資料7.質問状と回答

QUESTIONNAIRE

PRELIMINARY STUDY ON THE PROJECT FOR REHABILITATION AND EXTENSION OF THE WATER SUPPLY SYSTEM IN GIA LAM AREA-HANOI THE SOCIALIST REPUBLIC OF VIET NAM

1.GENERAL STATISTICS

Please provide data on the basic statistics on the economy and society of Viet Nam;

1) Gross national product(GNP) for five (5) years
(don usd)

2) Rate of economic growth for five (5) years
(%)

3) Foreign currency reserves and foreign currency debts
(don)

4) Population
(National /Hanoi)

5) Rate of increase in population
(National /Hanoi Project area)

6) Household income (don)

7) Household expense (don)

8) Household domestic cost (don)

2.DEVELOPMENT PROJECT

Please provide the following data.

(1) Description concerning Water Supply Development in the five (5) years national development plan

(2) City planning map of Hanoi city

(3) Master plan on water supply of Hanoi city

3.WATER SUPPLY CONDITIONS IN VIET NAM

Please answer the following items.

(1) Outline of the water supply condition
- National water supply condition
- Hanoi water supply condition
- Water supply system
- Water supply area
- Water supply population
- Water supply volume
- Quality of supply water

(2) Organization of the warterworks
- Ministry of Transportation and Urban Public Works Service
- Office related to the present project
- Member of the personal of the section
- Name of the persons in charge
- Duties and authorities of the office
- Organization chart of the Hanoi Water Supply Company(HWSC)
- Function and structure of the HWSC

(3) Management of waterworks
- Budget
- Water tariff and billing system
- Type of subsidy

4.ADMINISTRATIVE SYSTEM AND WATER SUPPLY DIVISION

Please provide the following data.

(1) Administrative system and position of the water supply division therein

(2) Number of the personnel of water supply division subdivided into technical and administrative section

(3) Existing water tariff system on urban and rural area

(4) Number of household covered by the project and the average of residents per household

(5) Management and maintenance system on the water supply facilities in urban and rural area

(6) Present conditions of disease especially water borne disease,and medical care facilities in urban covered by the project

(7) Priority and the necessity in turn on each project you have proposed us

(8) Existing situation of power supply in Hanoi

5.OUTLINE OF THE PROJECT AREA

Please provide the following data.

(1) Outline of Hanoi city
- Map (1/2,000 and 1/10,000)
- Topographical map
- Geological map
- Hydrogeological data
- Climate data
- Land use map
- Population (present trends,population growth)
- Electric power supply condition

(2) Outline of Gia Lam Area
- Map (1/2,000 and 1/10,000)
- Topographical map
- Geological map
- Hydrogeological data
- Land use map
- Population (present trends,population growth)
- Development project

6.OUTLINE OF WATER SUPPLY IN GIA LAM AREA

Please provide the following data.

(1) Management system
- Organization chart
- Function of each section
- Number of staff

(2) Water supply system
- History of the system
- Supply area
- Supply population
- Distribution amount
- Revenue amount

(3) Water source
- Intake amount
- Possibility of surface water intake
- Problems of water source
- History of rehabilitation
- Drawings

(4) Treatment plant
- Treated amount
- Present condition of water treatment facilities
- Operation and maintenance system of treatment facilities
- History of rehabilitation
- Number and level of staff
- Drawings

(5) Distribution facilities
- Present condition of distribution pump
- Present condition of distribution net work
- History of rehabilitation
- Drawings

(6) Water quality data
- Raw water
- Treated water

(7) Red River data

- Changes in the water level for the past ten (10) years and seasonal changes of the water level of the river
- Rainfall data for the past ten (10) years within the upper reaches
- Recent trend in the pollution of the water in the rivers

(8) Other problems or remarks

7.WELL DRILLING TECHNIQUES

Please indicate well drilling techniques in Viet Nam.

(1) Type and number of the well drilling rigs held by the official organization

(2) Technical level and number of supervisor,engineer and drilling operators

(3) List of the companies or firms which perform well drilling on business,or their agents

8.CONTENTS OF THE REQUEST

Please explain the details of application form.

(1) All of the request items and quantity

(2) Drawings for the existing facility

(3) Drawings for the expansion facility

9.RELATING PROJECT

Please indicate the following items.

(1) Other water supply projects within past ten(10) years.
- Name of the projects
- Duration of the projects
- Contents of the projects
- Assistant organization
- Project cost

(2) Implementing and planned projects
- Name of the projects
- Duration of the projects
- Contents of the projects
- Assistant organization
- Project cost

10.PRIORITY OF THE GIA LAM PROJECT

Please explain the following items.

(1) Strategy for rehabilitation and expansion of water supply system in right side and left side of the Red River

(2) Indicate priority of the projects listed in 9.(2)

(3) Reasons of the request to Japan

Table-1

(1) Requested Items

Facility	Capacity·Size·Specification	※Classification	Unit	No.	Remarks
Intake Facility					
Well					
Pump					
Treatment plant					
Sedimentation basin					
Filter					
Chemical feeding					
Clear water reservoir					
Distribution Facility					
Pump					
Elevated tank					
Transmission pipe	φ m/m				
Net work	φ m/m				
	φ m/m				
	φ m/m				
	φ m/m				
	φ m/m				
Work shop					
Training					

※ Classification of rehabilitation or newly expansion.

11.What is the different points of Gia Lam area compared with all of Hanoi city ?

(1) Land use and development plan

(2) Supplied ratio in Hanoi city
- House
- Official
- Commerce
- Industry

(3) Supplied ratio in the project area
- House
- Official
- Commerce
- Industry

12.MANAGEMENT AND MAINTENANCE

Please write down the following blank paper.

1.Financial statement for past five(5) years

Unit:usd

(1) Balance of profit and loss Fiscal year(month ~ month)

Items			Year	1987	1988	1989	1990	1991
Gross earning (A)	Operating revenue (B)	Water supply Trusteeship construction Others						
	Non-operating revenue (C)	Acceptance interest Another accounting subsidy Others						
	Extraordinary gains (D)	Assets selling Others						
	Total							
Total cost (E)	Operating cost (F)	Raw and treated water Delivery and supply water Trusteeship construction General cost Assets wear and tear expenses Others						
	Non-operating cost (G)	Interest expense Others						
	Extraordinary losses (H)	Assets selling revenue Others						
	Total							
Ordinary profit and loss (B+C)-(F+G)								
Profit and loss (A-E)								

(2) Balance of capital account

Unit:uds

Items		Year	1987	1988	1989	1990	1991
Capital receipt	Corporation bond						
	State subsidy						
	Other accounting capital fund						
	Other accounting liability fund						
	Other accounting loan						
	Other accounting subsidy						
	Fixed assets selling fund						
	Others						
	Total						
Capital cost	Construction implement cost						
	Corporation bond repayment money						
	Long-term debt						
	Others						
	Total						
Balance							
Replacement fund							

(3) Statement of assets and liability

(3-1) Parts of assets

Items			Year	1987	1988	1989	1990	1991
Fixed assets	Tangible fixed assets	Land Building Structure Machine and equipment Vehicle and transportation equipment Tools and fittings Construction interim account						
	Intangible fixed assets	Credit Other						
	Investment	Negotiable securities						
	Total							
Current assets		Cash and deposit Uncollected money Spare stores Advance payment money Other						
		Total						
Deferred account		Retiring allowance Development cost						
		Total						
Total assets								

