring rate is improved up to 90 % according to the said information, in other words, the said harboring rate will be improved by 15 %.

According to the statistic data, the gross output of inland waterway transportation grew from a sum of VND562,150 million in 1994 to 1,232,992 million in 1998 as shown in Table L.1.12. The hourly transportation fees/charges can be estimated at VND282 million/hour in case those working days per year and working hours per day are assumed at 365 days/year and 12 hours/day respectively.

This means that the firms or establishments of ship owners get their income by this amount from the inland waterway transportation to use their ships and/or boats. In other words, consignors should pay the same amount for transporting their goods and/or products to load and unload.

According to an information from the Waterway Management Office belonging to the Department of Transportation and Public Works, registered number of ships/boats in whole Ho Chi Minh City is around 3,000 ships and that along Tau Hu – Be Nghe Canal is 300 ships as of 1998.

Using these figures, a share rate of waterway transportation of the said canals to total inland waterway transportation in whole Ho Chi Minh City area may be estimated at 10 %, and the saved amount of the said inland waterway transportation may be estimated at a sum of VND10,789 million in 1998 and VND18,157 in 2020 as shown in Table L.2.24.

In this case, it is assumed that increasing rate from the present situation to the future situation is corresponding to the population growth rate because that the river ports along the said canals functions as the main terminal of goods transported to markets in the City from and to Mekong delta in the south of the City and the other provinces of hinterland of the City.

These saved amounts of inland waterway transportation fees/charges should also be counted as the navigation benefit in this kind of project. The canals belong to C Zone, so this benefit should be added to the indirect benefit of C Zone.

2.1.3 Identification of Economic Benefit

For economic evaluation of the Project, the above mentioned damages and losses and/or saving amount of medical fees and the navigation benefit can be converted into the economic benefits.

(1) Direct Benefit

Following table shows a summary of these direct economic benefits:

Summary of Annual Average Direct Damages by Zone
 (billion VND)

Zone	Amount of damages	
	In present situation	In future situation
C-Zone	366.5	439.9
N-Zone	218.1	273.4
W-Zone	40.9	117.5
S-Zone	39.1	117.9
NE-Zone	3.7	64.7
SE-Zone	49.4	127.5
Total	707.7	1,140.9

In this case, direct benefit consists of mitigated amount of damages to buildings and indoor movables, to public facilities, and to agricultural products. Damages to agricultural products represent that to paddy.

It is assumed that the direct benefit may be derived from the year after completion of the works for C, N, W Zones, from 3rd years after completion of the works for S and NE Zones and 5th year of the works for SE Zone taking present development status into account, and may be increased to the year 2020 corresponding to population growth rate. After the year 2021, the benefit may continue to the end of project life of 50 years with the same amount.

(2) Indirect Benefit

Following table shows a summary of the indirect economic benefits:

Summary of Indirect Benefit

Zone	Indirect benefit (billion VND)	
	Base year	2020
C-Zone	107.7	120.0
N-Zone	8.2	22.1
W-Zone	6.7	14.6
S-Zone	4.0	13.6
NE-Zone	3.7	12.5
SE-Zone	6.7	34.7
Total	137.0	217.5

(Note) Base year: 1998.

In this case, indirect benefit consists of mitigated amount of business suspension losses, income losses due to inundation, and saving amount of medical fees caused by water borne diseases including mitigated amount of income losses of patients to be staying in and/or visiting to hospitals for medical treatment. In C Zone, the navigation benefit is also included.

It is assumed that the indirect benefit may be derived also from the year after completion of the works and may gradually be increased to the year of 2020, and may continue to the end of project life from 2021 with the same amount in 2020.

2.1.4 Identification of Economic Cost

Economic cost of a project is identified as opportunity cost of the project. In this case, if goods and services would be invested in the project under study, they could no longer be utilized for other projects. This implies that the benefits of the other projects could have been created would be sacrificed. These sacrificed benefits of the other projects are called opportunity cost of the project. A project cost consists of foreign currency portion and local currency portion.

Firstly, a gross construction cost is estimated based on unit prices and work volume as mentioned in aforementioned CHAPTER, and this gross construction cost includes net construction cost, engineering cost for supervision, cost for administration, corporation tax, cost for compensation, physical contingency and price contingency.

(1) Foreign Currency Portion

Using the said gross construction cost, an economic cost of the Project is estimated. In this study, the net construction cost includes labour cost, cost for materials, and cost for equipment. For the foreign currency portion, these costs for labour, materials and equipment are estimated in either Cost Insurance Freight (CIF) price or Free on Board (FOB) price. These international prices are assumed to reflect economic cost directly.

Corporation tax is not included in the foreign currency portion because that the said tax should be paid by local currency based on the taxation regulation in Vietnam.

For economic evaluation of the Project, such transfer cost as contractor's overhead and profit should be deducted, and price contingency should be excluded because that comparison of cost and benefit is made by net present value.

(2) Local currency portion

Because it is presumed that price controls and other regulations distort local markets in developing countries, prices in the domestic markets do not reflect economic scarcity of goods and services. This means that the prices can not be used to identify economic costs of local procurement and have to be converted into economic prices.

In economic analysis of a project, conversion factors are used to convert the costs in domestic markets into economic costs of a project.

Using export and import statistics, a standard conversion factor (SCF) is estimated at a rate of 0.90195. The SCF converts the domestic commodity prices into the economic prices that can be assumed to reflect the economic scarcity of the local equipment and materials (refer to Table L.2.26).

However, the SCF is applied to only tradable goods. The economic cost of non-tradable goods and services has to be separately evaluated. Conversion factors of land, skilled and non-skilled labours are respectively estimated.

Economic wage of unskilled laborers to be employed for the construction works is assumed to be 70 % of the actual market wage, taking of the employment opportunity of laborers in the study area.

Economic cost of land compensation including other compensation cost such as the cost for removal of houses is assumed to be 100 % of the financial cost, taking account of the opportunity cost of land use.

(3) Total Economic Cost

The estimated economic costs are shown in Tables L.2.27 to L.32 by each Zone in a form of annual disbursement and Table L.2.33 shows a total economic construction cost also in a form of annual allocation. Following table shows their summaries together with the financial construction cost.

Financial and Economic Cost for Drainage System Improvement Works

Zone	(billion VND)	
	Financial cost	Economic cost
C Zone	6,055.5	5,028.9
N Zone	3,828.4	3,122.9
W Zone	1,750.4	1,419.6
S Zone	1,249.5	1,013.8
NE Zone	2,144.6	1,699.2
SE Zone	1,424.2	1,132.2
Whole area	16,452.6	13,416.6

(4) Cost for Operation/Maintenance and Replacement

Financial costs for operation/maintenance (OM cost) and replacement cost (cost for R) are estimated by work items by each Zone as also shown in Tables L.2.27 to L.2.32 and summarized below. This cost for OM and R will be a burden to the Project until the end of the project life of 50 years after completion of the drainage system improvement works.

Economic OM Cost and Replacement Cost for Drainage System Improvement Works

Zone	(billion VND)	
	OM cost	Replacement cost
C Zone	10.0	104.5
N Zone	6.4	0.0
W Zone	3.0	0.0
S Zone	2.2	0.0
NE Zone	3.8	0.0
SE Zone	2.5	0.0
Whole area	27.9	104.5

2.1.5 Economic Evaluation of Urban Drainage System Improvement Works

A priority order of the works for each Zone is decided by (1) flood vulnerable population per unit inundated area, (2) per capita cost of the works in vulnerable population, (3) flooding condition, (4) degree of impact to the socio-economical activities and administrative activities, (5) per capita area of land to be compensated, and (6) degree of land use as mentioned in previous Chapter.

This study is the master plan study stage; therefore, the economic evaluation of the works for each Zone is made for supporting priority order mentioned above assuming that the all works of each Zone are started from 2001. And, the economic evaluation for the whole study area is made using the work schedule based on the said priority order as a master plan study stage.

The evaluation is made using cash flows as shown in Tables L.2.34 to L.2.40, and summarized below:

Results of Economic Evaluation for Drainage System Improvement Works

Zone	Net present value(VND10 ⁹)	EIRR (%)	B/C
C Zone	772.0	13.07	1.25
N Zone	95.8	10.63	1.05
W Zone	-323.0	6.83	0.66
S Zone	-104.7	8.70	0.85
NE Zone	-796.7	2.19	0.23
SE Zone	-59.2	9.28	0.91
Whole area	501.5	10.97	1.08

As a whole study area, EIRR, resulted at 10.97 % as shown in the above Table, has cleared the level of 10 % of discount rate applied in this study, so it may say that the Project has a viability to be executed as a whole.

From the viewpoint of each Zone, the C and N Zones show a high economic viability reflecting a present economic situation, and the SE Zone shows also a economic viability reflecting a future potentiality of development, so the Project may be required to be executed for these Zones.

In this kind of project, the benefit means a mitigation amount of flood and/or inundation damages. Therefore, the said C Zone belonging to the inner cities of the Ho Chi Minh City with high population, in other words the houses-buildings-concentrated area, should be a target to execute the Project with the first priority.

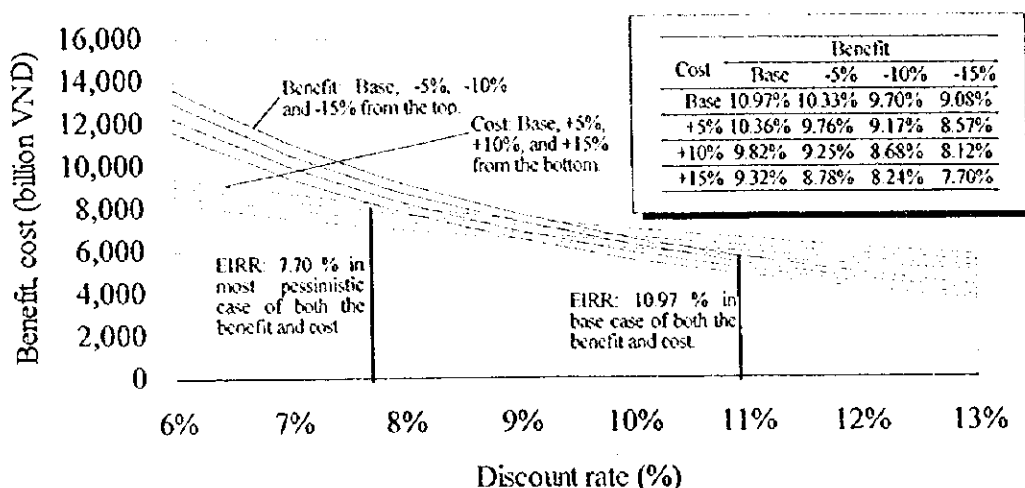
2.1.6 Sensitivity Test for Urban Drainage System Improvement Works

The economic internal rate of return changes its value depending on the parameters employed for the calculation. Out of these parameters, the construction cost of the Project and its benefit are the most important determinants of the economic analysis.

Therefore, a sensitivity analysis is made for 16 combined cases including base case under the benefit of -5%, -10% and -15 %, and the cost of +5, +10 % and +15 % taking into account of fluctuation of the benefit and the cost to be likely to come at present economic situation in Indonesia.

A figure and a table hereunder show the results of sensitivity analysis for economic features.

Sensitivity of EIRR



The EIRR under both the benefit and the cost in base case is calculated as 11.03 % as mentioned above. And, under the cases of (1) the benefit of 5 % decrease and the cost of 5 % increase, (2) the benefit of 15 % decrease and the cost of 15 % increase and (3) the benefit of 15% decrease and the cost of 15 % increase, the EIRRs are calculated as 9.76 %, 8.68 % and 7.70 % respectively.

It means that the drainage system improvement works as a component of the Project is quite sensitive to price fluctuation economically.

Generally, as suggested by such international institutions as the World Bank, an EIRR is expected to at least be cleared a hurdle of 5.0 % from a viewpoint of basic human needs even such a project is in developing countries, and the drainage improvement works under study satisfies this expectation with 7.70 % even in most pessimistic case as indicated above. Namely, the said Works may be viable to be executed from this viewpoint too.

2.2 FINANCIAL EVALUATION OF SEWERAGE SYSTEM IMPROVEMENT

2.2.1 Basic Concept and Methodology

Financial analysis appraises the degree of financial return of a project under study that is expected to earn and is carried out in terms of project owner's profitability.

Project inputs are evaluated in terms of market prices. The inputs thus evaluated are called as "financial costs." Project outputs are also evaluated in terms of market prices. The outputs thus evaluated are called as "financial benefit". In this case, the said financial benefit is the same meaning as a revenue derived from project operation in terms of charges for sewerage and waste water treatment services after completion of the Project.

Financial costs and benefits throughout the project life are compared in terms of present values. If the total present value of financial costs equals that of financial benefits (when, $B/C=1$), the discount rate used to calculate the present value is called as "financial internal rate of return (FIRR)."

