



Wastewater and Solid Waste Management in Provincial Centers

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INTRODUCTION OF WASTE WATER TARIFF IN SOC TRANG Workshop Documentation



Soc Trang, March 2010

Ministry of Construction – Hanoi

in cooperation with

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) GmbH

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Wastewater and Solid Waste Management in Provincial Centers

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INTRODUCTION & RATIONALE

“Wastewater and Solid Waste Management in Provincial Centers” (WMP) is an ODA program sponsored by the German Government. The objective of WMP is the enhancement of wastewater management and related services in six provincial urban cities and the contribution to better environmental conditions, the reduction of seasonal inundations, and the improvement of water quality in the adjacent drainage channels and rivers. WMP contains of two main modules:

- Financial Cooperation (FC), jointly financed by the German Development Bank (KfW) and the Government of Vietnam (GoV), and
- Technical Cooperation (TC), implemented by German Technical Cooperation Agency (GTZ) and the German Development Service (DED), in close cooperation with the Ministry of Construction (MOC).

Whereas the FC module focuses on the provision of new infrastructure facilities for wastewater and solid waste management in currently six provincial cities in Vietnam, the TC module consist currently of two components. These are

- TC Component 1: “Capacity Development for the MOC”, and
- TC Component 2: “Capacity Development for Wastewater Management”, also referred to as the “WWM project”.

TC Component 2 commenced in February 2005 and officially launched its second phase in August 2008. The second phase is scheduled to be finalized in July 2011.

Until date, TC Component 2 (WWM), provides capacity building services to local governments and public wastewater companies (WWC) in six provincial urban centers in Vietnam, including the cities of Bac Ninh, Hai Duong, Vinh, Can Tho, Soc Trang and Tra Vinh. The capacity building activities focus, amongst operational fields, such as financial, customer, asset and human resource management and community awareness raising, predominantly on the re-organization of the WWCs and the creation of favorable institutional framework conditions at local government level for fostering effective and efficient wastewater management.

Furthermore, the construction of demonstration plants and the raising of awareness among decision makers on decentralized wastewater treatment (DWWT) approaches for urban or semi-urban areas in the outskirts of cities that are not served by centralized wastewater collection and treatment systems is a major focus of the component.

Seen as the most crucial of all tasks, the WWM project is assigned to introduce a tariff system to the participating provincial urban centers charging households, businesses and industries in the area for wastewater collection and treatment services. The introduction of wastewater tariffs is the principal condition of the FC loan agreement between KfW and the GoV and is a mandatory measure nation-wide since Decree 88/2007/ND-CP was promulgated by the prime minister of Vietnam in 2007. The objectives of a tariff introduction are:

- to generate a sufficient and stable revenue for the wastewater service provider that enables him to become a financially autonomous organization and deliver better services to the public;
- to guarantee proper and long-time operation and maintenance, thus sustainability of investments into wastewater systems.

Tariffs must follow certain principles. These principles are:

- polluter-pays: meaning that the polluters, hence the people and industries residing in the WW service areas and discharging into the public sewer system, have to pay for the treatment of their wastewater and not the beneficiaries of the treatment (rural downstream population).
- cost-recovery: the revenue from tariffs must cover at least the costs for operation and maintenance as well as depreciation of mechanical and electrical equipment (short-living assets) in full.

This type of tariff introduction is a complete novelty to Vietnam and hasn't been implemented in a single province so far. It differs strongly from the idea of simple wastewater fees as those introduced with Decree No. 67/2003/ND-CP in 2003, named 'Environmental Protection fees' (EP fees). The EP fees are simply defined as a certain percentage of the water bill (for households not exceeding 10% of the water tariff (excl. VAT)) and the collected revenue from the EP fee (after deduction of 10% for collection efforts of the water supply company) is transferred to the local government budget (45%) and the Central Budget for the Vietnam Environmental Protection Fund (45%).

In contrary to that, a wastewater tariff system according to Decree 88/2007/ND-CP is demand-driven. The basis for its calculation is the real costs for operating and maintaining the wastewater systems in a proper and sustainable way. The tariff must cover these costs. If costs rise, the tariff rises, if they fall, it falls accordingly. Basically it can be compared to common water tariffs. The collected revenue from the wastewater tariff either stays directly within the wastewater service provider's accounts, or is transferred to the local government's budget that then, in return provides sufficient funds covering all costs needed to meet certain service standards that are defined in a management contract signed between the local governments as the owner and the wastewater service provider as the operator of the wastewater systems.

As one of six cities under the WMP, Soc Trang city is the first municipality in Vietnam that is about to introduce the wastewater tariff in accordance to Decree 88/2007/ND-CP. The wastewater tariff proposal for Soc Trang city as presented here was designed and calculated by financial experts of TC Component 2 of the WMP in close cooperation with experts from the Soc Trang Urban Public Works Company (UPWC). It offers various options for political decision makers of Soc Trang province. It is the local government's decision, what degree of cost-recovery shall be achieved and residents of which area of the city shall be charged the tariff. Furthermore, it must be noted that the tariffs as presented here reflect the revenue necessary to cover the wastewater operator's costs. Whether 100% of this revenue is charged to the local population right from the beginning or whether initially the tariff is subsidized by local government budgets, is a decision up to the leaders of Soc Trang province.

This report documents the results of a first stakeholder meeting held in Soc Trang city on March 17, 2010. The meeting served the objective to inform related stakeholders on local government level about the tariff proposal developed by Soc Trang UPWC and the WMP advisory team as well as to clarify questions and comments that were officially collected in written form prior to the meeting. After the presentation of the proposal, further stakeholder comments were collected and a timeline for next steps was agreed.

AGENDA
Workshop on the Introduction of
Waste Water Tariff in Soc Trang
Location: SPWC, Soc Trang
Date: March 17, 2010

Time	Topic	Moderator / Presenter
8:00	Welcome Address and Opening	Mr Tung, Director of SPWC
8:10	Introduction of WWM Project	Frank Pogade / CTA WWM Project
8:30	Rationale: why introducing waste water tariffs?	Mr Minh, WWM Project
9:00	<i>Coffee Break</i>	
9:15	Proposal of Waste Water Tariff for Soc Trang	Ms Ngoc, WWM Project
10:00	Comments from Stakeholders	Mr Minh
11:30	Closing of Workshop	Mr Tung
11:45	<i>Lunch</i>	

PRESENTATIONS



Wastewater and Solid Waste Management in Provincial Centers



First Phase :
January 2005 until July 2008

Second Phase:
August 2008 until July 2011

Frank Pogade

Chief Technical Advisor
GFA Consulting Group

1



Wastewater and Solid Waste Management in Provincial Centers

Overall Program Objective:

Conditions for sustainable wastewater disposal are improved

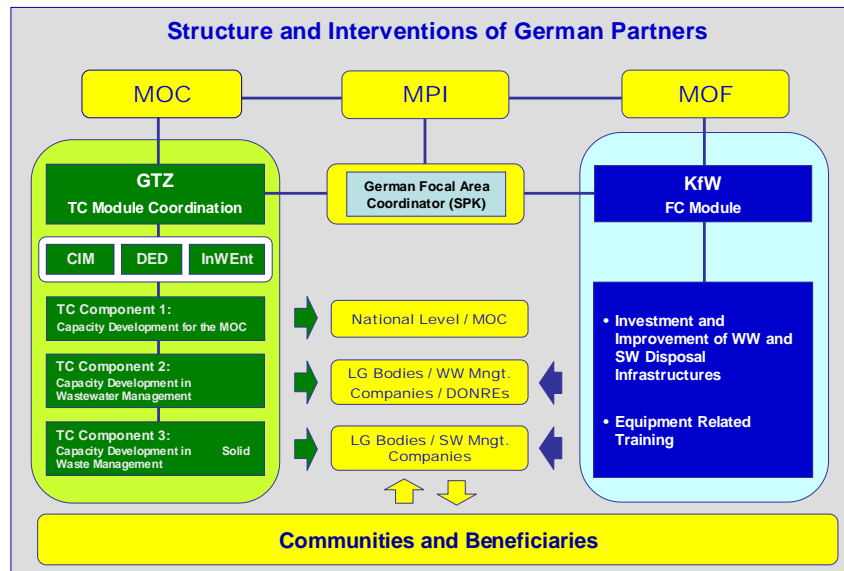
Goal of Phase 2 – TC Component 2 (until 2011):

Wastewater disposal in supported provincial centers improved

2



Wastewater and Solid Waste Management in Provincial Centers



Wastewater and Solid Waste Management in Provincial Centers



- Capacity Building involves a comprehensive PERCEPTION BUILDING process that includes all directly involved stakeholders and concerned decision makers.
- Understanding the CAUSE of public service shortages and/or deficiencies is guiding the development of conducive institutional and legal framework STRATEGIES, including effective remedies and incentives.
- Broad PARTICIPATION of the directly involved -during the entire capacity building process- is a key factor for the establishment of OWNERSHIP, SELF-ESTEEM and ACCOUNTABILITY.
- Incorporating the macro (national), mezo (provincial), and micro (community) levels into the participation process is the precondition for a HOLISTIC capacity building approach.



Areas of Capacity Building in 6 Wastewater Companies



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Scope of Works of TC Component 2



Local Government Level:

- Improvement of local institutional framework conditions
- Implementation of Decree 88
- Application of WW Tariffs that cover O&M costs in full
- Introduction of Management Contracts based on Performance of WW Services

Wastewater Company Level:

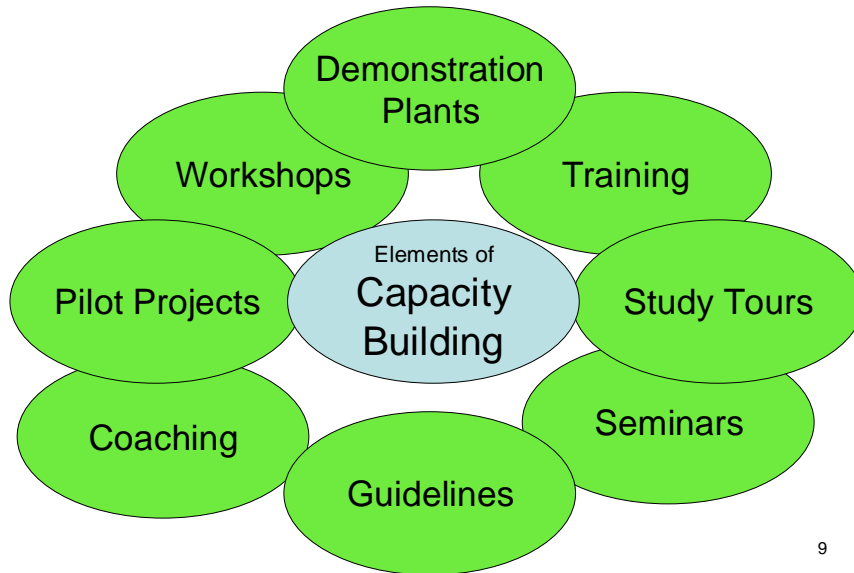
- Institutional & Organizational Issues
- Financial Management & WW Tariff
- Customer Relations Management & Community Participation
- Asset Management, O&M and Documentation
- Human Resource Management