(3-2) Parts of liabilities and capital

Items			Year	1987	1988	1989	1990	1991
Fixed liabilities		Borrowing						
		Reserve for retirement allowance						
		Others						
		Total						
Current liabilities		Floating debt						
		Accrued expenses						
		Deposit received						
		Others						
		Total						
Capital fund	Own capital							
	Borrowing capital fund	Corporation bond						
		Other accounting loan						
	Total							
Surplus fund	Capital surplus	State subsidy						
		Construction fee						
		Other accounting capital fund						
	Total							
	Accumulated income	Sinking accumulated fund						
		Profit accumulated fund						
		Construction improvement						
		Others						
	Total							
Amount of liabilities capital								

2.Management index of water works for past five(5) years

Items	Year	1987	1988	1989	1990	1991
Daily distribution amount	(m^3/day)					
Daily average distribution amount	(m^3/day)					
Daily maximum distribution amount	(m^3/day)					
Annual total distribution amount	(m^3/day)					
Annual total revenue amount	(m^3/day)					
1.Loading ratio	(%)					
2.Operating ratio of facilities	(%)					
3.Maximum operating ratio	(%)					
4.Water sales to water produced ratio	(%)					
5.Unit cost of water	($/$m^3$)					
6.Original price of delivery water	($/$m^3$)					
7.For each staff person						
1) Supply population	(person)					
2) Water sold	(m^3)					
3) Operating revenue	($)					
8.Water sold (10,000m^3/day)						
1) Raw water staff	(person)					
2) Treated water staff	(")					
3) Distribution staff	(")					
4) Gauge inspection and aggregation staff	(")					
9.Staff matter						
1) Average of salary	($)					
2) Average of age	(years)					
3) Average of duties year	(years)					
10.Equity-capital to operating revenues ratio	(%)					
11.Ratio of fixed assets to long-term capital	(%)					
12.Current ratio	(%)					
13.Operating revenues to operating expenses ratio	(%)					
14.Ordinary revenues to ordinary expenses ratio	(%)					

* Above items will be calculated by next paper.

Calculation method

1.Loading ratio(%)

$$\frac{\text{Average day water production(delivered)}}{\text{Maximum day water production}} \times 100$$

2.Operating ratio of facilities(%)

$$\frac{\text{Average day water production}}{\text{Daily production capacity}} \times 100$$

3.Maximum operating ratio(%)

$$\frac{\text{Maximum day production}}{\text{Average day production}} \times 100$$

4.Water sold ratio(%)

$$\frac{\text{Annual total water sold}}{\text{Annual water produced}} \times 100$$

5.Unit price of supply water($/m^3)

$$\frac{\text{Water supply revenue}}{\text{Annual production}} \times 100$$

6.Unit cost of water($/m^3)

Total cost per total water sales in cubic meter (unit coast of water) operating and non-operating expenses,revenue from contract works,non-core business revenue,book value of materials sold

7,8,9 Omission

10.Ratio of fixed assets to long term capital(%)

$$\frac{\text{Own capital fund + surplus}}{\text{Total liability and capital}} \times 100$$

11.Ratio of fixed assets to long-term capital(%)

$$\frac{\text{Fixed capital}}{\text{Capital fund + surplus + fixed liabilities}} \times 100$$

12.Current ratio (%)

$$\frac{\text{Current capital}}{\text{Current liabilities}} \times 100$$

13.Operating revenues ratio(%)

$$\frac{\text{Operating revenues + non-operating revenues}}{\text{Operating cost + non-operating expense}} \times 100$$

14.Ordinary revenues to ordinary expenses ratio(%)

$$\frac{\text{Ordinary revenues}}{\text{Ordinary expenses}} \times 100$$

3.Details of the cost within last five (5) years

Items		Year	1987	1988	1989	1990	1991
Total cost	Operating cost	1)Personal cost -Raw water and treatment -Distribution mains and communications equipment -Other tangible assets					
		2)Chemical cost -Coagulating agent -Chlorination -Others					
		3)Repairing cost -Raw and treatment -Distribution mains and communications equipment -Other tangible assets					
		4)Cost depreciation					
		5)Assets decreasing cost					
		6)Others					
		Total					
	Non-operating cost	1)Interest expense					
		2)Others					
		Total					
	Special loss						
	Grand total						

4.Management and maintenance system,staff arrangement plan for after completion of the project

(1) Management and maintenance system

Item	Detail of countermeasures
1.Facilities management	
1)Method of facilities check	Write down the method of inspection and confirmation for the facilities, equipment and plant
2)Method of facilities	Write down the procurement method for the facilities,equipment and plant to keep the function in regular
2.Water amount management	Write down the method of water supply to measure and record of the water amount
3.Water quality maintenance	Write down the method of maintenance to keep water safety and clean
4.Management of industrial safety and hygiene	Write down the establishment of industrial safety and hygiene management,improvement of work environment,health management, details of standard for working
5.Training of engineer	Write down the method of training and education of staff
6.Others	

(2) Staff arrangement plan

Item	Plan
1.Organization plan	Write down the organization chart and number of staff
2.Staff for each section	Write down the above mentioned name of section and number of staff in the organization

section	name of section	number of staff
Design and construction Management of water treatment Management of facilities Water supply Gauge inspection and aggregation Accountant General affairs Others		
Total		

3.Working system	Write down the details of duty exchange system for operator at water treatment facilities
4.Others	

13. Please indicate the five(5) major constraints as priority in Hanoi water supply.

(1) Construction of treatment plant

1)

2)

3)

4)

5)

(2) Operation and maintenance of treatment plant

1)

2)

3)

4)

5)

(3) Construction of pipe line

1)

2)

3)

4)

5)

(4) Operation and maintenance of pipe line

1)

2)

3)

4)

5)

(5) Water quality and it's control

1)

2)

3)

4)

5)

(6) Water tariff and billing system

1)

2)

3)

4)

5)

(7) Training and human resource development

1)

2)

3)

4)

5)

(8) Organization

1)

2)

3)

4)

5)

(9) Finance and management

1)

2)

3)

4)

5)

QUESTIONNAIRE TO FINNIDA

Please answer or provide data concerning the following questions.

1. Report on water supply in Viet Nam
(1) Reports prepared by FINNIDA.
(2) Are these reports approved by Hanoi People's Committee?
(3) Are the implemented/implementing projects based on these reports?

2. Hanoi water supply system
(4) Target year of water supply system development.
(5) Final form (supply system, water pressure, water quality) of the Hanoi water supply system.
(6) Have you formulated any rehabilitation/expansion program of water supply system (treatment plant, pipeline network) for the final form?
(7) Per capita investment cost for (6)?

3. Project implementation plan in Hanoi
(8) Contents of the projects (name, implementation year, area, population covered, component, loan or grant, cost) which are implemented/implementing by FINNIDA.
(9) Contents of the projects (ditto) which will be implemented by FINNIDA.
(10) Project names which already committed by FINNIDA.
(11) Will all the program for (6) be implemented by FINNIDA?
(12) Is it possible for FINNIDA to cover all the project cost for (6)?
(13) If another aid agencies execute any projects for (6), which projects are suitable?
(14) In case of (13), is it possible to distinguish the project components from those of by FINNIDA to prevent duplication?

4. Project implementation procedure
(15) Project implementation procedure from formation stage to completion stage.
(16) Roles of Viet Nam and FINNIDA for project implementation.
(17) Have any water supply experts of FINNIDA be dispatched to Viet Nam?
(18) Roles of consultants for (15).

