

## 面談者リスト

1. Dr.Somphavanh INTHAVONG Vice Minister, Ministry of Commerce and Economic External Relation
2. Mr.Bouasy LOVANHSAY Vice Minister of CTPC
3. Mr.Xay PHAKASOUM Vice Minister of CTPC and Director of CTPC Department of Vientiane Municipality
4. Mr.Sombath CHOUNLAMANY Director of Department 2, Ministry of Foreign Affairs
5. Mrs.Somsanuck VONGSACK Officer of Department 2, MFA
6. Mr.Bountheung Officer of Ministry of Commerce
7. Mr.Khanh NGEUN Officer of Ministry of CTPC
8. Mr.Visala Ministry of CTPC
9. Mr. Bounmark SISAVIEUTY Vice Director of Department of Economy, Planning and Finance of Vientiane Municipality
10. Mr.Khamla SAYAVONGSA Vice Director of CTPC
11. Mr.Phomma SIGNANONH Officer of Department of CTPC
12. Mr.Sinthone RITTHISAK Director of Survey and Design State Company
13. Mr.Chankoth KEOLASY Director of Road and Bridge Construction Company, Vientiane Municipality
14. Mr.Oudone VATHANAXAY Officer of Department of CTPC, Vientiane Municipality
15. Mr.Bounmy PATHAMMAVONG Officer of Department of Protocol Service, Vientiane Municipality
16. Mr.Sisavath CHASANH Project Manager of Flood Protection/ Reclamation of Swanp/ Marshland, Ministry of AFIC
17. Mr.Kongfa PHOUMMASAK Chief of Urban service, Technical Research and Urban Institute, Ministry of CTPC
18. Mr.Sangarappielal SANDANAM Environmental Sanitation Specialist of Urban Development Program in the Prefecture of Vientiane, UNDP

## 添付資料-4

## 収集資料リスト

No.	資料名	編纂/発行機関 (入手先)	備考	No.	資料名	編纂/発行機関 (入手先)	備考
1	10 YEARS OF SOCIO-ECONOMIC DEVELOPMENT IN THE LAO.PDR VIENTIANE.1985	STATE PLANNING COMMITTEE & STATE STATISTICAL CENTER		12	1986 ANNUAL REPORT	Mekong Committee	
2	Lao PDR Country Economic Memorandum July, 1986	World Bank		13	Feasibility Report on VIENTIANE PUMP IRRIGATION PROJECT March 1970 Main Report(Summaryのみ) Appendix	U.S. Agency for International Development	
3	Development for Socio-Economic from 1988-90-95 and 2000 year	Division of C.T.P.C., Vientiane Municipality	原文(ラオス語)	14	Feasibility Report on CASIER SUD PONGER AGRICULTURAL PROJECT IN LAOS March 1971 Main Text(Summaryのみ)	A.D.8 Ministry of Agriculture	
4	REPORT ON VIENTIANE LAOS FLOOD CONTROL PROJECT Oct. 1971	U.S. Agency for International Development		15	Report on KADLIEO AREA IRRIGATION PROJECT (Lao-Austrian Irrigation Project, 1987)		
5	VIENTIANE DRAINAGE STUDY ON TOP PRIORITY PROJECT Jan. 1975	(Ministry of A.F.I.C.)		16	SERVICE GEOGRAPHIQUE D'EAT (1:100,000)		調査地域及び調査地域が- (全6枚) SHEET 5544-III&IV
6	DRAINAGE STRATEGY STUDY, URBAN DEVELOPMENT PROGRAM, Lao PDR; UNDP/UNCHS Project Oct. 1987	UNDP		17	LAOS 1:50,000(地形図) VIENTIANE, BAN HATKIANG		Series L9011 (市営部カバ-)
7	Report on "THE DISPOSAL OF STORMWATER IN URBAN VIENTIANE", Lao PDR; UNDP/UNCHS Project June 1988	UNDP		18	LAOS CITY MAP (1:12,500)		
8	Report on "THE DISPOSAL OF DOMESTIC WASTEWATER IN URBAN VIENTIANE", Lao PDR; UNDP/UNCHS Project Oct. 1988	UNDP		19	MAP OF VIENTIANE 1:10,000		
9	FLOOD PROTECTION AND RECLAMATION OF SWAMP AND MARSHLAND IN THE VIENTIANE PLAIN Oct. 1978	Mekong Committee	Project Data sheet in support of a grant from the European Economic Community	20	地形図 1:10,000(1:50,000入り)		調査地域の膏焼き (依頼済み)
10	FLOOD PROTECTION AND RECLAMATION OF SWAMP AND MARSHLAND IN THE VIENTIANE PLAIN Sep. 1982	Mekong Committee	Project activity No. 4.4-02	21	航空写真(1982年撮影)		他膏焼き一部
11	FLOOD PROTECTION AND RECLAMATION OF SWAMP AND MARSHLAND IN THE VIENTIANE PLAIN, PHASE II Nov. 1984	Mekong Committee	Project Data Sheet	22	LOWER MEKONG HYDROLOGIC YEARBOOK 1985-1986 Volume 1, 2	Mekong Committee	
				23	同上 1983-1984	Mekong Committee	主要観測所データのコレ-
				24	1971年FL0000記書流向図	(Division of C.T.P.C., Vientiane Municipality)	
				25	メコン流域水害地形分類図 大矢雅彦「河川の開発と平野」	大明堂	
				26	サイクロンコース図	(Division of C.T.P.C., Vientiane Municipality)	