DONRE Level:

- Improvement of analytic skills and supervisory functions with regard to effluent control and surface water monitoring

8

4



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Support Needed from Local Governments

- Establish local WASTEWATER REGULATION, based on Decree 88 and other relevant national legislation
- TRANSFER WW Companies and assets from provincial to city level government (if required) and establish a MANAGEMENT CONTRACT between the city and WW Company
- Approve WW TARIFF proposal and ensure that revenue from the tariff is transferred to the WW Company to cover costs for O&M of assets and depreciation of M+E equipment
- Reduce Subsidies over a period of time and adjust WW Tariff if necessary
- Support CDP implementation during Phase II with funds; in particular for PROCUREMENT of O&M EQUIPMENT for sewers
- Establish SUPERVISORY FUNCTIONS for implementation of Management Contract
- Consider DECENTRALIZED WW treatment options for urban and suburban areas not covered by centralized WW treatment

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Wastewater and Solid Waste Management in Provincial Centers

THE RATIONALE OF WASTEWATER TARIFF INTRODUCTION

SOCTRANG 3-2010

Presented by: Đinh Đăng Minh

Project implementation on behalf of GTZ by GfA Consulting Group in cooperation with DED

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WASTEWATER TARIFF

BASIS FOR ESTABLISHMENT OF LOCAL REGULATION ON WASTEWATER MANAGEMENT

- PROTOCOLE BETWEEN GERMAN AND VIETNAMESE GOVERNMENTS ON TECHNICAL COOPERATION
- AGREEMENT BETWEEN GTZ AND MOC ON BEHALF OF BOTH GOVTS
- DECREE 88/CP & CIRCULAR 09/TT-BXD
- COMPANY'S CDP
- AGREEMENT BETWEEN COMPANY AND WWM PROJECT (TA)
- OTHER RELATED LEGAL DOCUMENTS

WASTEWATER TARIFF

INDICATORS FOR ASSESSING THE PROJECT-PHASE II

Indicator 1. Participating Companies operate under commercial principles, WWM charge can recover at least all O&M costs

WASTEWATER TARIFF

INDICATORS FOR ASSESSING THE PROJECT-PHASE II

Indicator 2. WW systems are maintained in acc. with agreed plans

WASTEWATER TARIFF

**INDICATORS FOR ASSESSING THE
PROJECT-PHASE II**

Indicator 3. In project area, at least 60% of households connected to WW system aware on their rights & obligations in WWM (survey result)

WASTEWATER TARIFF

**INDICATORS FOR ASSESSING THE
PROJECT-PHASE II**

Indicator 4. Decision maker levels and stakeholders aware on Decentralized treatment solutions and agree those solutions.

WASTEWATER TARIFF

**INDICATORS FOR ASSESSING THE
PROJECT-PHASE II**

Indicator 5. DONREs in participating provinces implement monitoring activities on surface water and wastewater in acc. to regulations

WASTEWATER TARIFF

DECREE 88/2007/NĐ-CP

Article 48. All households who discharge into wastewater system are obliged to pay wastewater tariff in accordance with this decree

Article 55. Wastewater system operator must establish and submit wastewater tariff proposal, DoC must check it in coordination with DoF and submit it to Provincial People's Council for approval, PPC will promulgate in acc. to People's Council Resolution .

WASTEWATER TARIFF

CIRCULAR 09/2007/TT-BXD

Article 9. Wastewater system Operator has the responsibility to organize the establishment of Wastewater Tariff Proposal based on articles 49-54 of Decree 88/2007/NĐ-CP

- **THE TARIFF NOT EXCEEDING 2-3% OF THE MONTHLY AVERAGE INCOME**
- **PROPOSAL FOR A ROADMAP FOR WW TARIFF APPLICATION**



Wastewater and Solid Waste Management in Provincial Centers

INTRODUCTION OF A WASTEWATER TARIFF FOR SOC TRANG CITY

March 17, 2010

Prepared by: Le Thi Bich Ngoc

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Wastewater and Solid Waste Management in Provincial Centers

Objectives of WW Tariff Introduction

- For Wastewater operator:
 - Generate sufficient and stable revenue for wastewater management based on cost recovery
 - Become a financial autonomous organization
 - Reduce government subsidies



General Basis for WW Tariff Calculation & Introduction

- Loan Agreement between Ministry of Finance of Vietnam and KfW
- Separate agreement between Companies and KfW regarding the KfW loan
- Detailed design report on wastewater disposal system prepared by CES-Nagecco
- Legal basis
 - Decree No. 88/2007/ND-CP on drainage and sewerage in urban areas and industrial zones
 - Circular 09/2009/TT-BXD regarding the detail regulations about implementation of Decree 88/2007/ND-CP
 - Circular 108/2003/TT-BTC guiding the financial mechanism applied for environment projects that have ODA
 - Others



Guiding Principles (Decree 88, Circular 09)

- Wastewater tariff shall
 - be based on cost-recovery to maintain sewerage services;
 - consider different stage of socio-economic development in accordance with the level of investment and improvement of quality, but have an increasing trend;
 - be in accordance with investments for the improvement of service standards;
 - have a roadmap for a gradual increase of the wastewater tariff to meet the objective of covering O&M costs and depreciation expenses (first partly, then fully);
 - not exceed 3% of the average monthly household income
 - be supplemented by local budgets in case the total revenue from the approved wastewater tariff is lower than actual costs



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 - Others



WW Tariff Determination Method (Decree 88)

- Tariff determination:
 - For domestic WW: based on the volume of consumed water as stated in the water bill.
 - For other WWs: volume of wastewater and load of pollutants (i.e. COD)

No.	Concentration of COD (mg/l)	K
1	≤100	1
2	101-200	1,50
3	201-300	2
4	301-400	2,5
5	401-600	3,5
6	> 600	4,5



Wastewater Volume and Collection & Treatment Costs

- Volume of wastewater collected for treatment
 - Domestic wastewater flow
 - Industrial wastewater flow
 - Wastewater flow from other sources
 - Infiltration flow
- Costs for wastewater collection & treatment
 - Operation and maintenance (O&M) costs: direct labour costs, manufacturing overheads such as fuel, tools, electricity, general administrative costs etc.
 - Depreciation costs:
 - Depreciation cost of electrical and mechanical equipment
 - Depreciation cost of civil works
 - Standard profit



Wastewater Tariff Area Options & Levels of Cost-recovery

- Area Option:
 - **Area Option 1:** All customers in Soc Trang city pay the wastewater tariff.
 - **Area Option 2:** All customers residing in the sewerage service area covered by the German Financial Cooperation program (7 wards in Soc Trang City) pay the wastewater tariff.
- Cost recovery Level:
 - **Level 1:** Recovery of O&M costs.
 - **Level 2:** Recovery of O&M costs and depreciation of **electrical and mechanical equipment**.
 - **Level 3:** Recovery of O&M costs and all depreciation costs .



Wastewater and Solid Waste Management in Provincial Centers

Water sold in the whole city

No.	Item	2009	Plan – unit (m3)			
			2010	2011	2012	2013
1	Households	5,545,000	5,941,000	6,338,000	6,734,000	7,130,000
2	Administrative offices, government offices	1,205,000	1,291,000	1,377,000	1,463,000	1,549,000
3	Service and trading units	32,000	34,000	36,000	38,000	40,000
4	Production units	218,000	234,000	249,000	265,000	281,000
	Total	7,000,000	7,500,000	8,000,000	8,500,000	9,000,000



Wastewater and Solid Waste Management in Provincial Centers

Water sold in the sewerage service area

No.	Item	2009	Plan – unit: m3			
			2010	2011	2012	2013
1	Households	2,069,782	2,235,365	2,414,194	2,607,329	2,815,916
2	Administrative offices, government offices	346,871	374,621	404,591	436,958	471,915
3	Service and trading units	16,672	18,005	19,446	21,002	22,682
4	Production units	54,992	59,391	64,142	69,274	74,816
	Total	2,488,317	2,687,382	2,902,373	3,134,563	3,385,328



Estimated Costs of Wastewater Collection & Treatment - 2010

	Items	Value
I	Collected and treated wastewater (1000 m3)	4,811
II	Expenses (million VND)	
1	Direct labor	3,214
2	Indirect labor	556
3	Fuel expenses	717
4	Tool expenses	800
5	Electricity expenses for pumping and WWTP operation	1,461
6	Maintenance and repair expenses	1,006
7	Other cash expenses	277
8	General overhead costs	2,214
9	Total O&M costs excluding depreciation (Total (1-8))	10,537
10	Depreciation of electrical and mechanical equipments	2,596
11	Total O&M costs and depreciation of electrical and mechanical equipment (total (9+10))	13,133
12	Depreciation of civil works for the drainage/sewerage system	4,114
13	Total O&M cost and all depreciation costs (Total (11+12))	17,247
III	Required revenue in accordance with levels of cost-recovery (Million VND)	
14	Required revenue to cover O&M cost and 4,5% of standard profit (11*1.045)	11,011
15	Required revenue to cover O&M cost, depreciation of electrical and mechanical equipment and 4,5% of standard profit (13*1.045)	15,310
16	Required revenue to cover O&M cost, full depreciation cost and 4,5% of standard profit (15*1.045)	18,023



Average Wastewater Tariff by Levels of Cost Recovery and Tariff Options

Wastewater tariff area options	Consumed water volume (1000 m3)	Required Revenue (million VND)			Average WW tariff (VND/m3)		
		Level 1	Level 2	Level 3	Level 1	Level 2	Level 3
Area Option 1 Whole Soc Trang City	7,466	11,011	15,310	18,023	1,479	2,056	2,420
Area Option 2 7 wards of Soc Trang City (Project's area)	2,672	11,011	15,310	18,023	4,121	5,730	6,745



Current Water Tariff

Group	Categories of customers	Water tariff / m3)	Coefficient
01	Households	3,800	0.950
02	Administrative offices, government offices	4,500	1.125
03	Production units	5,100	1.275
04	Service and trading units	6,700	1.675
	Weighted Average price	4,000	1.000



Soc Trang City's Socio- Economic Development

- Class 3 municipality since 2007
- Population of over 170,000 people
- Economic growth rate: 13.78% in year 2009
- Estimated average income per household: 11,7 millions per month
- “One of the policies of Soc Trang city’s people and the party committee is to build and upgrade Soc Trang city to a green, clean, beautiful city and soon become a class 2 municipality” – City’s chairman



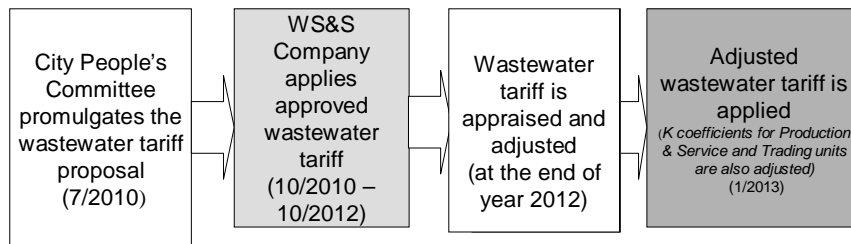
Proposed Wastewater Tariff

- Area Option: Option 1 – all customers of Soc Trang city have to pay wastewater tariff.
- Cost-recovery Level: level 2 – revenue can cover O&M costs & depreciation of **electrical and mechanical equipment** (VND 2000 as rounded)

