

## **TABLES**



Table H.1.1.1 Public Awareness Activities by EPA Ploiesti (1)

Year	Brief description of the activity	Products of the activity
1997	Information dissemination for the citizens of Ploiesti and Prahova County on environmental quality	Daily reports on air quality were sent to 4 local newspapers and 2 local radio stations.
	Presentation on the soil and underground water pollution in the southern area of Ploiesti and Campina.	Videotapes
	International Environment Day 1997: awareness campaign on environmental protection; 100 posters and 100 folders	TVR 1 transmission (10 minutes) Posters and folders were prepared and distributed with the help of NGO, People and Environment.
	Information campaign on community behavior and environmental protection	4 live transmissions at the local radio Q & A with listeners
	Public debate regarding the impact of industrial pollutants to promote the civic spirit of the community	4 debates with the citizens from Comarnic, Azuga, Busteni, Valeni de Munte.
	Information dissemination for the citizens on the main pollution problems in Prahova County and on the EPA activities through frequent interviews with local press, radio and television	Numerous articles in local daily papers, radio and TV shows
	Presentation on the complex pollution in Valea Calugareasca and SC ROMFOSFOCHIM SA activity, a series of articles in the press and TV show	A series of 6 articles in "Prahova Telegraph," 10 minutes videotapes for TV Antena 1
	Awareness campaign for drivers on engine verification and adjustment, and on the reduction of exhaustion	Testing cars with the cooperation of the police department Articles and shows

Source: EPA Ploiesti

Table H.1.1 Public Awareness Activities by EPA Ploiesti (2)

Year Month	Brief description of the activity	Products of the activity
1998	Information dissemination on environmental problems in Prahova County by publishing EPA activities in the press	A daily special page in a local newspaper
	Ecology course "Life in Community" at the University of Ploiesti	Monthly free course for 10-15 persons
	Educational courses for the member of NGO, ECO-VALAHIA on environmental problems (air, water and soil pollution), pollution sources and its countermeasures	35 certified environmental volunteers
	Raising public awareness on individual waste deposits from ROMFOSFOCHIM- Valea Calugareasca	TV show (national channel) Articles in newspapers
	International Environment Day 1998: educational campaign for pupils on environmental problems – drawing contests, scientific papers, taking care of school garden, and talks with pupils	Meetings between EPA inspectors and pupils from 12 schools
8	International Environment Day 1998: certification of the first group of environmental volunteers (MWFEF order # 194/96) graduated from the special courses offered by NGO, ECO-VALAHIA	35 environmental volunteers
	International Environment Day 1998: popularization campaign on the first local scheme (Ploiesti) of recyclable waste collection	1000 folders, newspaper articles, radio and TV shows
	Educational campaign on oil waste collection	Folders, articles, radio and TV shows
8-9	Informational campaign on the ozone layer protection, in cooperation with School Board and NGOs	Drawing contests for children, 1000 posters and folders, articles, radio and TV shows
7-12 (planned)	Educational campaign for green areas and vegetation in the cities, and tourist education, in cooperation with NGO, ECO-VALAHIA and Biology Museum in Ploiesti	Meetings with pupils, folders, articles in the newspapers, radio and TV shows
6-12 (planned)	Album production on Bucegi natural reservation to popularize the area, and ecological education for the tourists.	1000 albums of Bucegi reservation

Source: EPA Ploiesti

**Table II.1.2 "Local Implementation of AGENDA 21"(1)**

**List of Participants**

**NCSD / UNDP - Environmental Know How Fund - TIMCED, Ploiesti**

No.	Name	Institution / Organization
1	Greg Archer	WS Atkins Environment
2	Chris Church	United Nations Environment & Development UK Committee, UNED-UK
3	Roxana Albu	National Confederation of Women from Romania
4	Constantin Aldea	NGO - "Friends of Danube Delta"
5	Cornelia Bar	Foundation for Local Development - Buzau
6	Alina Briciu	FDDT "Green Vacation" - Buzau
7	Adrian Baceanu	EPA Ploiesti
8	Eduard Beca	National Agency for Development and Implementation - Reorganization Programe for Mining Areas, Ploiesti
9	Cadar Bectas	EPA Tulcea
10	Teodor Bate	City Hall, Targoviste
11	Cristina Boghiu	EPA Bacau
12	Ciprian Capalnean	City Hall, Baia Mare
13	Ioana Celahov	ROMSPECTRA Bucuresti
14	Constantin Cernat	Foundation "Youth for Youth", Bucuresti
15	Tiberiu Chiriac	City Hall, Sibiu
16	Valeria Ditoiu	EPA Suceava
17	Calin Georgescu	National Center for Sustainable Development (NCSD/PNUD) - Bucuresti
18	Adrian Georgescu	NGO - "People and Environment"
19	Sorin Hant	NGO - Training, Information and Mediation Center for Eco-Development (TIMCED) Ploiesti
20	Alina Inayeh	ProDemocratia Asociation, Bucuresti
21	Serban Homoraceanu	EPA Ploiesti
22	Bogdan Macarescu	EPA Bacau
23	Toma Manciu	Romanian Ecological Foundation , Bucuresti
24	Gheorghe Manea	ARMEDD Bucuresti
25	Mirela Micu	EPA Giurgiu
26	Dumitru Mihu	National Center for Sustainable Development(NCSD/PNUD) - Bucuresti
27	Luminita Mirodotescu	County Council Prahova
28	Vania Mitiloaga	APDF RA Giurgiu
29	Cristina Motoi	NGO- Training, Information and Mediation Center for Eco-Development (TIMCED) Ploiesti
30	Vasile Moisa	CETM Albamont , Alba Iulia
31	Ion Munteanu	ARBDD Tulcea
32	Marius Nistorescu	"Rhododendron", Bucuresti
33	Ion Olteanu	Romanian Government - Departament for the relation: Government - NGOs
34	Gabriel Parauan	NGO - Transilvania Ecological Club, Cluj Napoca
35	Ion Peleanu	INCDUAT / APUR, Bucuresti
36	Vasile Petro	EPA Constanta
37	Gabriela Pop	Prahova Women's Association
38	Aura Prunache	NGO - "People and Environment"
39	Mariana Radulescu	NGO - "Green Shield - Saturn Federation," Ploiesti
40	Aldo Quai	NGO - "Ecotop" Foundation, Oradea

**Table H.1.2 "Local Implementation of AGENDA 21" (2)**

No.	Name	Institution / Organization
41	George Romanca	National Center for Sustainable Development(NCSD/PNUD) - Bucuresti
42	Istvan Sido	AIDRom, Bucuresti
43	Ciprian Stanciu	NGOs - "Queen Flower", Sinaia ; Romanian Environment Center, Busteni
44	Dana Stanciu	NGO - CENTRAS, Bucuresti
45	Cerasela Stancu	NGO - TER, Bucuresti
46	Luminita Stoica	Public Health Authority Prahova
47	Jana Suler	URBANPROIECT Bucuresti
48	Cosmin Teodoru	Romanian Government - Departament: Local Public Administration
49	Horia Victor Toma	City Hall Ploiesti
50	Radu Vadineanu	National Center for Sustainable Development(NCSD/PNUD) - Bucuresti
51	Gavril Vaslaban	EPA Giurgiu
52	Iva Vajda	NGO - Focus Eco-Center , Targu Mures
53	Daniela Vasile	Prahova County
54	Mihaela Vasilescu	Public Health Authority Prahova
55	Raluca Vasilescu	ROMEXPO / CCIRB Bucuresti
56	Florin Vasiliu	NGO - ECOSENS Bucuresti
57	Carmen Vericeanu	"Equal Chance for Women" Foundation, Iasi
58	Ion Const. Zamfir	"Earth Friends" Foundation, Galati

No.	Media	Name
1	Bogdan Constantinescu	ANTENA 1 - TV
2	Simona Uta	ROMPRESS, Romania News Radio
3	Marilena Nitu	PRO TV, Ploiesti
4	Cristian Mihu	Romanian International Radio
		"Informatia Prahovei" - newspaper
5	C. Pantazi, M. Serban	"Telegraful de Prahova" newspaper
		"Prahova" Radio

Sources: Training, Information and Mediation Center for Eco-Development (TIMCED) Ploiesti

Table H.1.3 "Pilot Project for the City of Ploiesti and Prahova County"

List of Participants

Name	Positions and Institutions/Organizations
Romica Tomescu	Minister of Waters, Forests and Environmental Protection
Romeo Hanganu	Prefect, Prahova County
Leon Dumitru	Vice Prefect, Prahova County
Traian Turcan	Director, Processing Dept. in the National Petroleum Society SNP - Petrom
Serban Ionescu-Homoroceanu	Director, Environmental Protection Agency Ploiesti
Valeria Placinta	Director of the Romanian Waters Authority - Ploiesti Branch
Napoleon Antonescu	President of the "Petroleum-Gas" University and Prahova Deputy in the Romanian Parliament
Mircea Munteanu	Prahova Deputy in the Romanian Parliament
Pascu Coloja	President of the Board of the National Petroleum Society SNP-Petrom and Dean of the Oil Drilling and Production Faculty in the "Petroleum-Gas" University
Adrian Nastasi	General Manager
Adrian Georgescu	Head of Environmental Protection Dept., INCERP- Ploiesti- Branch of National Petroleum Society SNP-Petrom
Constantin Bentz	General Manager of OilReg Rimnicu Sarat
Liviu Barbu	General Manager of the Romanian branch of Unocal '76

Sources: INCERP - Ploiesti

Table H.1.4 Environmental NGOs in Prahova County

No.	Name, Location and Year of Foundation	Membership	Main Activities
1	"GREEN SHIELD" ECOLOGICAL GROUP - SATURN FEDERATION Ploiesti, 1992	20	Protection of the citizens' rights to a clean and healthy environment Promotion of the citizens' initiatives concerning the preservation of a clean environment
2	"GREEN SHIELD" ECOLOGICAL GROUP Ploiesti, 1993	55	Forestry, ecological education Legislation
3	TRAINING, INFORMATION AND MEDIATION CENTER for ECO-DEVELOPMENT (TIMCED) Ploiesti, 1993	22	Environmental conflict resolution
4	"PEOPLE AND ENVIRONMENT" Ploiesti, 1994	35	Pollution impact assessment Management for NGOs
5	"LYNX" - ECOLOGICAL TOURISM AND MOUNTAINEERING CLUB Ploiesti, 1997	15	Development of ecologic tourism and mountain sports Environmental protection projects
6	ECO - VALAHIA Ploiesti, 1997	85	Training for environmental volunteers Waste products collection
7	THE CULTURAL-SPORTIVE-ECOLOGIC ASSOCIATION of THE FOREST SCHOOL GROUP Campina	N/A	An increase in the education level of the pupils in the FOREST SCHOOL GROUP
8	"NATURE AND US" Campina, 1992	25	Environmental education Protection of natural resources and the ecosystem
9	"SILVA" TOURISM CLUB Campina, 1993	29	Promotion of new relationship between tourism-ecology-people
10	ECO VALEA PRAHOVEI Busteni, 1990	500	Biodiversity, Education, Environmental Protection
11	ROMANIAN ENVIRONMENTAL CENTER Busteni, 1997	3	Ecological education Touristic informations, advice on environmental problems
12	QUEEN'S FLOWER ENVIRONMENTAL CLUB Sinaia, 1996	25	Public participation
13	ROMANIAN ECOLOGISTS and RADIO AMATEURS Azuga, 1993	246	Education, Information campaign

Sources: Romanian NGOs Catalogue 1997

Regional Environmenta Center (REC) - Romania (1996)



**Table H.1.5 Communications Media in Prahova County \***

Year	1994	1995	1996
Radio broadcasting stations	3	3	7
Radio receivers	106,438	112,530	125,657
TV broadcasting stations	16	16	4
Television receivers	179,800	184,661	183,642
The number of receivers/1000 inhabitants			
radio	122	129	174
TV	206	212	212

\* Total number of telephone lines in use, in Prahova County = 150,446 (1998)

Sources: Prahova Statistical Department

**Table II.2.1 Educational Institutions, Pupils, and Teachers in Prahova County**

**The Number of Institutions at the Beginning of the School Year**

Year	1994/1995	1995/1996	1996/1997
The total number of schools, out of which:	941	937	925
Kindergardens	415	414	408
Primary and gymnasium schools	420	416	416
Higher schools	41	41	42
Vocational schools	28	27	26
Specialized technical schools	30	30	25
Universities	1	3	2
Schools for children with handicaps	6	6	6

**The Number of Pupils at the Beginning of the School Year**

Year	1994/1995	1995/1996	1996/1997
The total number of pupils, out of which:	161,780	162,595	158,953
in kindergardens	23,774	22,452	19,379
in primary and gymnasium schools	90,751	90,944	91,324
in higher schools	28,449	29,194	29,477
in vocational schools	8,869	9,233	8,364
in specialized technical schools	1,698	2,073	2,757
in apprentice schools	3,754	3,793	2,546
in universities	3,681	4,068	4,241
in schools for children with handicaps	804	838	865
The total number of pupils / 10000 inhabitants	1,849	1,865	1,831
children in kindergardens	272	257	223
pupils (age between 6/7 - 18/19 years)	1,535	1,561	1,559
students	42	47	49