No.	資料名	編成/発行機関 (入手先)	備考
27	Rainfall Data - Monthly Rainfall (1975-1986) - Daily Rainfall exceeding 100mm/day (1923-1986) - Maximum Hourly Rainfall Intensity		現地調査データ 抜粋
28	水位/流量観測データ: The Hong Xong & The Houei Ma Hiao	(Division of C.T.P.C., Vientiane Municipality)	
29	水質観測地点及びデータ: 調査地域内5観測所	Ministry of Agriculture (Division of C.T.P.C., Vientiane Municipality)	入手データは The Hong Ke のみ
30	土質試験分析表	(Division of C.T.P.C., Vientiane Municipality)	
31	Soil Investigations Report for Vientiane River Port Improvement Project	Ministry of Construction	
32	Existing River Cross- section of the Mekong River	(Division of C.T.P.C., Vientiane Municipality)	5断面 (C.T.P.C. 保管)
33	Longitudinal profile of main drainage channels	(Division of C.T.P.C., Vientiane Municipality)	1975年状況
34	Information on Surveying State Enterprise		保有技術者数、 機材、コスト等
35	Information on Laboratory for Water Quality Test		人員、分析項目、 コスト等
36	Information on State Enter- prise for Boring & Field Soil Mechanical Test, and Laboratory		人員、機材、理 場、室内試験項 目、コスト等

REQUIRED DATA AND INFORMATION  
(要 問 表)

1. GENERAL

- 1-1 National development plan (existing long-term plan or five year plan)
- 1-2 Sectorial and Regional plans related to the Study
- 1-3 National census related to the Study
- 1-4 Socio-economic conditions in and around the drainage system in Vientiane (hereinafter referred to as "the Study area")
  - a. Administrative district (city, town, and village)
  - b. population and Household ( ditto )
  - c. Beneficiaries from the Project
  - d. Land use
  - e. Industry
  - f. Infrastructure
    - Road condition (length and pavement ratio of National, provincial/city road)
    - Transportation
    - Electricity
    - Tele-communications
    - Water supply
    - Sewerage
    - Public facilities
- 1-5 Agencies and their main duties and territories in planning, and implementing
- 1-6 Organization
  - a. Central government Organization related to the Study
  - b. Organization of Vientiane Municipality
  - c. Other agencies related to storm water drainage and flood control
- 1-7 Budget in last five years
  - a. National budget
  - b. drainage system construction (whole country)
  - c. ditto (Vientiane, city)
  - d. Maintenance cost for drainage system, road, and other infrastructure ( ditto )