Group	Categories of customers	Average ww.tariff (VND/m ³)	Coefficient K based on COD	Proposed ww.tariff (VND/m ³)
01	Households	2,000	1	2,000
02	Administrative offices, government offices	2,000	1	2,000
03	Production units	2,000	2*	4,000
04	Service and trading units	2,000	1.5*	3,000



Application & Adjustment of WW Tariff





Estimated revenue & Govt' subsidy

	Items	Proposed ww.tariff (VND/m3)	Y. 2010	Y. 2011	Y. 2012
I	Revenue from				
1	Households	2,000	11,882	12,676	13,468
2	Administrative offices, government offices	2,000	2,582	2,754	2,926
3	Service and trading units	3,000	109	115	91
4	Production units	4,000	562	598	848
	Total		15,294	16,313	17,333
II	Required revenue to cover O&M cost, depreciation of electrical and mechanical equipment and 4.5% of standard profit	N/A	15,310	17,761	18,971
III	Required Subsidy from the Government (I-II)	N/A	16	1,448	1,637



Stakeholder comments for 1st draft of the proposal

WHO	WHAT	REFERENCES
Ms. Nguyen Tuyet Lien, Vice Director of Justice Department, PC of Soc Trang Province	Advisory agencies to advise PPC in submitting document related to wastewater tariff are DOC, DOT	Clause 8, Article 4 of Decree No.88/2007/ND-CP
	Responsibilities for establishing wastewater tariff, authorities for appraising and approving the wastewater tariff will be as follows: <ul style="list-style-type: none"> The Owner of wastewater asset is responsible for guiding operators to prepare and submit the wastewater tariff proposal. DOC and DOT are leading agencies to appraise the wastewater tariff proposal in cooperation with DOF. PPC will issue wastewater tariff proposal after approval of People's Councils. 	Clause 1, 2 and 3, Article 55 of Decree No.88/2007/ND-CP
	<ul style="list-style-type: none"> The documents submitted by Soctrang company lacks draft statement, draft resolution of the People Council and summary of stakeholders' comments. Also, Soctrang Company should take into account of environmental fee to avoid duplication 	Clause 2, Article 24 of Law on Promulgation of Legal Documents of People's Councils and People's Committee on Dec. 03, 2004
Mr. Vo Thanh Van, Vice Director of Financial Department, PC	Currently, the sewerage system has not completed. Thus, to assess WW tariff and the roadmap for ww.tariff, Soctrang Company must request PPC to establish a ww.tariff appraisal taskforce presided over by DOC or DOT in cooperation with DOF and others	The Clause 55 of the Decree No.88/2007/ND-CP

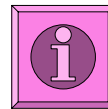


Wastewater and Solid Waste Management in Provincial Centers

WHO	WHAT	REFERENCES
Mr. Nguyen Dai Luong, Vice Director of DONRE , Soc Trang PPC	DOC will be the leading agency to appraise the wastewater tariff proposal in cooperation with DOF.	Clause 2, Article 55 of the Decree No.88/2007/ND-CP
	<p>The ww.tariff proposal does not fully express all required contents. It needs to present the following:</p> <ul style="list-style-type: none"> Assessment of using water and wastewater in the city Assessment of demand and ability for investment and development of sewerage system and improving ww. sewerage services. Estimated revenue from sewerage services as percentages of estimated revenue from supplying water. Assessment and forecast about socio - economic development, living standard of households for period of five years, including forecast of changes in living standards, inflation rate and affordability. To balance operation, maintenance expenses and loan expenses (if any) with estimated revenue from ww.tariff; and proposed subsidy from Owner' budget in recommending ww.tariff and roadmap for increasing ww.tariff. The roadmap for adjusting ww.tariff; proposed points of times for ww.tariff adjustment in accordance with level of investment and service quality and the actual conditions of the city. 	Article 9 of the Circular No. 09/2009/TT-BXD on detailed guideline for implementing some contents of the Decree No.88/2007/ND-CP
Mr. Hoang Van Xuan, Vice Director of DOC , Soc Trang PPC	• Supplement the basis for tariff calculation options	Article 54 of Decree No.88/2007/ND-CP
	• Explanation for tariff calculation options	Article 9 of the circular No. 09/2009/TT-BXD



Wastewater and Solid Waste Management in Provincial Centers



- 1.
- 2.
- 3.
- 4.
- 5.

RESULT OF DISCUSSIONS

WHO	CONTENT
1. Mr. Tran Van Thanh - DONRE	<p>Agreements:</p> <ul style="list-style-type: none"> - Decree 88 is an important legal document that mentions wastewater dischargers have to pay wastewater tariff. This is a breaking through step regarding people' obligations on environmental protection. - Wastewater tariff calculation based on cost recovery agrees with the socialization trend of environmental protection, and also with MONRE's policy. <p>Wastewater tariff calculation and proposal are thoroughly prepared, relevant with a suitable roadmap for increasing waste water tariff.</p>
	<p>Comments:</p> <ul style="list-style-type: none"> - Tariff calculation needs to comply with the existing regulations/laws. According to Decree 88, ww. tariff must only be applied in areas where there is availability of sewerage services. Thus, the option that all citizens of Soctrang city have to pay ww.tariff, is not consistent with Decree 88. - According to decree 88, the state budget will cover the shortage of revenue in case revenue from ww.tariff is not enough to cover costs. Thus, ww.tariff application should not be included citizens who are out of sewerage service areas. - The proposal of ww.tariff introduction has not mentioned ww. tariff exemption. According to decree 88, ww.tariff should not applied for subjects who are not connected to the sewerage system although they are in the sewage service areas or companies that treat their wastewater in accordance with the required standards. - Proposal lacks solutions to ensure quality of treated wastewater – this is considered as the wastewater operator's commitment toward its customers. - Industrial zones are not subjects of ww.tariff as they have their own sewerage treatment systems in accordance with decree 88.
2. Mr. Hoang Dong Tam - DOPI	<ul style="list-style-type: none"> - Agreed with WW.tariff introduction. Because this is necessary and relevant with Decree 88 and the Agreement between two governments. Wastewater treatment is important and is one of criteria reflecting steps of upgrading Soctrang city to a city of the level 2. - This is a meticulous proposal. However, when the assessment of living standard should not be based only on the report from CPC, but there is a need to do surveys of living standard in the Project's area and in city as a whole. According to the proposal, the average income per household of 5 members is 11.7 millions per month. However, in practice, not all members can generate income. <p>In principle, the citizens who pay ww.tariff will not pay environmental fee and V.S. Thus, citizens will choose to pay environmental fee rather than ww.tariff as environmental fee is lower.</p>
3. Mr. Cuông - DOF	<ul style="list-style-type: none"> - In Decree 88, "wastewater tariff" should be changed to "wastewater service tariff" to reflect its nature. - Agreed with the wastewater tariff introduction to get revenue to cover operation & maintenance costs and also increase the citizens' awareness regarding environmental sanitation. - Since July 1.2010, according to regulations, the government will not compensate for the operation losses of enterprises. Therefore, levels

WHO	CONTENT
	<p>of ww.tariff should take this into consideration and the proposal should eliminate options that require the government's subsidy. ww.tariff introduction and roadmap for increasing ww.tariff should be relevant with financial capacity of the local budget. In Soc Trang, getting subsidy from local budget will be difficult</p>
<p>4. Mr. Phúc - PC</p>	<ul style="list-style-type: none"> - Agreed with ww.tariff introduction for environmental protection - In order to persuade PC and citizens, there are some more comments as follows: <ul style="list-style-type: none"> o Subjects of ww.tariff: agreed with Mr. Thanh – ww.tariff application is only in sewerage service areas. o Name of tariff: agreed with Mr. Cuong – Change “ww.tariff” to “ww. service tariff” o Level of ww.tariff: Agreed with Option 1 and level 2 in the proposal because when Soc Tr��ng Urban Public Works Company becomes an One Member Limited Company, State budget will not compensate for the operation losses. Thus, revenue from ww.tariff need to cover all operation & maintenance costs and eliminate the State Budget's subsidy.

AGREED NEXT STEPS

No.	Contents	Expected time
1	The Project and the company complete documents and submit to the DOC	10/4/2010
2	DOC, DOT appraise the documents	
3	DOC send to DOJ documents including: <ul style="list-style-type: none">• Draft statement,• Draft resolution of the People Council• Summary of stakeholders' comments.• Other documents	
4	DOJ appraise within 8 days, then send the documents back to DOC	
5	DOC made adjustments and then submit to PC	
6	PC submit PPC	Before 15/6/2010

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PROPOSAL FOR THE INTRODUCTION OF A WASTEWATER TARIFF FOR SOCTRANG CITY

1. Introduction of WWM Project

“Wastewater and Solid Waste Management in Provincial Centers” is a program funded by the German government and jointly implemented by different institutions of the Government of Vietnam and several German Development Cooperation (GDC) agencies. The overall objective of the cooperation program is **“Conditions for sustainable wastewater disposal and solid waste management are improved.”**

The program consists of two complementary modules:

- a) the Financial Cooperation (FC) module, jointly financed by the German Development Bank (KfW) and the Government of Vietnam (GoV), and
- b) the Technical Cooperation (TC) module, implemented by the German Technical Cooperation (GTZ), the German Development Service (DED) and InWEnt with the Ministry of Construction (MOC) as the responsible line ministry.

The FC module focuses on the provision of new infrastructure facilities for wastewater and solid waste management in currently six provincial cities in Vietnam. The TC module consists of three components that provide “Capacity Development for the MOC” (TC Component 1), “Capacity Development in Wastewater Management” (TC Component 2) – also referred to as “WWM” – and “Capacity Development in Solid Waste Management” (TC Component 3) – also referred to as “SWM”.