5. Major constraints for project implementation
(19) Institutional constraints for implementation of the projects.
(20) Financial constraints for implementation of the projects.
(21) Technical constraints for implementation of the projects.
(22) What programs are executed/executing to improve institutional sustainability?
(23) What programs are executed/executing to improve financial sustainability?
(24) What programs are executed/executing to improve technical sustainability?

QUESTIONNAIRE TO FINNIDA (2)

This is a supplementary Questionnaire for the original Questionnaire. Please answer or provide data concerning the following quetions.

1.Report on water supply in Hanoi City

(1) Report prepared by FINNIDA:
Water Master Plan, Project Document report for Phase 1-3, Training Report for grandwater resources, Report for environmental assesment brochure,etc.

2.Hanoi water supply system

(4) Target year of the final water supply system development program.

(5) Final form of Hanoi water supply system:
water pressure,water quality(drinkable water supply),private tap,leakage prevention,pipe line replacement,etc.

(7) Per capita investiment cost for Phase 1-3.

3.Project implementation plan in Hanoi

(8) Contents of the projects which are implemented/implementing by FINNDA:
name,implementation year,area,population covered,component, cost,project map,etc.

(9) Contents of the project which will be implemented by FINNIDA:
ditto,

(13) If another aid agencies execute any project in Hanoi City, what projects are suitable?:
Treatment plant expansion and rehabilitation,pipe line execution and rehabilitation,etc,

(14) In case of (13),is it possible to distinguish the project components from those of by FINNDA to prevent duplication?

4.Project implementation procedure

(16) Roles of Viet Nam side and FINNIDA for project preparation and implementation.

(17) Classification and number of expert for Hanoi Water Supply Program.

5.Major constraints for the project implementation

(22) Contents of the program to improve institutional sustainability which are/will be executed by FINNIDA.

(23) Contents of the program to improve financial sustainability, which are recommended by FINNIDA:
water tariff system,billing system,etc,

(24) Contents of the program to improve technical sustainability, which are.will be executed by FINNIDA:
training,repair shop,etc,

QUESTIONNAIRE
PRELIMINARY STUDY ON THE PROJECT FOR REHABILITATION AND EXTENSION OF THE WATER SUPPLY SYSTEM IN GIA LAM AREA - HANOI
THE SOCIALIST REPUBLIC OF VIETNAM

1. GENERAL STATISTICS

The government of Vietnam has recently applied many new policies on the economic and social development, especially since 1989. Main information are as follows :

1. The gross national Product (GNP) for the last 5 year period :

   - In Vietnamese currency (dong) in 1991 : 121000 bil. dong

   - Equal to 12,1 bil. USD
     (GNP value in Vietnam has not been calculated in the same way with "capitalist" countries thus, according to the opinions of economists about 35 - 37 % of this value should be added.

2. The average economical growth rate for the last 5 year period is 3,5 %..
3. Foreign currency reservation and debts:

   - Foreign currency reservation
   - Foreign currency debt

4. Population : The figures are calculated up to 1990.

   - Total national population (according to census) : 66,2 millions.
   - Population of Hanoi city : 2150676 inhabitants (1992). In which urban population is 1.109.318 inhabitants and suburban population is 1.041.358 inhabitants.

5. Population growth rate

   - Average national population growth rate :

     1991 - 1995 : 2,2 - 2,28 %
     1996 - 2002 : 1,85 - 2,15 %

   - In Hanoi city and Gia Lam area : (see appendix I)

6. Average income per family : 4000000 dong/year
7. Average expenses per family : 7200000 dong/year
8. Minimal expenses per family : 6400000 dong/year

2. WATER PRODUCTION

1. Water supply situation for the last 5 years in Hanoi is as follows:

Since 1989 the renovation of economical and social policies in Vietnam have led to the changes in water supply planning in Hanoi because of followings :

- Water demand and needs are increasing
- Urbanization has been expanded to the suburban areas
- Water demand for industrial consumption is increasing
- The subsidy policy is under elimination

Water supply of the city has to be adopted to the new changes in economical and social policies in general with a view to satisfy the demands of both water quantity and quality and water tariff.

The water supply system in Hanoi at present relies on the ground water resources. In Hanoi area, the main exploiting aquifer (Qa) is underlain the quaternary sediments.

The ground water exploitation should be suitable with the existing hydro-geological conditions. Though the hydro-geological mapping has been carried out since 1960's the meticulous assessment of ground water reserve for Hanoi area could be optimally achieved in September, 1992 including the establishment of a ground water model which has been calibrated and simulated for the whole area of Hanoi. As the results of these hydro-geological studies, the total exploitable ground water capacity has been approved by the state Department of Natural Reserve Assessment.

WATER PRODUCTION CAPACITY FOR EACH PERIOD
1995 - 2000 - 2005 - 2010

WATER PLANT	1995	2000	2005	2010
HA DINH	25.000	25.000	25.000	25.000
LUONG YEN	80.000	80.000	80.000	80.000
MAI DICH	60.000	60.000	60.000	60.000
NGOSILIEN	40.000	60.000	60.000	60.000
NGOC HA	30.000	30.000	30.000	30.000
PHAP VAN	30.000	30.000	30.000	30.000
TUONG MAI	30.000	30.000	30.000	30.000
YEN PHU	80.000	80.000	80.000	80.000
CAO DINH		60.000	80.000	80.000
DU THUONG		60.000	120000	120000
CHEM				90.000
TOTAL	403000	515000	595000	68.500
DEMAND	403000	510000	590000	67.500

Due to the development in the field water supply the ground water production has been increased rapidly over 20 years now.

- 1970 exploited capacity : 140.000 m3/day
- 1978 " 165.000 "
- 1985 " 210.000 "
- 1991 " 350.000 "

At present, 130 wells are under control of Hanoi Water Supply Co. with the depth varies from 60 - 75 m and total capacity of 350 000 m3/day. There are also a number of private wells extracting ground water with an capacity from 80.000 - 100.0000 m3/day which are not under the control of the HWSCo thus, it sums up the total ground water extracting in the whole area of 450 000 m3/day

EXPLOITED CAPACITY (UNDER HWSCo)

WATER PLANT	QUANTITIES OF WELL	EXPLOITED CAP.M3/DAY
DON THUY	2	10.000
HA DINH	12	25.000
LUONG YEN	15	45.000
MAI DICH	19	60.000
NGO SI LIEN	18	45.000
NGOC HA	11	30.000
PHAP VAN	9	30.000
TUONG MAI	13	30.000
YEN PHU	17	45.000
SMALL W.P	14	30.000
TOTAL	130	350.000

In 1985, under the authorization of the government and Hanoi People's Committee Hanoi Transport and Urban Public Works Service in cooperation with foreign partner has implemented the Hanoi Water Supply Program of rehabilitation and extension of the water supply system on the left bank of Red river. The project has been funded from the contributions of Vietnam and Finland governments to achieved following objectives :

- Renovation and restoration the designed capacities of main old water treatment plants
- Construction of several new water treatment plants
- Construction of new pipelines
- Usability testing and repairing of old transmission lines

- Renewing deep well equipment e.g with submersible well pumps
- Preparing the water master plan for Hanoi up to 2010
- Establishment of ground water model for Hanoi area
- Organizing training courses locally and abroad
- Improving the water billing and revenue collection system
- Implementing the water loss reduction program
- Enhancing the capability of organizations of Hanoi city water sector including the companies involving in the implementation of Hanoi Water Supply Program.