2. STORM WATER DRAINAGE SYSTEM

- 2-1 Previous studies on storm water drainage system in the Study area (including flood control)
- 2-2 Data on Present drainage system in the Study area
  - a. Drainage channel system / variations of channel course in the past
  - b. Cross-section of major drainage channels
  - c. Drainage facilities (including underground structures)
- 2-3 Existing Plan on improvement of storm water drainage system
  - Report on "The Desposal of Stomwater in Vientiane June 1968 by Sandanax
  - Drainage Strategy Study - Urban Development Programme Prefecture of Vientiane Oct. 1987
  - Vientiane Drainage Project 1977, Communication, Transportation & Construction Services of Vientiane Municipality, Country area 5882.2ha

3. FLOOD CONTROL AND RIVER IMPROVEMENT  
OF THE MEKONG RIVER

- 3-1 Previous studies on flood control / river improvement
- 3-2 Data on present river condition near the city of Vientiane
  - a. Plan, profile and cross-section
  - b. River management facilities
- 3-3 Existing plan of the lower Mekong near the city of Vientiane

4. SEWERAGE SYSTEM

- 4-1 Previous studies on sewerage system in the Study area
- 4-2 Present condition on sewerage system in the Study area
  - a. Sewerage system
  - b. Domestic and industrial waste waters
  - c. Waste water quality and quantity
  - d. Treatment facilities
  - e. Reduction of pollution loading
- 4-3 Existing Plan on improvement of sewerage system

- 5. WATER SUPPLY SYSTEM**
- 5-1 Previous studies on water supply system in the Study area
- 5-2 Present condition and extension plan on water supply system in the Study area
- Served area, population and household
  - Water consumption and water demand
  - Intakes, water treatment and distribution facilities
- 6. EXISTING PLAN AND PREVIOUS STUDIES ON URBAN DEVELOPMENT IN VIENTIANE**  
(including data of forecasted population and land use)
- 7. DEVELOPMENT IN RIVER BASIN DISCHARGED BY PROPOSED DRAINAGE PUMP**
- 7-1 Previous studies and Existing Development Plan  
- Technical & Economic of Thatduang/ Saklatham Swamp Nov.1982 (Ministry of A.F.I.)
- 7-2 Data on present land use and water use in the basin
- 8. OTHER PROJECT**
- 8-1. Ongoing and proposed projects related to storm water drainage in Vientiane
- 9. METEOROLOGICAL DATA**
- 9-1 General meteorologic features in Vientiane  
(Temperature, humidity, sunshine hour, wind velocity, etc..)
- 9-2 Data on cyclone  
(Major cyclone in the past, route, etc..)
- 9-3 Rainfall data  
a. Monthly rainfall  
b. Daily rainfall  
c. Hourly rainfall during remarkable floods in the past
- 9-4 Meteorological observation system in the Study area  
a. Management agencies  
b. Inventory of observation stations (name, location, record available, etc..)
- 10. HYDROLOGICAL DATA**
- 10-1 Water level and discharge of the Mekong River and channel in the Study area  
a. Monthly water level / Monthly average discharge  
b. Daily water level / Daily average discharge  
c. Hourly water level/discharge during remarkable floods in the past  
d. Maximum annual water level/discharge
- 10-2 Water level and Discharge observation system in the Study area  
a. Management agencies  
b. Inventory of observation stations (name, location, record available, etc..)
- 10-3 Ground water level at major points in the Study area
- 10-4 Water quality data at major points in the Study area  
(including the Mekong river data)
- 11. INUNDATION AND ITS DAMAGE**
- 11-1 Habitual inundation areas / maps in the Study area  
(Area, duration, depth, etc..)
- 11-2 Inundation damage due to heavy storm water in the past
- 12. WATER USE CONDITION IN THE STUDY AREA**
- 12-1 Water sources: channels in the Study area
- 12-2 Purpose, locations, quantities, intake method, etc..