Until date, WWM provides technical support to local governments, public wastewater companies (WWCs) and Departments of Natural Resources and Environment (DONREs) in currently six participating provincial urban centers in Vietnam, including the cities of Bac Ninh, Hai Duong, Vinh, Can Tho and Soc Trang as well as Tra Vinh town. WWM focuses on creating favorable conditions for improved public wastewater services and raising awareness on wastewater related issues among the communities and beneficiaries. The objective of TC Component 2 is accordingly: **“Wastewater management in the supported provincial centers is improved.”** This objective is measured by three major indicators as follows:

- *The wastewater operators operate according to commercial principles and revenue from waste wafer tariffs cover at least the O&M costs in full.*
- *The wastewaterInstallations are maintained in accordance with the agreed inspection and maintenance programme.*
- *In the project areas of the towns under the proggamm, at least 60% of the households that are connected to the sewerage system are informed about their rights and obligations in wastewater management.*

Wastewater tariff calculation and introduction for Soctrang City is to meet the first indicator of TC Component 2

2. General basis for the wastewater tariff and its calculation

The different options for the wastewater tariff calculation were considered and are proposed on the basis of:

- Loan and Project Agreement between Ministry of Finance of Vietnam, Soc Trăng Urban Public Works Company, CanTho Water Supply and Drainage-Sewerage Company and Kreditanstalt fuer Wiederaufbau (KfW) dated 16/5/2003.
- Separate agreement No. 2002 66 577 dated 16/5/2003 between Soc Trăng Urban Public Works Company and KfW regarding the KfW's loan
- Legal basis:
 - Governmental Decree No. 88/2007/ND-CP dated 28 May 2007 on drainage and sewerage in urban areas and industrial zones.
 - Circular 09/2009/TT-BXD dated 21 May 2009 regarding the detail regulations about implementation of Decree 88/2007/ND-CP.
 - Circular 108/2003/TT-BTC dated 7 November 2003 issued by the Ministry of Finance, guiding the financial mechanism applied for environment projects that have ODA.
 - Decree 97/2009/ND-CP dated 30 October, regulating basic salary for employees who work for companies, enterprises, cooperatives, farms households, individuals and other organizations of Vietnam that hire employees.
 - Circular No. 06/2008/TT-BXD dated 20 March 2008 by the Ministry of Construction providing guidelines for managing costs of public utility services in urban areas.
 - Decision No. 206/2003 – BTC dated 12 December 2003 by the Ministry of Finance on regulation of depreciating fixed assets
 - Joint Circular 23/TT-BLDTBXH dated 20 October 2008 regarding the guidance for implementing basic salary state companies, one member limited companies with state share account for 100 percent of the charter capital.
 - Resolution No. 1062 of Soctrang's People Committee dated 19/8/2009 regarding standard costs for operation and maintenance of sewerage systems.
 - Detailed design report on Soctrang wastewater disposal system prepared by CES-Nagecco dated 11/2004.
- CDP of SocTrang Urban Public Works Company with assumptions that the treatment plant and pumping stations will start operate since 2010.

3. The principle of wastewater tariff determination

In accordance with Decree 88 and Circular 09, the wastewater tariff shall:

- be based on the principle of full cost recovery for drainage/sewerage services;
- be determined considering socio-economic development at different stages;
- be in accordance with investments for the improvement of service standards;
- having a roadmap for a gradual increase of the wastewater tariff to meet the objective of covering O&M costs and partly and then fully all depreciation expenses;
- not exceed 3% of the average monthly household income;

- be supplemented by local budgets in case the total revenue from the approved wastewater tariff is lower than actual costs for the management, operation and maintenance of the drainage/sewerage system.

4. Method of wastewater tariff determination

1. For domestic wastewater generated from households using piped water, the wastewater tariff is calculated based on the volume of consumed water as stated on the water bill.
2. For other kinds of wastewater (non-domestic), the wastewater tariff is calculated based on the volume of wastewater and the load of pollutants in the wastewater based on the concentration of COD (mg/l), using adjustment coefficient K (K=1 for domestic wastewater)

According to Article 53 in the Governmental Decree 88/2007/ND-CP the adjustment coefficient K is determined as follows:

Table 1: **Concentration of COD**

No.	Concentration of COD (mg/l)	K
1	≤100	1
2	101-200	1,50
3	201-300	2
4	301-400	2,5
5	401-600	3,5
6	> 600	4,5

5. Method of determination of wastewater volume for treatment

5.1 Volume of wastewater collected for treatment:

The volume of wastewater collected for treatment is determined on the basis of the report on Soctrang wastewater disposal system, which was prepared by CES-Nagecco, specifically:

The total volume of wastewater collected for treatment includes:

- **Domestic wastewater flow:** determined based on the population living in the sewerage service area, the per capita water consumption, the percentage of household connections, and the percentage of water discharging to the sewerage system.
- **Industrial wastewater flow:** determined based on water consumption of existing industrial parks and expected water consumption of future industrial parks.
- Wastewater flow from **other sources**
- Infiltration flow

5.2 Costs for wastewater treatment

The total costs for wastewater collection and treatment consist of the following cost items:

- Operation and maintenance (O&M) costs (excluding depreciation) including material costs, direct labour costs, manufacturing overheads such as fuel, tools, electricity, General administrative costs...
- Depreciation costs
- Standard profit: 4.5%

6. Determination of wastewater volume for charging

For domestic customers:

- For customers using piped water, the volume of wastewater to be charged equals 100% of the water consumption as stated on the water bill.

For non-domestic customers:

- The volume of wastewater for charging is equal to 80% of water consumption in water bill and 80% water consumption from all additional water sources (eg. Storm water and ground water)

7. Wastewater tariff area options and levels of cost-recovery

7.1 Regarding the recovery of costs for wastewater collection, treatment and disposal, three different levels of cost-recovery are possible:

Level 1: Recovery of O&M costs.

Level 2: Recovery of O&M costs and depreciation of **electrical and mechanical equipment**.

Level 3: Recovery of O&M costs and all depreciation costs.

Note: According to the agreement between KfW and the Vietnamese Government, the wastewater tariff shall cover the costs for O&M and depreciation of electrical and mechanical equipment as suggested in Level 2.

7.2 With regards to the areas in that the wastewater tariff shall be applied and hence the number of customers that will have to pay the tariff, two different area options are suggested:

Area Option 1: All customers in Soc Trang City pay the wastewater tariff.

Area Option 2: All customers residing in the sewerage service area covered by the German Financial Cooperation program (7 wards in Soc Trang City) pay the wastewater tariff.

8. Assessment of using water in the city and in the Project's area

At the city level, according to the plan from the Water supply Company, in 2010, estimated volume of water supplied by the company for the whole city is 7,500,000 m³, of which water consumed by households accounted for mainly part of 80%, water used by government agencies accounted for 17% while water used by business and industrial units accounted for very small parts of 0,45% and 3% respectively.

As forecast, compared with year 2009, the volume of water supplied by the water supply company will increase by 7% in year 2010 and about by 6% each year for years 2011-2013. By the year 2013, the estimated water is about 9 millions m³ (please see the table below)

Table 2: **Water sold in the whole city**

Unit: m3

No.	Item	2009	Plan			
			2010	2011	2012	2013
1	Households	5,545,000	5,941,000	6,338,000	6,734,000	7,130,000
2	Administrative offices, government offices	1,205,000	1,291,000	1,377,000	1,463,000	1,549,000
3	Service and trading units	32,000	34,000	36,000	38,000	40,000
4	Production units	218,000	234,000	249,000	265,000	281,000
	Total	7,000,000	7,500,000	8,000,000	8,500,000	9,000,000

At the project level, also according to data from Water Supply Company, water supplied in Project area in 2010 is about 2,687,382 m3. The volume of water supplied in the Project's area is estimated to increase by 8% afterwards. In this area, water mainly consumed by household (accounts for 83%), water used by government agencies accounts for 1.4%. Meanwhile, water supplied for business and industrial units account for very small parts of 0.67% and 2.2% respectively. Please see the table below for more detail

Table 3: **Water sold in the sewerage service area**

Unit: m3

TT	Item	2009	Plan			
			2010	2011	2012	2013
1	Households	2,069,782	2,235,365	2,414,194	2,607,329	2,815,916
2	Administrative offices, government offices	346,871	374,621	404,591	436,958	471,915
3	Service and trading units	16,672	18,005	19,446	21,002	22,682
4	Production units	54,992	59,391	64,142	69,274	74,816
	Total	2,488,317	2,687,382	2,902,373	3,134,563	3,385,328

9. Wastewater flow collected and treated

Table 4: Volume of collected and treated wastewater

Unit: m3						
No.	Item	2009	Plan			
			2010	2011	2012	2013
	Wastewater flow collected and treated	3,699,854	4,810,736	5,013,383	5,220,732	5,432,833

In year 2009, the volume of waste water from all types of customers discharging in the sewerage system is 3,699,854. This estimated figure for year 2010 is 4,810,736. In this year, the connection percentage of households to the sewerage system is about 75%. In coming years, the connection percentage is estimated to increase by 5.25% per annum. In 2013, the connection percentage will reach 87% and the volume of waste water the company will collect for treatment is about 5,432,833 m3.

10. Estimated costs of wastewater collection and treatment and required revenue for year 2010

Costs incurred for wastewater collection and treatment of year 2010 are estimated as follows:

Table 5: Estimated costs and required revenue for year 2010

	Items	Value
I	Collected and treated wastewater (1000 m3)	4,811
II	Expenses (million VND)	
1	Direct labor	3,214
2	Indirect labor	556
3	Fuel expenses	717
4	Tool expenses	800
5	Electricity expenses for pumping and WWTP operation	1,461
6	Maintenance and repair expenses	1,006
7	Other cash expenses	277
8	General overhead costs	2,214
9	Total O&M costs excluding depreciation (Total (1:8))	10,537
10	Depreciation of electrical and mechanical equipments	2,596
11	Total O&M costs and depreciation of electrical and mechanical equipment (total (9+10))	13,133
12	Depreciation of civil works for the drainage/sewerage system	4,114
13	Total O&M cost and all depreciation costs (Total (11+12))	17,247
III	Required revenue in accordance with levels of cost-recovery (1000 VND)	

	Items	Value
14	Required revenue to cover O&M cost and 4,5% of standard profit (item 9*1.045)	11,011
15	Required revenue to cover O&M cost, depreciation of electrical and mechanical equipment and 4,5% of standard profit (item 11*1.045)	15,310
16	Required revenue to cover O&M cost, full depreciation cost and 4,5% of standard profit (item 13*1.045)	18,023

Required needed to cover costs in accordance with levels of cost recovery for wastewater collection and treatment in year 2010 are as follows:

- **Level 1:** Required revenue to cover O&M cost and 4,5% of standard profit is VND 11,011 million.
- **Level 2:** Required revenue to cover O&M cost, depreciation of electrical and mechanical equipment and 4,5% of standard profit is 15,310 millions.
- **Level 3:** Required revenue to cover O&M cost, full depreciation cost and 4,5% of standard profit is 18,023 millions (for more detail, please see table 5)

11. Average wastewater tariff by levels of cost recovery and tariff options

The calculation of average wastewater tariffs in accordance with three levels of cost-recovery for area options (whole Soctrang city and the sewerage area are based on total volume of consumed water by area options and total costs in accordance with levels of cost-recovery.

Specifically:

Area Option 1: All customers in Soctrang City pay the wastewater tariff.

- **Level 1:** Average wastewater tariff to cover operation and maintenance costs excluding depreciation is VND 1,479/m³.
- **Level 2:** Average wastewater tariff to cover operation and maintenance costs including depreciation cost of electrical and mechanical equipment is VND 2,056 /m³.
- **Level 3:** Average wastewater tariff to cover operation and maintenance costs including all depreciation costs is VND 2,420/m³.

Area Option 2: All customers residing in the sewerage service area covered by the German Financial Cooperation program (7 wards in Soctrang City) pay the wastewater tariff.:

- **Level 1:** Average wastewater tariff to cover operation and maintenance costs excluding depreciation is VND 4,121/m³.
- **Level 2:** Average wastewater tariff to cover operation and maintenance costs including depreciation cost of electrical and mechanical equipment is VND 5,730/m³.