**The Number of Teachers at the Beginning of the School Year**

Year	1994/1995	1995/1996	1996/1997
The total number of teachers	9,387	9,539	9,831
in kindergardens	1,098	1,109	1,109
in primary and gymnasium schools	5,329	5,414	5,537
in higher schools	2,165	2,210	2,316
in vocational schools	180	186	175
in specialized technical schools	37	26	83
in apprentice schools	130	127	62
in universities	263	270	350
in schools for children with handicaps	185	197	199
The average number of pupils(students) / a teacher			
in kindergardens	22	20	17
in schools	17	17	16
in universities	14	15	12

Sources: Prahova Statistical Department

**Table H.2.2 "Each Household - a Step against Pollution"**  
**List of Participants**

Institutions/Organizations	No.
Romanian Water Authority Headquarters Bucuresti	1
Romanian Water Authority - Ploiesti Branch	23
Environmental Protection Agency - Ploiesti	4
Public Health Authority - Prahova	2
R.A.A.C.F.L. - Ploiesti	2
R.A.A.C.F.L. - Campina	3
City Hall - Campina	1
Prahova Women's Association	2
National Confederation of Women from Romania	1
Teachers	1
Students	3
Housewives	3
S.C. AQUA PROIECT S.A. - Bucuresti	1
S.C. A.D.E.F. S.A. - Ploiesti	1
Children's Club - Ploiesti	1
National Center for Sustainable Development - Bucuresti	1
"Natural Science" Museum - Ploiesti	1
NGOs	8
<b>TOTAL</b>	<b>59</b>

Media	Name	No.
Newspapers	Prahova	2
	Telegraful de Prahova	2
	Muntenia Telegraf	2
	Informatia Prahovei	1
	Jurnalul de Prahova	2
	Raid	1
	Socul Cotidian	1
	<b>TOTAL</b>	<b>11</b>
TV Stations	PRO TV	2
	TC 1	2
	<b>TOTAL</b>	<b>4</b>
Radio Stations	Radio Prahova	1
	Radio Contact	1
	Media PRO	1
	<b>TOTAL</b>	<b>3</b>

Table H.2.3 Budget for Public Awareness Activities

Method	Items	Cost per item	No. of item	Total (US\$)
Reports (Annual Water Report)	100 pages (black & white; 90, color:10)	15	100	1,500
Radio	Radio spot (30 seconds) for a week	34 (Radio Prahova) 45 (Contact)	4 weeks for Water Month	136 180
Newspaper	½ page advertisement per day	159 (Prahova) 119 (Șocul cotidian)	1 day 1 day	159 119
	¼ page advertisement per day	88 (Prahova) 66 (Șocul cotidian)	1 day 1 day	88 66
Educational kits	20 pages with color map (b&w: 10, color:10)	7	500	3,500
Exhibitions	Enlarged photos and maps Facility	5	30	150 N/A
Workshop/Training for 20 persons (Source: TIMCED Ploiești)	Organizing fees, trainer's fee, rental of training room <sup>1</sup> & equipment, food, lodging <sup>2</sup> , travel, supplies, course materials, copies, and communication (for 3 days or 4 days)	4,600 5,400  3,400 4,000 (No travel, lodging, and full board expenses)	3 days 4 days  3 days 4 days	4,600 5,400  3,400 4,000

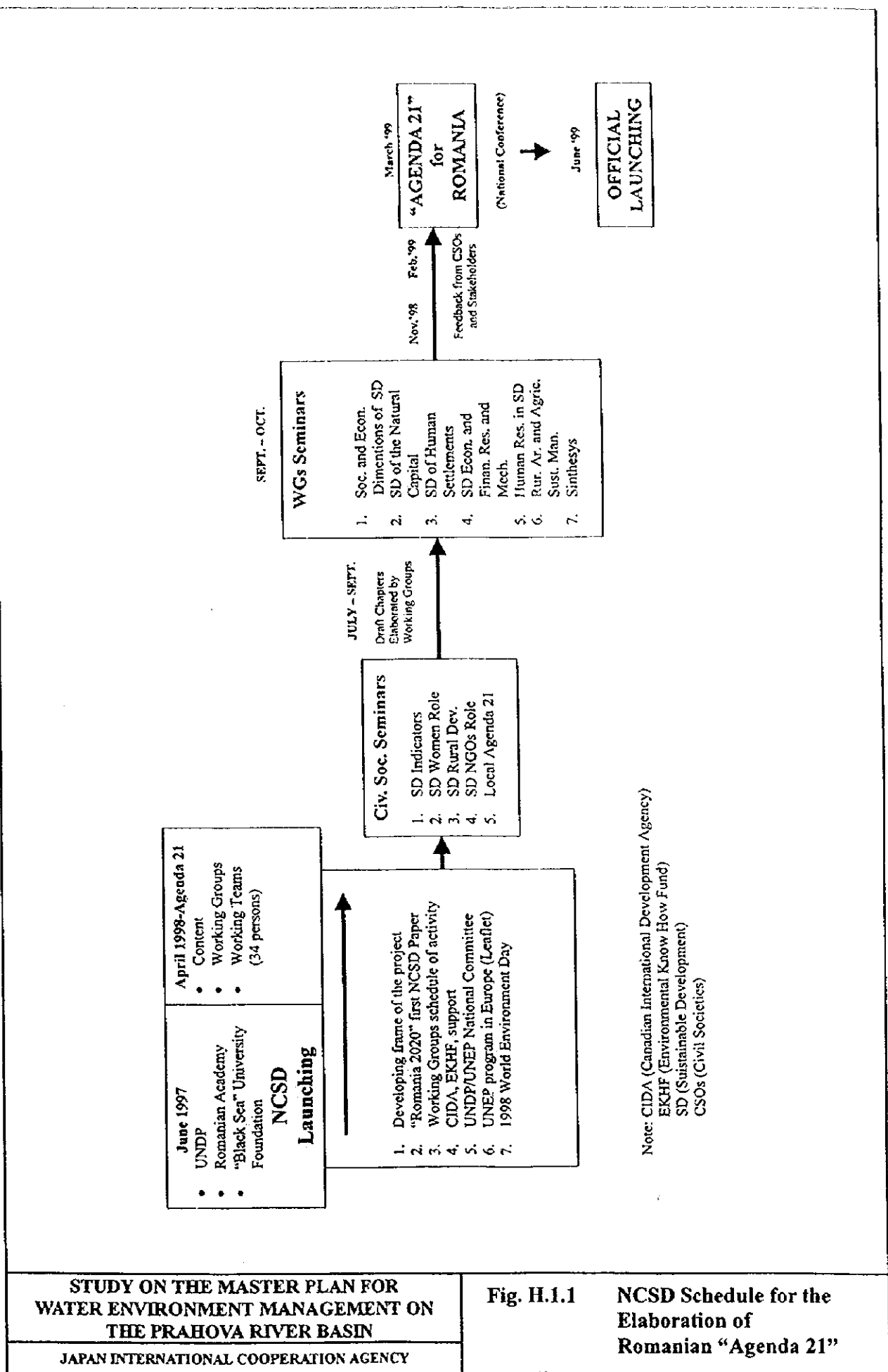
Note: 1 lei = US\$700

<sup>1</sup> TIMCED has access to university facilities. If training is held at hotel, the rental cost will increase.

<sup>2</sup> TIMCED uses university lodging that is relatively cheaper than other lodging options.

## **FIGURES**





STUDY ON THE MASTER PLAN FOR  
WATER ENVIRONMENT MANAGEMENT ON  
THE PRAHOVA RIVER BASIN

JAPAN INTERNATIONAL COOPERATION AGENCY

Fig. H.1.1

NCS D Schedule for the  
Elaboration of  
Romanian "Agenda 21"





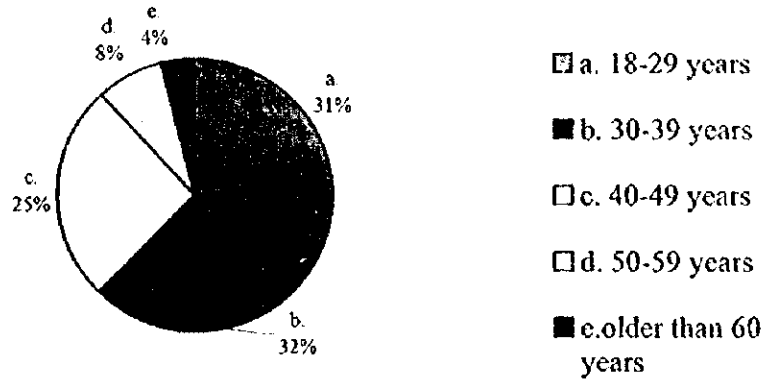
## **ATTACHMENT**



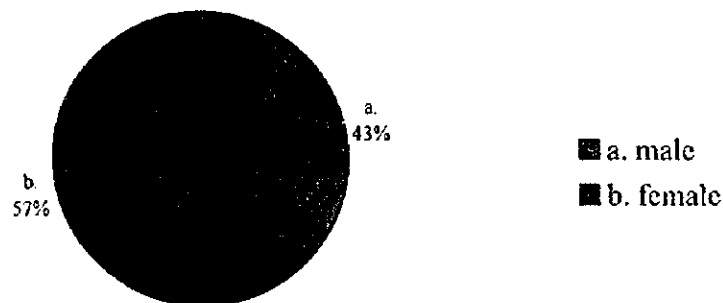
## Attachment

## Results of Questionnaire

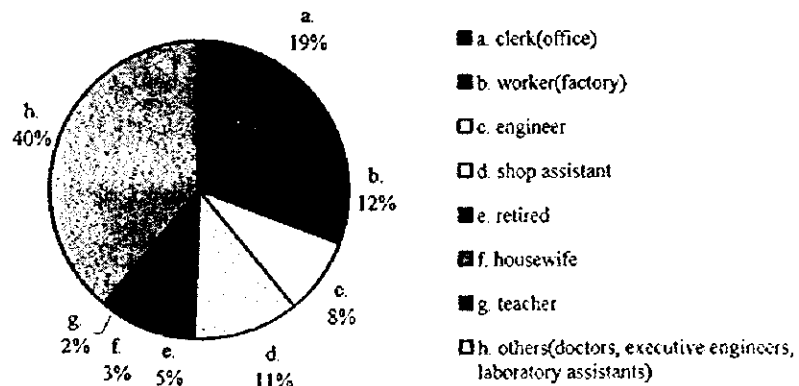
### Q1. How old are you?



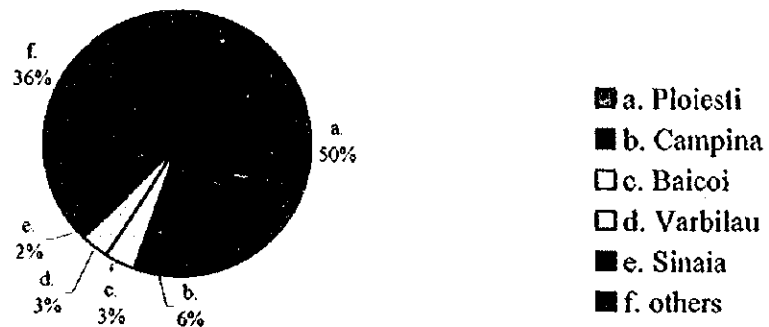
### Q2. What is your sex?



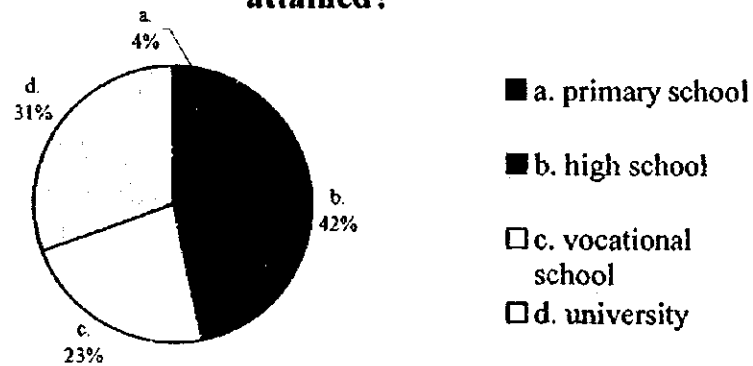
### Q3. What is your occupation?