The renovation and extension of Hanoi water supply system in general has been given the first priority by the government of Vietnam. Maximal supports and favorable conditions have been given to the improvement and stabilization of the water supply for Hanoi capital. Over the last 5 years, water supply situation of Hanoi have been partly improved.

With the confirmed potential ground water reserve which adequately satisfies the future water demand of 700.000 m3/day up to the year 2010 the system will still rely on the ground water in coming years.

In accordance with the market economical policy, TUPWS is instructing the Hanoi water supply co. to gradually revise the water tariff reflecting adequately its real cost and abolish the subsidy to the company to be a financially independent one. In addition to these, the long-term development plan of the government as well as of TUPWS is to provide proper water supply to consumers. Up to now, improved water supply network has just covered the main part of urban districts and other rural districts as Gia Lam Thanh Tri, Soc Son, Dong Anh, etc. are still suffered very poor water supply and lacking of investment for rehabilitation and extension. Water facilities there have been seriously degrading.

Authorized by Hanoi People's Committee TUPWS has prepared several development plans to request the grant budget from Government and look for foreign donors for the improvement of water supply in these areas.

2) City planning map of Hanoi city (see appendix no....)

3) Water master plan of Hanoi city

Since 1988, with the support from Hanoi water supply program, TUPWS has directed the investigation and data collection for the water master plan study for Hanoi city. The water master plan for Hanoi area has not yet approved by the government as it is under updating and probably be finalized and approved on March, 1993 due to following reason :

- Meticulous assessment of ground water resources
- Environmental and socio - economical studies
- Adjusting water treatment plants and network

The water master plan will cover and recommend following issues :

- Ground water resources in Hanoi as the main sources for the purpose of water supply of the city up to the year 2010
- Locations of water treatment plants and their exploitable capacities
- Lay-out of well-field locations
- Optimal water treatment process
- Selection of optimal network system
- Water tariff and necessary investment up to the year 2010
- Environmental impacts

3. WATER SUPPLY CONDITIONS IN VIETNAM

* Outline of the water supply situation

The water supply conditions in different provinces, cities, special zones have following common outlines :

- Water master plans are not available; construction investments are patchy and only aim at solving immediate difficulties
- Water supply systems are mainly relied on ground water resources; Some localities are using surface water resources (mainly in the South)
- Due to the lack of investments for maintenance and upkeeping, water facilities are critically degraded
- Water loss percentages are very high, about over 50 % (lacking of measuring devices), especially losses occurred right at treatment units.
- Average pressure in the network is low
- Some stages in the water treatment process are out of effect
- The degraded facilities cause high consumption of energy which effects to the water production costs
- Management skills are below the required level
- Poor supervision leads to low construction quality, many cases repairs are required after a short time of operation.
- Capacities of water treatment plants are reducing rapidly compared with design ones.
- Poor planning in water exploitation effects negatively to the environment and eco-systems.

There are water supply systems in only 119 out of total 512 municipalities through out Vietnam . Number of urban population served with water supply systems are 7.455.000 .

- All the 24 large municipalities with population of over 100 000 inhabitants have water supply systems.

- 73 out of 474 small municipalities with population less than 50 000 inhabitants have water supply systems

The total water production capacity is 1 770 700 m3/day in which 30 % is from ground water and 70 % from surface water resources. Total treatment units and plants are 159. The pipeline networks are summarized as follows :

- Transmission lines (D=300 -1200 mm) : 3700 km
- Distribution lines (D=50 -250 mm) : 10658 km
- House connections : 1 100 000
- Total number of installed water meter : 320 000 pcs

Consumption criteria in percentage :

- 35 % for domestic consumption
- 35 % for industrial production and other demands
- 30 % water losses

Specific consumption per capita is as follows :

- The lowest level :100 l/p/day
- In average :200 "
- The highest :360 "

Domestic consumption per capita :

- The lowest : 35 l/p/day
- In average : 54 "
- The highest : 100 "

Among them, only 22 % of water plants satisfy the hygienic standards of drinking water (mainly the high capacity water treatment plants). Average energy consumption is 400 w/m3; annual Alum consumption is 35.000 tons; annual Chlorine consumption is 1.500 tons.

* Water supply situation in Hanoi

The water supply conditions in Hanoi can be divided into two areas

- The area where water supply system improved by FINNIDA funded water supply program

- The rest area remains in poor conditions and is not invested by any foreign donor.

As Hanoi is the capital of the country thus it has been given high priority in water supply development. The water supply conditions in general are better than other localities, especially after the development project funded by FINNIDA. The project only cover 4 urban districts namely Hoan Kiem, Dong Da, Hai Ba Trung, Ba dinh and part of Tu Liem suburban district.

The rest suburban districts as Gia Lam is out of the consideration of the project.

The Hanoi water supply system was constructed since the French domination with small capacity serving for only few streets where French people were living. The capacity of the system in 1954 was 26.000 m3/day and 77 km long of different pipelines. In general, from 1954 - 1985 the system was in poor and aging status and poor planning and maintenance lead to critical degradation and high water loss percentage in the whole system.

Since 1985 , the system has been renovated and constructed according to proper plan and on the same line with the drafted water master plan which also considered the future development. Main water treatment plants are connected through a high pressure transmission lines. The transmission and distribution line have ben new constructed with high technology and good quality thus reducing the head and water losses in the network.

Treatment units have been renovated and new constructed to increase the total water production with good water quality. Thank to good quality of imported materials and equipment the maintenance costs and energy consumption have been reduced.

- On the line with the policy of government and Hanoi People's Committee to gradually raise the living standards of people in general and Hanoi citizens in particular the improvement in water supply service level becomes very urgent and necessary.
- Number of consumer are increasing (see the table below)

1995	2000	2010
1 003 000	1 100 000	1 326 000

Total water supply population under the control of Hanoi Water Supply Co. at present are 897.137 inhabitants (1991) and about 100 000 inhabitants using water from private wells.

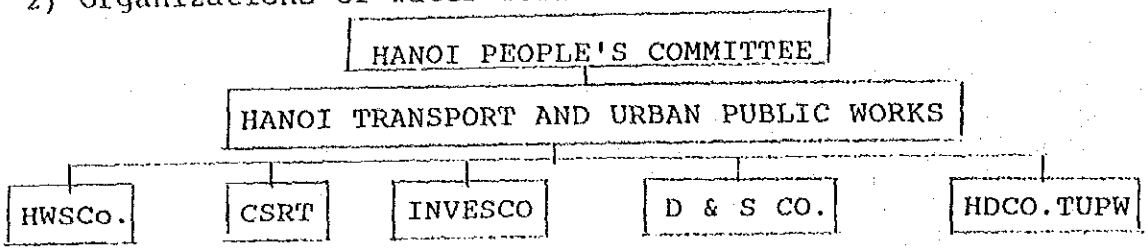
- The total amount of pumped water in the network is 296 438 m3/day (1991)

- Water quality:
  In Hanoi, raw water is extracted from deep aquifer and the prevailing treatment process in water treatment plants are:

  Production wells ---> aeration ----> contact and sedimentation ----> rapid filtration ----> Reservoir (disinfection) ---> Treated water pumping station ---> network

  This process line has just solved the high iron content according to the standard < 0,3 mg/l, partial removal of Manganese and proper disinfection.

2) Organizations of water works :



- The implementing Agency of the Hanoi water supply program is the HTUPWS and it is directing 3 below organizations , they are :

  1. Hanoi water supply co. is in charge of the management and operation of the water supply system serving different consumers. (see the appendix ...)