- **Level 3:** Average wastewater tariff to cover operation and maintenance costs including all depreciation costs is VND 6,745 /m3.

In comparison of two area options above, needed average wastewater tariffs of option 2 (only customers in the sewerage service area have to pay wastewater tariff) are much higher and equal three times of needed average wastewater tariffs of area option 1 (All customers in Soc Trang City pay the wastewater tariff)

Table 6: Average wastewater tariff by levels of cost recovery and tariff options

Wastewater tariff area options	Consumed water volume (1000 m3) (1)	Required Revenue (million VND)			Average WW tariff (VND/m3)		
		Level 1: Cover O&M cost and 4.5% of standard profit (2)	Level 2: Cover O&M cost, depreciation of electrical and mechanical equipment and 4.5% of standard profit (3)	Level 3: Cover O&M cost, full depreciation cost and 4.5% of standard profit (4)	Level 1: cover O&M cost and 4.5% of standard profit (5)=(2): (1)	Level 2: Cover O&M cost, depreciation of electrical and mechanical equipment and 4.5% of standard profit (6)=(3) : (1)	Level 3: Cover O&M cost, full depreciation cost and 4.5% of standard profit (7)= (4) : (1)
Area Option 1: Whole Soctrang City	7,466	11,011	15,310	18,023	1,479	2,056	2,420
Area Option 2: 7 wards of Soctrang City	2,672	11,011	15,310	18,023	4,121	5,730	6,745

12. Current water tariff

At present, Soctrang Company is applying a water tariff on the basis of the following customer categories:

Table 7: **Current water tariff**

Group	Categories of customers	Water tariff incl. VAT (VND/ m3)	Coefficient*
01	Households	3,800	0.950
02	Administrative offices, government offices	4,500	1.125
03	Production units	5,100	1.275
04	Service and trading units	6,700	1.675
	Weighted Average price	4,000	1.000

*: The coefficients equals the prices applied to each type of customer divided by the weighted Average price

13. Socio- economic development of Soctrang City

In 8 February 2007, Vietnamese government issued Decree No. 22/2007/ND-CP, accordingly Soctrang town had been upgraded to a town of level 3 with a new name of Soctrang city. Since then its transportation system, water supply and sewerage system and other public works have been schemed toward environmental protection and utilizing the city's strengths. After three years of establishment, Soctrang city has had many changes. Until 2010, Soctrang city has population of more than 170,000 people. According to data from General Statistics Office of Vietnam, in year 2006, the average income per capita of Soctrang province as a whole is VND 495,000 per capita and the growth rate of the average income for the period from year 1999 to year 2006 is 21%/year. With this growth rate, estimated income per capita for year 2010 will be VND 1,100,000 per person. It should be noticed that Soctrang City is a cultural, economic and social Central of Soctrang province. Thus the average income per capita for Soctrang city is definitely much higher than the mentioned figure.

According to the report No. 132/BC.UBTP dated 23 October 2009, namely "Result of managing social and economic activities for year 2009 and orientation and mission for year 2010", that is issued by Soctrang City's Committee of People, the city has maintained a high economic growth. In 2009 the economic growth rate is 13.78%, an average income per capita is USD 1,587 per year (equivalent to VND 2.33 millions per month).

Table 8: Average income per capital

Sources of information	Year 2010 (average income per capita per month)
Estimation based on data from General Statistics Office of Vietnam	VND 1,100,000
Report of Soctrang City's Committee of People	VND 2,330,000

If the average number of people in families is 5 per a family. Then, in 2010 the estimated average income per household of Soctrang City is VND 11,7 millions per month (VND 2.33 million/person*5 people per household according to the report No.132/BC-UBTP). At the modest figure of VND 1.1 million/person per month, the average income per household is VND 5.5 million (VND 1.1 millions/person* 5 persons/household)

In parallel with the economic growth rate, Soctrang city has been facing to a danger from environmental pollution. Like other cities, pollution of water sources is one of Soctrang city's biggest challenges toward its sustainable development. Having recognised an importance of environmental protection on the city's sustainable development, in one of his speech about development orientation of Soctrang city, the city's president – Mr. Nguyen Ngoc Thong said "One of policies of Soctrang city's people and the party committee is to build and upgrade Soctrang city to a green, clean city and soon become a level 2's city"(www.kinhntenongthon.com.vn – Feb.22.2010)

14. Proposed wastewater tariff

Following a detailed analysis and careful consideration of all above mentioned alternatives, options and local socio-economic conditions, water tariffs and pollutant degree discharged by different kinds of customers and others, the Soctrang Urban Public Works Company proposes to the City People's Committee to apply the following constellation of options as wastewater tariff for 2010:

- Area Option: select option 1 – all customers of Soctrang city have to pay wastewater tariff. The customers who are subject to the wastewater tariff will not pay environmental fee. Beside, for customers who are the subjects to an exemption of connection to the sewerage system (according to Circular 09), will not be subjects of this wastewater tariff.
- Cost-recovery Level: select level 2 – revenue from wastewater tariff can cover O&M costs and depreciation of **electrical and mechanical equipment**. At this level, the average wastewater tariff is VND 2056 per 1 m³ (VND 2000 as rounded)
- The tariff for each categories of customers are proposed as follows:

Table 9: **Proposed wastewater tariff**

Group	Categories of customers	Average ww.tariff/ m3)	Coefficient K based on COD	Proposed ww.tariff (VND/m3)
01	Households	2,000	1	2,000
02	Administrative offices, government offices	2,000	1	2,000
03	Production units	2,000	2*	4,000
04	Service and trading units	2,000	1.5*	3,000

**: According to decree 88, ww.dischargers are responsible to provide Soctrang Urban Public Works Company information about COD concentration in their wastewater. However, at present, there is lack of the awareness of most dischargers about this responsibility. Thus, in the first two years of applying new ww.tariffs, coefficients of 2 and 1.5 are recommended to apply for Production and Service and trading units respectively. However, these coefficients will be adjusted after two years, based on actual COD information provided by dischargers.*

Reasons for this selection are as follows:

- With **Area Option 1**, all customers in Soctrang City will have to pay the wastewater tariff. Even though not all of these customers discharge their wastewater into the new sewerage system financed by German Financial Cooperation, they all benefit from the reduced pollution of surface water bodies in and around Soctrang city as a result of the new WWT facilities. In addition, in practice, customers in this area are benefiting from sewerage services through dredging drain and drainage system. Furthermore, the distribution of total costs on more customers reduces the average tariff that every customer has to pay and the increase in charges for wastewater from currently 245 VND/m3 to the new tariff of VND 2,000 per m3 (in case customers are households) – this level equals 44% of the average water tariff that is conformity with decree 88 “wastewater tariff should not below 10% water tariff currently applied for customers. The wastewater tariff of VND 2,000/m3 will find less disapproval and resistance among the affected population than VND 5,730 – in case only customers in the sewage service area have to pay the wastewater tariff.
- The proposed tariffs are relevant with **Affordability and social compability of households in Soctrang City**.

In 2010, if we apply wastewater tariff of VND 2,000/m3, and average consumption of water per person is 4.5 m3/month, then the total estimated amount of money each household has to pay for wastewater tariff will be:

$$\text{VND}2.000/\text{m}^3 \times 4.5 \text{ m}^3/\text{person}/\text{month} \times 5 \text{ persons}/\text{household}^* = \text{VND } 45,000 \text{ per month}$$

This figure accounts for only 0.82% total household income in 2010 (if household income is VND 1.1 millions per person or VND 5.5 millions per household) in Soctrang City. Total amount of money spent for both water and wastewater services accounts for about 2.37% the average income of household. These figures reflect the conformity of the recommended wastewater tariff with circular 09/2009/TT-BXD “wastewater tariff should not exceed 3% of the average monthly household income”.

- With the application of **Cost-recovery Level 2** of this wastewater tariff proposal, all costs for the operation and maintenance of Soctrang’s drainage/sewerage system as well as the depreciation of electrical and mechanical equipment will be covered by the revenue from the wastewater tariff. This complies exactly with the special agreement

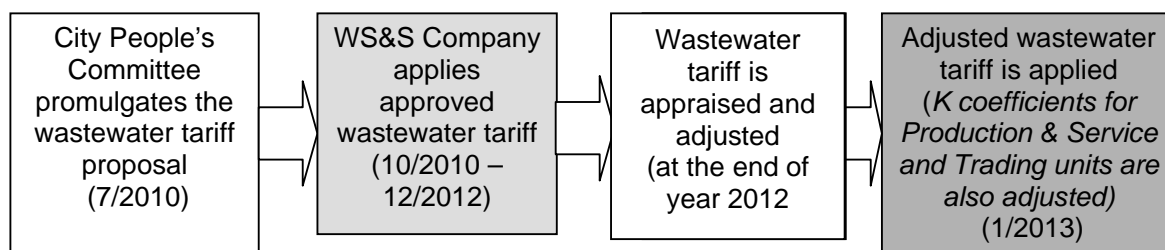
signed between the Government of Vietnam and the German KfW Development Bank and decree 88.

In summary, from the mentioned analyses above, the wastewater tariff of VND 2,000/m³ is conformity with the affordability of households and also in accordance with decree 88 and the Loan and Project Agreement signed by the Vietnamese Government and KfW.

15. Proposal for the application and adjustment of the wastewater tariff

The application and adjustment of the wastewater tariff is proposed as follows:

- The proposed estimated wastewater tariff is promulgated by the City People's Committee after approval by the City People's Council in July 2010.
- The proposed estimated wastewater tariff will be applied for about 2 years, from October 2010 to December 2012.
- The proposed estimated wastewater tariff will then be evaluated, appraised and adjusted in the fourth quarter of 2012 based on the principle of step-wise increase to cover O&M costs and full depreciation of not only electrical and mechanical equipment but also fixed assets, such as civil works etc. The adjusted average wastewater tariff for 2013 is estimated as approx. 2,468 VND/m³ – equivalent to Cost-recovery Level 3 with Area Option 1 – all customers in Soctrang city will have to pay the wastewater tariff and the company's revenue from wastewater tariff will cover all O&M expenses and full depreciation expense and since year 2013, specific ww.tariff imposed on production and service and trading units will take actual K coefficient of COD into consideration.



16. Estimated revenue and subsidy from the Budget

If level 2 of cost recovery of area option 1 is chosen. That means all customers in Soctrang City have to pay the wastewater tariff and wastewater tariff calculation is based on total operation and maintenance costs plus depreciation of electrical and mechanical equipment, then revenue from wastewater tariff for years 2010, 2011 and 2012 are VND 15,294, 16,313 and 17,333 millions respectively. Revenue from households accounts for a large part of total revenue of about 78%. While required revenue to cover operation and maintenance cost, depreciation of electrical and mechanical equipment for years 2010, 2011 are VND 15,310, 17,761 and 18,971 millions respectively. As a result, the maximum subsidies from the government for these years estimated are VND16 and 1,448 and 1,637, millions accordingly for whole years (more detail please see the table below). However, as proposed wastewater tariff shall be applied since October 2010. Therefore, maximum required subsidy from the Budget for the last quarter of year 2010 is about VND 4 million and increases to VND 1,448 and 1,637 million for year 2011 and 2012, respectively.