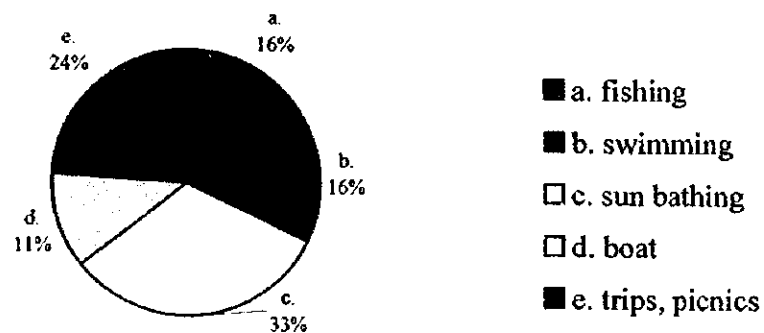
**Q4. Which city/town do you live in Prahova County?**



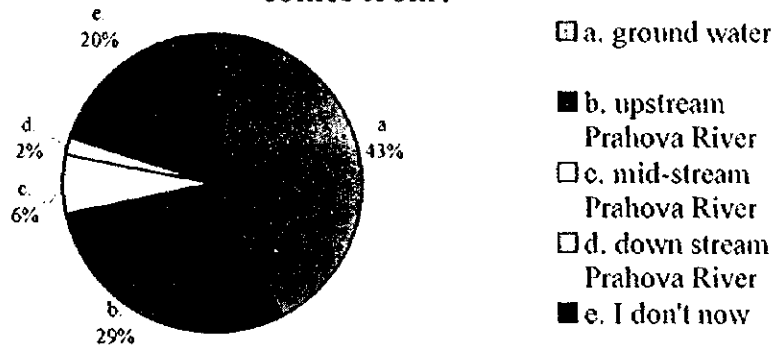
**Q5. What level of education have you attained?**



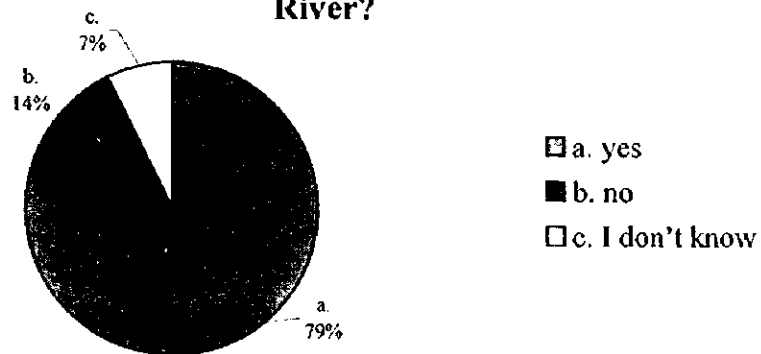
**Q6. Have you ever enjoyed the following activities in or near the Prahova River?**



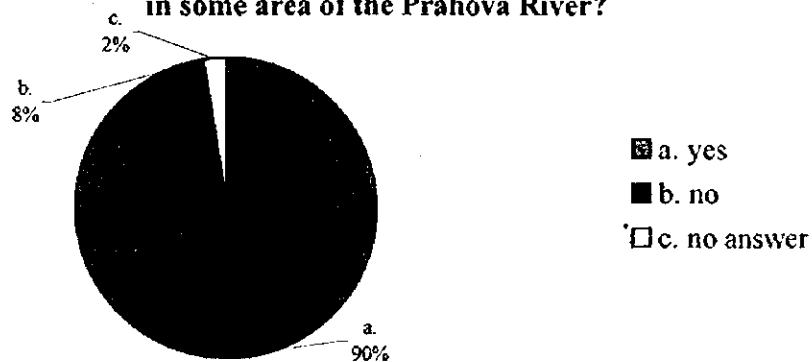
**Q7. Do you know where your tap water comes from?**



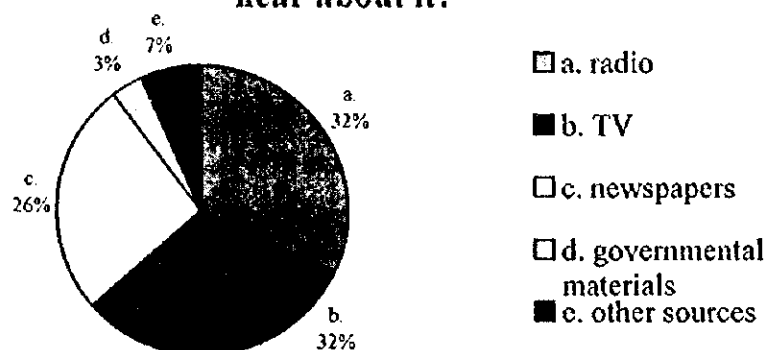
**Q8. Do you think that fish live in the Prahova River?**



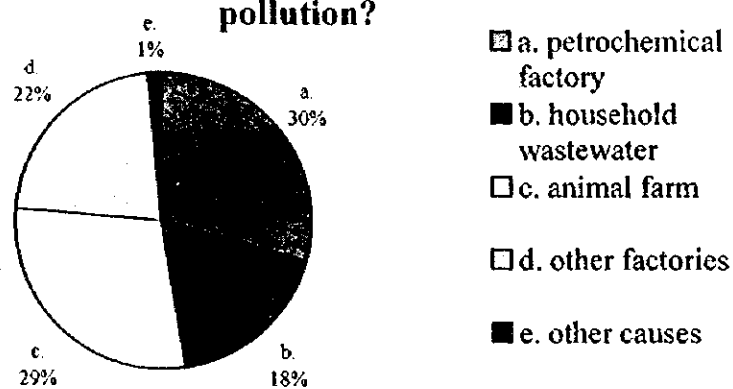
**Q9. Have you heard about water pollution problems in some area of the Prahova River?**



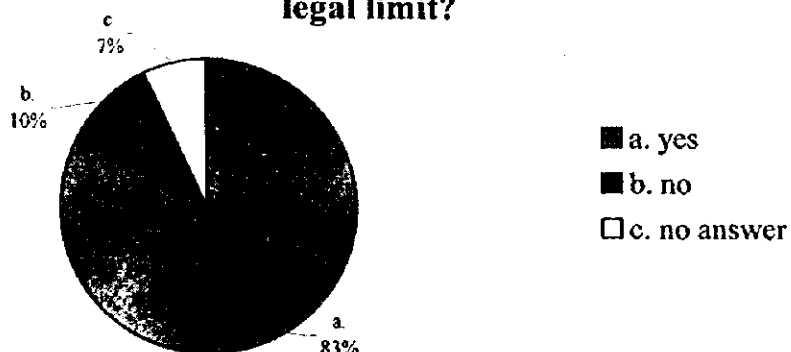
**Q10. If you answer "yes" to Q9, how did you hear about it?**



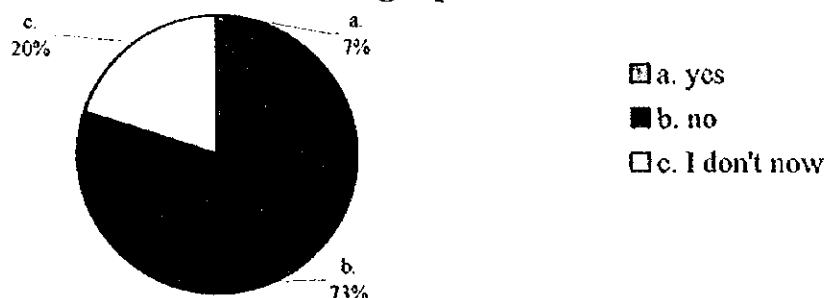
**Q11. Do you know the causes of the water pollution?**



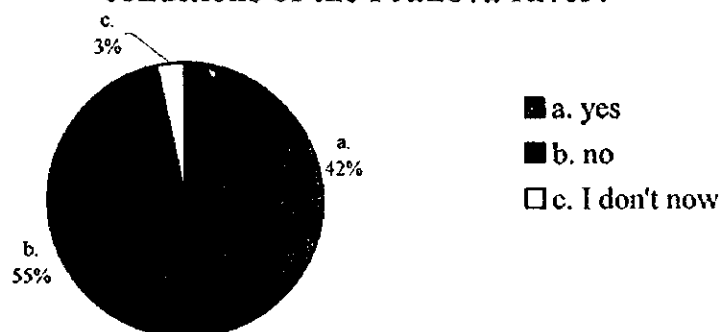
**Q12. Do you know that factories cannot discharge pollutants into the River beyond its legal limit?**



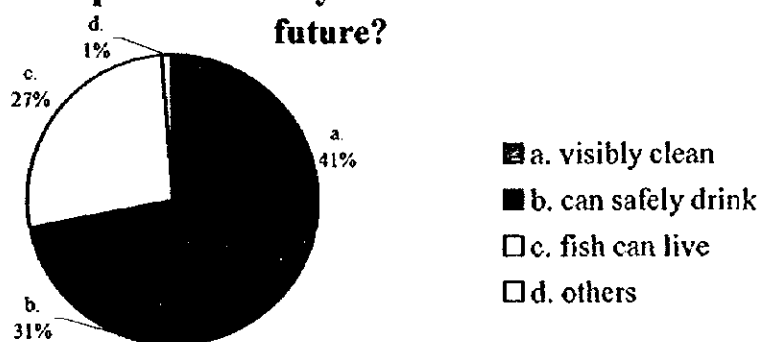
**Q13. If you answer "yes" to Q12, do you think that factories are currently complying with the legal permit?**



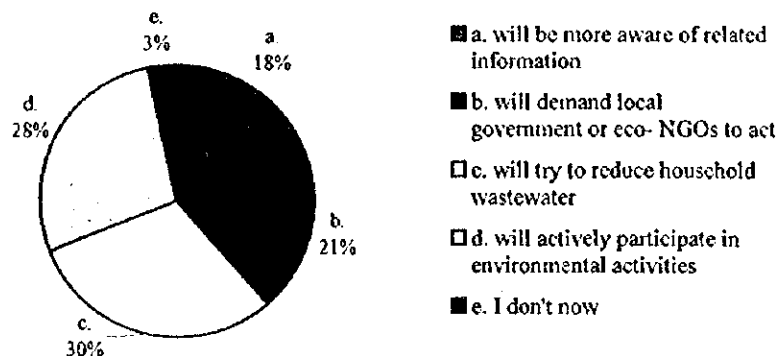
**Q14. Are you satisfied with the current conditions of the Prahova River?**



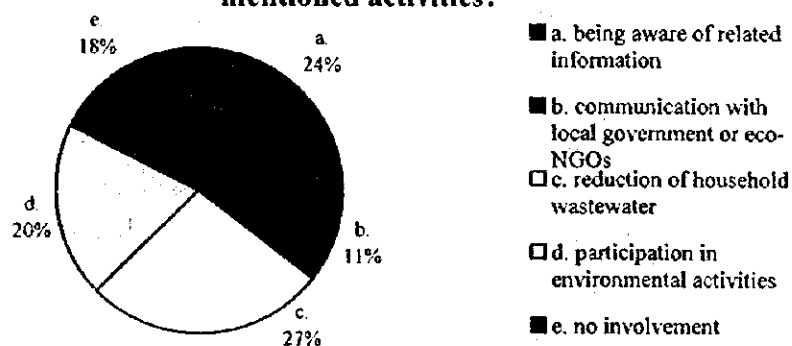
**Q15. If you answered "no" to Q14, what level of improvement do you want to see in the future?**



**Q16. What would you like to do in order to improve the water quality of the Prahova River?**



**Q17. Have you already been involved in the above mentioned activities?**





## ***APPENDIX I***

---

### ***ECONOMIC AND FINANCIAL EVALUATION***

---



# APPENDIX 1

## ECONOMIC AND FINANCIAL EVALUATION

### Table of Contents

<b>CHAPTER I</b>	<b>ECONOMICAL BENEFITS.....</b>	<b>I-1</b>
1.1	General.....	I-1
1.2	Recovery of Water Environmental Losses.....	I-1
1.3	Prevention of Tourism Income Loss.....	I-1
1.4	Cost Saving of Industrial Water Use.....	I-2
1.5	Prevention of Agricultural Production Loss.....	I-2
1.6	Total Economic Benefit.....	I-3
<b>CHAPTER II</b>	<b>FINANCIAL ANALYSIS.....</b>	<b>I-4</b>
2.1	General.....	I-4
2.2	Development of Sewerage System.....	I-4
2.3	Development of Industrial Wastewater treatment.....	I-7

### List of Tables

Table I.1.1	Willingness to Pay to Water Quality Improvement (Ploiesti).....	I-T1
Table I.1.2	Result of Totaling of the Questionnaire.....	I-T2
Table I.1.3	Result of Totaling of Questionnaire to Tourists in Sinaia.....	I-T5
Table I.2.1	Cash Flow Table.....	I-T9
Table I.2.2	Cash Flow for Industrial Wastewater Treatment (in case of 0.7%).....	I-T13



## **CHAPTER I    ECONOMICAL BENEFITS**

### **1.1    General**

Beneficial effects of a water pollution control project are mostly intangible and it is generally difficult to estimate the benefits in monetary term. However, the Study Team tried to estimate the benefits of the proposed project in monetary term to the possible extent. The Team estimated the following economic benefits in monetary term in due consideration of the existing water uses and predicted future river water quality

- (a)    Recovery of water environmental losses
- (b)    Prevention of tourism income loss
- (c)    Cost saving of industrial water use
- (d)    Prevention of agricultural production loss.

### **1.2    Recovery of Water Environmental Losses**

Many environmental losses are generated by the river water pollution at present. They include outbreak of waterborne disease, decrease or extinct of aquatic lives, loss of recreational value, emission of foul smell, reduction of water and land use potential, etc. These losses are all intangible. Hence, the losses were estimated as a whole through questionnaire to the residents in this study. The questionnaire survey was made in the form of asking the amount of willingness to pay to recover the river water quality up to a desired level.

The average willingness to pay per month of the questionnaire respondents was 10,199 lei/month, equivalent to 0.83% of the average income of the respondents (1.23 million lei/month). The result of questionnaire to people in Ploiesti to willingness to pay for river water improvement and the result of totaling of the questionnaire are shown in Table I.1.1 and I.1.2

On the other hand, the entire population of the Basin is not a beneficiary of the water environment resources. The beneficiaries are assumed to be limited to the residents of the 30 riverine municipalities of the Prahova River. Further, the beneficial population is assumed also to be limited to the adult population since only adult people earn the above-mentioned income. Then, the number of beneficiaries comes to 285,500.

The total benefit is estimated at 34,946 million lei/year (US\$ 4,016 thousand/year).