Financial costs include direct construction cost, taxes, compensation, physical contingency, administration, and engineering expenses. However, price escalation is excluded from the costs.

The financial internal rate of return is calculated and used as a main index of financial feasibility of the project with NPV and B/C ratio. This FIRR is defined by the following formula:

$$\sum_{t=1}^{T} \frac{C_p}{(1 + R_f)^t} = \sum_{t=1}^{T} \frac{B_p}{(1 + R_f)^t}$$

Where, T = the last year of the project life,
 C_p = an annual financial cost flow of the project under study in year t ,
 B_p = an annual benefit in year t , and,
 R_f = the Financial Internal Rate of Return.

In this case, the project life is set as 50 years as same as in the economic evaluation of the of the urban drainage system improvement works.

In case that the project profitability can not be gained from the EIRR method, namely in the case that initial investment cost for the project can not be covered by a charge for sewerage treatment services only, the said project cost should be covered by such other financing sources as subsidies from the local Government (in this case, Ho Chi Minh City) or from the central Government, and a repayability of the Government for loan amount should be clarified.

And then, a capability of project owner to operate and to maintain should be clarified by B/C ratio using a cash flow of the Operation and maintenance cost (OM cost) and

replacement cost and, and revenue by the charge mentioned above because that the project operation and its maintenance is usually carried out by the project owner itself. This B/C ratio defined by the following formula:

$$B/C = \frac{\sum_{t=1}^{t=T} \frac{B_t}{(1+R_d)^t}}{\sum_{t=1}^{t=T} \frac{C_{omr}}{(1+R_d)^t}}$$

Where, $T =$ the last year of the project life,
 $C_{omr} =$ the annual OM cost and replacement cost in year t,
 $B_t =$ the annual benefit in year t,
 $R_d =$ a discount rate, and
 $B/C =$ B/C ratio.

In this case, the project life is also set as 50 years as same as the above.

2.2.2 Tariff System

For estimation of a financial benefit for these kinds of projects, tariff system should be set first.

(1) Existing Tariff System of Water Supply

Usually, a charge for sewerage and wastewater treatment services is corresponding to the other charge for potable water supply.

A water supply system is operated by state (Ho Chi Minh City) owned company called as the Water Supply Company of Ho Chi Minh City under the management of the City, and its existing tariff system for domestic subscribers is set a rate of VND1,300 per m³ consisting of VND1,000 for a source of the central Government revenue and VND300 for a source of the City revenue as called "the additional levy" and this rate is applied until 4 m³ per person per month as a basic charge. In case of water use more than 4 m³, people should pay with the other rate of VND2,100 per incremental 1 m³ each.

For industrial subscribers, the other water tariff is set at a rate of VND3,100/m³ consisting of VND2,500 for a source of the central Government revenue and VND600 for the Additional Levy. For commercial subscribers, the water tariff is furthermore set at a rate of VND5,200/m³ to VND8,700 consisting of VND4,700 for a source of the central Government revenue and VND500 to VND4,000 for the Additional Levy.

This basic water volume of 4 m³ to be able to use with the basic charge may not be so much considering usual life style, but according to the annual report of the said Water Supply Company issued in 1997 said that an average volume of water consumption of the City was 0.19 m³/day per person as of 1995. It means that a water volume consumed per month was 5.7 m³/person in 1995. If a family size is assumed at 5.71 persons/HH as indicated in

a result of the Interview Survey on "Social Survey of Relocation/Resettlement" (hereinafter referred to as "the Social survey") made by JICA Study Team in 1998, an average expenditure for water supply was VND50,077/HH.month in 1995.

On the other hand, the result of "the Survey on Sewerage and Environmental Sanitation in Ho Chi Minh City" (hereinafter referred to as "the Environmental Survey") made by JICA study Team 1998 shows that the average expenditure for water supply was VND46,955/HH.month with the family size of 5.15 persons per HH (water consumption: 0.28 m³/day.person, average water price : VND1,078/m³), and the result of "the Survey on Flood Damages in Ho Chi Minh City" (hereinafter referred to as "the Flood Damage Survey") also made by JICA Study Team shows VND57,945/HH.month as the average water supply with the family size of 6.43 persons per HH (0.19 m³/day.person, VND1,542/m³).

The average volume of water consumption might be 0.24 m³/day.person, and the average water price was VND1,310/m³ in 1998 according to the said interview surveys.

There are private water venders in Ho Chi Minh City, but the charges are quite expensive as VND5,000 to VND6,000 per m³ comparing the basic charge of the Water Supply Company.

(2) Willingness of People to Pay for Sewerage and Waste Water Treatment Services

Table A and B in Table L.2.41 shows a result of Environmental Survey and Flood Damages Survey. As indicating in these Tables, the amount of willingness of people to pay (WTP) for sewerage and waste water treatment services has resulted at VND5,845 which may say at around VND6,000 and VND11,881 which also may say at around VND12,000 per HH as of 1998 in weighted mean of answered amount from 1,001 samples and 1,002 samples respectively.

Based on these figures, an average WTP may be assumed at VND9,000/month per HH in average.

(3) Affordability of People to Pay for Sewerage and Waste Water Treatment Services

The other result of "the Social Survey" shows an amount of payment as VND169,148 per HH for utilities consisting of water charge, electricity and garbage or rubbish treatment services as shown in Table L.2.42.

According to the existing tariff system for water supply, estimated expenditure for water supply paid by them has resulted at VND29,692/HH.month. On the other hand, the cost proportion for electricity and garbage/rubbish services is 2:1 based on the several answer-sheets of "the Social Survey".

Therefore, the actual payment amount for water and electricity can be estimated at VND122,663 per HH, which is 6.30 % to the family income level in share rate. This

share rate may be rather high comparing the standard rate (usually, 5 % in maximum in developing countries).

As shown in the above Table, average families however have a capability to pay more because they have saved money amounting to VND490,074 with a share rate of around 25 % to the total income.

Usually, the charge for sewerage and wastewater treatment services should not be more than the charge for potable water supply, but sometimes there may be almost the same amount with that for potable water.

In case that the maximum amount of charge for sewerage and wastewater treatment services, for example VND30,000/HH as almost the same amount of potable water supply, is applied, the share rate of water and electricity including the said charge will become 7.85 % to their total family income, and this amount has an affordability if considered their family economy.

As a result, an affordable amount of charge for sewerage and wastewater treatment services will be within VND30,000/HH per month.

As mentioned above, the average families have a room to pay more because they have saved at a sum of around VND 490,000/month based on the Social Survey for poor society, and this affordable amount is around 52 % of the amount of expenditure for potable water amounting to VND57,945/HH.month as resulted from the Flood Damage Survey.

Therefore, an amount of the maximum affordability of people to pay (ATP) for sewerage and waste water treatment services is assumed at VND30,000/HH per month taking into consideration of the poor society too.

Practically, the rate of the charge for sewerage and wastewater treatment services should be estimated based on the construction cost and operation/maintenance cost, but should be taken this situation into account.

(4) Assumed Tariff System for Project Evaluation for Sewerage and Waste Water Treatment Services

As mentioned above, the rate of charge for sewerage and wastewater treatment services should be set based on the construction cost and O/M cost. But a recommended tariff system should be ranging from the amount of VND9,000/HH as a WTP to the amount of VND30,000/HH as the above ATP.

Usually, the tariff system for sewerage treatment services is corresponding to the tariff system for potable water supply because that the wastewater is usually corresponding to potable water.

Therefore, following 3 cases of tariff system are assumed for project evaluation for the sewerage system improvement works based on the said WTP, ATP and existing tariff system of potable water:

Assumed Tariff System for Project Evaluation

Case	Basic assumption of the tariff system	Assumed tariff system for sewerage treatment services
Case - 1	VND9,000/HH/month	Residence : VND 9,000/HH/month Commercial : VND36,800/shop/month Industry : VND16,400/factory/month
Case - 2	VND20,000/HH/month	Residence : VND20,000/HH/month Commercial : VND81,800/shop/month Industry : VND36,500/factory/month
Case - 3	VND30,000/HH/month	Residence : VND 30,000/HH/month Commercial : VND122,650/shop/month Industry : VND 54,700/factory/month

2.2.3 Financial Benefit

As mentioned in previous sub-clause in this Clause, the financial benefit means an amount of revenue due to charge collection for the sewerage and wastewater treatment services in this kind project.

Based on the above mentioned assumed tariff system, the financial benefit is estimated in 3 cases as shown in Table L.2.43 and summarized below:

Estimation of Financial Benefit for Sewerage and Waste Water Treatment Services

Case	Basic assumption of the tariff system	Beneficiaries	Financial benefit (VND 10%/yr)	
			Base year*	2020
Case - 1	VND9,000/HH/month	Residence :	38,182	55,497
		Commercial :	151,146	219,686
		Industry :	3,667	4,313
Total			192,995	279,496
Case - 2	VND20,000/HH/month	Residence :	84,850	123,327
		Commercial :	335,970	488,324
		Industry :	8,162	9,599
Total			428,982	621,250
Case - 3	VND30,000/HH/month	Residence :	127,274	184,990
		Commercial :	503,750	732,188
		Industry :	12,231	14,385
Total			643,256	931,563

(Note) * Base year means the year 1998.

In this case, number of commercial traders as shops is estimated based on the said "Flood Damages Survey" resulted as shown in Table L.2.16, and number of industries is estimated based on the Statistical Yearbook issued by Ho Chi Minh City with applying the growth rate of population in the study area.

2.2.4 Financial Cost and, Operation/Maintenance and Replacement Cost

Annual financial construction cost by Zone according to the work schedule is shown in Table L.2.44, and summarized below together with OM cost and replacement cost also by each Zone:

(billion VND)										
Zone	TLBC	NLTG	THLG	TMB NDT	SS	SE	SN-1	SN-2	SW	Total
Construction cost	1,263.	3,885.	2,272.	3,802.	2,321.	3,086.	3,252.	1,736.	2,338.	23,958.
OM cost	9.	31.	16.	26.	6.	10.	9.	4.	8.	123.
Replacement cost	440.	1,585.	834.	1,151.	357.	549.	483.	250.	398.	6052.

2.2.5 Financial Evaluation for Sewerage System Improvement Works

(1) Financial Availability to Cover the Construction Cost and OM Cost by Service Charge Only

Based on aforementioned work schedule using cash flow of the construction cost, OM cost and financial benefit above as shown in Tables L.2.45, L.2.46 and L.2.47, a financial evaluation is made in the said 3 cases. Followings are the result of the evaluation:

Results of Project Evaluation for Sewerage System Improvement Works

Case	Basic service charge	Net present value*	FIRR(%)	B/C
Case-1	VND 9,000/HH.month	-8,532.9	(unavailable)	0.10
Case-2	VND 20,000/HH.month	-7,429.9	-2.18	0.21
Case-3	VND 30,000/HH.month	-6,428.4	0.78	0.32

(Note) * Net present values are expressed by billion VND.

This means that the Project is not viable to execute by means of expecting service charge only even if in case of using the maximum amount of ATP as a tariff for the sewerage and waste water treatment services for the whole cost including the initial investment, so that it will be needed to invest the Governmental capital expenditure. An analysis of repayability of an international loan is made as described hereunder taking the governmental capital expenditure into account.

(2) Financial Availability to Cover OM Cost and Replacement Cost by Service Charge

A comparison test is made for making clear a financial availability to cover OM cost including replacement cost of the equipment by services charge only as a suitability analysis using present values of both the cost and benefit (revenue) as shown in Table L.2.48 and L.2.49 for the case of "VND9,000/HH system" and "VND20,000/HH" respectively. For the case of "VND30,000/HH system", it is also calculated but not included in this report because of no necessary from the viewpoint of its result. The replacement cost is annualized for 20 years based on design criteria of the equipment so that the cost may become as a reservation for replacement. Table below shows its result.

Basic charge	B/C at present value
VND9,000/HH.month	0.66
VND20,000/HH.month	1.48
VND30,000/HH.month	2.21

In case of B/C resulted at 1.00, the amount of revenue is just equal with the cost at present value, and revenue can recover the cost with applied tariff system. A result in the above table indicates that the justifiable tariff system may be in between "VND9,000/HH system" and "VND20,000/HH system".

From the figures shown in the above table, a relationship between the basic charge and the rates of B/C can be expressed by following formula:

$$y = 183.22x^2 + 13023x + 325.31$$

Where, $y =$ justifiable tariff level as a base, and
 $x =$ a B/C ratio.

If a rate of "1.00" is inserted for x , resulted y is "13,532". It means that the justifiable tariff system is VND13,532/HH.month/HH system. Table L.2.50 shows a result of suitability analysis using the said "VND13,532/HH system" for testing a reliability of the said formula. Resulted B/C ratio is indicated at "1.00" as shown in this Table, so that the formula is true one.