  - Total employees : 1700

  2. Hanoi Investment co. for development of water sector is in charge of the implementation of water works. The completed works will be handed over to HWSCo. for management and operation.

  - Total employees : 150

  3. Hanoi investigation and design co. for transport and urban public works is in charge of investigation and design of transport and urban public works.

  - Total employees : 300

3) Water work management

- Budget : annually, on the request of TUPWS on the needed investments for the construction and maintenance of infrastructures which are under the control of TUPWS Hanoi People's Committee will approve the budget from following sources :

  - State budget source
  - Budget from the own source of TUPWS
  - Private people

Most of the projects aided by foreigners have been given priority in granting adequately Vietnamese budget and some times even excess the estimated sum.

- Water tariff and billing system

HWSCo. is responsible for calculation of water tariff to submit to TUPWS and HPC for approval. The present tariff is still subsidized by the government as it is also reflecting and relating to the social question of Vietnam. The present water tariff is applied in 4 categories as follows :

- Domestic use : 600 dong /m3
- Water consumed by industries, schools, hospitals, administrative offices, army units, etc. 1.200 dong/m3
- Water use for business, services, etc. : 30 000 d/m3
- Foreigner consumption : 0,45 USD
- In suburban areas where the consumption is uncountable, the flat rate per capita is 2 400 dong/person.

- The above mentioned tariff is only applied for consumption within the allowable amounts fixed by the government. Any exceeded amounts of consumption will be charged from 2 - 5 times more than the present tariff.

The reading of water meters and billing will be made once a month by water distribution branches.

- While the salary system is under revision the water tariff has still to be subsidized by the government . One third of the present water charges should be added to reflect the real cost of 1 m3 of treated water. The Hanoi water supply co. is subsidized in the costs of maintenance, upkeeping and depreciation of the assets.

4. ADMINISTRATIVE SYSTEM AND WATER SUPPLY DIVISION

1) The position of the city waters is presented in the organization chart of TUPWS.

2) Number of the water supply sector's staff in proportion as follows :

Technical block	: 70 % (university, college, secondary vocational graduates and skilled workers)
Administrative block	: 30 % (secretary, office personnel,etc.)

3) Existing water tariff

In general, the present water tariff in Vietnam is not identical as most of the urban areas are suffering very poor water supply; the average salary level is too low which consumers could not afford the charges with full water production cost and the systems are lacking of water meters. In the rural areas, people are using water from surface sources or from their private wells.

4) The total inhabitants served with water supply in Hanoi are about 897.137 (in which 400 000 inhabitants served with better water supply covered by the Hanoi water supply program, the rest using water from old system). According to unofficial statistic figure, in average there are about 4 - 6 persons in a household.

5) Management and maintenance system on water supply facilities in urban and rural areas.

The existing equipment of water supply system is made of different countries thus, there is no common and identical maintenance regime. Most of the equipment has been maintained or repaired when they are in trouble and according to their manuals except the equipment and facilities provided in the coverage of Hanoi water supply program which have been maintained properly and according to their specifications.

6) Present conditions of diseases, especially water born diseases

Since 1954 there has not been an epidemic disease caused by using water. The Hanoi Center of Epidemics and Hygiene has regularly carried out the water sample analysis. According to the report of quarter I/1991, the disinfection in water treatment plants has not been carried out regularly or inadequate Chlorine dosage. Particularly, during March, the Test Chlorine in all 9 water treatment plants is 0. Some recorded results are as follows :

* Test Chlorine:

- 9/29 samples taken at water treatment plants are disinfected with adequate Chlorine content of 0,3 - 1 mg/l, 20 rest samples with inadequate Chlorine content
- 29/29 samples taken at public stand-pipes have inadequate Chlorine content.

* Bio-test :

- 19/29 samples taken near treatment units satisfied the required standard and 10 samples were unsatisfied in which one sample contained anaerobic bacteria.
- 19/29 samples taken at furthest points of the network satisfied the hygienic standards and 10 samples are unsatisfied.

Water treatment plants which samples have been repeatedly unsatisfied the micro-biological standards as in Luong Yen, Ha Dinh Phap van,Bach mai,Don thuy and Gia lam.

7) Priority and necessity in turn on each project to propose with the Japanese government:

- The water supply system in the area on the left bank of the Red river has been at present aided by the government of Finland.

This is a high populated area and large investment as well as longer time are still required. On the other hand, Gia Lam area which is not covered by the FINNIDA project situated on the right bank is separated with a large river and planed to be a new urban district of Hanoi City with new industrial development. Thus, the water demand of Gia Lam area will be urgent and necessary. The water supply system in Gia Lam is too small and aging and critically degraded.

- The ground water resources in Gia Lam is very promising and land for construction of water treatment plant and pipeline network is very conveniently available.

- Hanoi People's Committee has requested the government to consider supports and especially to look for foreign support in rehabilitation and extension of Gia Lam water supply system.

- Local equipment and materials are not satisfied the requirements of high water quality and not able to ensure the continuous water supply thus, it is necessary to obtain the supports of foreigners, especially in the Asian region.

5. OUTLINE OF THE PROJECT AREA.

1) Outline of Hanoi city

- Map of Hanoi is attached , scale 1/10000
- Hydro-geological data map of Hanoi city (attached)
- Climate map (see appendix)
- Land use map (see appendix)
- Population data (see appendix)
- Electric power supply condition :

The electric power network of 220kv - 110 kv for Hanoi is comprehensively completed. At present, there are 2 transformers 220/110 kv (total capacity of 375 MVA) and 60 km of 220 Kv cable line, 12 transformers of 110 Kv/35/10-6 KV (441 MVA) and 192 km of 110 KV cable lines which create a grid around the city. However, due to the co-existence of three different cables lines of 35 - 10 - 6 KV the electric power losses is considerable. The network of 35 KV is too old. The network of 10 and 6 KV cable lines have been constructed with poor planning.

The electric power supplying for Gia Lam area is from transformer in the North of city (Dong Anh area) to Gia Lam transformer (from 110 KV to 35 KV & 10 KV) and some other 6 KV transformers.

2) Outline of Gia Lam area

- Map (see appendix)
- Population and land use (see appendix)

6.OUTLINE OF WATER SUPPLY IN GIA LAM AREA

1) Management system : see the appendix)

2) Water supply system :

The system was designed with an capacity of 7 000 m3/day but the present actual capacity only reaches 3500 m3/day. According to the preliminary statistics, about 100 000 inhabitants are served with water supply.

3) Water resources

Ground water resources has been exploiting for the purpose of water supply in Gia Lam.

4) Treatment plant

- The amount of treated water is 3500 m3/day
- The process line consists of aeration - contact and sediment basins - rapid sand filtration and disinfection with Chlorine.
- The operation is manual
- One rehabilitation has been carried out in 1973.
- Number of staff is 17 persons at secondary vocational level and skilled workers.

5) Distribution facilities

At present, 3 treated water pumps are in operation 10 LT-9 Q= 375 m3/h;H =28 m; N=75 KW, in which one pump was broken.

- Total length of pipeline is 16,5 km in which :
  - D = 200 - 250 mm : 5,5 km
  - D = 150 mm : 3,5 km
  - The rest of 8 km with diameter of less than 150 mm are the house service lines.