### **1.3    Prevention of Tourism Income Loss**

The Prahova valley is blessed with abundant tourism resources composed of forest, river, fresh air, snow, historical assets, etc. The value of these tourism resources will decrease if the river water quality becomes worse in the future. This will result in loss of the tourism income in the valley. The proposed project will prevent this income loss in the tourism industry.

The Study Team estimated the beneficial effects of the river water quality improvement on the tourism industry through the interview survey with the tourists. The results show that:

- (1) The respondents gave a weight of 14% of the total tourism resources on the river and water.
- (2) Thirty-four percent (34%) of the respondents answered that they would not come again if the river water pollution goes on in the future.

In 1996, approximately 295,000 tourists (person x day) visited the Prahova valley. Number of tourists is projected to grow up to 612,000 in 2015 (see, Chapter II, 2.2.3).

On the other hand, the average daily tourist expenditure was obtained to be 182,600 lei/day/person through the interview survey. This daily tourist expenditure is assumed to grow in direct proportion to the growth of GRDP in the Basin, reaching 338,500 lei/day/person in 2015. (For the annual growth rate of GRDP, see Chapter II, 2.2.3).

From the above discussions, the economic benefit of tourism industry in 2015 is estimated at 9,930 million lei/year (US\$1,128 thousand/year).

The result of totaling of the questionnaire is shown in Table I.1.3.

#### **1.4 Cost Saving of Industrial Water Use**

S.C. Petrobrazi S.A. and F.E. Ploiesti extract the industrial water from the Nedelea Weir in the middle reaches of the Prahova Main River. The total industrial water extraction is projected to increase from 15,145,000 m<sup>3</sup>/year in 1997 to 29,518,000 m<sup>3</sup>/year in 2015.

On the other hand, the river water quality at Nedelea is predicted to become worse from 7 mg/l in 1997 to 12 mg/l in 2015 in terms of BOD if no water pollution control measures are taken. In such case, both factories must shift the water source from Nedelea to Voila in Dofstana River or Valenii de Munte in Teleajen River, resulting in increase of water supply cost. This cost increase can be saved by the proposed project. In fact, the proposed project will control the future water quality below 7 mg/l in BOD which is suitable for industrial use.

The present unit water supply cost is 142,607 lei/1,000 m<sup>3</sup> for Nedelea and 414,758 lei/1,000 m<sup>3</sup> for Voila and Valenii de Munte.

From the above discussions, the cost saving of the industrial water use in 2015 is estimated at 8,033 million lei/year (US\$ 913 thousand/year).

#### **1.5 Prevention of Agricultural Production Loss**

There are four (4) irrigation intakes commanding a total farmland of 7,928 ha in the Prahova River including the future rehabilitation plans. However, all the irrigation intakes are located in the middle reaches of the Prahova Main and Teleajen rivers. The future river water quality at the irrigation intake sites is estimated below 12 mg/l in BOD even if no water pollution control measures are taken.

The beneficial effects of the proposed project are accrued only from the irrigation water use in the Ialomita River. The river water quality at the confluence to the Ialomita River (at Adincata) is predicted to become worse from 14mg/l in 1997 to 24 mg/l in 2015 in terms of BOD if no water pollution control measures are taken. While, the proposed project will control the future river water quality below 12 mg/l in BOD.

In the Ialomita River, river water is used to irrigate a farmland of 900 ha at present. The future water pollution without project will lose all the agricultural production of this farmland. The proposed project will prevent this production loss. Hence, the existing agricultural production profit is counted as the benefit of the proposed project.

The benefit is estimated at 473 million lei/year (US\$ 54 thousand/year) under the following assumptions.

Crop	: Wheat
Annual Production	: 2,700 ton
Unit Sales Price	: 1,000 lei/kg
Profit Rate	: 17.5 %

## 1.6 Total Economic Benefit

The total annual economic benefit of the proposed project in 2015 is estimated at US\$6.1 million with the following breakdown.

Item	(US\$ 1,000/year)
Recovery of Water Environmental Loss	4,016
Increase of Tourism Income	1,128
Cost Saving of Industrial Water Use	913
Increase of Agricultural Production	54
<b>Total</b>	<b>6,111</b>

The project may produce a lot of benefits other than the above ones. However, they are all intangible.

## CHAPTER II FINANCIAL ANALYSIS

### 2.1 General

Financial analysis for the project is made for development of sewerage system and development of industrial wastewater treatment facilities.

### 2.2 Development of Sewerage System

#### (1) Existing Sewerage Charge

The sewerage systems in the Basin receive the domestic wastewater (including offices, shops, restaurants, public facilities, etc.) and industrial wastewater with different unit service charges, respectively. The existing wastewater quantity and unit service charges (as of January 1998) of 13 major sewerage systems are shown below.

	Quantity (1,000 m <sup>3</sup> /year)		Unit Charge (lei/m <sup>3</sup> )	
	Domestic	Industrial	Domestic	Industrial
Predeal	602.3	0.0	120	0
Azuga	542.4	15.8	125	275
Busteni	741.1	116.7	90	160
Sinai	1,226.8	1,100.6	140	405
Breaza	920.9	611.8	170	270
Cimpina	3,544.6	2,245.4	110	125
Baicoi	495.1	394.2	70	70
Plopieni	829.4	1,510.6	95	165
Slanic	246.0	0.0	290	490
Valenii de Munte	324.8	18.9	130	245
Boldesti Scaieni	375.3	321.7	155	245
Urlati	510.9	78.8	195	270
Ploiesti	29,710.1	5,313.8	120	120

The above unit service charges were determined to cover the required O&M cost with permission of the price control office of the central government in principle.

The weighted average unit sewerage charge of all sewerage systems is calculated to be 122 lei/m<sup>3</sup> for domestic waste and 165 lei/m<sup>3</sup> for industrial waste.

In the above sewerage systems, Azuga and Busteni have no treatment plant and Ploiesti has a low-level treatment plant consisting of only sedimentation process. Hence, the weighted average unit sewerage charge of the complete sewerage system is calculated by excluding these three (3) municipalities. The average unit sewerage charge of the Basin for the complete sewerage system is estimated at 129 lei/m<sup>3</sup> for domestic waste and 203 lei/m<sup>3</sup> for industrial waste. These unit sewerage charges are used as the bases for calculating the affordable sewerage charge of the Basin in this study.

#### (2) Affordable Sewerage Charge under Existing Economic Situation

##### (a) Domestic Waste

The affordable sewerage charge for domestic waste is estimated, comparing to the existing unit sewerage charge and the results of willingness to pay survey.



(i) Based on Existing Unit Charge

The above 13 sewerage systems treat a total domestic wastewater volume of 40,070,000 m<sup>3</sup>/year, serving 312,880 persons at present. The charged domestic wastewater per capita comes to 10.67 m<sup>3</sup>/month/person. Then, the average monthly sewerage charge per household is estimated at 4,268 lei/month by assuming the average family size of the Basin as 3.1 persons/household.

On the other hand, the average household income in the Basin is estimated at 1,811,576 lei/month as of December 1997.

The existing monthly sewerage charge is equivalent to 0.24% of the monthly income.

(ii) Based on Willingness to Pay

According to the willingness to pay survey, adult questionnaire respondents answered that they would pay 0.83% of their income for the water quality improvement of the Prahova River at the maximum. This rate becomes 0.54% when the rate of the questionnaire survey is converted into the rate for a household income.

From the above discussions, the affordable sewerage charge of a household is assumed to be 0.4% of the household income by averaging the above two (2) cases. Then, the affordable unit sewerage charge of domestic waste comes to 219 lei/m<sup>3</sup> (=1,811,576 lei/month x 0.004 ÷ 10.67 m<sup>3</sup>/month/person ÷ 3.1 person).

(b) Industrial Waste

The affordable unit sewerage charge of industrial waste is obtained by multiplying the proposed unit charge of domestic waste by the ratio between actual domestic and industrial unit charges. The affordable unit sewerage charge is calculated to be 344 lei/m<sup>3</sup> (=219 x 203 / 129).

(3) Affordable Sewerage Charge under Future Economic Situation

The future affordable unit sewerage charge for domestic waste is assumed to increase in proportion to the growth of per capita GDP. GRDP of the Basin is predicted to increase at an annual rate of 4.2% (0.0% until 2000, 4.2% for 2001-2015), while, the population growth is assumed to be 0.5% per annum (0.0% until 2000, 0.5% for 2001-2015). Then, per capita GDP will increase at an annual rate of 3.68% (0.0% until 2000, 3.68% for 2001-2015).

The future affordable unit sewerage charge for industrial waste is assumed to increase, maintaining the same rate to the domestic waste under the present economic situation.

(4) Financial Evaluation

(a) Sewerage Revenue and Cost Disbursement

In the Basin, there are two (2) communal sewerage systems other than the above 13 sewerage systems at present. Further, Comarnic town will construct a new

sewerage system in the future. Then, the total charged sewerage wastewater volume is estimated at 52,539,000 m<sup>3</sup>/year at present (1997-2000) and 77,434,000 m<sup>3</sup>/year in 2015. The wastewater volume is assumed to proportionally increase during 2000-2015 and thereafter, constant.

The expected annual sewerage revenue in the future is estimated below by applying the above-mentioned affordable sewerage unit charges.

Year	Unit Charge (lei/m <sup>3</sup> )		Volume (10 <sup>3</sup> m <sup>3</sup> /yr.)		Annual Revenue	
	Domestic	Industry	Domestic	Industry	(million lei/yr.)	(US\$ 10 <sup>3</sup> /yr.)
- 2000	219	344	40,659	11,880	12,994	1,477
2005	262	412	46,170	14,668	18,176	2,065
2010	314	494	51,680	17,455	24,888	2,828
2015	377	592	57,191	20,243	33,545	3,812
2016 -	377	592	57,191	20,243	33,545	3,812

Exchange rate: 1 US\$=8,800 lei

On the other hand, the disbursement schedule of the sewerage development cost and annual O&M cost are summarized below.

Year	Development Cost (US\$ 1,000)	Ave. Annual O&M Cost (US\$ 1,000/yr.)
- 2000	-	-
2001 - 2005	12,714	1,178
2006 - 2010	15,910	1,532
2011 - 2015	18,036	1,948
2016 -	-	2,641

For the cash flow, see Appendix I, Chapter III.

(b) Financial Internal Rate of Return

The sewerage development of the Basin is evaluated in terms of financial internal rate of return (FIRR). As known from the above tables, the annual O&M cost is sufficiently covered by the expected annual revenue. Then, the FIRR is calculated for the following four (4) cases.

Cost Coverage	FIRR (%)
(1) All development cost and O&M cost	0.19
(2) 50 % of development cost and O&M cost	5.77
(3) 40 % of development cost and O&M cost	8.57
(4) 30 % of development cost and O&M cost	14.13

When the marginal efficiency of the project is assumed to be FIRR=10%, the beneficiaries can bear one-third of the development cost and all the O&M cost. The remaining development cost must be borne by the central and local governments.

Cash flow tables for four (4) cases mentioned above are shown in Table I.2.1

## 2.2 Development of Industrial Wastewater Treatment

### (1) Affordable Treatment Cost

Generally, it is difficult to make a correct estimation of the affordable cost of the factories to spend in wastewater treatment. However, the Study Team roughly estimated the cost through a questionnaire survey with the representative factories. Questionnaires were sent to 20 factories of which six (6) responded. The percentage of the actual treatment cost to the sales amount at present and the affordable percentage of treatment cost to sales amount in the future are summarized below.

Code	Factory	Actual Percentage At Present (%)	Affordable Percentage in Future (%)
4311	Coca Cola Ploiesti	0.12	Less than 1 %
4006	Bere Azuga	1.15	Less than 1 %
4014	Hartia Busteni	1.4	N.A.
4051	S.C. Petrobrazi S.A.	Less than 1 %	N.A.
4559	Neptun Campina	Less than 1 %	Less than 1 %
4150	Matizol	Less than 1 %	Less than 1 %

N.A.: no answer

Based on the above survey, the average affordable percentage of treatment cost to sales amount in the Basin is roughly assumed to be 0.7%.

### (2) Financial Evaluation

The total industrial production in the Prahova County was 10,696 billion lei (US\$1,492 million) in 1997, almost all of which was produced in the Basin. It is projected to increase to 17,917 billion lei (US\$2,499 million) in 2015 with an annual growth rate of 0.0% until 2000 and 3.5% during 2001-2015.

Accordingly, the total affordable treatment cost of the Basin in the future is estimated as shown below (Table I.2.2).

Year	Annual Affordable Cost (US\$ million/yr.)
- 2000	10.44
2005	12.41
2010	14.73
2015	17.50
2016 -	17.50

Exchange rate: 1 US\$=8,800 lei

On the other hand, the proposed disbursement schedule of the total development and O&M costs for the industrial wastewater treatment in the Basin are shown below.

Year	Development Cost (US\$ million)	Ave. Annual O&M Cost (US\$ million/yr.)
- 2000	-	-
2001 - 2005	9.62	9.70
2006 - 2010	13.74	11.26
2011 - 2015	26.41	13.68
2016 -	-	14.46

FIRR of the industrial wastewater treatment project is calculated at 12.35% by regarding the annual affordable cost as the revenue accrued from the project.

When the marginal efficiency of the project is assumed to be FIRR=10%, the industrial sector of the Basin should annually appropriate 7% of the sales amount for the development, and operation and maintenance of the industrial wastewater treatment.