2.2.6 Recommended Tariff System for Sewerage and Waste Water Treatment Services

Based of the above results of project evaluation and taking business forms as state owned companies in Vietnam into consideration, a tariff system of VND15,000/HH.month as a basic fixed charge may be recommended so that the company dealing with the sewerage and waste water treatment services can get around 10 % of surplus after paying the OM cost and making an outlay as reservation for replacement. Table L.2.51 shows a result of suitability analysis by using "VND15,000/HH system". In this Table, the resulted B/C shows the rate of "1.11", so the actual surplus of such company will be at 11 % of the total revenue, but it may say around 10 %.

In this case, a recommended tariff system may be as follows:

- i) For residence: VND15,000/HH.month
- ii) For commercial: VND61,320/shops.month
- iii) For industry: VND27,350/factory.month

2.2.7 Repayability Analysis for the Project of Sewerage System Improvement Works

Because that a certain amount as a part of the capital expenditure of the Ho Chi Minh City which has been spent for improvement and/or rehabilitation of roads damaged by floods and inundation can be saved by execution of the aforementioned Urban Drainage System Improvement Works, this saved amount can be used for waste water treatment services.

Furthermore, it is already cleared that the half amount of subsidies to the state owned Urban Drainage Company (= UDC) as cost for operation and maintenance services for drainage and sewerage pipes can continuously be used for waste water treatment services after completion of the Sewerage System Improvement Works by the Project. Those amounts are shown below:

● Saved amount formerly used for improvement and rehabilitation of damaged roads by flooding or inundation, and can be reused for waster water treatment services as a part of capital expenditure of Ho Chi Minh City:	VND3,938 million/annum
● Half amount of subsidies to the state owned UDC as the operation and maintenance services for drainage and sewerage pipes:	VND12,500 million/annum
Total	VND16,438 million/annum

Using an information on the capital expenditure of the central Government of Vietnam from World Bank Statistics together with the above mentioned findings, a repayability analysis for the Sewerage System Improvement Works in Ho Chi Minh City is made. In this case, it is assumed that the following conditions as:

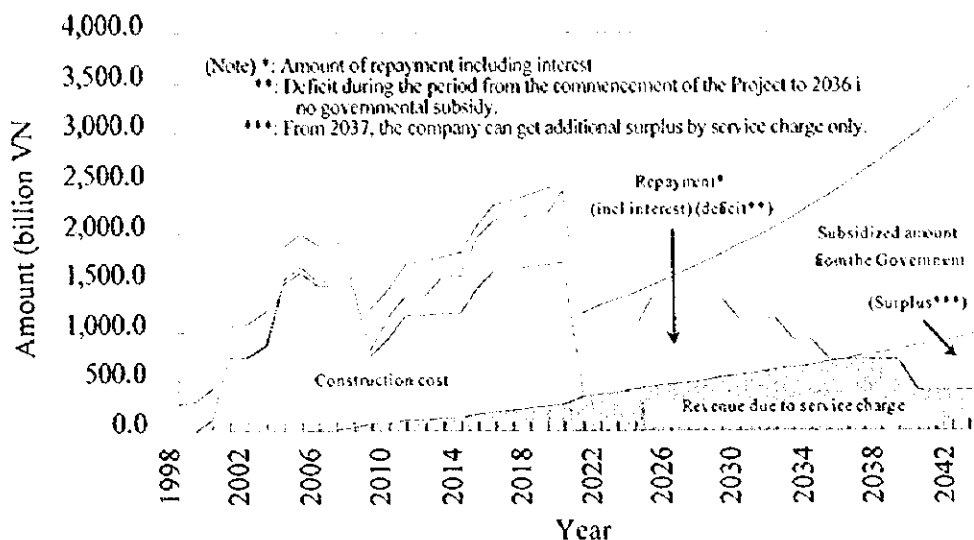
- i) VND15,000/HH.month as a basic charge is applied for commercial operation as mentioned above,
- ii) the applied charge system above is to be modified by 2.5 % every year so to make an outlay on reservation for a part of repayment amount using a cash balance of the basic charge and the modified charge,
- iii) the works for each Zone may be financed by different loan each other,
- iv) an interest rate of 1.3 % is assumed for repayment of loan amount,
- v) total repayment period of the loan is assumed as 30 years from starting year of the each work including 10 years of grace period, and
- vi) the total distributed or subsidized capital expenditure to Ho Chi Minh City from the central Government is assumed at 10 % of the national capital expenditure as same condition as in Ha Noi, and 15% of it is assumed to be able to use for the Project with escalation of 5 % per year for the future based on the present economic growth rate issued by the Congress of the Government held in October 1998.

Here, the charge for sewerage treatment services is usually corresponding to a charge for potable water supply, so the above mentioned assumption ii) is made. According to the statistic data in Ho Chi Minh City, prices on potable water including electricity's one were escalated by around 5.0 % every year during past several years. Therefore, the above-mentioned rate of modification of charge, 2.5 % per annum, for sewerage treatment services is quite conservative one.

At a result, it is cleared that Ho Chi Minh City and the Government can repay their loan amount completely as shown in Table L.2.52 and illustrated below: If there is no any governmental subsidy to the Project, deficits may be occurred for the Project account from the commencement of the Project to the year 2036 for loan amount. But in case that the Government gives a subsidy to the Project as a capital expenditure (it means the Construction Cost or the Construction Expenditure in Vietnam), there will be no trouble for repayment of the loan as indicated in the Figure.

Furthermore, in addition to the current surplus of around 10 % as mentioned above, the company dealing with sewerage and waste water treatment services can get their additional surplus from the 2036 without any subsidy from the Government.

Repayability of Construction Cost by the Government



III. FEASIBILITY STUDY

3.1 ECONOMIC EVALUATION OF URBAN DRAINAGE SYSTEM IMPROVEMENT

3.1.1 Identification of Economic Benefit

Estimated unit damages and/or losses in the Master Plan Study stage are to be regarded as economic benefits in case of with the priority project of the Urban Drainage System Improvement Works in Feasibility Study stage too.

For the Feasibility Study, the inundated area of the targeted C Zone as the priority project is to be reduced because that several similar other projects are planned by other international institutions by partly overlapped in C Zone.

(1) Direct Benefit

Table L.3.1 through L.3.4 shows a calculation process of damages to buildings and indoor movables to be converted into economic benefit in C Zone, and summarized below:

**Average Annual Damages to Buildings and
 Indoor Movables to Be Converted into Benefit**
 (million VND)

Situation	Amount
In present urbanized situation (at present)	118,057
In future urbanized situation (in 2020)	185,803

Table L.3.5 shows a calculation process of damages to public facilities to be converted into economic benefit in C Zone, and summarized below:

**Average Annual Damages to Public Facilities to
 Be Converted into Benefit**
 (million VND)

Situation	Amount
In present urbanized situation (at present)	1,143
In future urbanized situation (in 2020)	2,189

Damages to agricultural crops are not influenced by the said similar projects because that there is no any overlapped agricultural area. So the damages to agricultural crops to be converted into economic benefit are as same amount in the Master Plan study as VND514 million at present and VND257 million in 2020.

These direct damages are summarized in Table L.3.6.

(2) Indirect Benefit

Table L.3.7 shows a number of households engaging in trading and services after deducting the area overlapped by the similar projects. Using this, business suspension losses are estimated as shown in Table L.3.8 as summarized below:

**Average Annual Business Suspension Losses to
 Be Converted into Benefit**
 (million VND)

Situation	Amount
In present urbanized situation (at present)	17,900
In future urbanized situation (in 2020)	17,342

Income losses of workers are also influenced by the similar project. Table L.3.9 shows a calculation process of it, and summarized below:

**Average Annual Income Losses of Workers to Be
 Converted into Benefit**
 (million VND)

Situation	Amount
In present urbanized situation (at present)	634
In future urbanized situation (in 2020)	1,222

By the same concept mentioned above, the saving amount of medical fees are estimated as shown in Table L.3.10 as summarized below:

**Average Annual Saving Amount of Medical Costs
 (million VND)**

Situation	Amount
In present urbanized situation (at present)	636
In future urbanized situation (in 2020)	1,284

Navigation benefit is not influenced by the said similar projects because that there is no any overlapped area. So the navigation benefit is as same amount in the Master Plan study as VND10,789 million at present and VND18,157 million in 2020.

Table L.3.11 shows a summary of whole indirect benefit, and following Table shows a summarized result of whole economic benefits in C Zone as the priority Project for the Feasibility Study stage.

Average Annual Benefit of Priority Zone

						(billion VND)
Direct benefit			Indirect benefit			
Benefit items	Base year	2020	Benefit items	Base year	2020	
Buildings/movables	118.06	185.80	Business suspension losses	17.90	17.34	
Public facilities	1.14	2.19	Income losses of workers	0.63	1.22	
Agricultural crops	0.51	0.26	Saving amount of medical cost	0.64	1.28	
			Navigation benefit	10.79	18.16	
Total	119.71	188.25	Total	29.96	38.00	

3.1.2 Identification of Economic Cost

(1) Foreign Currency Portion

Using the gross construction cost, an economic cost of the Project is estimated. In this study, the net construction cost includes labour cost, cost for materials, and cost for equipment. For the foreign currency portion, these costs for labour, materials and equipment are estimated in either Cost Insurance Freight (CIF) price. These international prices are assumed to reflect economic cost directly.

Corporation tax is not included in the foreign currency portion because that the said tax should be paid by local currency based on the taxation regulation in Vietnam.

For economic evaluation of the Project, such transfer cost as contractor's overhead and profit should be deducted, and price contingency should be excluded because that comparison of cost and benefit is made by net present value.

(2) Local currency portion

Because it is presumed that price controls and other regulation distort local market in developing countries, prices in the domestic market do not reflect economic scarcity of goods and services. This means that the prices can not be used to identify economic costs of local procurement and have to be converted into economic prices.

In economic analysis of a project, conversion factors are used to convert the costs in domestic markets into economic costs of a project. In this case, using export and import statistics, a standard conversion factor (SCF) is estimated at a rate of 0.90195 in the Master Plan study stage. This SCF converts the domestic commodity prices into the economic prices that can be assumed to reflect the economic scarcity of the local equipment and materials.

However, the SCF is applied to only tradable goods. The economic cost of non-tradable goods and services has to be separately evaluated. Conversion factors of land, skilled and non-skilled labours are respectively estimated.

Economic wage of unskilled laborers to be employed for the construction works is assumed to be 70 % of the actual market wage, taking of the employment opportunity of laborers in the study area as same as in the Master Plan study stage.

Economic cost of land compensation including other compensation cost such as the cost for removal of houses is assumed to be 100 % of the financial cost, taking account of the opportunity cost of land use also as same as in the Mater Plan study stage.

(3) Total Economic Cost

The estimated economic costs are shown in Tables L.3.12, and summarized below:

Economic Cost for Urban Drainage System Improvement Works

										(Billion VND)
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
1 st phase	165.9	131.8	178.4	178.4	178.4	54.3				887.2
2 nd phase						40.7	160.9	157.4	85.8	444.8
Total										1,332.0

(4) Cost for Operation/Maintenance and Replacement

Financial costs for operation/maintenance (OM cost) at sums of VND5.7 billion for 1st phase and VND0.2 billion for 2nd phase both per annum, and replacement cost (cost for R) at sums of VND57.1 billion for 1st phase and VND77.1 billion both consisting of replacement costs of facilities and OM vehicles are estimated by work items as also shown in Tables L.3.12. This cost for OM will be a burden to the Project until the end of the project life of 50 years after completion of the drainage system improvement works. It is assumed that replacement works will be made every 20 years interval.