### 13. TOPOGRAPHY AND GEOLOGICAL DATA

#### 13-1 Topographic maps covering the Study area

- a. Scale / year
- b. Interval of contour line

#### 13-2 Land use maps covering the Study area

- a. Scale / year

#### 13-3 Geological and soil mechanical data in the Study area

- a. Maps, Boring log, etc.,
- b. Location maps in previous study site

### 14. IMPLEMENTATION OF FIELD SURVEY

#### 14-1 Topographic, longitudinal and cross-sectional surveying

- a. Implementing body
- b. State companies and nos. of surveyor
- c. List of equipment / Vehicle
- d. Comments on carrying out the survey

#### 14-2 Water quality survey

- a. Implementing body
- b. State companies and/or laboratories
- c. Nos. of engineer / analyst
- d. List of equipment / reagent
- e. Comments on carrying out the survey

#### 14-3 Geological and Soil mechanical survey

- a. Implementing body
- b. State companies and laboratories
- c. Nos. of engineer / technician
- d. List of equipment for boring / laboratory test
- e. Comments on carrying out the survey

### 15. LAW, REGULATION AND APPLICATION ROULE ON WATER QUALITY PRESERVATION

#### 15-1 National level and Vientiane city level

- a. Effluent standard / water quality standard
- b. Environmental sanitation
- c. Public health

### 16. OTHERS

#### 16-1 Permission for the study team to take data / maps out of LAO to Japan

#### 16-2 Land acquisition for drainage system

添付資料-5 その他(現地調査機関の資機材及び調査可能項目)

A. 保有測量機器

Equipment	Nos. of Equipment	Remarks(type,length,etc)
Transit	1	Nikon, Japan
Level	2	Nikon + Topcon, Japan
Plane-table	0	
Staff	4	4m x 2, 5m x 2, Japan
Steel tape	0	
Vinyl tape	2	50m

B. 水質分析

Analysis Items	Experience of test in past (yes or no)	Analysis Items	Experience of test in past (yes or no)
Hydrogen ion concentration(pH)	yes	Iron(dissolution)	yes
Bio-chemical oxygen demand(BOD)	yes	Manganese(dissolution)	yes
Chemical oxygen demand(COD)	yes	Chrome	
Suspended substances(SS)	yes	Fluoric	
Dissolved Oxygen(DD)	yes	Cadmium	yes
Number of colitis germs	yes	Cyanide	
Electric conductivity	yes	Organic phosphorus	yes
n-Hexane extract	no	Lead	yes
Phenol	yes	Chronium(6-value)	
Copper(dissolution)	yes	Arsenic	
Zinc	yes	Total mercury	yes
		Alkyl mercury	

(参) 試薬等の消耗品は問題無いとの事

C. ボーリング及び土質試験

(1) Boring Machine

Type	Nos.	Max. Boring Depth (m)	Diameter(mm)	Efficiency
Acker Drill	2	20	73.20	6 - 8 m/day
URB - Som	2	40	210.00	8 - 10 m/day

(2) Equipment Related to Boring (for sampling)

- Split Tube Sampler 5.08 cm O.D., 45.72 cm length A.W. Rod connection
- Split Tube Sampler 43.80 cm O.D., 90.00 cm length

Field Test	Experience of Field Test in Past (yes or no)	Laboratory Test	Experience of Test in Past (yes or no)
(1) Sounding		(1) Mechanical Analysis	
- Swedish Sounding Test	no	- Single Shear Test	yes
- Dynamic Cone Penetration Test	no	- Triaxial Compression Test	no
- Static Cone Penetration Test	no	- Unconfined Compression Test	yes
- Standard Penetration Test	yes	- Constant Head Permeability Test	no
- Vane Test	no	- Consolidation Test	no
- Dutch Double Tube Cone Pene. Test	no	- Compaction Test	yes
(2) Loading Test		(2) Natural Water Content Test	yes
- Plate Bearing Test	no	(3) Specific Gravity Test	yes
- Vertical Loading Test	no	(4) Permeability Test	yes
- Horizontal Loading Test	no	(5) Unit Weight Test	yes
(3) Field Permeability Test	yes	(6) Consistency Test	yes
(4) Unit Weight Test	yes	(7) Other Tests	yes
(5) Compaction Test	yes		
(6) Field Shear Test	no		





JICA