There is increase in required subsidy in year 2011 and 2012 because in year 2011, the company plans to invest more in mechanical and electrical equipments with value of VND 13,152 millions. To cover total operation, maintenance cost and equipments' depreciation

expenses, required average wastewater tariff in year 2011 and 2012 increase to VND 2,236 and 2,246, respectively. Meanwhile, as recommended, the average waste water tariff applied in year 2011 and 2012 is only VND 2,000/m³ - level of year 2010. This is an important reason for increase of required subsidies in these years.

In year 2013, with adjusted wastewater tariff of VND 2.468/m³ applied for all customers in the city, estimated revenue from wastewater tariff can cover all operation & maintenance costs and full deprecation expenses of wastewater management.

Table 10: **Estimated revenue and subsidy from the Budget**

Unit: million

VND					
	Items	Proposed ww.tariff (VND/m3)	Y. 2010	Y. 2011	Y. 2012
I	Revenue from				
1	Households	2,000	11,882	12,676	13,468
2	Administrative offices, government offices	2,000	2,582	2,754	2,926
3	Service and trading units	3,000	109	115	91
4	Production units	4,000	562	598	848
	Total		15,294	16,313	17,333
II	Required revenue to cover O&M cost, depreciation of electrical and mechanical equipment and 4,5% of standard profit	N/A	15,310	17,761	18,971
III	Required Subsidy from the Government (I-II)	N/A	16	1,448	1,637

WASTEWATER CALCULATION SHEETS

TABLE 1 A: THE VOLUME OF WATER SOLD IN ST CITY

No.	Content	Unit	Year 2008	Year 2009	Plan			
					Year 2010	Year 2011	Year 2012	Year 2013
1	Household	m ³	5,149,000	5,545,000	5,941,000	6,338,000	6,734,000	7,130,000
2	Administrative offices, government offices	m ³	1,119,000	1,205,000	1,291,000	1,377,000	1,463,000	1,549,000
3	Service and trading units	m ³	29,000	32,000	34,000	36,000	38,000	40,000
4	Production units	m ³	203,000	218,000	234,000	249,000	265,000	281,000
	Total	m ³	6,500,000	7,000,000	7,500,000	8,000,000	8,500,000	9,000,000

Note: data provided by Soctrang water supply company

**TABLE 1B: THE VOLUME OF WATER SOLD IN THE ST CITY
AS A BASIS FOR WASTE WATER TARIFF CALCULATION**

No.	Content	Unit	Year 2008	Year 2009	Plan			
					Year 2010	Year 2011	Year 2012	Year 2013
1	Household	m ³	5,149,000	5,545,000	5,941,000	6,338,000	6,734,000	7,130,000
2	Administrative offices, government offices	m ³	1,119,000	1,205,000	1,291,000	1,377,000	1,463,000	1,549,000
3	Service and trading units	m ³	23,200	25,600	27,200	28,800	30,400	32,000
4	Production units	m ³	162,400	174,400	187,200	199,200	212,000	224,800
	Total	m ³	6,453,600	6,950,000	7,446,400	7,943,000	8,439,400	8,935,800

TABLE 2A: THE VOLUME OF WATER SOLD IN THE SEWERAGE SERVICE AREAS (THE PROJECT'S AREAS).

No.	Content	Unit	Year 2009	Plan			
				Year 2010	Year 2011	Year 2012	Year 2013
1	Household	m ³	2,069,782	2,235,365	2,414,194	2,607,329	2,815,916
2	Administrative offices, government offices	m ³	346,871	374,621	404,591	436,958	471,915
3	Service and trading units	m ³	16,672	18,005	19,446	21,002	22,682
4	Production units	m ³	54,992	59,391	64,142	69,274	74,816
	Total		2,488,317	2,687,382	2,902,373	3,134,563	3,385,328

**TABLE 2B: THE VOLUME OF WATER SOLD IN THE SEWERAGE SERVICE AREAS (PROJECT'S AREAS).
AS A BASIS FOR WASTEWATER TARIFF CALCULATION**

No.	Content	Unit	Year 2009	Plan			
				Year 2010	Year 2011	Year 2012	Year 2013
1	Household	m ³	2,069,782	2,235,365	2,414,194	2,607,329	2,815,916
2	Administrative offices, government offices	m ³	346,871	374,621	404,591	436,958	471,915
3	Service and trading units	m ³	13,337	14,404	15,557	16,801	18,145
4	Production units	m ³	43,993	47,513	51,314	55,419	59,853
	Total		2,473,984	2,671,903	2,885,655	3,116,508	3,365,828

TABLE 4A: AVERAGE INCOME OF THE WORKERS IN YEAR 2008

No.	Content	Number	Minimum Basic salary	Level	Salary rate	Responsibility rate		Total			Total salary	Overtime (Sat+Sun)	Refreshment at the middle of shift	Total income/month	Total income/year
						Responsibility rate	Noxious rate	Actual basic Salary	Responsibility salary	Noxious salary					
1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17
	Direct labor														
I	Salary														
1	Workers	31	540,000	3	2.31		0.30	1,247,400		162,000	43,691,400	7,131,023	16,740,000	67,562,423	810,749,076
2	Drivers	10	540,000	3	2.31		0.30	1,247,400		162,000	14,094,000	2,756,470	5,400,000	22,250,470	267,005,640
	Total I	41									-	9,887,493	22,140,000	89,812,893	1,077,754,716
II	Other income														
	(Welfare and Rewards)														107,775,472
	Total (II)											-			107,775,472
	Total Direct labor	41	-	-	-	-	-	-	-	-	-	9,887,493	22,140,000	89,812,893	1,185,530,188
	Indirect labour														
1	Team leader	1	540,000	7	4.40	0.30		2,376,000	162,000	-	2,538,000	317,300	540,000	3,395,300	40,743,600
2	Vice leader of the team	1	540,000	7	4.40	0.20	0.30	2,376,000	108,000	162,000	2,646,000	317,300	540,000	3,503,300	42,039,600
3	Office staff	2	540,000	1	2.34			1,263,600			2,527,200	460,066	1,080,000	4,067,266	48,807,192
	Total	4									-	1094666	2,160,000	10,965,866	131,590,392
	Other income														
	(Welfare and Rewards)														13,159,039
	Total indirect labor	4	-	-	-	-	-	-	-	-	-	1,094,666	2,160,000	10,965,866	144,749,431
	Total workers	45									-	10,982,159	24,300,000	100,778,759	1,330,279,619

TABLE 4B: AVERAGE INCOME OF THE WORKERS IN YEAR 2008

No.	Content	Number	Minimum Basic salary	Level	Salary rate	Responsibility rate		Total			Total salary	Overtime (Sat+Sun)	Refreshment at the middle of shift	Total income/month	Total income/year
						Responsibility rate	Noxious rate	Actual basic Salary	Responsibility salary	Noxious salary					
1	2	3	4	5	6	7	8	9	10	11	13	14	15	16	17
A	Direct labor														
I	Salary														
1	Workers	34	650,000	3	2.31		0.30	1,501,500		195,000	57,681,000	7,821,122	22,100,000	87,602,122	1,051,225,464
2	Drivers	11	650,000	3	2.31		0.30	1,501,500		195,000	18,661,500	3,032,117	7,150,000	28,843,617	346,123,404
	Total (I)	45										10,853,239	29,250,000	116,445,739	1,397,348,868
II	Other income														
1	(Welfare and Rewards)														139,734,887
	Total (II)											-			139,734,887
B	Total Direct labor	45	-	-	-	-	-	-	-	-	-	10,853,239	29,250,000	116,445,739	1,537,083,755
	Indirect labor														
I	Salary														
1	Team leader	1	650,000	7	4.40	0.30		2,860,000	195,000	-	3,055,000	317,300	650,000	4,022,300	48,267,600
2	Vice leader of the team	1	650,000	7	4.40	0.20	0.30	2,860,000	130,000	195,000	3,185,000	317,300	650,000	4,152,300	49,827,600
3	Admin. staff	2	650,000	1	2.34			1,521,000			3,042,000	460,066	1,300,000	4,802,066	57,624,792
	Total	4										1094666	2,600,000	12,976,666	155,719,992
II	Other income														
	(Welfare and Rewards)														15,571,999
	TOTAL INCOME OF INDIRECT LABOR (I+II)	4	-	-	-	-	-	-	-	-	-	1,094,666	2,600,000	12,976,666	171,291,991
C	TOTAL INCOME OF ALL WORKERS (A+B)	49									-	11,947,905	31,850,000	129,422,405	1,708,375,746

TABLE 4C: AVERAGE INCOME OF THE WORKERS IN YEAR 2010

No.	Content	Number	Minimum Basic salary	Level	Salary rate	Responsibility rate		Total			Total salary	Overtime (Sat+Sun)	Refreshment at the middle of shift	Total income/month	Total income/year
						Responsibility rate	Noxious rate	Actual basic Salary	Responsibility salary	Noxious salary					
	2	3	4	5	6	7	8	9	10	11	13	15	16	17	18
A	Direct labor														
I	Salary														
1	Team leader	3	810,000	7	4.40	0.30		3,564,000	243,000	-	11,421,000	317,300	1,950,000	13,688,300	164,259,600
2	Vice team leader	3	810,000	7	4.40	0.20	0.30	3,564,000	162,000	243,000	11,907,000	317,300	1,950,000	14,174,300	170,091,600
3	Workers	64	810,000	3	2.31		0.30	1,871,100		243,000	135,302,400	14,722,112	41,600,000	191,624,512	2,299,494,144
4	Drivers	14	810,000	3	2.31		0.30	1,871,100		243,000	29,597,400	3,859,058	9,100,000	42,556,458	510,677,496
	Tổng/ sub-total (I)	84										19,215,770	54,600,000	262,043,570	3,144,522,840
II	Other income														
1	(Welfare and Rewards)														314,452,284
	Total (II)											-	-		314,452,284
III	TOTAL DIRECT LABOR	84	-	-	-	-	-	-	-	-	-	19,215,770	54,600,000	262,043,570	3,458,975,124
B	INDIRECT LABOR														
I	Salary														
1	Foreman	1	810,000		5.65	0.30		4,576,500	243,000		4,819,500		800,000	5,619,500	67,434,000
2	Vice Foreman	2	810,000		4.40	0.20		3,564,000	162,000		7,452,000		1,600,000	9,052,000	108,624,000
3	Admin. Staff	1	810,000		2.96			2,397,600			2,397,600		800,000	3,197,600	38,371,200
4	Accountant	3	810,000		3.58			2,899,800			8,699,400		2,400,000	11,099,400	133,192,800
5	Technical staff	5	810,000		3.13			2,535,300			12,676,500		4,000,000	16,676,500	200,118,000
	Tổng (1:5)	12									36,045,000	0	9,600,000	45,645,000	547,740,000
II	Other income														
	Welfare and rewards														54,774,000
	TOAL INCOME OF INDIRECT LABOR	12	-	-	-	-	-	-	-	-	36,045,000	-	9,600,000	45,645,000	602,514,000
	TOTAL INCOME OF ALL WORKERS	96									36,045,000	19,215,770	64,200,000	307,688,570	4,061,489,124