3.1.3 Economic Evaluation of Urban Drainage System Improvement

The evaluation is made using cash flows as shown in Tables L.3.13, and summarized below:

Results of Economic Evaluation for Drainage System Improvement Works

Zone	Net present value(VND10 ⁹)	EIRR (%)	B/C
Priority Zone	557.0	18.77	1.66

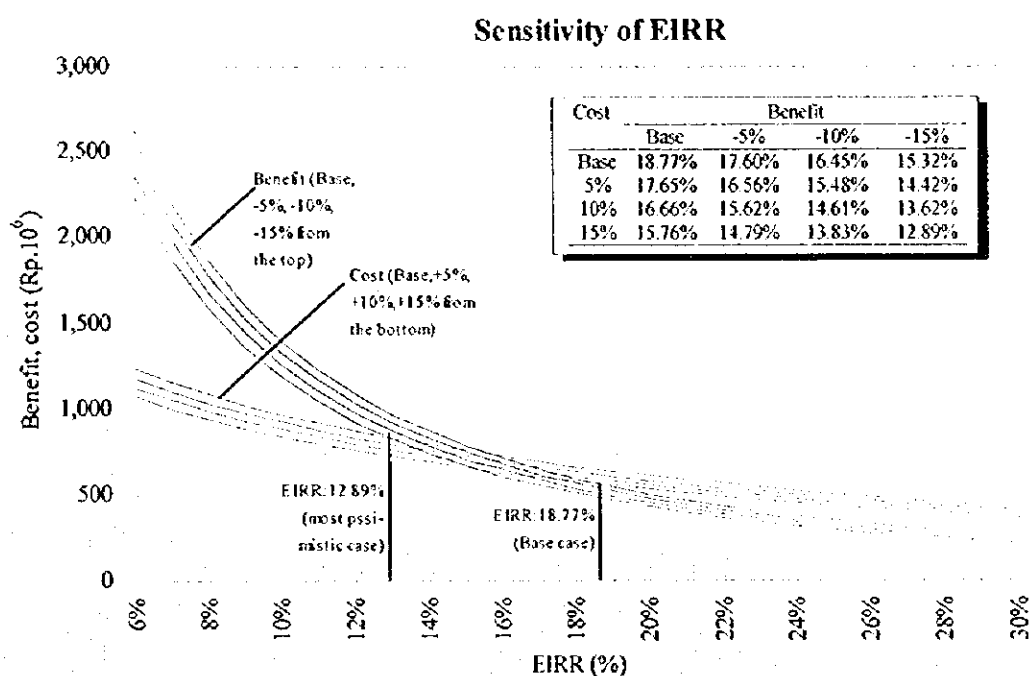
The EIRR resulted at 18.77 % as shown in the above Table. It has cleared the level of 10 % of discount rate applied in this study with enough allowance, so it may say that the priority Project has a viability to be executed.

3.1.4 Sensitivity Test for Urban Drainage System Improvement

The economic internal rate of return changes its value depending on the parameters employed for the calculation. Out of these parameters, the construction cost of the Project and its benefit are the most important determinants of the economic analysis.

Therefore, a sensitivity analysis is made for 16 combined cases including base case under the benefit of -5 %, -10 % and -15%, and the cost of +5%, +10 % and +15 % taking into account of fluctuation of the benefit and the cost to be likely to come at present economic situation in Indonesia.

A figure and a table hereunder show the results of sensitivity analysis for economic features.



The EIRR under both the benefit and the cost in base case is calculated as 18.77 % as mentioned above. And, under the cases of (1) the benefit of 5 % decrease and the cost of 5 % increase, (2) the benefit of 10 % decrease and the cost of 10 % increase and (3) the

benefit of 15% decrease and the cost of 15 % increase, the EIRRs are calculated as 16.56 %, 14.61% and 12.89 % respectively.

It means that the drainage system improvement works as a component of the Project has a high viability to be executed.

3.2 FINANCIAL EVALUATION OF URBAN DRAINAGE SYSTEM IMPROVE-MENT WORKS

3.2.1 Identification of Financial Benefit

As mentioned in previous sub-clause in this Clause, the financial benefit means an amount of revenue due to charge collected for the operation and maintenance for urban drainage facilities.

According to the result of Interview Survey for Flood Damage made by JICA Study team, the willingness of people to pay for OM Charge is around VND6,000/III.month. In case of this amount will be applied for a revenue for OM services for the urban drainage facilities, the financial benefit is estimated as follows based on the population projection for the targeted area taking annual escalation of 2.5 % for the tariff into account:

Estimation of Financial Benefit for OM Services for Urban Drainage Facilities

Basic assumption of the tariff system	Beneficiaries	Financial benefit (VND 10%/yr)	
		Base year*	2020
VND6,000/III.month	Residence :	16,229	29,051

3.2.2 Identification of Financial Cost, Operation/Maintenance and Replacement Cost

Annual financial construction cost for C Zone according to the work schedule is already shown in Table L.3.12 showing the process of estimating the economic cost, and summarized below together with OM cost and replacement cost:

Financial Cost for Urban Drainage System Improvement Works

Year	(Billion VND)									
	2000	2001	2002	2003	2004	2005	2006	2007	2008	Total
1 st phase	169.3	154.7	216.2	216.2	216.2	69.8				1,042.6
2 nd phase						43.4	208.2	204.2	109.9	565.7
Total										
OM cost:		7.1	(for 1 st phase)							
		0.2	(for 2 nd phase)							
		7.3	(after completion of whole works)							
Replacement cost:	61.92	(for 1 st phase consisting of VND25.00 billion for facilities and VND36.92 billion for OM vehicles)								
	82.28	For 2 nd phase consisting of VND27.00 billion for facilities and VND55.28 billion for OM vehicles)								

(Note) The replacement works should be made every 20 years after completion of the works.

3.2.3 Financial Evaluation of Urban Drainage System Improvement Works

(1) Financial Availability to Cover the Construction Cost and OM Cost by OM Charge Only

Based on aforementioned work schedule using cash flow of the construction cost, OM cost and financial benefit above as shown in Tables L.3.14, a financial evaluation is made. Followings are the result of the evaluation:

**Results of Project Evaluation
 for Urban Drainage System Improvement Works**

Basic service charge	Net present value*	FIRR(%)	B/C
6,000/HH.month	-704.2	0.01	0.22

(Note) * Net present values are expressed by billion VND.

This means that the Project is not viable to execute by means of expecting OM charge only even if in case of using the maximum amount of WTP as a tariff for the operation and maintenance for the Urban Drainage System Improvement Works for the whole cost including the initial investment, so that it will be needed to invest the Governmental capital expenditure.

(2) **Financial Availability to Cover OM Cost and Replacement Cost by OM Charge**

A comparison test is made for making clear a financial availability to cover OM cost including replacement cost of the equipment by a tariff for OM cost only including the replacement cost as a suitability analysis using present values of both the cost and benefit (revenue) as shown in Table L.3.15, L.3.16 and L.3.17 for the case of "VND1,000/HH system", "VND2,000/HH system" and "VND3,000/HH system" respectively. The replacement cost is annualized for 20 years based on design criteria of the equipment so that the cost may become as a reservation for replacement. Table below shows its result.

Basic charge	B/C at present value
VND1,000/HH.month	0.44
VND2,000/HH.month	0.88
VND3,000/HH.month	1.33

In case of B/C resulted at 1.00, the amount of revenue is just equal with the cost at present value, and revenue can recover the cost with applied tariff system during the Project life. A result in the above table indicates that the justifiable tariff system may be in between "VND2,000/HH system" and "VND3,000/HH system".

From the figures shown in the above table, a relationship between the basic charge and the rates of B/C can be expressed by following formula:

$$y = -56.747x^2 + 2,347.6x - 21.973$$

Where, $y =$ justifiable tariff level as a base, and
 $x =$ a B/C ratio.

If a rate of "1.00" is inserted for x, resulted y is "2,269". It means that the justifiable tariff system is around VND2,270/HH.month/HH system. Table L.3.18 shows a result of suitability analysis using the said "VND2,270/HH system" for testing a reliability of the said formula. Resulted B/C ratio is indicated at "1.00" as shown in this Table, so that the formula is true one.

It means that it will be needed to collect some fees and/or charges as a tariff amounting at VND2,270/HH.month from inhabitants living in the Project area in case to cover OM cost to be covered by such tariff.

(3) Necessity to Set a Tariff System for OM Charge for Urban Drainage System Improvement Works

As shown in Tables L.3.15, L.3.16, and L.3.17, the annual OM cost including a reservation on replacement cost is estimated at a sum of VND14.5 billion in total after completion of the whole works.

On the other hand, the existing expenditure of Ho Chi Minh City to operate and to maintain the existing drainage systems is VND35.7 billion per annum as a subsidy to existing UDC according to the analysis made in aforementioned Chapter of Operation and Maintenance.

Therefore, it would not be needed to set a new tariff system to recover the OM cost including replacement cost for Urban Drainage facilities in case that Ho Chi Minh City has a capability to expend such subsidy for the future too.

3.3 FINANCIAL EVALUATION OF SEWERAGE SYSTEM IMPROVEMENT WORKS

3.3.1 Identification of Financial Benefit

For the priority project as the Feasibility Study stage level, a tariff system based on "VND12,500/HH.month" basis is assumed to be the reasonable one taking economic activities of targeted zone into account.

In this case, the recommended tariff system will become as indicated below:

- (i) For residence: VND 12,500/HH.month
- (ii) For commercial: VND 51,100/shop.month
- (iii) For industry: VND 22,800/factory.month

Based on the above mentioned tariff system, the financial benefit is estimated as shown in the Table hereunder. In this case, a treatment capacity is designed until 2010 according to the design criteria for this Feasibility Study stage. And the works will be executed stage-wise as the works of Phase-1 and that of Phase-2.

Service area in each phase consists of District-1, District-3, a part of District-5, and a part of District-10 for the works of Phase-1, and service area of Phase-2 covers District-4, the other part of District-5, District-6, District-9, the other part of District-10, District-11, and Tan Binh District.

Service population in 1998 (the base year) and 2010 for the works of Phase-1 are 392,988 people and 386,970 people respectively, and those in 2010 for the works of Phase-2 are 1,421,778 people.

The estimated financial benefit is shown in the following Table together with the estimation process:

Estimation of Revenue of Sewerage Treatment Services

Item	1997	1998	2010
After completion of 1st phase works:			
Revenue Sources:			
Population in the service area	393,927	392,988	386,970
Domestic subscribers for potable water (HHs) ¹⁾	68,989	68,825	67,771
Actual number of subscribers for services (HHs)	35,053	34,970	34,434
Commercial subscribers for potable water (shops) ²⁾	33,936	33,855	33,336
Industrial subscribers for potable water (factories) ³⁾	2,249	2,243	2,160
Estimation of Revenue (financial benefit) ⁴⁾ :			
Domestic subscribers (HHs) (million VND)		5,245	5,165
Commercial subscribers (shops) (million VND)		20,760	20,412
Industrial subscribers (factories) (million VND)		614	591
Total		26,619	26,198
After completion of 2nd phase works:			
Population in the service area	1,468,703		1,421,778
Domestic subscribers for potable water (HHs) ¹⁾	257,216		248,998
Actual number of subscribers for services (HHs)	130,691		126,516
Commercial subscribers for potable water (shops) ²⁾	126,525		122,482
Industrial subscribers for potable water (factories) ³⁾	8,384		7,936
Estimation of Revenue (financial benefit) ⁴⁾ :			
Domestic subscribers (HHs) (million VND)			18,977
Commercial subscribers (shops) (million VND)			75,106
Industrial subscribers (factories) (million VND)			2,171
Total			96,255
(Note 1) Average family size:	5.71 (persons/family)		
(Note 2) % of HHs engaging in Trading and Services:	49.19% (see Table K 2.16)		
(Note 3) Refer to the result of Master Plan study in previous clause.			
(Note 4) Unit service charge by subscriber:			
Domestic subscribers:	150,000 (VND/annum HH in case of VND12,500/month HH)		
Commercial subscribers:	613,200 (VND/annum shop in case of VND51,100/month shop)		
Industrial subscribers:	273,600 (VND/annum factory in case of VND22,800/month factory)		

3.3.2 Identification of Financial Cost, Operation/Maintenance and Replacement Cost

The estimated financial construction costs are summarized as below:

Financial Cost for Sewerage System Improvement Works

Year	(Billion VND)											
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Total
Financial cost												
1 st phase	133.2	193.2	310.2	441.9	441.9	310.2						1,830.7
2 nd phase						90.9	403.0	624.6	624.6	624.6	292.1	2,659.8
Total												4,490.5

Financial costs for operation/maintenance (OM cost) at sums of VND19.9 billion for 1st phase and VND16.2 billion for 2nd phase both per annum, and replacement cost at sums of VND155.4 billion for the proposed treatment plant and VND83.3 billion for pumping station for 1st phase, and VND392.5 for the plant and VND12.6 billion for the pumping station are estimated by work items. This cost for OM will be a burden to the Project until the end of the project life of 50 years after completion of the 1st phase of the sewerage system improvement. It is assumed that replacement works will be made every 20 years interval, so the replacement cost is annualized as reservations for them.

3.3.3 Financial Evaluation for Sewerage System Improvement Works

(1) Financial Availability to Cover the Construction Cost and OM Cost by Service Charge Only

For the financial evaluation to cover the construction cost, operation and maintenance cost and replacement cost by service charge only, it is assumed that the basic tariff system will revised with 2.5 % per annum for the future.

Under the assumption mentioned above, the evaluation is made using cash flows as shown in Table L.3.19 based on the above benefit and cost aiming at being made clear whether a revenue from the said tariff will be recover the financial cost or not. Resulted FIRR is 1.20 %. It means that the Project is not sound financially in the case of including the initial investment cost.

(2) Sensitivity Analysis

A sensitivity analysis is made under the condition of 25 combined cases including base case for the resulted FIRR as mentioned-above as: (1) benefit in increase by 5 % and 10 %, and in decrease by 5 % and 10 % too, and also (2) cost in decrease by 5 % and 10 %, and increase by 5 % and 10 %. Following Table shows its result.