6) Water quality data:

* Raw water :		Fe = 10 - 20 mg/l
		Mn = 0,15 - 2,2 mg/l
		Ph = 6,5 -7,5
	Salinity	4,2 - 50 mg/l Cl
	Alkality	50 - 350 mg/l
* Treated water		Fe > 1 mg/l
		Mn + 0,5 - 2 mg/l

7) Red river data : (see appendix)

7. WELL DRILLING TECHNIQUES

1) Number and types of well drilling rigs

In the organization structure of TUPWS, there is not an organization specialized in well drilling works. The works are implemented by companies under the Ministry of Construction and Vietnam Geological Department. The proper and adequate supervision to the drilling works is available in organization of TUPWS and a special team on the well development and maintenance is within the Hanoi water supply co.

2) Staff of the well development and maintenance :

- Foreman : 1
- Technician : 2
- Engineer : 2
- Skilled worker : 50

The drilling of well is also within the capability of the team but they are lacking of drilling equipment.

3) List of well drilling companies involving in the drilling in Hanoi area :

- Underground water drilling co./Ministry of Construction
- Union of Hydro-geology K2/Vietnam Geological Department
- Hydro-geological Investigation Division K64
- Engineering School of Mine and Geology
- College of Mine and Geology
- Union of survey companies/Ministry of Construction

The available drilling rigs : YKC - 22M, YKC-30 percussion rig, Russian made, YPB 3AM-500, X3R, rotary drilling rigs.

8. CONTENT OF THE REQUEST FOR GIA LAM PROJECT

See appendix

9. RELATING PROJECT

1) Other water supply projects within past 10 years

Over 10 years now, there have been three projects in Hanoi area :

a) Hanoi water supply program funded by FINNIDA
b) Project VIE 82/011 funded by UNDP on water supply management and training
c) Rural water supply project funded by UNICEF

a) Hanoi water supply program

The projects has been started since June/1985 up to now and with a view to rehabilitation and extension the existing water supply system on the left bank of the Red river.

- Phase I (1985 -1988) VN : 5,032 bil. dong
  FL : 119,17 Mil. FIM
- Phase II (1988 -1990) VN : 27,5 Bil. dong
  FL : 105,23 Mil. FIM
- Phase III (1991-1995) VN : 50,6 Bil. dong
  FL : 152 Mil. FIM

b) Project VIE 082/011(1987 - 1989)

This is a project funded by UNDP to provide Hanoi water sector with a water laboratory and a center of training for its staff. Total contribution budget from UNDP was 1 mil. USD which is due to procurement of equipment for water laboratory, office, expatriate expenses and international travelling and training courses locally and abroad.

c) The rural water supply project funded by UNICEF for the whole country including Hanoi rural areas. The project emphasized mainly on the shallow well drilling and equipped with hand pumps for rural areas.

2) Planned projects :

1. The project "Rehabilitation and extension of water supply system in Gia Lam areas - Hanoi city" is planning to be implemented within two years with objectives of providing adequate water supply for three towns (Sai Dong, Gia Lam and Duc Giang) and its neighbourhood and industries. The proposed investments are as follows :

- Foreign grant aid : 5,124 Mil. USD
- Vietnamese contribution : 1,68 Mil. USD

On the recommendation of the government of Vietnam and Japanese Embassy in Hanoi, the donor can be ODA - Japan.

2. Project "Rehabilitation and extension of water supply system in Thanh Tri area - Hanoi City"

3. Project " Rehabilitation and extension of water supply system for Dong Anh area - Hanoi City"

10. PRIORITY OF GIA LAM PROJECT

1) Strategy for rehabilitation and extension of water supply system in right side and left side of the Red river

In 1983, the first national conference on water supply was sponsored by the Ministry of Construction and the second one in 1992. In reports of both conferences, it was emphasized on the priority and necessity of the rehabilitation and extension of water supply systems in Hanoi areas in both sides of Red river.

2) Indicate priority of the projects

a. Rehabilitation of extension of the water supply system on the left bank of Red river
b. Rehabilitation and extension of the water supply system on the right bank of Red river (Gia Lam area).

3) Reasons of the request to Japan

- Thank to the "open door policy" of the government of Vietnam and recent cooperation policy of the government of Japan in restoring the humanitarian aid to Vietnam and due to the limitation of Vietnamese budget we have made this request to the government of Japan.

11. WHAT IS THE DIFFERENT POINTS OF GIA LAM AREA COMPARED WITH ALL HANOI CITY.

1) Land use and development plant

Gia Lam area is considered as a constituent part of Hanoi city thus its land use plan is also put into account of the whole city development plan prepared by Hanoi Urban Planning Institute. The water exploitation as well as water demand have also been estimated on the basis of new general development city plan.

2) Supply ratio in Hanoi city

According to the statistics of Hanoi Water Supply co.

- House : 40,47 %
- Official : 23,14 %
- Industry : 14,23 %
- commerce : 2,66 %
- Public : 19,50 %

3) Supply ratio in the project area

- House : 73,95 %
- Commerce : 1,18 %
- Industry : 1,07 %

- Office : 11,9 %
- Public : 11,9 %

12. MANAGEMENT AND MAINTENANCE

(see appendixes)

13. MAJOR CONSTRAINTS AS PRIORITY IN HANOI WATER SUPPLY SYSTEM

(1) Construction of water treatment plants

- Investment sources
- Special equipment and materials which are not available or of low quality in Vietnam
- Sites for construction
- Construction formalities
- Procedure of investigation and design

(2) Operation and maintenance of treatment plant

- Inadequate fund for maintenance
- Low knowledge of operation and maintenance
- Lack of instruction, special devices and manuals
- Poor attitude of maintenance
- Equipment and machinery not suitable with climate in Vietnam.

(3) Construction of pipeline

- Site clearance
- Existing underground structures
- Approval of City development plan delayed
- Old urban areas are too densely populated
- Usability testing of old lines

(4) Operation and maintenance of pipeline

- As-built drawings
- Lack of fund
- Poor knowledge of managers
- Poor attitude in using water of consumers
- Poor attitude of operation and maintenance workers

(5) Water quality and its control

- Fund for water sampling and analysis
- lack of equipment and chemicals for water analysis
- Low knowledge of water analysis and sampling
- Lack of transportation and maintenance of samples
- Poor information and communication

(6) Water tariff and billing system

- Inadequate water selling prices
- Lack of water meters

PHU LUC I - ANNEX I
DAN SO THANH PHO DU BAO DEN NAM 2000
FORECAST OF POPULATION UNTIL YEAR 2000

NAM/YEAR	GIA LAM	HANOI
1992	279 990/2,04	2 150 676/2,46
1993	285 308/1,93	2 202 063/2,33
1994	291 538/2,09	2 253 941/2,30
1995	297 013/1,96	2 346 482/2,36
1996	303 063/1,85	2 361 850/2,26
1997	308 214/1,75	2 412 814/2,11
1998	214 069/1,85	2 464 410/2,10
1999	319 721/1,73	2 514 287/2,01
2000	324 836/1,61	2 561 311/1,83

(Dan so/ty le gia tang - Population/ growth ratio)

TABLE THE WATER LEVEL OF RED RIEVER
(1983 -1990)

YEAR	Max.W.L	Month	Min.W.L	Month
1983	+ 7,5 m	Aug	+ 2,7 m	April
1984	+ 9,0 m	July	+ 2,7 m	March
1985	+ 9,2 m	Sept	+ 3,0 m	March
1986	+ 9,0 m	Aug	+ 2,5 m	March
1987	+ 7,8 m	Aug	+ 2,7 m	March
1988	+ 8,0 m	Sept	+ 2,2 m	April
1989	+ 8,2 m	July	+ 2,5 m	March
1990	+11,9 m	July	+ 3,0 m	Feb