## **TABLES**



**Table I.1.1 Willingness to Pay to Water Quality Improvement (Ploiesti)**

Collected Data			Expansion									
Contribution (Lei/month)	Number	Percentage	Average Income		(A) (%)	(B) (Lei/month)	Total Population		Adult Population		Number of Family	
			(1000 Lei/year)				Number (Persons)	Amount (1000Lei)	Number (Persons)	Amount (1000Lei)	Number (Persons)	Amount (1000Lei)
1000	11	8.1%	10,909		0.11%	1,000	35,807	429,689	22,121	265,448	13,133	157,594
1001 - 2000	2	1.5%	12,500		0.14%	1,500	6,510	117,188	4,022	72,395	2,388	42,980
2001 - 3000	13	9.6%	13,077		0.23%	2,500	42,318	1,269,536	26,143	784,278	15,521	465,620
3001 - 4000	4	2.9%	16,250		0.26%	3,500	13,021	546,877	8,044	337,843	4,776	200,575
4001 - 5000	10	7.4%	10,000		0.54%	4,500	32,552	1,757,819	20,110	1,085,923	11,939	644,704
5001 - 6000	14	10.3%	21,250		0.31%	5,500	45,573	3,007,824	28,154	1,858,135	16,715	1,103,161
6001 - 7000	0	0.0%	-		-	6,500	0	0	0	0	0	0
7001 - 8000	1	0.7%	17,500		0.51%	7,500	3,255	292,970	2,011	180,987	1,194	107,451
8001 - 9000	11	8.1%	13,409		0.76%	8,500	35,807	3,652,358	22,121	2,256,306	13,133	1,339,553
9001 - 10000	13	9.6%	16,538		0.69%	9,500	42,318	4,824,237	26,143	2,980,255	15,521	1,769,355
10001-20000	10	7.4%	19,500		0.92%	15,000	32,552	5,859,397	20,110	3,619,743	11,939	2,149,015
20001-30000	12	8.8%	19,792		1.52%	25,000	39,063	11,718,794	24,132	7,239,485	14,327	4,298,029
30001-50000	2	1.5%	28,750		1.67%	40,000	6,510	3,125,012	4,022	1,930,529	2,388	1,146,141
50001-100000	6	4.4%	12,500		7.20%	75,000	19,531	17,578,191	12,066	10,859,228	7,163	6,447,044
more than 100000	0	0.0%	-		-	100,000	0	0	0	0	0	0
Nothing	27	19.9%	10,370		0.00%	0	87,891	0	54,296	0	32,235	0
Total	136	100.0%										
			(Av. 12,288)		0.83%	10,119	in lei 54,179,891	33,470,554	19,871,223			
						(Av.)	in US\$ 6,227,574	US\$ 3,847,190	US\$ 2,284,049			
Population in 14 Municipalities												
						Total 442,710	Total 273,492	Total 162,370				

\* (A) : The % of contribution to income

\* (B) : Unit contribution (willingness to pay) for calculation

\* Average contribution is calculated at 10,199 lei/month

\* Average percentage of willingness to pay to income is 0.83%

\* Average annual income is 14,630 thousand lei

\* Adult means man between 16 - 62 and woman between 16 -57, which account to 62% to total population in Prahova

Table I.1.2 Result of Totaling of the Questionnaire (1/3)

No.	Q - 1 Age	Q - 2 Sex (M, F)	Q - 3 Occupation W=Working N=No job S=Student	Q - 4 FamilyMembers (Persons)	Q - 5 Income (Lei/Year)	Q - 6 Willingness (Lei/Month)
1	42	M	W	4	17,500,000	NN
2	49	M	W	4	12,500,000	9,500
3	48	F	W	2	12,500,000	25,000
4	50	F	W	3	22,500,000	40,000
5	26	M	S	1	2,500,000	4,500
6	37	F	W	3	17,500,000	75,000
7	48	M	W	4	22,500,000	1,000
8	39	M	W	4	12,500,000	1,000
9	44	F	W	4	17,500,000	8,000
10	30	F	W	2	12,500,000	1,000
11	55	M	W	3	7,500,000	2,500
12	36	F	W	2	17,500,000	15,000
13	28	F	W	2	12,500,000	5,500
14	50	M	W	4	12,500,000	1,000
15	43	M	W	5	17,500,000	2,500
16	40	M	W	4	17,500,000	2,500
17	43	M	W	2	12,500,000	15,000
18	40	M	W	2	12,500,000	NW
19	45	M	W	3	12,500,000	NW
20	30	F	W	3	75,000,000	5,500
21	45	M	W	1	12,500,000	8,000
22	50	F	W	2	12,500,000	8,000
23	22	F	S	3	0	NN
24	45	M	W	3	17,500,000	12,500
25	39	F	W	4	12,500,000	2,500
26	48	M	W	2	12,500,000	NW
27	47	M	W	4	12,500,000	NW
28	39	M	W	-	12,500,000	NN
29	40	M	W	3	17,500,000	1,000
30	47	M	W	3	22,500,000	NN
31	30	F	W	4	17,500,000	NW
32	38	M	W	3	12,500,000	NN
33	27	M	W	1	12,500,000	NN
34	52	F	N	3	17,500,000	NN
35	30	F	N	2	22,500,000	NW
36	42	M	W	4	12,500,000	NW
37	32	M	N	4	5,000,000	NW
38	26	F	N	2	5,000,000	NW
39	44	F	W	1	12,500,000	1,500
40	50	F	W	3	12,500,000	5,500
41	33	M	W	3	22,500,000	5,500
42	48	F	W	3	22,500,000	2,500
43	24	M	W	3	7,500,000	8,000
44	27	F	W	2	7,500,000	8,000
45	47	M	W	4	17,500,000	5,500
46	41	M	N	3	5,000,000	NW
47	39	F	W	2	7,500,000	8,500
48	31	M	W	3	22,500,000	5,500
49	41	M	W	3	22,500,000	5,500



**Table I.1.2 Result of Totaling of the Questionnaire (2/3)**

No.	Q - 1 Age	Q - 2 Sex (M, F)	Q - 3 Occupation W=Working N=No job S=Student	Q - 4 FamilyMembers (Persons)	Q - 5 Income (Lei/Year)	Q - 6 Willingness (Lei/Month)
50	30	M	W	3	17,500,000	4,500
51	40	M	W	3	22,500,000	5,500
52	46	F	W	1	12,500,000	NN
53	37	M	W	1	5,000,000	NW
54	40	M	W	1	35,000,000	25,000
55	41	M	W	3	17,500,000	15,000
56	36	F	W	4	35,000,000	15,000
57	36	F	W	4	35,000,000	40,000
58	30	F	W	3	22,500,000	25,000
59	34	F	W	3	22,500,000	8,500
60	33	F	W	1	35,000,000	75,000
61	33	F	W	3	35,000,000	2,500
62	36	M	W	4	22,500,000	8,500
63	33	F	W	3	5,000,000	2,500
64	43	F	W	1	7,500,000	2,500
65	37	F	W	2	7,500,000	NN
66	24	F	S	2	5,000,000	NN
67	25	M	W	6	5,000,000	8,500
68	22	M	N	3	5,000,000	8,500
69	42	M	W	4	2,500,000	2,500
70	20	M	W	5	2,500,000	5,500
71	30	M	NW	4	2,500,000	NN
72	30	M	NW	3	2,500,000	4,500
73	48	M	W	2	2,500,000	75,000
74	19	F	S	3	2,500,000	15,000
75	20	F	NW	3	2,500,000	8,500
76	19	M	NW	4	2,500,000	
77	28	M	W	3	12,500,000	9,500
78	28	F	W	3	17,500,000	25,000
79	41	M	W	4	22,500,000	3,500
80	41	M	W	3	22,500,000	2,500
81	44	F	W	3	12,500,000	1,500
82	44	F	W	7	12,500,000	3,500
83	34	M	W	3	12,500,000	8,500
84	31	F	W	3	12,500,000	5,500
85	33	M	W	3	22,500,000	25,000
86	32	M	W	3	2,500,000	75,000
87	24	M	S	4	7,500,000	8,500
88	30	F	W	2	7,500,000	1,000
89	36	F	W	4	2,500,000	
90	52	M	W	3	35,000,000	9,500
91	34	M	W	3	27,500,000	9,500
92	45	F	W	4	27,500,000	5,500
93	43	M	W	3	22,500,000	15,000
94	34	M	W	4	22,500,000	25,000
95	36	M	W	3	22,500,000	25,000
96	25	F	W	2	12,500,000	3,500
97	20	F	S	1	0	1,000
98	49	F	W	3	12,500,000	1,000

**Table I.1.2 Result of Totaling of the Questionnaire (3/3)**

No.	Q - 1 Age	Q - 2 Sex (M, F)	Q - 3 Occupation W=Working N=No job S=Student	Q - 4 FamilyMembers (Persons)	Q - 5 Income (Lei/Year)	Q - 6 Willingness (Lei/Month)
99	28	F	W	2	12,500,000	25,000
100	50	F	W	4	12,500,000	4,500
101	34	M	W	2	22,500,000	25,000
102	38	M	W	2	17,500,000	4,500
103	39	F	NW	2	17,500,000	3,500
104	45	M	W	4	35,000,000	15,000
105	32	F	W	3	22,500,000	5,500
106	45	M	W	4	27,500,000	8,500
107	46	M	W	3	12,500,000	4,500
108	47	F	W	2	7,500,000	15,000
109	29	F	W	3	7,500,000	4,500
110	33	M	W	3	12,500,000	4,500
111	21	F	W	3	5,000,000	NW
112	23	F	W	3	5,000,000	NW
113	33	M	W	3	5,000,000	
114	53	F	W	1	12,500,000	25,000
115	42	M	W	3	7,500,000	25,000
116	39	M	W	3	22,500,000	9,500
117	39	F	W	3	17,500,000	9,500
118	52	F	NW	3	7,500,000	NN
119	52	M	W	3	7,500,000	NN
120	35	F	W	3	7,500,000	1,000
121	51	F	W	5	12,500,000	9,500
122	42	M	W	4	22,500,000	
123	42	F	W	4	12,500,000	75,000
124	43	F	W	3	7,500,000	2,500
125	47	M	W	3	7,500,000	5,500
126	21	M	S	3	5,000,000	NN
127	53	F	NW	2	5,000,000	2,500
128	45	M	W	4	7,500,000	2,500
129	37	F	W	3	7,500,000	1,000
130	39	F	W	3	7,500,000	1,000
131	42	F	W	2	7,500,000	4,500
132	34	F	W	4	22,500,000	15,000
133	35	M	W	4	22,500,000	15,000
134	30	F	W	3	7,500,000	4,500
135	29	M	W	3	17,500,000	9,500
136	40	M	W	3	22,500,000	8,500
137	39	F	W	3	12,500,000	8,500
138	35	M	W	3	17,500,000	5,500
139	38	F	W	4	5,000,000	NN
140	38	M	W	4	5,000,000	NN
141	38	M	W	4	5,000,000	75,000
142	37	M	W	3	22,500,000	5,500
143	40	F	W	4	27,500,000	25,000
144	36	F	W	3	12,500,000	1,000

Table I.1.3 Result of Totaling of Questionnaire to Tourists in Sinala (1/4)

(Conducted on 22th, 23th August 1973)