Cost	Benefit				
	+10 %	+5 %	Base	-5 %	-10 %
-10 %	2.33	2.07	1.79	1.50	1.20
-5 %	2.03	1.76	1.49	1.20	0.89
Base	1.74	1.47	1.20	0.91	0.60
+5 %	1.46	1.20	0.92	0.63	0.32
+10 %	1.20	0.93	0.65	0.36	0.05

As indicated above, even in the most optimistic case in benefit of 10 % increase and cost of 10 % decrease, the Project is not financially sound.

(3) Financial Availability to Cover OM Cost and Replacement Cost by Service Charge

In the case mentioned above the financial annual OM cost including a reservation of replacement of some facilities mentioned above is estimated as VND31.8 billion after completion of the 1st phase works and as VND98.2 billion per annum after completion of the whole works. Under the same assumption for tariff revision mentioned above, a comparison between the OM cost including the replacement cost and the revenue is made as shown in Table L.3.20. The resulted B/C has come 1.81 as indicated in the same Table.

3.3.4 Recommended Tariff System for Sewerage and Waste Water Treatment Services

According to a result of the above mentioned comparison between OM cost including replacement cost and the revenue, the resulted B/C means that the revenue can recover the said costs.

In this case, recommended tariff system are summarized as follows:

- i) For residence: VND12,500/HH.month
- ii) For commercial: VND51,100/shop.month
- iii) For industry: VND22,800/factory.month

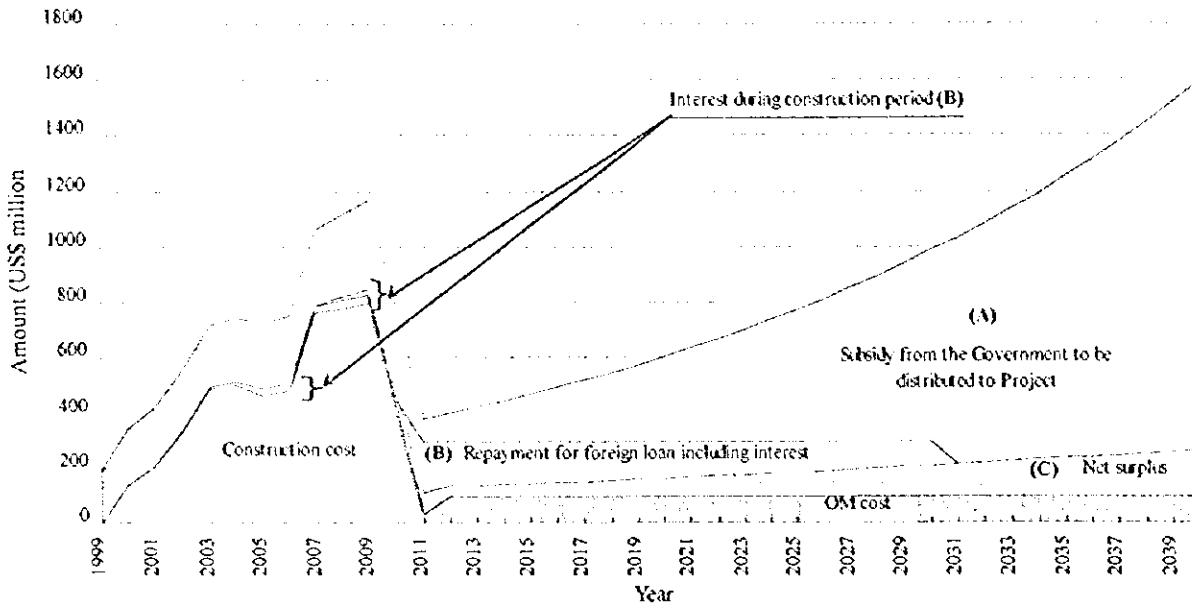
3.3.5 Repayability Analysis for Sewerage System Improvement Works

Under the conditions as:

- i) VND12,500/HH.month as a basic charge is applied for commercial operation of waste water treatment plant and other facilities for waste water treatment services,
- ii) an interest rate of 1.3 % is assumed for repayment of loan amount,
- iii) total repayment period of the loan is assumed at 30 years from starting year of the works including 10 years of grace period, and
- iv) the total distributed or subsidized capital expenditure to Ho Chi Minh City from the central Government is assumed at 10 % of the national capital expenditure as same condition as in Ha Noi, and 10% of it is assumed to be able to use for the Project,

a repayability analysis is made as shown in Table L.3.21 and illustrated as follows:

Repayability of Revenue for Loan for the Sewerage System Improvement Works



In the above illustration, an area (A) shows an amount of annual total subsidy from the Government to be distributed to the Project, but the actual subsidized amount to be used for repayment of loan with its interest is only the amount shown in the other area (B).

The area (C) shows an amount of surplus for the Project executing body dealing with the operation and maintenance services for the said facilities concerned.

As shown in the above illustration, it is cleared that HCMC and the Government can completely repay their whole loan amount consisting for the sewerage system improvement works as priority Project amounting to a sum of VND5,107 billion including a contingency for price escalation until the end of the whole works.

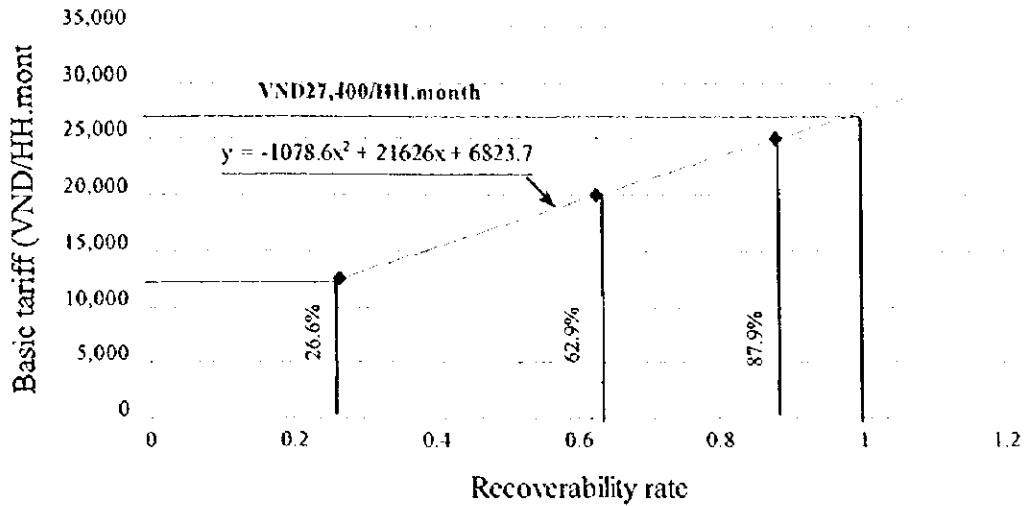
3.3.6 Tariff System to Recover the Whole Works of the Sewerage System Improvement Works

In the case of using VND12,500/HH.month as a basic charge, a recoverability rate of the revenue to the repayment including interest during the repayment period is 26.6 %. If VND20,000/HH.month and VND25,000/HH.month are applied, the recoverability rates are calculated at 62.9 % and 87.9 % respectively to the total repayment amount as a result of trial calculation of recoverability.

A relationship between the said basic charges and the recoverability rates is illustrated as below:

As indicated in the above figure, the said relationship is expressed as “ $y = -1,078.6x^2 +$

Relationship between Basic Tariff and Recoverability Rate



21,626x + 6,823.7”. If a recoverability rate of “1.00” (= 100 %) is inserted for x, resulted basic charge “y” is “VND27,400/HH.month”. It means that the justifiable tariff system is VND27,400/HH.month/HH system. Namely, this is a recommendable tariff to recover the whole Project costs.

Accordingly, a recommendable tariff system becomes as:

- i) For residence: VND 27,400/HH.month
- ii) For commercial: VND111,800/shop.month
- iii) For industry: VND 49,900/factory.month

This recommendable tariff system is within the ATP of VND30,000/HH.month as mentioned above. Therefore, if the Ho Chi Minh City has a plan to set this tariff system, people living in the City have enough affordability to pay as a service charge for the waste water treatment services.

Table I.1.2 Financial Situation of Ho Chi Minh City

A. Amount of Revenue and Expenditure

Item	Amount by fiscal year (million VND)					Annual average growth ratio(%)	Amount by fiscal year (thousand US\$)					Annual average growth ratio(%)
	1994	1995	1996	1997	1998		1994 ⁽¹⁾	1995 ⁽²⁾	1996 ⁽³⁾	1997 ⁽⁴⁾	1998 ⁽⁵⁾	
REVENUE	2,319,057	2,624,705	2,959,128	3,848,828	4,364,376	17.13%	217,977	239,371	267,910	325,648	324,417	10.45%
Distributed amount from central government	647,977	859,924	512,434	513,093	569,652	-3.17%	60,906	78,424	46,399	43,413	42,344	-8.69%
Tax revenue from individual & collective firm	755,951	515,602	503,567	402,407	395,405	-14.96%	71,055	47,023	45,596	34,047	29,392	-19.80%
Tax revenue from foreign investment sector	42,767	105,903	222,483	212,501	213,647	49.50%	4,020	9,658	20,145	17,980	15,881	40.98%
Revenue from excess of previous year	221,570	111,679	71,022	0	0	-	20,826	10,185	6,431	0	0	-
Subsidies from central government	63,040	100,730	45,126	6,519	33,889	-14.37%	5,925	9,187	4,086	552	2,519	-19.25%
Others	587,752	930,867	1,604,496	2,714,308	3,151,783	52.17%	55,245	81,894	145,282	229,656	234,291	43.50%
EXPENDITURE	1,421,351	1,632,810	1,803,135	3,020,928	3,363,805	24.03%	133,598	148,911	163,268	255,599	250,011	16.96%
Construction expenditure	305,133	420,613	521,880	1,242,722	1,694,474	53.51%	28,681	38,360	47,255	105,146	125,955	44.76%
Frequent expenditure	925,828	905,885	968,264	1,063,954	1,083,760	4.02%	87,022	82,616	87,673	90,021	80,559	-1.91%
Education expenditure	417,512	342,822	392,848	404,306	417,917	0.02%	39,244	31,265	35,571	34,208	31,065	-5.68%
Health expenditure	247,721	248,583	253,468	304,869	293,511	4.33%	23,281	22,671	22,951	25,795	21,818	-1.61%
Administrative expenditure	195,471	224,395	219,462	233,866	243,432	5.64%	18,373	20,465	19,872	19,787	18,095	-6.38%
Subsidies to wards and communes	65,124	90,685	102,486	120,913	128,900	18.61%	6,121	8,216	9,280	10,230	9,582	11.55%
Others	190,390	306,312	312,991	714,252	585,571	32.43%	17,895	27,935	28,340	60,433	43,527	24.83%
Balance	897,706	991,895	1,155,993	827,900	1,000,571	2.75%	84,379	90,460	104,672	70,048	74,375	-3.11%

B. Share Rate of Budget

Item	In VND					Annual average growth ratio(%)	In US\$					Annual average growth ratio(%)
	1994	1995	1996	1997	1998		1994	1995	1996	1997	1998	
REVENUE	100.00%	100.00%	100.00%	100.00%	100.00%	-	100.00%	100.00%	100.00%	100.00%	100.00%	-
Distributed amount from central government	27.94%	32.76%	17.32%	13.33%	13.05%	-17.33%	27.94%	32.76%	17.32%	13.33%	13.05%	-17.33%
Tax revenue from individual & collective firm	32.60%	19.64%	17.02%	10.46%	9.06%	-27.39%	32.60%	19.64%	17.02%	10.46%	9.06%	-27.39%
Tax revenue from foreign investment sector	1.84%	4.03%	7.52%	5.52%	4.90%	27.64%	1.84%	4.03%	7.52%	5.52%	4.90%	27.64%
Revenue from excess of previous year	9.55%	4.25%	2.40%	0.00%	0.00%	-	9.55%	4.25%	2.40%	0.00%	0.00%	-
Subsidies from central government	2.72%	3.84%	1.52%	0.17%	0.78%	-26.89%	2.72%	3.84%	1.52%	0.17%	0.78%	-26.89%
Others	25.34%	35.47%	54.22%	70.52%	72.22%	29.92%	25.34%	35.47%	54.22%	70.52%	72.22%	29.92%
EXPENDITURE	100.00%	100.00%	100.00%	100.00%	100.00%	-	100.00%	100.00%	100.00%	100.00%	100.00%	-
Construction expenditure	21.47%	25.76%	28.94%	41.14%	50.37%	23.77%	21.47%	25.76%	28.94%	41.14%	50.37%	23.77%
Frequent expenditure	65.14%	55.48%	53.70%	35.22%	32.22%	-16.14%	65.14%	55.48%	53.70%	35.22%	32.22%	-16.14%
Education expenditure	29.37%	21.00%	21.79%	13.38%	12.42%	-19.36%	29.37%	21.00%	21.79%	13.38%	12.42%	-19.36%
Health expenditure	17.43%	15.22%	14.06%	10.09%	8.73%	-15.88%	17.43%	15.22%	14.06%	10.09%	8.73%	-15.88%
Administrative expenditure	13.75%	13.74%	12.17%	7.74%	7.24%	-14.83%	13.75%	13.74%	12.17%	7.74%	7.24%	-14.83%
Subsidies to wards and communes	4.58%	5.52%	5.68%	4.00%	3.83%	-4.37%	4.58%	5.52%	5.68%	4.00%	3.83%	-4.37%
Others	13.40%	18.76%	17.36%	23.64%	17.41%	6.77%	13.40%	18.76%	17.36%	23.64%	17.41%	6.77%

(Note)

(1) Exchange rate in annual average as of 1994: US\$ 1.00 = VND 10,639.