TABLE THE RAINFALL DATA (1983 - 1990)

YEAR	Max.	Month	Min .	Month
1983	420 mm	Oct	18 mm	Dec
1984	600 mm	Nov	12 mm	Dec
1985	370 mm	Sept	3 mm	Dec
1986	550 mm	May	5 mm	Dec
1987	435 mm	Aug	0 mm	Dec
1988	280 mm	Oct	0 mm	Dec
1989	520 mm	June	0 mm	Dec
1990	345 mm	July	5 mm	Dec

BANG 4 : Population of Adjacent Town

DAN SO CAC DIEM DAN CU KE CAN
VUNG PHAT TRIEN DO THI DONG BAC HA NOI (GIA LAM)

Ma So TT	Tan diem dan ou Name of Area	Dan so hien tai (1992) Population	Nhip do tang/nam Growth Rate	Dan so 2010 Population	Don vi ha chjnh (xa
1	Thon Gia Thuy	1.240	2.06	1.790	Xa Ngoo Th
2	X Xom moi	500		720	〃
3	Bac Bien	1.080		1.560	〃
4	Gia Quat	970		1.400	〃
5	Trung Ha	1.190		1.720	〃
6	Yen Tap	860		1.240	〃
7	Gia Quat	950		1.370	Xa T, Than
8	Thuong Cat	2.350		3.390	〃
9	Duc Hoa	770		1.110	〃
10	Thon Duc Giang	410		590	〃
11	Thanh Am	1.710		2.470	〃
12	Truong Lam	3.150		4.540	Xa Viet Hun
13	Kim Quan	1.310		1.890	〃
14	Le Mat	2.050		2.960	〃
15	Tan Thuy	770		1.110	Xa Gia Thuy
16	Mai Phuc	1.330		1.920	〃
17	Sal Dong	2.000		2.880	〃
18	Cu Dong	380		550	XaT. Ban
19	Ngoo Tri	2.640		3.800	〃
20	Thach Cau	2.520		3.630	〃
21	Thon Ngo	1.660		2.390	〃
22	Thon Nha	1.680		2.420	Xa Long Bia
		31.520		45.450	

BANG : Hanoi City – North East Area

THANH PHO HA NOI – KHU VUC DONG BAC SO LIEU HIEN TRANG (1992)

So TT	TEN HANH CHINH Administration Name	Dan So Population	Dien tich (ha) Area	Ghi chu Remarks
A	THI TRAN : Town	16.896		
1	Duc Giang	21.758	246	
2	Gia Lam	21.758	96	
3	Sai Dong	10.108	100	
B	CAC XA Community			
4	Ngoc Thuy	11.607	363	
5	Thuong Thanh	7.240	400	
6	Giang Bien	3.813	337	
7	Viet Hung	6.510	410	
8	Bo De	6.341	328	
9	Gia Thuy	5.408	329	
10	Long Bien	6.929	773	
11	Hoi Xa	5.960	590	
12	Thach Ban	8.480	520	
13	San bay Gia Lam	—	300	

BANG : Existing Land Use and Population

THANH PHO HA NOI
KHU VUC DONG BAC HIEN TRANG SU DUNG DAT SO

TT	D. thch Hang muc (ha)	Toan vung	T.tuan G.Lam	T.tran D.Giang	T.tran S.Dong	Ghi oh
A	LOAI DAT					
1	Villages	607	—	—	—	
2	Residence	159	36	46	32	
3	Offices	88	3	7	13	
4	Public	30	3	7	4	
5	Industry	136	21	56	27	
6	Store	54	2	44	3	
7	Road	67	9	15	15	
8	Agriculture	2.223	—	—	—	
9	Others (channels, lakes)	1.046	22	71	6	
10	Gia Lam Airport	300	—			
	Total	4.792				
B	Population	111.760	21.760	16.900	10.110	

BANG 3 : Population Forecast and Land Use Planning (up to 2010)

THANH PHO HA NOI

SO LIEU DU BAO VE QUY HOACH SU DUNG DAT VA DAN SO

KHU VUC DONG BAC NAM 2 0 1 0

So TT	Land Use	ha	North East	Thitrau G.Lam	T.tran D.Giang	T.tram B.dong	Ghic
1	Residont	249	19	77	75	78	
2	Office	47	12	10	11	14	
3	Public						
4	Industry	229	14	21	71	123	
5	Stores	53	4	2	44	3	
6	Road	140	9	46	43	42	
7	Green Plautation	53	—	16	20	17	
8	Lake, chanel	19	—	6	13	—	
	Total	820	60	188	287	285	
	Population	80.000	4.000	27.000	24.000	26.000	

1. Financial statement for past five (5) years

Unit:usd

(1) Balance of profit and loss Fiscal year(month～ month) (exchange rate 1 usd=10000 đ VN)

Items			Year	1987	1988	1989	1990	1991
Gross earning (A)	Operating revenue (B)	Water supply		30.219,32	224.631,01	879.096,12	1.088.361,10	1.988.971.93
		Trusteeship construction		4.058,10	22.468,66	76.192,55	71.214,12	110.581,80
		Others		257,94	2.870,04	5.525,38	9.019,36	25.581,10
	Non-operating revenue (C)	Acceptance interest						
		Another accounting subsidy						
		Others						
	Extraordinary gains (D)	Assets selling						
		Others						
	Total			34.535,36	249.969,71	960.814,05	1.168.594,58	2.725.134,83
Total cost (E)	Operating cost (F)	Raw and treated water						
		Delivery and supply water		22.319,89	498.522,19	773.389,59	982.226,06	1.954.107,2
		Trusteeship construction General cost		3.473.42	19.801,79	68.573,29	64.092,71	96.260,08
		Assets wear and tear expenses Others		205,87	2.352,73	4.285,32	5.793,95	25.355,22
	Non-operating cost (G)	Interest expense Others (Jax)		4.250,13	20.266,05	65.127,76	46.074,40	24.706,15
	Extraordinary losses (H)	Assets selling revenue Others						
	Total			30.249,31	220.942,76	911.375,96	1.098.187,12	2.100,428,6
Ordinary profit and loss (B+C) − (F+G)				4.286,05	29.026,95	49.438,09	70.407,46	
Profit and loss (A−E)				4.286,05	29.026,95	49.438,09	70.407,46	

(3) Statement of assets and liabiliy

(3－1) Parts of assets

(Rafio 1 uso=10000 ₫ VN)

Items			Year	1987	1988	1989	1990	1991
Fixed assels	Tangible fixed assets	Land		55,24	55,29	669,65	669,65	669,65
		Building		1.276,00	1.276,00	52.693,24	90.943,62	112.892,02
		Structure		33.893,15	40.092,63	549.844,26	1.229.005,36	1.351.323,00
		Machine and equipment		3.589,10	4.156,63	241.511,06	499.000,14	484.130,9
		Vehicle and transportation		511,54	1.805,08	9.095,65	54.284,44	54.284,44
		equipment		28.378,34	36.238,87	1.449.021,94	2.606,343,9	2.600.229,7
		Tools and fittings						
		Construction interim account						
	Intangible fixed assets	Credit						
		Other						
	Investment	Negotiable securities						
	Total			68.321,43	83.515,72	2.332.828,8	4.458.277,11	4.603.509,9
Current assets		Cash and deposit		8.560,29	13.379,65	32.611,14	11.966,51	65.015,25
		Uncollected money		671,87	7.498,16	6.532,53	22.130,76	50.163,57
		Spare stores		13.638,77	113.652,87	186.703,82	322.439,65	319.089,66
		Advance payment money		3.782,58	22.772,46	48.999,81	66.796,80	162.314,14
		Other		8,13	21,27	572,67	239,78	7.411,13
		Total		26.661,63	157.324,41	275.439.97	443.573,50	603.993,75
Deferred account		Retiring allowance						
		Development cost						
		Total						
Total assets				94.983,06	240.840,13	2.608.268,77	4.901.850,91	5.207.503,65