Conducted on 27th, 28th August 1993																														
o	From	Number	With	Stay (days)	Frequency (times)	Hotel <sup>1)</sup>	Expenditure					Visit again Necessary		Visited Place <sup>2)</sup>																
							Accommo	Sight	Meal	Souvenir	Others	Total	Y	Facility	1	2	3	4	5	6	7	8	9	10						
1	Romania	2	Family	7	5	O						1,000,000	Y	4.5		x	x	x	x											
2	Romania	3	Family	7	5	Hotel						0	N	4.5.7		x	x	x	x	x										
3	Romania	3	Family	7	5	O						700,000	Y	6		x	x	x	x	x										
4	Romania		Family	7	4	Hotel						1,100,000	N	2.4.5.8			x	x	x	x										
5	Romania	3	Family	7	5	N			300,000			300,000	Y	2.4.7.8		x	x	x	x	x										
6	Romania		Family	7	4	Hotel						1,000,000	Y	4		x	x	x	x	x										
7	Romania	7	Group	7	5	Hotel	400,000		200,000	300,000		900,000	Y	2.4.5.7			x	x	x	x										
8	Romania	2	Family	7	3	N		50,000	50,000			100,000	N	2.4.5.6.7		x	x	x	x	x										
9	Romania	4	Family	7	5	N			150,000			150,000	Y	1.2.3.5.6.7				x	x	x										
10	Romania	14	Group	7	5	P	150,000		300,000			450,000	Y	4.5.6			x	x	x	x										
11	Romania	4	Family	7	5	N			200,000	50,000		250,000	Y	2.4.5.7		x	x	x	x	x										
12	Romania	3	Family	7	5	Hotel	500,000		600,000	100,000		1,300,000	U	1.4.6.7			x	x	x	x										
13	Romania	3	Family	7	5	P	300,000	400,000	1,000,000	300,000		2,000,000	U	6.7		x	x	x	x	x										
14	Romania	5	Family	7	1	O		200,000				200,000	Y	4.5			x	x	x	x										
15	Romania	2	Friends	7	4	P	100,000		50,000	20,000	60,000	230,000	N	5		x	x		x	x										
16	Romania	2	Friends	7	2	P	100,000				50,000	150,000	Y	4.5																
17	Romania	2	Friends	7	5	N			30,000			30,000	N	2.4				x												
18	Romania	2	Friends	7	5	N			20,000			20,000	U	5		x		x		x										
19	Romania	2	Friends	7	5	Hotel	100,000		100,000		50,000	250,000	U	4.5.6																
20	Romania	2	Friends	7	5	Hotel	200,000		100,000		150,000	450,000	Y	3.4.5.6																
21	Romania	3	Friends	7	5	P						1,200,000	N	4.6		x	x	x	x											
22	Romania	3	Family	7	5	Hotel			1,000,000			1,000,000	Y	2.5		x	x	x	x											
23	Foreigner	4	Family	5	3	P	880,000	450,000	1,000,000	400,000		2,730,000	N			x	x	x	x	x										
24	Foreigner	6	Family	10	1	P	4,350,000		100,000			4,450,000	Y	2.4.8		x	x	x	x	x										
25	Romania	3	Family	7	5	Hotel	1,300,000	150,000			100,000	1,600,000	N	2.4.5.6		x	x	x	x	x										
26	Romania	2	Family	7	2	Hotel	1,300,000	150,000			100,000	1,600,000	N	2.6		x	x	x	x	x										
27	Romania	5	Group	7	3	Hotel	4,000,000		1,800,000			5,800,000	U	2.4.5.6.7.8		x	x	x	x	x										
28	Romania	2	Friends	7	5	P	45,000		100,000			145,000	U	2.4.5.8			x		x	x										
29	Romania	1		7	5	Others						1,000,000	U	2.4.5				x	x	x										
30	Romania	8	Group	7	5	P						600,000	N	1.2.3.4.5.6.7		x	x	x	x	x										
31	Romania	2	Friends	7	5	P	45,000		100,000			145,000	U	2.4.5.6.7.8		x		x												
32	Romania	5	Family	7	5	Hotel	1,000,000	200,000	2,000,000		500,000	3,700,000	U	2.6		x	x	x	x	x										
33	Romania	6	Family	7	5	Hotel		100,000	800,000			900,000	Y	2		x	x	x	x	x										
34	Romania	3	Family	7	5	Hotel	123,000		50,000			203,000	N	6		x	x	x	x											
35	Romania	3	Group	7	2	P	250,000	50,000	1,000,000	140,000		1,440,000	N	2.5.7		x	x	x	x	x										
36	Romania	5	Family	7	5	O			1,600,000		800,000	2,400,000	Y	2.4.5.6.7		x	x													
37	Romania	4	Family	7	5	Hotel	1,000,000	50,000	1,300,000		300,000	2,650,000																		
38	Romania	6	Group	7	5	O		100,000	600,000	100,000		800,000	N	2.4.5.7.8		x	x	x	x	x										
39	Foreigner	2	Family	12	5	Hotel	2,784,000	435,000			1,131,000	4,350,000	Y	8		x	x	x	x	x										
40	Romania	4	Friends	7	5	P	100,000		150,000			250,000	Y	2.4.5.6.7		x	x	x	x	x										
41	Romania	2	Family	7	5	O		25,000	100,000			125,000	Y	1.2.5.6.7.8		x	x	x	x	x										
42	Romania	5	Friends	7	5	N		50,000	150,000			200,000	U	4.6																
43	Romania	2	Family	7	5	P		300,000	800,000	70,000		1,170,000	Y	3.7		x	x	x	x	x										
44	Romania	4	Family	7	1	P	375,000	300,000	700,000	200,000		1,575,000	U	2.4.5		x		x	x											
45	Foreigner	2	Family	12	2	Hotel						8,700,000	U	6		x														
46	Romania	3	Family	7	5	P		100,000	700,000	50,000		850,000	Y	1.4.5		x	x	x	x											
47	Romania	3	Family	7	5	N			100,000			100,000	N	2.4.5.7																
48	Romania	4	Family	7	5	Hotel	300,000				700,000	1,000,000	N	1.2.3.4.6.7.8		x	x	x	x	x										
49	Romania	3	Family	7	5	Hotel	300,000		700,000			1,000,000	N	2.5.6.7.8																
50	Romania	2	Family	7	5	P	900,000	10,000		100,000	600,000	1,610,000	N	4.5.6.8																
51	Romania	1		7	5	O						30,000	Y	2.4.5.6		x	x	x	x	x										
52	Romania	1	Friends	7	4	N						50,000	U	2.4.5		x														
53	Romania	1	Friends	7	5	N						50,000	N	4.5		x	x		x	x										
54	Romania		Group	7	5	O						400,000	N	2.4.6.7		x	x	x	x	x										
55	Romania	4	Family	7	5	O	500,000		1,000,000			1,500,000	N	4.5.6				x	x	x										
56	Romania	2	Friends	7	3	P																								

Table I.1.3 Result of Totaling of Questionnaire to Tourists in Sinla (2/4)

(Conducted on 22th, 23th August 1998)

(Conducted on: 22th, 23th August 1998)																										
No	From	Number	With	Stay (days)	Frequency (times)	Hotel <sup>1)</sup>	Expenditure					Total	Visiting <sup>2)</sup>	Necessary Facility <sup>3)</sup>	Visited Place <sup>4)</sup>											
							Accommo	Sight	Meal	Souvenir	Others				1	2	3	4	5	6	7	8	9	10		
80	Romania	1	Family	10	3	Hotel	2,200,000	300,000	1,700,000	100,000		4,300,000	N	2,5,6												
81	Romania	11	Group	10	5	Hotel		90,000				90,000	U	2,4,6												
82	Romania	3	Family	8	5	Hotel	700,000	150,000	1,500,000	80,000		2,430,000	N	5												
83	Romania	4	Family	7	5	Hotel						5,000,000	N	1,2,6												
84	Romania	9	Family	4	5	O						2,000,000	Y	1,2,6,7,8												
85	Romania	4	Family	3	5	P	180,000		300,000			480,000	Y	2,4,5												
86	Romania	3	Family	3	5	P	150,000		300,000	200,000		650,000	Y	2,4,6												
87	Romania	4	Family	7	2	Hotel						5,000,000	N	2,6												
88	Foreigner	3	Family	7	1	Hotel			3,654,000			7,830,000	N	2,5												
89	Romania	2	Family	7	5	P	350,000	100,000	500,000			950,000	Y	2,5,7												
90	Romania	1		7	5	Hotel	200,000	100,000				300,000	Y	2,5,6,7												
91	Romania	3	Group	7	5	Hotel	200,000	50,000	1,000,000			1,250,000	N	2,4,5,6,7												
92	Romania	4	Group	5	5	O						1,000,000	Y	1,3,4												
93	Romania	4	Family	5	5	O	25,000	50,000				75,000	N	2												
94	Romania	3	Friends	3	5	Hotel	5,000,000	3,000,000				8,000,000	N	1,2,3,5,6												
95	Romania	3	Family	12	5	Hotel	5,200,000					5,200,000	Y	4,5,6												
96	Romania	4	Group	7	2	Hotel	3,000,000					3,000,000	Y	2,4,5,6												
97	Romania	5	Family	7	2	Hotel	3,000,000					3,000,000	U	3,4,5												
98	Romania	3	Friends	15	2	Hotel	5,000,000	2,000,000				7,000,000	Y	2,4												
99	Romania	2	Family	7	5	Hotel	2,500,000					2,500,000	Y	4,5,8												
100	Romania	2	Friends	7	1	Hotel	5,000,000					5,000,000	Y	4												
101	Romania	3	Family	7	5	P	350,000		300,000			650,000	Y	2,4,5,7												
102	Romania	3	Friends	7	1	Hotel	4,000,000					4,000,000	Y	4,5,6												
103	Romania	20	Group	12	5	Hotel	5,700,000				3,000,000	8,200,000	U	4,6,7,8												
104	Romania	2	Family	7	5	Hotel	2,500,000					3,000,000	U	2,5,6,8												
105	Romania	3	Friends	3	5	Hotel	100,000	50,000	150,000			300,000	U	6												
106	Romania	1		2	5	P		300,000				300,000	Y	1												
107	Romania	8	Group	10	5	P	3,000,000					3,000,000	N	2,6,7												
108	Romania	3	Family	11	5	Hotel	990,000					990,000	Y	2,4,5,6												
109	Romania	3	Family	10	3	O	1,300,000	100,000	150,000	100,000	50,000	1,700,000	Y	1,4,5,7,8												
110	Foreigner	3	Family	10	4	Hotel	2,861,000					2,861,000	Y	2												
111	Romania	4	Family	8	5	O			500,000		30,000	530,000	Y	2,4,5,6												
112	Romania	10	Group	31	5	O					100,000	100,000	Y	2,4,5,6,7												
113	Romania	4	Family	7	5	P	400,000	200,000	700,000			1,300,000	U													
114	Romania	5	Family	5	5	Hotel	560,000	200,000	1,120,000			1,880,000	U	2,4,5,6,7												
115	Romania	5	Family	2	5	P	200,000					200,000	N	1,2,3,5,6												
116	Romania	4	Group	1	5	Hotel	300,000	50,000	300,000	100,000	250,000	1,000,000	N	2,4,6,7												
117	Romania	5	Family	2	5	Hotel	600,000		1,500,000	150,000		2,250,000	U	1,2,3,4,5,6,7												
118	Romania	5	Family	3	5	O	900,000	50,000	300,000			1,250,000	N	2,4,6,7												
119	Romania	3	Friends	3	2	Hotel	300,000	200,000	500,000	50,000	200,000	1,250,000	U	4,5,6												
120	Romania	5	Family	7	5	P						2,000,000	U	4												
121	Romania	7	Group	5	3	P	500,000	100,000	700,000	100,000	200,000	1,600,000	U	3,4,5												
122	Romania	1		7	3	Hotel						2,700,000	Y	1,2,4,6												
123	Romania	1		7	5	O						2,000,000	U	2,4												
124	Romania	5	Friends	2	5	Hotel	200,000		150,000			350,000	Y	4,6												
125	Romania	4	Friends	4	4	Hotel	500,000	50,000	1,000,000	50,000	200,000	1,800,000	Y	4,5,6												
126	Romania	7	Group	2	2	O	275,000					2,000,000	U	2,4,5,7												
127	Romania	5	Friends	3	4	P	250,000	50,000	500,000	150,000	550,000	1,500,000	U	2,5,6,7												
128	Romania	12	Group	5	3	P	500,000	100,000	500,000		1,000,000	2,100,000	Y	4,5,6												
129	Romania	21	Group	10	5	Hotel	500,000	150,000	2,000,000	100,000	750,000	3,500,000	Y	2,5,6,7												
130	Romania	1		1	4	N			8,000		2,000	10,000	Y	6,8												
131	Romania	5	Friends	2	5	Hotel	100,000	75,000	50,000			225,000	Y	2,5												
132	Romania	4	Family	1	5	P						300,000	Y	2,7												
133	Romania	8	Group	10	5	Hotel						3,000,000	N	2,4,5,6												
134	Romania	2	Friends	5	1	Hotel	200,000		300,000			500,000	N	2,4,5,6,7												
135	Romania	20	Group	7	5	P	250,000		200,000	150,000		600,000	Y	4,5,6												
136	Romania	5	Friends	7	5	P						500,000	Y	4,5,6												
137	Romania	4	Friends	7	5	Hotel	250,000	20,000		80,000	50,000	400,000	N	1,3,4,6												
138	Romania	4	Family	7	5	Hotel						5,000,000	Y	6,7												
139	Romania	1		4	5	P						150,000	N	4,5												
140	Romania	2	Family	4	5	O						1,000,														

Table I.1.3 Result of Totaling of Questionnaire to Tourists in Sinaia (3/4)

(Conducted on 22th, 23th August 1998)