(2) Exchange rate in annual average as of 1995: US\$ 1.00 = VND 10,965.

(3) Exchange rate in annual average as of 1996: US\$ 1.00 = VND 11,044.

(4) Exchange rate in annual average as of 1997: US\$ 1.00 = VND 11,819.

(5) Exchange rate in annual average as of 1998: US\$ 1.00 = VND 13,453.

Source: Statistical Yearbook 1997, Ho Chi Minh City Service of Culture and Information, January 1998.

**Table L.1.3 Export and Import Turnover
in Ho Chi Minh City**

A. Export Turnover							(thousand US\$)
Classified:	Amount of turnover					Annual average growth ratio(%)	
	1994	1995	1996	1997	1998		
By type of management	1,799,935	2,597,689	3,828,233	3,829,848	3,757,369	20.20%	
Central Government	1,062,950	1,562,796	2,528,765	2,300,580	2,187,392	19.77%	
Local Government (Ho Chi Minh City)	631,425	804,869	944,410	995,228	884,909	8.80%	
Foreign investment	105,560	230,024	355,058	534,040	685,068	59.61%	
By group of commodities(Excl. foreign investment)	1,694,375	2,367,665	3,473,175	3,295,808	3,072,301	16.04%	
Agricultural products	408,569	432,121	1,064,508	460,032	631,986	11.52%	
Marine products	184,478	172,268	215,489	209,982	191,594	0.95%	
Forest products	58,965	39,278	48,618	61,677	40,014	-9.24%	
Industrial products	1,042,363	1,723,998	2,144,560	2,564,117	2,208,707	20.65%	
By countries of destination(Excl. foreign investment)	1,694,375	2,367,665	3,473,175	3,295,808	3,072,301	16.04%	
Laos	1,533	1,983	2,214	3,914	3,234	20.52%	
Cambodia	11,074	5,147	12,023	39,137	38,760	36.78%	
Hongkong	83,651	77,952	61,977	65,529	39,016	-17.36%	
Singapore	302,357	400,466	618,385	546,903	394,700	6.89%	
France	45,181	59,367	56,653	64,141	53,314	4.22%	
Japan	659,989	968,963	1,042,088	1,010,408	732,041	2.62%	
Taiwan	115,090	148,007	187,514	252,905	181,940	12.13%	
Thailand	15,623	20,683	44,016	41,971	20,310	6.78%	
Indonesia	24,221	16,527	17,150	5,138	108,060	45.33%	
Korea	85,315	83,048	136,762	99,314	66,014	-6.21%	
Former USSR	13,813	18,669	19,424	27,087	31,069	22.46%	
Others	336,528	566,853	1,274,969	1,139,361	1,403,843	42.91%	
B. Import Turnover							
Classified:	Amount of turnover					Annual average growth ratio(%)	
	1994	1995	1996	1997	1998		
By type of management	2,181,247	2,907,114	3,851,816	4,095,278	3,744,827	14.47%	
Central Government	933,021	1,000,700	1,404,001	1,539,356	1,310,170	8.86%	
Local Government (Ho Chi Minh City)	1,043,764	1,377,396	1,775,975	1,527,132	1,403,187	7.68%	
Foreign investment	204,462	529,018	671,840	1,028,790	1,031,470	49.87%	
By group of commodities(Excl. foreign investment)	1,976,785	2,378,096	3,179,976	3,066,488	2,713,357	8.24%	
Spareparts	395,372	443,870	483,604	549,081	387,999	-0.47%	
Raw materials, fuels	1,126,912	1,642,935	2,305,012	2,204,964	2,004,389	15.48%	
Consumable goods	454,501	291,291	391,360	312,443	320,969	-8.33%	
By countries of origin(Excl. foreign investment)	1,976,785	2,378,096	3,179,976	3,066,488	2,713,357	8.24%	
Laos	13,522	21,995	55,982	3,479	201	-65.08%	
Cambodia	4,748	1,064	9,168	2,747	533	-42.12%	
Hongkong	131,334	146,746	150,429	112,296	89,264	-9.20%	
Singapore	386,156	448,872	663,773	558,352	498,459	6.59%	
France	91,313	95,239	129,623	118,458	112,026	5.24%	
Japan	250,639	272,130	359,781	334,844	298,949	4.51%	
Taiwan	229,148	337,952	384,944	418,879	297,069	6.71%	
Thailand	55,008	178,759	212,857	173,842	174,713	33.50%	
Indonesia	17,218	58,480	33,246	45,246	47,291	28.74%	
Korea	164,297	364,076	537,779	508,533	280,812	14.34%	
Former USSR	19,163	9,621	23,023	14,250	5,656	-26.29%	
Others	614,239	443,162	619,371	775,562	908,384	10.28%	
International Balance of trade of Ho Chi Minh City	-381,312	-309,425	-23,583	-265,430	12,542		
Tax on export and import	413,954	599,296	681,109	673,154	591,393	9.33%	
Export subsidies	0	0	0	0	0		
Import customs	413,954	599,296	681,109	673,154	591,393	9.33%	

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1997/1998.

Table L.1.6 Gross Outputs of Construction, Investigation and Design, and Gross Outlays for Investment and Repair in Ho Chi Minh City

Classified:	(million VND)					Annual average growth ratio(%)
	Amount of gross output/outlay					
	1994	1995	1996	1997	1998	
GROSS OUTPUTS						
Construction	4,461,188	5,842,121	7,915,193	9,939,960	11,257,835	26.04%
Classified by type of management						
Central government	1,468,550	1,939,060	2,515,648	3,118,549	3,677,507	25.80%
Local administrative unit (Ho Chi Minh City)	2,937,367	3,814,153	4,792,895	6,011,165	6,811,314	23.40%
Foreign investment sector	55,271	88,908	606,650	810,246	769,014	93.13%
Classified by economic sector						
From economic activities of the State	2,546,128	3,000,748	3,736,271	4,795,261	5,446,034	20.93%
From economic activities in private sector	1,859,789	2,752,465	3,572,272	4,334,453	5,042,787	28.32%
From foreign investment sector	55,271	88,908	606,650	810,246	769,014	93.13%
Investigation and Design	166,585	177,303	208,091	231,909	233,648	8.83%
Classified by type of management						
Central government	145,793	147,841	158,340	172,187	165,961	3.29%
Local administrative unit (Ho Chi Minh City)	20,792	29,462	49,751	59,722	67,687	34.32%
Classified by economic sector						
From economic activities of the State	164,778	166,862	176,836	185,803	180,361	2.28%
From economic activities in private sector	1,807	10,441	31,255	46,106	53,287	133.03%
OUTLAYS						
Investment and Large Scale Repair						
Classified by source of capital						
Granted state budget	9,556,824	12,713,208	18,645,022	22,959,860	23,934,512	25.80%
Central government budget	966,067	1,050,218	1,486,618	2,256,455	2,278,140	23.92%
Budget of local administrative unit	91,779	225,607	234,802	290,136	222,444	24.77%
Investment outlays	874,288	824,611	1,251,816	1,966,319	2,055,696	23.83%
Large scale repairs	393,113	492,325	922,140	1,438,657	1,628,912	42.67%
Credit	481,175	332,286	329,676	527,662	426,784	-2.95%
Capital of state owned enterprises	0	0	193,847	355,823	837,328	-
Private capital	3,472,875	3,697,346	6,685,103	6,134,921	5,898,520	14.16%
Other domestic capital	850,000	1,203,471	1,805,348	2,104,105	2,806,028	34.79%
Foreign investment capital	1,400,000	1,401,625	1,764,016	3,359,962	3,897,322	29.17%
Foreign investment capital	2,867,882	5,360,548	6,710,090	8,748,594	8,217,174	30.10%
Classified by Economic Activities						
Agriculture, forestry and fishery	9,556,824	12,713,208	18,645,022	22,959,860	23,934,512	25.80%
Industry	114,473	126,770	275,877	195,456	187,533	13.13%
Construction	3,408,246	6,157,205	8,256,137	8,172,004	7,182,136	20.48%
Trade	72,677	34,719	172,730	238,556	622,462	71.07%
Hotels and restaurants	72,123	314,400	40,403	277,658	1,257,901	104.36%
Transport, storage and telecommunication	1,560,042	1,670,576	1,336,036	3,554,628	1,973,261	6.05%
Science and technology	1,973,131	1,238,855	3,624,594	3,862,595	3,652,354	16.64%
Property business and consulting services	6,362	12,710	4,861	7,256	6,541	0.70%
State management services	61,690	1,202,097	1,610,948	3,446,356	2,018,825	139.18%
Education and training	22,764	32,009	42,626	105,854	154,562	61.42%
Public health and social services	219,064	248,438	208,451	269,187	326,771	10.51%
Culture and sports	219,723	101,032	389,447	272,993	332,187	10.89%
Personal and public services	93,074	90,687	410,410	374,193	539,223	55.14%
Others	1,729,055	1,463,971	2,199,999	2,117,474	5,622,172	34.28%
Others	4,400	19,739	72,503	65,650	58,584	91.02%

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

Table I.1.7 Share Rate of Gross Outputs of Construction, Investigation and Design, and Outlays for Investment and Repair in Ho Chi Minh City

Classified:	Share rate of gross output/outlay					Annual average growth ratio(%)
	1994	1995	1996	1997	1998	
GROSS OUTPUTS						
Construction	100.00%	100.00%	100.00%	100.00%	100.00%	
Classified by type of management						
Central government	32.92%	33.19%	31.78%	31.37%	32.67%	-0.19%
Local administrative unit (Ho Chi Minh City)	65.84%	65.29%	60.55%	60.47%	60.50%	-2.09%
Foreign investment sector	1.24%	1.52%	7.66%	8.15%	6.83%	53.24%
Classified by economic sector						
From economic activities of the State	57.07%	51.36%	47.20%	48.24%	48.38%	-4.05%
From economic activities in private sector	41.69%	47.11%	45.13%	43.61%	44.79%	1.81%
From foreign investment sector	1.24%	1.52%	7.66%	8.15%	6.83%	53.24%
Investigation and Design	100.00%	100.00%	100.00%	100.00%	100.00%	
Classified by type of management						
Central government	87.52%	83.38%	76.09%	74.25%	71.03%	-5.08%
Local administrative unit (Ho Chi Minh City)	12.48%	16.62%	23.91%	25.75%	28.97%	23.43%
Classified by economic sector						
From economic activities of the State	98.92%	94.11%	84.98%	80.12%	77.19%	-6.01%
From economic activities in private sector	1.08%	5.89%	15.02%	19.88%	22.81%	114.13%
OUTLAYS						
Investment and Large Scale Repair						
Classified by sorse of capital	100.00%	100.00%	100.00%	100.00%	100.00%	
Granted state budget	10.11%	8.26%	7.97%	9.83%	9.52%	-1.49%
Central government budget	0.96%	1.77%	1.26%	1.26%	0.93%	-0.82%
Budget of local administrative unit:	9.15%	6.49%	6.71%	8.56%	8.59%	-1.57%
Investment outlays	4.11%	3.87%	4.95%	6.27%	6.81%	13.41%
Large scale repairs	5.03%	2.61%	1.77%	2.30%	1.78%	-22.86%
Credit	0.00%	0.00%	1.04%	1.55%	3.50%	-
State owned enterprises	36.34%	29.08%	35.85%	26.72%	24.64%	-9.25%
Private capital	8.89%	9.47%	9.68%	9.16%	11.72%	7.15%
Other domestic capital	14.65%	11.02%	9.46%	14.63%	16.28%	2.68%
Foreign investment capital	30.01%	42.17%	35.99%	38.10%	34.33%	3.42%
Classified by Economic Activities	100.00%	100.00%	100.00%	100.00%	100.00%	
Agriculture, forestry and fishery	1.20%	1.00%	1.48%	0.85%	0.78%	-10.07%
Industry	35.66%	48.43%	44.28%	35.59%	30.01%	-4.22%
Construction	0.76%	0.27%	0.93%	1.04%	2.60%	35.99%
Trade	0.75%	2.47%	0.22%	1.21%	5.26%	62.45%
Hotels and resaurants	16.32%	13.14%	7.17%	15.48%	8.24%	-15.70%
Transport, storage and telecommunication	20.65%	9.74%	19.44%	16.82%	15.26%	-7.28%
Science and technology	0.07%	0.10%	0.03%	0.03%	0.03%	-19.95%
Property business and consulting services	0.65%	9.46%	8.64%	15.01%	8.43%	90.13%
State management services	0.24%	0.25%	0.23%	0.46%	0.65%	28.32%
Education and training	2.29%	1.95%	1.12%	1.17%	1.37%	-12.15%
Public health and social services	2.30%	0.79%	2.09%	1.19%	1.39%	-11.85%
Culture and sports	0.97%	0.71%	2.20%	1.63%	2.25%	23.33%
Personal and public services	18.09%	11.52%	11.80%	9.22%	23.49%	6.74%
Others	0.05%	0.16%	0.39%	0.29%	0.24%	51.85%