2. Management index of water works for past five years

Items	Year	1987	1988	1989	1990	1991
Daily distribution amount	(㎥/ day)	319,554	319,578	310,309	314,924	312,040
Daily average distribution amount	(㎥/ day)	303,576	303,600	294,794	299,178	296,438
Daily maximum distribution amount	(㎥/ day)	315,000	316,000	306,000	307,000	306,000
Annual total distribution amount	(㎥/ day)	110,805,412	110,814,000	107,600,000	109,200,000	108,200,000
Annual total revenue amount	(㎥/ day)	47,646,327	56,515,000	55,952,000	60,060,000	61,674,000
1. Loading ratio	(%)					
2. Operating ratio of facilities	(%)	80	80	80	80	80
3. Maximum operating ratic	(%)	85	85	85	85	85
4. Water sales to water produced ratio	(%)	42,99	50,99	52,00	55,0	57,0
5. Unit cost of water	(s/㎥)	0,000272	0.00177	0.00788	0.00995	0.01838
6. Original price of delivery water	(s/㎥)	0,000277	0.00226	0.01079	0.01352	0.03946
7. For each staff person						
1) Supply population	(person)					
2) Water sold	(㎥)					
3) Operating pevenue	(S)					
8. Water sold (10,000㎥/day)						
1) Raw water staff	(person)	4	4	4	3	3
2) Treated water staff	(〃)	12	12	12	10	10
3) Distribution staff	(〃)	16	16	16	15	15
4) Gauge inspection and aggregation staff	(〃)	14,37	15,20	14,40	14,50	14,60
9. Staff matter						
1) Average of salary	(S)					
2) Average of age	(years)	38	38	38	37	37
3) Average of duties year	(years)	23	22	20	20	18
10. Equity-capital to operating revenues ratio	(%)					
11. Ratio of fixed assets to long-term capital	(%)					
12. Current ratio	(%)					
13. Operating revenues to operating expenses ratio	(%)	114,16	113,13	105,42	106,41	101,17
14. Ordinary revenues to ordinary expenses ratio	(%)	114,16	113,13	105,42	106,41	101,17

★ Above items will be calculated by next paper.

3. Details of the cost within last (5) year

(exchange rate 1 usd=10000 ₫ VN)

Items		Year	1987	1988	1989	1990	1991
Total cost	Operating cost	1) Personal cost - Raw water and treatment - Distribution mains and communications equipment - Other tangible assets	2.663,24	27.575,43	57.000,2	92.854,49	101.815,63
		2) Chemical cost - Coagulating agent - Chlorination - Others	110,44	1.048,07	3.374,92	7.790,26	29.216,75
		3) Repairing cost - Raw and treatment - Distribution mains and communications equipment - Other tangible assets	9.720,0	82.900,0	325.500,0	412.618,42	944.546,67
		4) Cost depreciation	1.864,40	13.586,77	27.456,63	63.703,42	29.213,09
		5) Assets decreasing cost	5.419,55	18.726,03	157.110,08	106.390,0	136.200
		6) Others	6.221,50	56.840,41	275.797,47	368.846,13	834.730,39
		Total	25.999,18	200.676,71	846.248,20	1,052.112,72	2.075.922,53
	Non-operating cost	1) Interest expense					
		2) Others	4.250,13	20.266,05	65.127,76	46.074,4	24.706.15
	Total		4.250,13	20.266,05	65.127,76	46.074,4	24.706,15
	Special loss		—	—	—	—	—
	Grand total		30.249,31	220.942,76	911.375,76	1.098.187,12	2.100.428,68

資料8.ヒヤリング資料（国家計画委員会）

ヴィエトナム国の国家計画委員会でのヒアリング結果

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Question. 1
要請書の中で、「ハノイ市の水道施設のリハビリ及び拡張事業は、ＳＰＣの中で承認された、プライオリティの高い国家プロジェクトのリストに入っている」と記されているが、具体的な根拠を示して欲しい。

Answer. 1
1992.9 に来ヴィエトナムした、日本から中村ミッションにプライオリティの高いプロジェクト・リストを提出済みであり、その中に示されている。

Q. 2
水道施設のリハビリ及び拡張事業のプライオリティは、ハノイ市内と Gialam 地区のどちらが高いのか。

A. 2
プライオリティは、両方とも、同等に高い。

Q. 3
要請書によれば、日本の無償資金協力額は 5.12 Mil.US$ 、ヴィ国側の負担額は 1.68 Mil.US$となっており、ヴィ国側の負担額はかなり大きいが、必ず資金を確保してくれるのか。

A. 3
ヴィ国側の負担分は、援助が公式に確定した時点で（Ｅ／Ｎの時点）、ＳＰＣ及びハノイ市人民委員会が責任を持って確保する措置を取り、必要額の大部分は国から支出される。

Q. 4
ヴィ国側負担分は、日本側の実施スケジュールに合わせて確保されるのか。確保されずに、供与した資機材が未使用のまま放置されることはないか。

A. 4
ヴィ国側は、Ｅ／Ｎの後に、全体計画に合わせて実施できるよう資金を確保する。予算年度は１月からであり、Ｅ／Ｎの時期により、当初予算の確保にずれが生づることがあるが、その時は、補正予算で対応するので、実施スケジュールを合わせる

ことは可能である。

Q．5
援助が外交ルートで合意された場合には、ＳＰＣはヴィ国側の負担分を責任以て確保してくれると判断して良いか。

A．5
そのとおりである。ＳＰＣは負担分を確保する責任機関であり、大蔵省がそれを支出する。

Q．6
FINNIDA がハノイ市内で実施中のプログラムは、1995年までコミットされており、これに更に Gialam 地区のプロジェクトが実施されることになれば、ヴィ国側の負担分の年度額は倍増されると思われるが、それでもＱ．５は保証されるのか。

A．6
そのとおりである。負担分の年度額を増加せずに、両方のプロジェクトに割り振り、１つのプロジェクト当りの負担分を減少させるようなことはしない。

Q．7
ハノイ市内は、Gialam 地区に比べて人口密度が高いので、資金の投資効率が高いと思われるが、それでも、Ｑ．５、６は保証されるのか。

A．7
そのとおりである。将来的に、市内の人口を増加させないようにし、５つの外県を発展させる方針である。Gialam 地区は交通の要所であり、重要な地区である。

Q．8
５つの外県の発展のプライオリティはどうなっているか。

A．8
市内の発展は限界になっており、外県の発展を図る方針であり、５県には各々の発展方針がある。Gialam 地区は、住居、工業地区としてプライオリティが高い。

Q．9
現在、水道事業の財政状態は、料金徴収が十分ではないので赤字と思われるが、水道財政の今後の方針はどうなっているか。また、Gialam 地区の水道事業が赤字になったときには、それは誰が負担するのか。

A．9
赤字であり、独立採算性を進めたいと考えているが、水量的なロスが多くて困難である。水道事業が赤字になったときは、中央政府及び人民委員会が負担する。