No	From	Number	With	Stay (days)	Frequency (times)	Hotel	Expenditure					Total	Visit again	Necessary Facility	Visited Place <sup>1</sup>										
							Accomms	Sight	Meal	Souvenir	Others				1	2	3	4	5	6	7	8	9	10	
159	Romania	3	Friends	3	3	Hotel					500.000	500.000	Y	4.5.7			x	x	x						x
160	Foreigner	4	Family	1	2	N		60.000	100.000	50.000		210.000	Y	2.7			x	x	x	x					x
161	Foreigner	4	Family	1	2	N		60.000	100.000	50.000		210.000	U	2.5.7											x
162	Romania	3	Family	7	5	P	280.000	50.000	200.000	50.000	300.000	680.000	N	2.3.4.5			x	x	x	x	x				x
163	Romania	5	Group	1	5	N			100.000			100.000	Y	2.4.5.8			x	x	x	x					x
164	Romania	4	Family	1	5	N		41.000	200.000	50.000		291.000	N	7			x	x	x	x	x		x	x	
165	Romania	4	Family	5	4	Hotel	900.000		200.000			1.600.000	N	4.5.6			x	x	x	x	x				x
166	Romania	2	Family	7	4	P	700.000	200.000	1.000.000	300.000	300.000	2.500.000	N	4.8			x	x	x	x					x
167	Romania	3	Family	2	5	N						0	N	1.2.6.7			x	x	x	x		x	x	x	
168	Romania	2	Family	3	3	Hotel	450.000	80.000	400.000	300.000		1.230.000	Y	2.4.5.6.7				x	x	x					x
169	Romania	2	Friends	1	1	P	50.000	30.000	50.000			130.000	N	4			x	x	x	x					x
170	Romania	6	Group	10	5	O			500.000			500.000	Y	2.4.6			x	x	x	x	x		x		x
171	Romania	2	Friends	1	1	P	50.000	30.000	50.000			130.000	N	2.4.6				x	x	x	x				x
172	Romania	3	Family	11	2	Hotel	2.100.000	200.000	500.000	100.000	4.100.000	7.000.000	U	2.5.6.7			x	x	x	x	x				x
173	Romania	2	Family	10	5	P	600.000	300.000	1.500.000			2.400.000	U	2.8			x	x	x	x	x				x
174	Romania	3	Family	11	4	Hotel	2.100.000				4.900.000	7.000.000	N	4.6			x	x	x	x					
175	Romania	4	Family	1	4	N		50.000	100.000	50.000		200.000	N	12.345.678			x	x			x		x	x	
176	Romania	4	Family	4	1	N		40.000				40.000	U	2.8											
177	Romania	6	Family	1	5	Hotel	700.000					700.000	Y	2.4							x		x		
178	Romania	5	Group	2	5	O			300.000		30.000	330.000	N	4			x	x	x						
179	Romania	3	Family	1	1	N					25.000	25.000	N	1.2.4.5.7			x	x	x	x					x
180	Romania	5	Group	2	4	O		30.000	300.000			330.000	Y	6.7.8			x	x							
181	Romania	3	Family	7	5	P	280.000	100.000	250.000	200.000	200.000	1.030.000	Y	2.4.6.7			x	x	x	x					x
182	Romania	1		1	5	N			60.000			60.000	Y	3.5				x	x	x					
183	Romania	5	Group	10	5	P	900.000		500.000			1.400.000	N	2.4.5.6.7			x	x	x	x	x				x
184	Romania	5	Family	5	5	Hotel	1.013.000					1.013.000	Y	6			x	x		x		x	x	x	
185	Romania	4	Family	5	5	Hotel	2.000.000	300.000				2.300.000	Y	1.4			x	x	x	x		x	x	x	
186	Foreigner	15	Group	2	1	Hotel	35.000	20.000	150.000		20.000	225.000	N	3.5				x	x	x	x				x
187	Foreigner	1		2	1	P	35.000	20.000	130.000	1.500	5.000	181.500	Y					x	x	x	x				
188	Romania	4	Friends	2	3	P	160.000	50.000	100.000	10.000	50.000	370.000	U	4.5			x	x	x	x					x
189	Romania	5	Group	4	5	P	200.000	50.000	500.000			750.000	Y	5			x	x	x	x					x
190	Romania	15	Group	7	5	O		100.000	1.500.000	100.000	200.000	1.900.000	Y	3				x	x	x	x				x
191	Romania	6	Friends	3	2	P	150.000	60.000	150.000		100.000	460.000	Y	2.3.4.5			x	x	x	x					
192	Romania	4	Family	5	5	Hotel	1.000.000	150.000	2.000.000	100.000		3.250.000	Y	4.5.6			x	x	x	x		x	x	x	
193	Romania	12	Group	5	3	O	100.000	50.000	500.000		100.000	750.000	U	4.5			x	x	x	x					x
194	Romania	4	Friends	5	5	P	500.000		800.000		100.000	1.400.000	Y	3.4					x	x					
195	Romania	3	Family	5	5	P	400.000	100.000	1.000.000	50.000	50.000	1.600.000	Y	2.5.6			x	x	x	x	x				x
196	Romania	4	Friends	5	4	Hotel	1.000.000	50.000	100.000		50.000	1.200.000	Y	2.3.4.5.6			x	x	x	x					
197	Romania	3	Family	2	2	P	100.000	100.000	200.000	50.000	550.000	1.000.000	U	4				x		x					x
198	Romania	2	Family	6	5	O						0	Y	4.5.6				x	x	x					
199	Romania	2	Friends	3	2	P	80.000	15.000			100.000	195.000	N	3.4.5			x	x	x	x					
200	Romania	2	Friends	3	3	P	85.000	15.000	70.000			170.000	U	2.6.7			x	x	x	x					
201	Romania	10	Group	1	3	P	35.000	100.000				135.000	Y	4.5					x	x					x
202	Romania	1		10	3	Hotel	150.000	100.000	400.000	100.000	100.000	650.000	U	2.4.5.6				x	x	x	x				x
203	Romania	4	Family	10	2	Hotel	2.000.000	100.000	1.000.000	200.000	500.000	3.800.000	U	3.6			x	x	x	x					
204	Romania	4	Friends	7	3	O		80.000	400.000	100.000	250.000	830.000	U	3			x	x	x	x					x
205	Romania	4	Family	6	5	Hotel	720.000	100.000			1.180.000	2.000.000	Y	2.3.6.7			x	x	x	x		x	x	x	
206	Romania	1		1	5	N					30.000	30.000	Y	5.6				x	x	x	x				x
207	Romania	2	Friends	3	5	P						1.300.000	Y	2.5			x	x	x	x	x				x
208	Romania	1		1	5	N			70.000			70.000	Y	2.4.5.6			x	x	x	x					
209	Romania	1		1	5	N					30.000	30.000	Y	1.4.8				x	x	x	x				x
210	Foreigner	4	Friends	14	1	Hotel		x	x	x	x	3.000.000	N	2.5			x	x							x
211	Foreigner	3	Friends	14	1	Hotel		x	x	x	x	3.000.000	Y	2			x	x	x						x
212	Romania	2	Friends	3	2	P	80.000	150.000	50.000			280.000	U	3.4.5				x							
213	Romania	2	Friends	7	5	Hotel		x	x	x		1.000.000	U	2.4.5.6			x	x	x	x					x
214	Romania	2	Friends	1	5	N			100.000			100.000	U	2.4.5.6.7				x		x					x
215	Romania	5	Friends	1	2	N			50.000			50.000	Y	2				x		x					
216	Romania	4	Friends	7	5	P	300.000	100.000	300.000	50.000	250.000	1.000.000	N	2.3.4.5			x	x	x	x					x
217	Romania	4	Friends	8	5	P	340.000	60.000	500.000	100.000	200.000	1.200.000	Y	2.4.5.6			x	x	x	x					x
218	Romania	3	Family	6	4	O						500.000	Y	2.5.6			x	x	x</						

Table I.1.3 Result of Totaling of Questionnaire to Tourists in Sinaia (4/4)

(Conducted on 22th, 23th August 1998)

No	From	Number	With	Stay (days)	Frequency (times)	Hotel	Accommo	Sight	Expenditure				Visit again	Necessary Facility	Visited Place <sup>1</sup>									
									Meal	Souvenir	Others	Total			1	2	3	4	5	6	7	8	9	10
238	Romania	3	Friends	4	5	Hotel	500.000	30.000	400.000			930.000	N	4										
239	Romania	3	Friends	7	5	Hotel	2.000.000	200.000			800.000	3.000.000	U	2,3,4,5										
240	Romania	2	Family	7	5	Hotel	1.400.000	200.000	1.000.000			2.600.000	N	1,2,4,5,6										
241	Romania	4	Family	3	5	Hotel	100.000		500.000	100.000		1.000.000	U	2,4,5,6,7										
242	Foreigner	2	Family	60	5	O						13.800.000	Y	2,5,7										
243	Romania	2	Friends	1	2	P		300.000				300.000	Y	4										
244	Romania	2	Family	1	5	P						150.000	U	5										
245	Romania	3	Friends	7	5	Hotel					1.000.000	1.000.000	U	2,3,4,5,6										
246	Romania	4	Friends	7	4	Hotel	1.500.000	300.000				1.800.000	N	2,3,5										
247	Romania	4	Friends	7	5	Hotel	1.000.000	100.000	1.900.000			3.000.000	Y	2,3,5,7										
248	Romania	4	Family	6	4	Hotel	500.000	100.000	400.000			1.000.000	Y	2,4,6										
249	Romania	2	Family	1	3	N					50.000	150.000	N	2,4										
250	Romania	3	Friends	2	4	P			250.000			250.000	Y	4										
251	Romania	2	Friends	6	4	P	670.000	130.000	170.000		50.000	1.020.000	N	2,6,7										
252	Romania	2	Friends	10	2	O		50.000	150.000		200.000	400.000	N	2,3										
253	Romania	1	Family	10	5	O		50.000	100.000		50.000	200.000	U	2,4										
254	Romania	1	Friends	10	2	O		50.000	100.000		200.000	350.000	Y	2,4,5,6,7										
255	Romania	3	Friends	8	5	Hotel	1.200.000	300.000	500.000			2.000.000	Y	2,4,5										
256	Romania	3	Friends	8	5	Hotel	1.500.000	500.000				2.000.000	Y	2,4,5										
257	Romania	2	Friends	2	5	O		50.000	200.000		50.000	300.000	N	2,4,5										
258	Romania	1		3	5	O			150.000		50.000	200.000	Y	2,4,5										
259	Romania	8	Group	10	5	Hotel						5.000.000	N	2,4,5,6,7										
260	Romania	4	Family	4	5	P	500.000	250.000	1.200.000		150.000	2.100.000	N	2,5,7										
261	Romania	4	Family	2	5	P		100.000	200.000			300.000	Y	2,3,4,5										
262	Romania	5	Friends	6	3	Hotel	500.000	60.000	400.000		40.000	1.000.000	U	2,5,6										
263	Romania	4	Friends	6	4	Hotel	400.000	100.000	300.000		200.000	1.000.000	Y	2,3,5,6										
264	Romania	4	Friends	6	2	Hotel	1.500.000	200.000	2.000.000		100.000	3.800.000	U	2,4,5,6,7										
265	Romania	3	Family	4	4	O		40.000	600.000			640.000	Y	2,3,4,5										
266	Romania	3	Family	12	5	P	1.100.000	200.000	800.000			2.100.000	N	2,5										
267	Romania	5	Friends	9	2	Hotel	1.200.000	100.000				1.300.000	U	2,3,5										
268	Romania	4	Family	3	5	O		150.000	600.000			750.000	N	3,4,5										
269	Romania	4	Family	10	5	Hotel	1.700.000	60.000				1.760.000	N	2,5,6,7										
270	Romania	5	Friends	6	5	P	600.000	40.000	650.000			1.290.000	N	2,5,6,7										
271	Romania	2	Friends	7	5	P	500.000		700.000		50.000	1.250.000	N	2,4,5,7										
272	Romania	4	Friends	2	3	Hotel	400.000	30.000	600.000			1.030.000	N	2,5,6,7										
273	Romania	1		1	2	N		30.000	100.000			130.000	N	2,4,5,6										
274	Romania	10	Group	12	4	Hotel	2.400.000	200.000	3.600.000		100.000	6.350.000	U	2,4,5,6										
275	Romania	12	Group	6	5	O		600.000	3.000.000		500.000	4.100.000	Y	2,4,5,6,7										
276	Romania	1		2	3	Hotel	350.000	50.000	400.000		50.000	850.000	Y	2,4,5,6,7										
277	Romania	4	Friends	8	5	P	400.000	100.000	1.000.000		200.000	1.700.000	U	2,4,5,6,7										
278	Foreigner	3	Family	12	2	Hotel	7.920.000	4.400.000	2.200.000		880.000	15.400.000	Y	1,5,6										
279	Romania	4	Friends	1	5	N		100.000	200.000			300.000	Y	2,4,5,6,7										
280	Romania	3	Friends	3	2	P	300.000		1.200.000		60.000	1.560.000	N	1,2,4,5,6,7										
281	Romania	5	Family	5	4	P	500.000	300.000	2.000.000		200.000	3.000.000	Y	2,3,4,5,6,7										
282	Romania	3	Friends	4	3	O		300.000	1.200.000		100.000	1.650.000	Y	1,2,4,5,6,7										
283	Romania	4	Family	10	1	P	1.000.000	300.000	2.000.000		200.000	3.500.000	N	2,4,5,6,7										
284	Romania	3	Family	6	2	Hotel	1.200.000	200.000	2.300.000		200.000	4.000.000	Y	2,4,5,6,7										
285	Romania	1		7	5	Hotel	1.470.000	120.000	2.000.000		100.000	3.690.000	Y	2,4,5,6,7										
286	Romania	5	Family	18	5	Hotel	4.200.000	1.000.000	6.800.000		500.000	12.700.000	N	1,2,3,4,5,6,7,8										
287	Romania	2	Family	2	5	P	200.000	50.000	400.000			650.000	Y	2,4,5,7										
288	Romania	6	Group	1	5	N		200.000	1.000.000		100.000	1.300.000	Y	2,4,5,7										
289	Romania	5	Group	2	2	P						0	U	1										
290	Romania	2	Family	1	5	N			200.000			200.000	N											
291	Romania	3	Family	7	5	Hotel	3.500.000				100.000	3.600.000	Y	2,3,6,8										
292	Romania	4	Family	2	3	P	300.000	100.000	600.000			1.000.000	N	2,5,6,7										
293	Romania	5	Group	8	2	Hotel	1.500.000	70.000	500.000			2.070.000	Y	3,4,6										
294	Romania	3	Friends	1	5	N		150.000	150.000		50.000	350.000	U	2,5,7										
295	Romania	3	Friends	3	4	Hotel	300.000		200.000			500.000	N	2,6,7										
296	Foreigner	4	Family	10	1	Hotel	2.400.000	1.000.000	7.000.000		1.000.000	11.900.000	U	2,3,4,5,6,7										
297	Romania	2	Friends	3	4	Hotel	300.000		200.000			500.000	N	2,6,7										
298	Romania	4	Family	7	5	Hotel	700.000					700.000	Y	6										
299	Romania	4	Family	3	3	Hotel	600.000	100.000	500.000		100.000	1.400.000	U	3,5,6										
300	Romania	4	Friends	5	3	Hotel	600.000	100.000	500.000		200.000	1.400.000	Y	2,4,6										
301	Romania	2	Family	5	4	O			500.000		100.000	750.000	Y	3,5,6										
302	Romania	4	Friends	1	5	N		50.000	50.000		20.000	120.000	Y	5										
303	Romania	1		2	5	O		10.000	100.000		50.000	160.000	Y	5										