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

Table L.1.9 Cultivated Area and Their Agricultural Production in Ho Chi Minh City

A. Cultivated Area, Production, and Unit Production per Unit Area

Classified by:	Cultivated area (ha)					Annual average growth ratio(%)	Gross production (ton)					Annual average growth ratio(%)	Unit production per unit area (ton/ha)						
	1994	1995	1996	1997	1998		1994	1995	1996	1997	1998		1994	1995	1996	1997	1998		
Economic Sectors	107,696	107,774	107,020	101,957	97,328	-2.50%													
State activities	2,352	2,243	2,362	2,194	2,210	-1.54%													
Private activities	105,344	105,531	104,658	99,763	95,118	-2.52%													
Kind of Agricultural Products																			
Food Crops	81,444	81,251	81,886	78,537	74,844	-2.09%	247,701	258,350	214,301	243,876	223,278	-2.56%	3.0	3.2	2.6	3.1	3.0		
Paddy	79,996	79,539	80,327	76,914	73,603	-2.06%	237,625	247,296	204,759	235,166	217,227	-2.22%	3.0	3.1	2.5	3.1	3.0		
Maize	515	674	705	934	790	11.29%	1,092	1,376	1,474	2,598	2,159	18.58%	2.1	2.0	2.1	2.8	2.7		
Cassava	463	528	434	351	220	-16.97%	4,838	5,360	4,551	3,158	1,721	-22.77%	10.4	10.2	10.5	9.0	7.8		
Sweet potatoe	255	301	242	167	92	-22.50%	2,296	2,498	2,027	1,458	778	-23.70%	9.0	8.3	8.4	8.7	8.5		
Others	215	209	178	171	139	-10.33%	1,850	1,820	1,490	1,496	1,393	-6.85%	8.6	8.7	8.4	8.7	10.0		
Vegitables/Beans	12,850	13,160	12,510	12,233	11,124	-3.54%	293,766	287,106	268,951	245,103	212,518	-7.78%	22.9	21.8	21.5	20.0	19.1		
Vegitables	12,474	12,761	12,171	11,940	10,901	-3.31%	293,561	286,880	268,764	244,945	212,388	-7.77%	23.5	22.5	22.1	20.5	19.5		
Beans	376	399	339	293	223	-12.24%	205	226	187	158	130	-10.76%	0.5	0.6	0.6	0.5	0.6		
Industrial Crops	12,912	12,837	12,073	10,275	10,119	-5.91%	288,655	285,623	209,315	219,462	242,284	-4.28%	22.4	22.2	17.3	21.4	23.9		
Peanuts	6,542	6,489	6,010	5,238	5,313	-5.07%	13,810	12,867	12,601	10,683	11,534	-4.45%	2.1	2.0	2.1	2.0	2.2		
Tobacco	464	438	481	194	188	-20.22%	723	712	859	351	300	-19.74%	1.6	1.6	1.8	1.8	1.6		
Sugar cane	5,690	5,714	5,416	4,693	4,469	-5.86%	274,092	272,044	195,855	208,428	230,450	-4.24%	48.2	47.6	36.2	44.4	51.6		
Others	216	196	166	150	149	-8.87%	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Crops	490	526	551	912	1,241	26.15%	32,038	44,714	41,910	39,859	-	-	65.4	85.0	76.1	43.7	-		
Feeds	299	230	252	168	173	-12.78%	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	191	296	299	744	1,068	53.77%	-	-	-	-	-	-	-	-	-	-	-	-	-

B. Share Rate of Cultivated Area and Their Production

Classified by:	Cultivated area					Annual average growth ratio(%)	Gross production					Annual average growth ratio(%)
	1994	1995	1996	1997	1998		1994	1995	1996	1997	1998	
Economic Sectors	100.00%	100.00%	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	
State activities	2.18%	2.08%	2.21%	2.15%	2.27%	0.98%						
Private activities	97.82%	97.92%	97.79%	97.85%	97.73%	-0.02%						
Kind of Agricultural Products												
Food Crops	100.00%	100.00%	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	
Paddy	98.22%	97.89%	98.10%	97.93%	98.34%	0.03%	95.93%	95.72%	95.55%	96.43%	97.29%	0.17%
Maize	0.63%	0.83%	0.86%	1.19%	1.06%	13.67%	0.44%	0.53%	0.69%	1.07%	0.97%	34.19%
Cassava	0.57%	0.65%	0.53%	0.45%	0.29%	-15.20%	1.95%	2.07%	2.12%	1.29%	0.77%	-12.80%
Sweet potatoe	0.31%	0.37%	0.30%	0.21%	0.12%	-20.84%	0.93%	0.97%	0.95%	0.60%	0.35%	-13.60%
Others	0.26%	0.26%	0.22%	0.22%	0.19%	-8.42%	0.75%	0.70%	0.70%	0.61%	0.62%	-6.35%
Vegitables/Beans	100.00%	100.00%	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	
Vegitables	97.07%	96.97%	97.29%	97.60%	98.00%	0.24%	99.93%	99.92%	99.93%	99.94%	99.94%	0.00%
Beans	2.93%	3.03%	2.71%	2.40%	2.00%	-9.02%	0.07%	0.08%	0.07%	0.06%	0.06%	-2.61%
Industrial Crops	100.00%	100.00%	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%	100.00%	100.00%	
Peanuts	50.67%	50.55%	49.78%	50.98%	52.51%	0.90%	4.79%	4.50%	6.02%	4.87%	4.76%	0.51%
Tobacco	3.59%	3.41%	3.98%	1.89%	1.86%	-15.20%	0.25%	0.25%	0.41%	0.16%	0.12%	-13.89%
Sugar cane	44.07%	44.51%	44.86%	45.67%	44.16%	0.05%	94.95%	95.25%	93.57%	94.97%	95.12%	0.01%
Others	1.67%	1.53%	1.37%	1.46%	1.47%	-3.14%	0.00%	0.00%	0.00%	0.00%	0.00%	-
Other Crops	100.00%	100.00%	100.00%	100.00%	100.00%		-	-	-	-	-	
Feeds	61.02%	43.73%	45.74%	18.42%	13.94%	-30.86%	-	-	-	-	-	
Other econom	38.98%	56.27%	54.26%	81.58%	86.06%	21.90%	-	-	-	-	-	

Source: Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.

Table L.1.10 Private Trade and Services

Classified by:	A. Gross Sales Amount and Number of Households Working in Trade and Services											
	Gross monthly sales amount of private trade and services (million VND/month)					Number of households engaging in trade and services (Number of H/H)						
	1994	1995	1996	Annual average growth rate (%)	1994	1995	1996	Annual average growth rate (%)	1994	1995	1996	Annual average growth rate (%)
Trade	1,239,209	1,436,169	1,589,352	13.23%	69,080	75,594	98,067	19.15%	17,938,752	18,998,452	16,206,797	-4.95%
Food	323,098	28,265	35,434	23.86%	2,411	2,886	2,578	3.41%	9,580,257	9,793,832	13,744,763	19.78%
Foodstuffs	325,271	359,583	384,469	8.72%	29,180	31,388	32,106	4.89%	11,147,053	11,456,066	11,974,989	3.65%
Garments	111,366	179,179	181,035	27.50%	10,512	11,708	11,853	6.19%	10,894,178	15,303,980	15,273,349	20.07%
Daily articles	234,422	281,215	339,873	20.41%	12,180	12,076	13,011	3.36%	19,246,470	23,287,098	26,121,974	16.50%
Articles for culture life and education	36,747	78,097	66,899	8.58%	2,352	2,700	2,428	1.60%	24,127,126	28,924,815	27,553,190	6.86%
Medicaments and medical instruments	48,447	51,579	50,733	2.33%	1,816	2,153	2,213	24.95%	26,877,863	23,956,804	2,294,261	-70.67%
Means of transportation	42,380	45,996	51,543	10.28%	2,079	1,600	1,443	-16.69%	20,384,800	28,747,500	35,719,335	32.37%
Metal	27,790	22,754	24,695	-5.73%	1,045	1,998	2,217	45.63%	25,502,750	24,375,032	38,959,124	24.09%
Wood and construction materials	74,137	95,672	133,435	34.16%	2,930	3,925	3,425	8.12%	12,686,713	14,039,943	20,599,343	27.42%
Fuels	9,071	9,842	12,545	17.60%	715	701	609	-7.71%	9,720,261	10,488,524	11,174,963	7.22%
Agricultural materials	11,739	12,462	12,788	4.37%	506	612	556	4.82%	23,199,605	20,362,745	23,000,000	-0.43%
Others	274,741	271,525	295,903	3.78%	3,354	3,847	5,728	30.68%	81,914,431	70,580,972	51,659,043	-20.59%
Alimentation	200,685	190,686	198,066	-0.65%	20,776	23,611	23,007	5.23%	9,659,463	8,076,151	8,608,945	-5.59%
Eating	77,383	101,055	106,408	17.26%	7,961	9,635	9,522	9.37%	6,447,971	5,233,765	5,681,556	-6.13%
Drinking	68,471	65,846	69,065	0.43%	10,619	12,581	12,156	6.99%	24,968,579	17,050,179	17,000,000	-17.49%
Eating and drinking	54,831	23,785	22,593	-35.81%	2,196	1,395	1,329	-22.21%	3,906,052	5,022,875	4,625,266	8.32%
Services	51,056	77,950	82,746	27.31%	13,071	15,519	17,890	16.99%	3,810,204	4,847,045	4,080,450	3.49%
Personal services	34,429	49,784	52,242	23.18%	9,036	10,271	12,803	19.03%	4,120,694	5,366,997	5,956,462	20.63%
Repair of consumer goods	16,627	28,166	30,504	35.45%	4,035	5,248	5,087	12.28%	14,485,509	14,860,055	13,457,903	-3.61%
Total	1,490,950	1,704,805	1,870,164	12.00%	102,927	114,724	138,964	16.19%	48,435,509	48,860,055	48,457,903	-3.61%

Classified by:	B. Share Rate of Gross Sales Amount and Number Household in Trade and Services											
	Share rate of gross monthly sales amount of private trade and services (%)					Share rate of number of households engaging in trade and services (%)						
	1994	1995	1996	Annual average growth rate (%)	1994	1995	1996	Annual average growth rate (%)	1994	1995	1996	Annual average growth rate (%)
Trade	83.12%	84.24%	84.98%	1.12%	67.12%	65.89%	70.57%	2.54%	959,000	964,000	1,177,000	10.78%
Food	1.55%	1.66%	1.89%	10.59%	2.34%	2.52%	1.86%	-1.01%	853,000	926,000	1,044,000	10.63%
Foodstuffs	21.82%	21.09%	20.56%	-2.93%	28.35%	27.36%	23.10%	-9.73%	721,000	878,000	949,000	14.73%
Garments	7.47%	10.51%	9.68%	13.84%	10.21%	10.21%	8.53%	-8.61%	966,000	950,000	879,000	-4.61%
Daily articles	15.72%	16.50%	18.17%	7.51%	11.83%	10.53%	9.36%	-11.05%	810,000	954,000	992,000	10.67%
Articles for culture life and education	3.81%	4.38%	3.58%	-3.05%	2.29%	2.35%	1.75%	-12.56%	665,000	792,000	932,000	18.39%
Medicaments and medical instruments	3.25%	3.03%	2.71%	-8.63%	1.76%	1.88%	1.59%	200.32%	987,000	1,001,000	1,035,000	2.40%
Means of transportation	2.84%	2.70%	2.76%	-1.55%	2.02%	1.39%	1.04%	-28.30%	1,150,000	1,115,000	1,235,000	3.63%
Metal	1.86%	1.33%	1.32%	-15.83%	1.02%	1.74%	1.60%	25.35%	1,368,000	1,296,000	1,275,000	-3.46%
Wood and construction materials	4.97%	5.61%	7.13%	19.79%	2.85%	3.42%	2.46%	-6.95%	1,178,000	1,098,000	1,118,000	-2.58%
Fuels	0.61%	0.59%	0.67%	5.00%	0.69%	0.61%	0.44%	-20.57%	1,350,000	1,196,000	1,177,000	-6.63%
Agricultural materials	0.79%	0.73%	0.68%	-6.81%	0.49%	0.53%	0.40%	-9.79%	667,000	636,000	650,000	-1.28%
Others	18.43%	15.93%	15.82%	-7.34%	3.26%	3.85%	4.12%	12.47%	1,282,000	1,204,000	1,091,000	-8.93%
Alimentation	13.46%	11.19%	10.59%	-11.30%	20.19%	20.58%	16.56%	-9.43%	991,000	920,000	822,000	-8.93%
Eating	5.19%	5.93%	5.69%	4.70%	7.73%	8.40%	6.85%	-5.86%	1,168,000	920,000	775,000	-18.54%
Drinking	4.59%	3.86%	3.69%	-10.33%	10.32%	10.97%	8.75%	-7.92%	859,000	886,000	914,000	3.15%
Eating and drinking	3.68%	1.40%	1.21%	-42.69%	2.13%	1.22%	0.96%	-33.05%	934,000	1,022,000	1,191,000	12.92%
Services	3.42%	4.57%	4.42%	13.67%	12.70%	13.53%	12.87%	0.68%	1,101,000	1,116,000	1,230,000	5.70%
Personal services	2.31%	2.92%	2.79%	9.99%	8.78%	8.95%	9.21%	2.44%	1,149,000	1,189,000	1,288,000	5.88%
Repair of consumer goods	1.12%	1.65%	1.63%	20.94%	3.92%	4.57%	3.66%	-3.37%	991,000	979,000	1,098,000	5.26%
Total	100.00%	100.00%	100.00%		100.00%	100.00%	100.00%		962,000	979,000	1,125,000	8.14%