TABLE 3: VOLUME OF WASTEWATER FOR TREATMENT

No.	Item	Year					
		2008	2009	2010	2011	2012	2013
1	Population	107,870	109,369	110,867	112,558	114,249	115,941
2	Per capita water consumption (l/hd/d)	103	112	120	123	126	129
3	% connected to drainage system	67	71	75	78	83	87
4	% of water supply returned to drainage system	80	80	80	80	80	80
5	Wastewater flow from domestic (m ³ /d)	7,268	8,378	9,579	10,024	10,480	10,948
6	Industrial wastewater flow (m3/d)			597	597	597	597
7	Other wastewater flow (m3/d)	837	837	1,806	1,866	1,926	1,986
8	Total volume of wastewater (m3/d)	8,105	9,215	11,982	12,487	13,003	13,531
9	Infiltration Allowance (% of wastewater flow)	10	10	10	10	10	10
10	Average flow (m3/d)	8,915	10,137	13,180	13,735	14,303	14,884
11	Average flow (m3/y)	3,254,115	3,699,854	4,810,736	5,013,383	5,220,732	5,432,833
12	Souce of this data from basic design report						
13	Power consumption						
14	Treatment Plant			370,977	386,604	402,594	418,950
15	Pumping stations			846,222	881,869	918,342	955,651
16	Total power consumption			1,217,199	1,268,473	1,320,935	1,374,601
17	Maximum Capacity of the treatment plant	13,180 m3/d					
19	Power consumption of Treatment Plant at maximum capacity (KWh/y)	370,974.24					
20	Power consumption of Pumping stations at maximum capacity (KWh/y)	846,216.00					

Table 5: OPERATION AND MAINTENANCE EXPENSE (NOT INCLUDE DEPRECIATION)

No.	Expenses	Unit	Actual cost 2008 (VND)	Standard unit cost 2008 (VND/m3)	Actual cost 2009	Standard unit cost 2009 (VND/m3)	Estimated cost 2010	Standard unit cost 2010 (VND/m3)
1	2	3	4	5	6	7	8	9
I	Collected and Treated wastewater, 2008, 2009,2010	m ³	3,254,115		3,699,854		4,810,736	
II	O&M costs	VND						
1	Direct labor cost	VND	1,185,530,188		1537083755		3,458,975,124	
2	Indirect labor	VND	144,749,431		171291991.2		602,514,000	
3	Fuel expense of 3 trucks	VND	572,616,819	176.0	629,878,501	170.2	717,320,668	149.1
	- Fuel expense	VND	444,623,952		489,086,347		562,449,299	
	- Insurance and check fee.	VND	127,992,867		140,792,154		154,871,369	
4	Tool, Labor safety	VND	378,082,385	116.2	415,890,624	112.4	765,238,747	159.1
5	Repair and maintenance expense	VND	598,872,945	184.0	688,703,887	186.1	1,006,500,000	209.2
6	Electricity	VND					1,460,638,800	
	- 10 pumping stations and treatment plant	VND					1,460,638,800	
7	Other cash expense	VND	200,871,110	61.7	231,001,777	62.4	277,154,418	57.6
	- Clean water	VND	829,800		954,270		1,097,411	
	- Lighting Electricity	VND	2,442,831		2,809,256		3,371,107	
	- Telephones	VND	662,953		762,396		914,875	
	- Other expense	VND	196,935,526		226,475,855		271,771,026	
8	Allocated administrative expense = Direct labor x 64%: according to circular 06/2008/TT-BXD)	VND	758739320.1		983,733,603		2,213,744,079	

TABLE 6: STANDARD COSTS**A- STANDARD CONSUMPTION MAN-HOUR AND STANDARD OF DIRECT LABOR**

No.	Year	Estimation of collected and treated wastewater	Total working hours / year	Standard hours per m3 (H/m3)	Standard Direct Labor rate (VND/hour)	The average income of indirect labor (VND/year)
1	2	3	4	5=4/3	6	7
2	2008	3,254,115	177,408	-	19,497.29	50,209,500
3	2009	3,699,854		-		
4	2010	4,810,736		0.03688		
5	2011	5,013,383		0.03539		
6	2012	5,220,732		0.03398		
7	2013	5,432,833		0.03265		

Note:

(4) 8h * 22 days * 12 months * Number of direct labors

(6) Total Income of direct labor / Total working hours/year

(7) Total income of indirect labors/No. of indirect labors

B - ELECTRICITY STANDARD COSTS

No.	Year	Power consumption (KWh)	Standard power consumption (KWh/m3)	Standard costs of electricity (VND/KWh)	Remarks
9	10	12	13=12/4	13	14
	2009			1200	
	2010	1,217,199	0.25302		
	2011	1,268,473	0.25302		
	2012	1,320,935	0.25302		
	2013	1,374,601	0.25302		

Note: Power consumption calculated for 10 pumping stations and the treatment plan.

TABLE 7A: FIXED ASSETS

Exchange rate
VND and
EURO dated
12/09/2009:

26,407*Unit: 1,000,000 VND*

No.	Fixed Assets	Estimated Useful life	Year 2010		Year 2011		Year 2012	Year 2013
			Euro	VND	Euro	VND		
1	2	3	4	5=4*Ex.rate	6	7=6*Ex.rate	9	10
A	From KWF Source							
1	Construction investment - Civil works							
	Civil works	35	1,169,375	30,880		30,880	30,880	30,880
	Sewerage system	35	2,271,097	59,973		59,973	59,973	59,973
	Sub-Total		3,440,472	90,853		90,853	90,853	90,853
2	Electrical and mechanical equipments							
	Electrical and mechanical equipments	12.5	982,323	25,940		25,940	25,940	25,940
	Electrical and mechanical equipments	10	743,898	19,644		19,644	19,644	19,644
	Sub-total (II)		1,726,221	45,584		45,584	45,584	45,584
	Total (I+II)		5,166,693	136,437		136,437	136,437	136,437
B	From the company and PPC Sources							
1	Electrical and mechanical equipments							
	Sludge carrying lorry with loading capacity of 3 tons	10		748		748	748	748
	Combined vehicles	10			210,000	5,545	5,545	5545.47
	Vacuum vehicles	10			130,000	3,433	3,433	3432.91
	Inspection Camera	10			38,000	1,003	1003.466	1003.466
	Binder distributor truck	10			61,170	1,615	1,615	1615.31619
	Self-propelled crane truck	10			58,912	1,556	1,556	1555.68918
	Total fixed assets from the company and PPC source			748		13901	13901	13901

TABLE 7B: FIXED ASSET DEPRECIATION

Unit:1,000,000 VND

No.	Fixed asset depreciation	Year 2010	Year 2011	Year 2012	Year 2013
A	KWF source				
1	Construction Capital – Civil works				
	Civil works	882	882	882	882
	Sewerage system	1,714	1,714	1,714	1,714
	Sub-Total	2,596	2,596	2,596	2,596
2	Electrical and mechanical equipments				
	Electrical and mechanical equipments	2,075	2,075	2,075	2,075
	Electrical and mechanical equipments	1,964	1,964	1,964	1,964
	Sub-total (II)	4,040	4,040	4,040	4,040
	Total depreciation expense of fixed asset from KFW source	6,635	6,635	6,635	6,635
B	From the company and PPC Sources				
	Electrical and mechanical equipments				
	Sludge carrying lorry with loading capacity of 3 tons	75	75	75	75
	Combined vehicles		555	555	555
	Vacuum vehicles		343	343	343
	Inspection Camera		100	100	100
	Binder distributor truck		162	162	162
	Self-propelled crane truck		156	156	156
	Total depreciation expenses of fixed assets from the company and PPC source	75	1,390	1,390	1,390
C	KFW's, PPC's and Company's sources				
	Total depreciation expenses of civil works and sewerage system	2,596	2,596	2,596	2,596
	Total depreciation expenses of electrical and mechanical equipment	4,114	5,430	5,430	5,430
	Total depreciation expenses of fixed assets	6,710	8,025	8,025	8,025

TABLE 8: INPUT DATA SHEET

For 5 year period

No.	Content	Year 2009	Plan			
			Year 2010	Year 2011	Year 2012	Year 2013
1	A. WATER SOLD AND COLLECTED AND TREATED WASTEWATER AS A BASIS FOR WW.TARIFF CALCULATION					
2	Water sold by WS in ST city as a basis for ww.tariff calculation (Area Option1) - 1000 m3					
3	Household	5545	5941	6338	6734	7130
4	Administrative offices, government offices	1205	1291	1377	1463	1549
5	Service and trading units	25.6	27.2	28.8	30.4	32
6	Production units	174.4	187.2	199.2	212	224.8
7	Total water sold in water supply service areas	6,950.0	7,446.4	7,943.0	8,439.4	8,935.8
8	Water sold by WS in sewerage service areas (Project's areas) as a basis for ww.tariff calculation (Area Option2) - 1000 m3					
9	Household	2,069.8	2,235.4	2,414.2	2,607.3	2,815.9
10	Administrative offices, government offices	346.9	374.6	404.6	437.0	471.9
11	Service and trading units	13.3	14.4	15.6	16.8	18.1
12	Production units	44.0	47.5	51.3	55.4	59.9
13	Total water sold in the sewerage service areas	2,474	2,672	2,886	3,117	3,366
14	Total collected and treated wastewater (1000 m3)	3,700	4,811	5,013	5,221	5,433
15	B. EXPENSES					
16	Direct material					
17	Quantity standard (gram/m ³)					
18	Standard unit cost (VND/gram)			NO INPUT		
19	Escalation factor for direct material	NO INPUT				
20	Direct labor					
21	Standard hours (hours/m ³)	0.0257	0.0369	0.0354	0.0340	0.0327
22	Standard rate (VND/hour)	16173	19,497	NO INPUT		
23	Escalation factor for direct labor	NO INPUT		10%	10%	10%
24	Production Overhead					
25	<i>Indirect labor</i>					
26	Number of indirect labors	4	12	12	12	12

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27	Average salary and benefit (VND/năm)	42,822,998	50,209,500	NO INPUT		
28	Escalation factor for Indirect labor	NO INPUT		10%	10%	10%
29	<i>Fuel</i>					
30	Fuel cost standard	170.20	149.10	NO INPUT		
31	Escalation factor for fuel costs	NO INPUT		10.0%	10.0%	10.0%
32	<i>Tools and labor safety</i>					
33	Standard cost for tool and labor safety	117.50	166.30	NO INPUT		
34	Escalation factor for tools and labor safety	NO INPUT		10.0%	10.0%	10.0%
35	<i>Electricity (pumping stations and treatment plant)</i>					
36	Standard consumption (Kwh/m3)		0.253	0.253	0.253	0.253
37	Standard unit cost (VND/KWh)		1200.00	NO INPUT		
38	Escalation factor for electricity	NO INPUT		10.0%	10.0%	10.0%
39	<i>Repair and maintenance cost</i>					
40	Standard cost (VND/m3)	186.10	209.20	NO INPUT		
41	Escalation factor for repair and maintenance cost	NO INPUT		10.0%	10.0%	10.0%
42	<i>Other cash expenses (clean water, lighting electricity and telephone..)</i>					
43	Standard cost (VND/m3)	62.40	57.60	NO INPUT		
44	Escalation factor for other cash expenses	NO INPUT		10.0%	10.0%	10.0%
45	Allocated administrative expense (VND mill)	984	2,214	2,214	2,214	2,214
46	Depreciation expenses					
47	Civil works (VND Million)		2,596	2,596	2,596	2,596
48	Electrical and mechanical equipment (VND Million)		4,114	5,430	5,430	5,430
49	Corporate income tax	28%	28%	28%	28%	28%