Note:

1) N: Day trip, P: Private house, O: Others

2) Willingness to visit again in case of worse river environment: Y: Come again, N: Will not come again, U: I do not know

3) 1: New hotel, 2: Development of infrastructure, 3: New restaurant, 4: Good landscape, 5: Improvement of river, 6: Grade-up of service level of hotels, 6: Development of parking areas, 7: Others

4) 1: Castle Pelisor, 2: Castle Peles, 3: Sinaia monastery, 4: Ropeway to Mt. Bucuri, 5: Walking in Sinaia, 6: Fishing, 7: Driving among the valley, 8: Wading in the valley, 9: Hiking, Climbing, 10: Others

**Table I.2.1 Cash Flow Table (1/4)**

**CASE-1**    To Cover Initial Cost and All O&M Cost

	COST			INCOME	BALANCE
	Initial Cost	O&M	Total	Charge	
2001	2,543	1,178	3,721	1,477	-2,245
2002	2,543	1,178	3,721	1,583	-2,138
2003	2,543	1,178	3,721	1,694	-2,027
2004	2,543	1,178	3,721	1,812	-1,910
2005	2,543	1,178	3,721	1,935	-1,786
2006	3,182	1,532	4,714	2,065	-2,649
2007	3,182	1,532	4,714	2,203	-2,512
2008	3,182	1,532	4,714	2,347	-2,367
2009	3,182	1,532	4,714	2,499	-2,215
2010	3,182	1,532	4,714	2,660	-2,055
2011	3,607	1,948	5,555	2,828	-2,727
2012	3,607	1,948	5,555	3,006	-2,550
2013	3,607	1,948	5,555	3,192	-2,363
2014	3,607	1,948	5,555	3,388	-2,167
2015	3,607	1,948	5,555	3,595	-1,960
2016		2,641	2,641	3,812	1,171
2017		2,641	2,641	3,812	1,171
2018		2,641	2,641	3,812	1,171
2019		2,641	2,641	3,812	1,171
2020		2,641	2,641	3,812	1,171
2021		2,641	2,641	3,812	1,171
2022		2,641	2,641	3,812	1,171
2023		2,641	2,641	3,812	1,171
2024		2,641	2,641	3,812	1,171
2025		2,641	2,641	3,812	1,171
2026		2,641	2,641	3,812	1,171
2027		2,641	2,641	3,812	1,171
2028		2,641	2,641	3,812	1,171
2029		2,641	2,641	3,812	1,171
2030		2,641	2,641	3,812	1,171
2031		2,641	2,641	3,812	1,171
2032		2,641	2,641	3,812	1,171
2033		2,641	2,641	3,812	1,171
2034		2,641	2,641	3,812	1,171
2035		2,641	2,641	3,812	1,171
2036		2,641	2,641	3,812	1,171
2037		2,641	2,641	3,812	1,171
2038		2,641	2,641	3,812	1,171
2039		2,641	2,641	3,812	1,171
2040		2,641	2,641	3,812	1,171
2041		2,641	2,641	3,812	1,171
2042		2,641	2,641	3,812	1,171
2043		2,641	2,641	3,812	1,171
2044		2,641	2,641	3,812	1,171
2045		2,641	2,641	3,812	1,171
FIRR=					0.19%

**Table I.2.1 Cash Flow Table (2/4)**

**CASE-2** To cover the half of Initial Cost and All O&M Cost

	Initial Cost	COST O&M	Total	INCOME Charge	BALANCE
2001	1,272	1,178	2,450	1,477	-973
2002	1,272	1,178	2,450	1,583	-867
2003	1,272	1,178	2,450	1,694	-756
2004	1,272	1,178	2,450	1,812	-638
2005	1,272	1,178	2,450	1,935	-515
2006	1,591	1,532	3,123	2,065	-1,058
2007	1,591	1,532	3,123	2,203	-921
2008	1,591	1,532	3,123	2,347	-776
2009	1,591	1,532	3,123	2,499	-624
2010	1,591	1,532	3,123	2,660	-464
2011	1,804	1,948	3,752	2,828	-924
2012	1,804	1,948	3,752	3,006	-746
2013	1,804	1,948	3,752	3,192	-560
2014	1,804	1,948	3,752	3,388	-363
2015	1,804	1,948	3,752	3,595	-157
2016		2,641	2,641	3,812	1,171
2017		2,641	2,641	3,812	1,171
2018		2,641	2,641	3,812	1,171
2019		2,641	2,641	3,812	1,171
2020		2,641	2,641	3,812	1,171
2021		2,641	2,641	3,812	1,171
2022		2,641	2,641	3,812	1,171
2023		2,641	2,641	3,812	1,171
2024		2,641	2,641	3,812	1,171
2025		2,641	2,641	3,812	1,171
2026		2,641	2,641	3,812	1,171
2027		2,641	2,641	3,812	1,171
2028		2,641	2,641	3,812	1,171
2029		2,641	2,641	3,812	1,171
2030		2,641	2,641	3,812	1,171
2031		2,641	2,641	3,812	1,171
2032		2,641	2,641	3,812	1,171
2033		2,641	2,641	3,812	1,171
2034		2,641	2,641	3,812	1,171
2035		2,641	2,641	3,812	1,171
2036		2,641	2,641	3,812	1,171
2037		2,641	2,641	3,812	1,171
2038		2,641	2,641	3,812	1,171
2039		2,641	2,641	3,812	1,171
2040		2,641	2,641	3,812	1,171
2041		2,641	2,641	3,812	1,171
2042		2,641	2,641	3,812	1,171
2043		2,641	2,641	3,812	1,171
2044		2,641	2,641	3,812	1,171
2045		2,641	2,641	3,812	1,171
FIRR=					5.77%



**Table I.2.1 Cash Flow Table (3/4)**

**CASE-3**    To cover 40% of Initial Cost and All O&M Cost

	Initial Cost	COST O&M	Total	INCOME Charge	BALANCE
2001	1,017	1,178	2,196	1,477	-719
2002	1,017	1,178	2,196	1,583	-613
2003	1,017	1,178	2,196	1,694	-501
2004	1,017	1,178	2,196	1,812	-384
2005	1,017	1,178	2,196	1,935	-260
2006	1,273	1,532	2,805	2,065	-740
2007	1,273	1,532	2,805	2,203	-602
2008	1,273	1,532	2,805	2,347	-458
2009	1,273	1,532	2,805	2,499	-306
2010	1,273	1,532	2,805	2,660	-145
2011	1,443	1,948	3,391	2,828	-563
2012	1,443	1,948	3,391	3,006	-386
2013	1,443	1,948	3,391	3,192	-199
2014	1,443	1,948	3,391	3,388	-3
2015	1,443	1,948	3,391	3,595	204
2016		2,641	2,641	3,812	1,171
2017		2,641	2,641	3,812	1,171
2018		2,641	2,641	3,812	1,171
2019		2,641	2,641	3,812	1,171
2020		2,641	2,641	3,812	1,171
2021		2,641	2,641	3,812	1,171
2022		2,641	2,641	3,812	1,171
2023		2,641	2,641	3,812	1,171
2024		2,641	2,641	3,812	1,171
2025		2,641	2,641	3,812	1,171
2026		2,641	2,641	3,812	1,171
2027		2,641	2,641	3,812	1,171
2028		2,641	2,641	3,812	1,171
2029		2,641	2,641	3,812	1,171
2030		2,641	2,641	3,812	1,171
2031		2,641	2,641	3,812	1,171
2032		2,641	2,641	3,812	1,171
2033		2,641	2,641	3,812	1,171
2034		2,641	2,641	3,812	1,171
2035		2,641	2,641	3,812	1,171
2036		2,641	2,641	3,812	1,171
2037		2,641	2,641	3,812	1,171
2038		2,641	2,641	3,812	1,171
2039		2,641	2,641	3,812	1,171
2040		2,641	2,641	3,812	1,171
2041		2,641	2,641	3,812	1,171
2042		2,641	2,641	3,812	1,171
2043		2,641	2,641	3,812	1,171
2044		2,641	2,641	3,812	1,171
2045		2,641	2,641	3,812	1,171
FIRR=					8.57%

**Table I.2.1 Cash Flow Table (4/4)**

**CASE-4** To cover 30% of Initial Cost and All O&M Cost

	Initial Cost	COST O&M	Total	INCOME Charge	BALANCE
2001	763	1,178	1,941	1,477	-465
2002	763	1,178	1,941	1,583	-358
2003	763	1,178	1,941	1,694	-247
2004	763	1,178	1,941	1,812	-130
2005	763	1,178	1,941	1,935	-6
2006	955	1,532	2,487	2,065	-421
2007	955	1,532	2,487	2,203	-284
2008	955	1,532	2,487	2,347	-140
2009	955	1,532	2,487	2,499	13
2010	955	1,532	2,487	2,660	173
2011	1,082	1,948	3,031	2,828	-202
2012	1,082	1,948	3,031	3,006	-25
2013	1,082	1,948	3,031	3,192	162
2014	1,082	1,948	3,031	3,388	358
2015	1,082	1,948	3,031	3,595	564
2016		2,641	2,641	3,812	1,171
2017		2,641	2,641	3,812	1,171
2018		2,641	2,641	3,812	1,171
2019		2,641	2,641	3,812	1,171
2020		2,641	2,641	3,812	1,171
2021		2,641	2,641	3,812	1,171
2022		2,641	2,641	3,812	1,171
2023		2,641	2,641	3,812	1,171
2024		2,641	2,641	3,812	1,171
2025		2,641	2,641	3,812	1,171
2026		2,641	2,641	3,812	1,171
2027		2,641	2,641	3,812	1,171
2028		2,641	2,641	3,812	1,171
2029		2,641	2,641	3,812	1,171
2030		2,641	2,641	3,812	1,171
2031		2,641	2,641	3,812	1,171
2032		2,641	2,641	3,812	1,171
2033		2,641	2,641	3,812	1,171
2034		2,641	2,641	3,812	1,171
2035		2,641	2,641	3,812	1,171
2036		2,641	2,641	3,812	1,171
2037		2,641	2,641	3,812	1,171
2038		2,641	2,641	3,812	1,171
2039		2,641	2,641	3,812	1,171
2040		2,641	2,641	3,812	1,171
2041		2,641	2,641	3,812	1,171
2042		2,641	2,641	3,812	1,171
2043		2,641	2,641	3,812	1,171
2044		2,641	2,641	3,812	1,171
2045		2,641	2,641	3,812	1,171
FIRR=					14.13%

Table I.2.2 Cash Flow for Industrial Wastewater Treatment (in case of 0.7%)

(Unit: million US\$)

Year	Affordability	O&M/year	Const. Rehab.	Total Cost	Balance
2001	10.81	9.70	1.92	11.62	-0.81
2002	11.19	9.70	1.92	11.62	-0.43
2003	11.58	9.70	1.92	11.62	-0.04
2004	11.99	9.70	1.92	11.62	0.37
2005	12.41	9.70	1.92	11.62	0.79
2006	12.84	11.26	2.75	14.01	-1.17
2007	13.29	11.26	2.75	14.01	-0.72
2008	13.76	11.26	2.75	14.01	-0.25
2009	14.24	11.26	2.75	14.01	0.23
2010	14.73	11.26	2.75	14.01	0.73
2011	15.25	13.68	5.28	18.96	-3.71
2012	15.78	13.68	5.28	18.96	-3.18
2013	16.34	13.68	5.28	18.96	-2.63
2014	16.91	13.68	5.28	18.96	-2.05
2015	17.50	13.68	5.28	18.96	-1.46
2016	17.50	14.46		14.46	3.04
2017	17.50	14.46		14.46	3.04
2018	17.50	14.46		14.46	3.04
2019	17.50	14.46		14.46	3.04
2020	17.50	14.46		14.46	3.04
2021	17.50	14.46		14.46	3.04
2022	17.50	14.46		14.46	3.04
2023	17.50	14.46		14.46	3.04
2024	17.50	14.46		14.46	3.04
2025	17.50	14.46		14.46	3.04
2026	17.50	14.46		14.46	3.04
2027	17.50	14.46		14.46	3.04
2028	17.50	14.46		14.46	3.04
2029	17.50	14.46		14.46	3.04
2030	17.50	14.46		14.46	3.04
2031	17.50	14.46		14.46	3.04
2032	17.50	14.46		14.46	3.04
2033	17.50	14.46		14.46	3.04
2034	17.50	14.46		14.46	3.04
2035	17.50	14.46		14.46	3.04
2036	17.50	14.46		14.46	3.04
2037	17.50	14.46		14.46	3.04
2038	17.50	14.46		14.46	3.04
2039	17.50	14.46		14.46	3.04
2040	17.50	14.46		14.46	3.04
2041	17.50	14.46		14.46	3.04
2042	17.50	14.46		14.46	3.04
2043	17.50	14.46		14.46	3.04
2044	17.50	14.46		14.46	3.04
2045	17.50	14.46		14.46	3.04

FIRR=

12.35%









JICA