Source: Statistical Yearbook 1997, Ho Chi Minh City Service of Culture and Information, January 1998.

Table L.1.11 Private Trade and Services by Economic Sectors in 1998

	Number of HH engaged (HH)	Number of labourers (persons)	Amount of capital (VND10 ⁶)	Amount of turnover (VND10 ⁶)	Average turn- over per labour (VND10 ³)	Monthly average income/labour (VND10 ³)
Trade	84,766	161,960	1,121,937	36,617,008	226,087	867
Sales and maintenance of motor vehicles	2,624	6,201	25,454	411,154	66,304	1,076
Sales and maintenance of motor vehicles	30	126	282	11,160	88,571	1,014
Sales of spareparts and accessories	449	1,115	15,270	104,901	94,082	1,389
Sales of motors	2,098	4,795	8,692	267,948	55,881	1,169
Retail sales of fuel	47	165	1,210	27,145	164,515	774
Wholesales and agencies (Excl. motor vehicles)	4,690	13,833	176,109	4,936,222	356,844	708
Agency, intermediate	170	383	2,359	85,170	222,376	1,022
Wholesales of agro-forestry products, foodstuff	1,405	4,777	50,159	1,669,140	349,412	929
Wholesales of personal and family goods	1,995	5,903	99,304	2,414,657	409,056	700
Wholesales of non-agricultural raw materials	720	1,872	12,960	494,208	264,000	529
Wholesales of machinery and equipment	309	680	8,961	212,987	313,216	552
Other	91	218	2,366	60,060	275,505	527
Retail sales (Excl. motor vehicles)	77,452	141,926	920,374	31,269,632	220,323	872
Retail sales of (non special trade)	13,742	18,385	72,161	3,252,941	176,935	854
Retail sales of food, foodstuff, cigarette & beverage (non special trade)	25,936	36,717	125,847	5,637,280	153,533	753
Retail sales of non foodstuff, cigarette & beverage (special trade)	36,307	84,407	708,102	20,303,028	240,537	995
Retail sales of old things	309	515	4,223	40,566	78,769	1,359
Retail sales of outside the stores	1,158	1,902	10,041	294,817	155,004	910
Services	16,766	35,367	187,879	1,741,000	49,227	1,049
Repairs of consumer goods	3,275	7,528	13,829	252,794	33,580	904
Services for individual and family	13,491	27,839	174,050	1,488,206	53,458	1,172
Hotel & restaurant	24,838	55,019	214,003	4,361,398	79,271	1,109
Hotel & lodging houses	729	1,677	120,759	68,322	40,741	1,544
Restaurant, bar and canteen	24,109	53,342	93,244	4,293,076	80,482	1,083
Total	126,370	252,346	1,523,819	42,719,406	169,289	1,008

Source :

Statistical Yearbook 1998, Ho Chi Minh City Service of Culture and Information, January 1999.

Table L.1.12 Gross Output of Transport, Storage and Tele-communications and Number of Labors Engaged-In

A. Gross Output of Transport, Storage and Telecommunications, and Number of Labors in This Activities

Classified by:	Gross output of transport, storage and tele-communications (million VND)					Annual average growth ratio(%)	Number of labors engaged in transport, storage and tele-communications (persons)					Annual average growth ratio(%)
	1994	1995	1996	1997	1998		1994	1995	1996	1997	1998	
	Type of Management: Total	4,205,532	5,309,750	6,631,282	7,592,947		7,815,918	16.76%	82,320	83,349	95,436	
Central Government	2,471,700	3,120,540	3,667,543	4,637,962	4,821,507	18.18%	14,938	15,638	17,455	21,177	23,711	12.24%
Ho Chi Minh City	838,300	1,005,360	1,495,339	1,617,530	1,778,109	20.68%	66,567	66,827	75,158	77,335	77,067	3.73%
Foreign investment	895,532	1,183,850	1,468,400	1,337,455	1,216,302	7.95%	815	884	2,823	2,113	2,329	30.02%
Economic Sector: Total	4,205,532	5,309,750	6,631,282	7,592,947	7,815,918	16.76%	82,320	83,347	95,436	100,625	103,107	5.79%
State owned	2,617,000	3,251,385	3,910,179	4,919,369	5,100,006	18.15%	20,598	20,922	23,403	26,905	29,223	9.14%
Private	693,000	874,515	1,252,703	1,336,123	1,499,610	21.29%	60,907	61,541	69,210	71,607	71,555	4.11%
Foreign investment	895,532	1,183,850	1,468,400	1,337,455	1,216,302	7.95%	815	884	2,823	2,113	2,329	30.02%
Type of Transport (excluding foreign investment)	3,310,000	4,125,900	5,162,881	6,255,492	6,599,616	18.83%	82,320	83,347	95,436	100,625	103,107	5.79%
Transport and storage	2,869,110	3,568,376	4,442,937	5,143,150	5,368,333	16.96%	78,090	77,823	89,375	91,959	93,419	4.58%
Land transport	856,376	1,045,478	1,309,457	1,641,250	1,801,906	20.44%	61,246	61,589	73,741	73,490	73,610	4.70%
Waterway	562,150	702,181	922,901	1,175,931	1,232,992	21.70%	7,498	6,281	5,882	7,272	7,949	1.47%
Railway and airlines	1,004,400	1,265,619	1,392,859	1,406,787	1,395,464	8.57%	-	-	-	-	-	-
Stevedorage and storage	446,184	555,098	817,720	919,182	937,971	20.41%	9,346	9,953	9,752	11,197	11,860	6.14%
Postal services and tele-communications	440,890	557,524	719,944	1,112,342	1,231,283	29.27%	4,230	5,524	6,061	8,666	9,688	23.02%

B. Share Rate of Total Gross Output

Classified by:	Gross output of transport, storage and tele-communications					Annual average growth ratio(%)	Number of labors engaged in transport, storage and tele-communications					Annual average growth ratio(%)
	1994	1995	1996	1997	1998		1994	1995	1996	1997	1998	
	Type of Management: Total	100.00%	100.00%	100.00%	100.00%		100.00%	-	100.00%	100.00%	100.00%	
Central Government	58.77%	58.77%	55.31%	61.08%	61.69%	1.22%	18.15%	18.76%	18.29%	21.05%	23.00%	6.10%
Ho Chi Minh City	19.93%	18.93%	22.55%	21.30%	22.75%	3.36%	80.86%	80.18%	78.75%	76.85%	74.74%	-1.93%
Foreign investment	21.29%	22.30%	22.14%	17.61%	15.56%	-7.54%	0.99%	1.06%	2.96%	2.10%	2.26%	22.90%
Economic Sector: Total	100.00%	100.00%	100.00%	100.00%	100.00%	-	100.00%	100.00%	100.00%	100.00%	100.00%	-
State owned	62.23%	61.23%	58.97%	64.79%	65.25%	1.19%	25.02%	25.10%	24.52%	26.74%	28.34%	3.16%
Private	16.48%	16.47%	18.89%	17.60%	19.19%	3.88%	73.99%	73.84%	72.52%	71.16%	69.40%	-1.59%
Foreign investment	21.29%	22.30%	22.14%	17.61%	15.56%	-7.54%	0.99%	1.06%	2.96%	2.10%	2.26%	22.90%
Type of Transport (excluding foreign investment)	100.00%	100.00%	100.00%	100.00%	100.00%	-	100.00%	100.00%	100.00%	100.00%	100.00%	-
Transport and storage	86.68%	86.49%	86.06%	82.22%	81.34%	-1.58%	94.86%	93.37%	93.65%	91.39%	90.60%	-1.14%
Land transport	25.87%	25.34%	25.36%	26.24%	27.30%	1.35%	74.40%	73.89%	77.27%	73.03%	71.39%	-1.03%
Waterway	16.98%	17.02%	17.88%	18.80%	18.68%	2.41%	9.11%	7.54%	6.16%	7.23%	7.71%	4.08%
Railway and airlines	30.34%	30.67%	26.98%	22.49%	21.14%	-8.63%	-	-	-	-	-	-
Stevedorage and storage	13.48%	13.45%	15.84%	14.69%	14.21%	1.33%	11.35%	11.94%	10.22%	11.13%	11.50%	0.33%
Postal services and tele-communications	13.32%	13.51%	13.94%	17.78%	18.66%	8.79%	5.14%	6.63%	6.35%	8.61%	9.40%	16.29%

Source: Statistical Yearbook 1997-1998, Ho Chi Minh City Service of Culture and Information, January 1998-1999.

Table L.1.13 Price Index and Exchange Rate in Ho Chi Minh City

A. Retail Price Index in Ho Chi Minh City (December 1993 = 100)

Items	Price index					Annual average growth ratio(%)
	1994	1995	1996	1997	1998	
General Index	109.15	123.25	132.00	135.18	147.37	7.80%
Consumable goods	107.85	122.80	131.43	134.56	146.86	8.02%
Food	116.00	147.70	150.35	150.09	192.55	13.51%
Foodstuffs	111.89	132.65	144.77	145.32	159.81	9.32%
Textile fabrics	114.73	126.41	126.50	130.37	143.52	5.76%
Daily goods	99.74	106.72	111.01	119.37	130.73	7.00%
Articles for culture life and education	102.59	124.12	119.82	119.67	124.10	4.87%
Medicaments	103.31	105.25	108.99	114.80	152.66	10.25%
Transportation	96.37	106.08	109.16	117.77	118.45	5.29%
Fuel	107.51	115.37	142.99	149.59	163.83	11.11%
Construction materials	106.02	119.24	122.33	127.11	128.09	4.84%
Electricity and piped water	100.00	100.00	107.69	115.61	118.93	4.43%
Services	115.26	125.09	134.74	139.57	151.87	7.14%
Personal services	115.55	124.84	135.64	140.32	-	-
Repair of consumable goods	111.62	125.17	130.87	135.07	-	-
Process of consumable goods	118.06	127.76	132.12	141.58	-	-

B. Exchange Rate (Mid-rate)

Month	(VND/US\$)					
	1994*	1995*	1996*	1997*	1998*	1999**
January	10,300	10,863	11,005	11,280	13,383	
February	10,526	10,855	11,007	11,439	13,168	
March	10,569	10,906	11,006	11,547	13,214	
April	10,582	10,966	11,010	11,676	13,043	
May	10,593	10,973	11,011	11,738	12,990	
June	10,614	10,983	11,012	11,686	13,010	
July	10,604	10,983	11,024	11,684	13,085	13,956
August	10,622	10,982	11,031	17,226	13,119	
September	10,770	11,001	11,030	11,788	14,180	
October	10,805	11,002	11,076	11,818	14,365	
November	10,838	11,018	11,140	12,542	13,957	
December	10,852	11,045	11,182	12,908	13,919	
Annual average	10,639	10,965	11,044	11,819	13,453	
Annual decreasing ratio since 1994 (%)**						6.04%

(Note) * : Mid-rate of each month.

** : As of the end of July 1999.

Source : Statistical Yearbook 1997/1998, Ho Chi Minh City Service of Culture and Information, January 1998/1999.