**TABLE 9: REVENUE AND AVERAGE WASTEWATER TARIFF
FOR 5 YEAR PERIOD**

No.	Content	Source/ formula	Year 2008	Estimated Year 2009	Plan			
					Year 2010	Year 2011	Year 2012	Year 2013
1	A. WATER SOLD AND COLLECTED AND TREATED WASTEWATER (1000 m³)							
2	Water sold by WS in ST city as a basis for ww.tariff calculation (Area Option1)	Input Sheet	6454	6950	7446	7943	8439	8936
3	Water sold by WS in sewerage service areas (Project's areas) as a basis for ww.tariff calculation (Area Option2)	Input Sheet	2,351	2,474	2,672	2,886	3,117	3,366
4	Total collected and treated wastewater (1000 m3)	Input Sheet	3,254	3,700	4,811	5,013	5,221	5,433
5	B. OPERATION AND MAINTENANCE COST (Excl. depreciation) (VND mil.)							
6	i. Direct material							
7	Quantity standard (gram/m ³)	Input Sheet	0	0	0	0	0	0
8	Standard unit cost (VND/gram)	Input Sheet	0	0	0	0	0	0
9	Total direct material	[4* 7*8/ 1,000]	0	0	0	0	0	0
10	ii. Direct labor							
11	Standard hours (hours/m ³)	Input Sheet	0.027	0.026	0.037	0.035	0.034	0.033
12	Standard rate (VND/giờ)	Input Sheet	13,691	16,173	19,497	21,447	23,592	25,951
13	Total direct labor expenses (mill. VND)	[4*11*12/1,000]	1,186	1,537	3,459	3,805	4,185	4,604
14	iii. Production Overhead (excl. depreciation)							
15	a. Indirect labor							
16	Number of indirect labors	Input Sheet	4	4	12	12	12	12
17	Average salary and benefit (VND/năm)	Input Sheet	36,187,358	42,822,998	50,209,500	55,230,450	60,753,495	66,828,845
18	Total indirect expenses (VND mill)	[16*17]/1000	145	171	603	663	729	802
19	b. Fuel							
20	Fuel cost standard	Input Sheet	176	170	149	164	180	198
21	Total fuel expense (VND mil.)	[4* 20/1,000]	573	630	717	822	942	1,078
22	c. Tools and labor safety							
23	Standard cost for tool and labor safety	Input Sheet	116	118	166	183	201	221
24	Total tool and labor safety expense (VND mil.)	[4* 23/ 1,000]	378	435	800	917	1,051	1,203

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25	d. Electricity (pumping stations and treatment plant)						
26	Standard consumption (Kwh/m3)	Input Sheet	0.000	0.000	0.253	0.253	0.253
27	Standard unit cost (VND/KWh)	Input Sheet	0	0	1,200	1,320	1,452
28	Total electricity (VND mil.)	[4*26*27/1,000]	0	0	1,461	1,674	1,918
29	e. Repair and maintenance cost						
30	Standard cost (VND/m3)	Input Sheet	184	186	209	230	253
31	Total repair and maintenance cost (VND mil.)	[4*30/1,000]	599	689	1,006	1,154	1,322
32	f. Other cash expenses (clean water, lighting electricity and telephone..)						
33	Standard cost (VND/m3)	Input Sheet	62	62	58	63	70
34	Total other cash expense (VND Mil.)	[4*33/1,000]	201	231	277	318	364
35	Total of Production Overhead (excl. depreciation) - VND Mil.	[18+21+24+28+31+34]	1,895	2,155	4,864	5,548	6,325
36	v. ALLOCATED ADMINISTRATIVE EXPENSE (VND mil.)	Input Sheet	759	984	2,214	2,214	2,214
37	TOTAL OPERATION AND MAINTENANCE COSTS (EXCL. DEPRECIATION EXPENSE)	[9+13+35+36]	3,839	4,676	10,537	11,566	12,724
38	C. DEPRECIATION EXPENSE						
39	a. Civil works (VND mil.)	Input Sheet	0	0	2,596	2,596	2,596
40	b. Electrical and mechanical Equipment	Input Sheet	0	0	4,114	5,430	5,430
41	Total depreciation expense	[39 + 40]	0	0	6,710	8,025	8,025
42	D. Required minimum revenue (including 4.5% of standard profit)						
43	a. Cover O&M costs only (excl. Depreciation) - VND mil.	[37]*(1+SD. profit)	4,012	4,886	11,011	12,087	13,297
44	b. Cover O&M costs and equipment depreciation (VND mil.)	[37+ 40]*(1+SD. profit)	4,012	4,886	15,310	17,761	18,971
45	c. Cover O&M costs and full equipment depreciation (VND mil.)	[37+ 41]*(1+Sd. profit)	4,012	4,886	18,023	20,474	21,683
46	E. Average wastewater tariff (VND/m3)						
47	i. All customers in water supply service areas have to pay:						
48	a. Cover O&M costs only (excl. Depreciation)	[43 / 2]	622	703	1,479	1,522	1,576
49	b. Cover O&M costs and equipment depreciation	[44 / 2]	622	703	2,056	2,236	2,248
50	c. Cover O&M costs and full equipment depreciation	[45 / 2]	622	703	2,420	2,578	2,569
51	ii. Only customers in sewerage service areas have to pay						
52	a. Cover O&M costs only (excl. Depreciation)	[43 / 3]	1,706	1,975	4,121	4,189	4,266
53	b. Cover O&M costs and equipment depreciation	[44 / 3]	1,706	1,975	5,730	6,155	6,087
54	c. Cover O&M costs and full equipment depreciation	[45 / 3]	1,706	1,975	6,745	7,095	6,958

TABLE 10: RECOMENDED WW. TARIFF IN ST CITY

No.	Content	Source/formula	Year 2009	Pan				
				Year 2010	Year 2011	Year 2012	Year 2013	
1	Water sold by WS in ST city as a basis for ww.tariff calculation (Area Option1) - 1000 m3							
2	Household	Input sheet	5545	5941	6338	6734	7130	
3	Administrative offices, government offices	Input sheet	1205	1291	1377	1463	1549	
4	Service and trading units	Input sheet	25.6	27.2	28.8	30.4	32	
5	Production units	Input sheet	174.4	187.2	199.2	212	224.8	
6	Total	Input sheet	6950	7446.4	7943	8439.4	8935.8	
7	Required minimum ww.revenue (VND mil.)							
8	<i>Cover O&M costs and equipment depreciation (VND mil.)</i>	Average tariff sheet	4,886	15,310	17,761	18,971	22,051*	
9	Required Average wastewater tariff (VND/m3)							
10	Cover O&M costs and equipment depreciation	Average tariff sheet		2,000	2,000	2,000	2,468	
11	Tariff adjustment factor							
12	Household	Adjusts required average WW.tariff. Below 1 means subsidy. Above 1 will cross-subsidize those below 1		1	1	1	1	
13	Administrative offices, government offices			1	1	1	1	
14	Service and trading units			1.5	1.5	1.5	1.5	
15	Production units			2	2	2	2	
16	Recommended ww.tariff (VND/m³)							
17	Household	[10 * 12]		2,000	2,000	2,000	2,468	
18	Administrative offices, government offices	[10 * 13]		2,000	2,000	2,000	2,468	
19	Service and trading units	[10 * 14]		3,000	3,000	3,000	3,702	
20	Production units	[10 * 15]		4,000	4,000	4,000	4,936	
21	Actual revenue (VND mil.)							
22	Household	[2 * 17]		11,882	12,676	13,468	17,597	
23	Administrative offices, government offices	[3 * 18]		2,582	2,754	2,926	3,823	
24	Service and trading units	[4 * 19]		82	86	91	118	
25	Production units	[5 * 20]		749	797	848	1,110	
26	Total wastewater revenue (VND mil.)	[22+23 + 24 + 25]		15,294	16,313	17,333	22,648	
27	Required subsidy from CPC (VND mil.)	[8 - 26] ideally,, this must be zero or negative which means no subsidy		16	1,448	1,637	-597	

Note: Year 2013 : all operation and maintenance costs + full depreciation

TABLE 11: RECOMMENDED WW.TARIFF IN SEWERAGE SERVICE AREAS (PROJECT'S AREAS)

No.	Content	Source/formula	Year 2009	Plan			
				Year 2010	Year 2011	Year 2012	Year 2013
1	Water sold by WS in wastewater service areas as a basis for ww.tariff calculation (Area Option2 - 1000 m3)						
2	Household	Input sheet	2,070	2,235	2,414	2,607	2,816
3	Administrative offices, government offices	Input sheet	347	375	405	437	472
4	Service and trading units	Input sheet	13	14	16	17	18
5	Production units	Input sheet	44	48	51	55	60
6	Total	Input sheet	2,474	2,672	2,886	3,117	3,366
7	Required minimum ww.revenue (VND mil.)						
8	<i>Cover O&M costs and equipment depreciation (VND mil.)</i>	Average tariff sheet	4,486	15,310	17,761	18,971	22,051*
9	Required Average wastewater tariff (VND/m3)						
10	Cover O&M costs and equipment depreciation	Average tariff sheet		5,730	5,730	5,730	6,551
11	Tariff adjustment factor						
12	Household	Adjusts required average WW.tariff. Below 1 means subsidy. Above 1 will cross-subsidize those below 1		1	1	1	1
13	Administrative offices, government offices			1	1	1	1
14	Service and trading units			1.5	1.5	1.5	1.5
15	Production units			2	2	2	2
16	Recommended ww.tariff (VND/m³)						
17	Household	[10 * 12]		5,730	5,730	5,730	6,551
18	Administrative offices, government offices	[10 * 13]		5,730	5,730	5,730	6,551
19	Service and trading units	[10 * 14]		8,595	8,595	8,595	9,827
20	Production units	[10 * 15]		11,460	11,460	11,460	13,102
21	Actual revenue (VND mil.)						
22	Household	[2 * 17]		12,809	13,833	14,940	18,447
23	Administrative offices, government offices	[3 * 18]		2,147	2,318	2,504	3,092
24	Service and trading units	[4 * 19]		124	134	144	178
25	Production units	[5 * 20]		544	588	635	784
26	Total wastewater revenue (VND mil.)	[22+23 + 24 + 25]		15,624	16,873	18,223	22,501
27	Required subsidy from CPC (VND mil.)	[8 - 26] ideally,, this must be zero or negative which means no subsidy		-313	888	747	-450

Note: * Year 2013: all operation and maintenance cost + full depreciation expense