

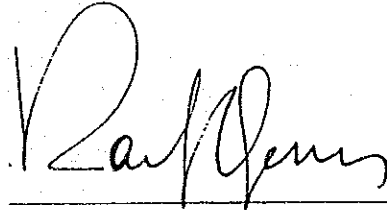
3. 協議議事録(MINUTES OF MEETING)



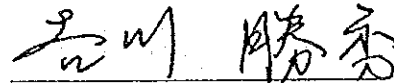
MINUTES OF MEETING  
FOR  
THE FEASIBILITY STUDY  
ON  
FLOOD CONTROL, FORECASTING AND WARNING SYSTEM  
FOR  
SEYHAN RIVER BASIN  
IN  
THE REPUBLIC OF TURKEY

AGREED UPON BETWEEN  
GENERAL DIRECTORATE OF STATE HYDRAULIC WORKS  
MINISTRY OF PUBLIC WORKS AND SETTLEMENT  
AND  
JAPAN INTERNATIONAL COOPERATION AGENCY

Ankara, July 31, 1992



Mr. RAIF OZENCI  
Director General  
The General Directorate  
of State Hydraulic Works,  
Ministry of Public Works  
and Settlement



Dr. KATSUHIDE YOSHIKAWA  
Leader  
Preparatory Study Team  
Japan International  
Cooperation Agency

In response to the request of the Government of the Republic of Turkey, the Preparatory Survey Team (hereinafter referred to as "the Team") of Japan International Cooperation Agency (hereinafter referred to as "JICA"), visited Turkey from July 24th to August 2nd, 1992, to discuss the Scope of Work for the Feasibility Study on Flood Control, Forecasting and Warning System for Seyhan River Basin in the Republic of Turkey ( hereinafter referred to as "the Study" ).

The Team carried out field surveys of the Study area and held series of discussions with the officials of General Directorate of State Hydraulic Works (hereinafter referred to as "DSI" ).

A final meeting was held on 30 July ,1992, at the DSI office, Ankara.

A list of those who attended is shown in the attached sheet-ANNEX I.

The signing of the Scope of Work and Minutes of Meeting was held on 31 July , 1992.

The draft Scope of Work proposed by the Team was discussed between DSI and the Team , both sides agreed on the Scope of Work with the following understandings:

1. Telecommunication system

Telecommunication system will be studied as a transmission method of observation data.

2. Existing dam plans

Not only Seyhan dam but also main existing dam plans, especially for Catalan dam and the necessary information how to include a new reservoir in the simulation model will be investigated in project formulation.

### 3. Multipurpose water use

Multipurpose water use will be examined to decide the operation of dam and weirs.

### 4. Environmental study

Main purpose of this study is to formulate flood control, forecasting and warning system. So existing environmental data will be reviewed but detailed environmental study is not included in the item of the Study.

### 5. Key item of the Study

Decision of observation station point, continual observation, simulation of flood control and water use operation and wave spread test are very important items of the Study.

So preparation and implementation of these items should be done by agreement between the study team and DSI through discussions.

### 6. Steering Committee

For smooth and effective implementation of the Study, DSI will organize steering committee composed of DSI, DMI (The General Directorate of State Meteorological Works), EIE (Electrical Works and Investigation) and other organization related to the Study.

### 7. Assignment of the Counterpart

The Study is implemented by close cooperation between JICA side and DSI counterparts, so specified counterparts to respective study team members are designated throughout the study period.

### 8. Counterpart Training

DSI requested the Team to make effective technology transfer to counterpart by both through on-the-job training in the course of the Study and technical training in Japan.

9. Technical Seminar

Taking the importance of the Study into consideration, DSI requested the Team to hold a technical seminar related to the Study.

10 . Study Schedule

DSI expressed the interest and importance of the Study and requested the Team to dispatch the Study Team as soon as possible.

11. Equipment for the Study

DSI requested the Team to provide necessary equipment for the successful conclusion of the Study. The list of the required equipment is attached ( Annex II ).

The requests from DSI mentioned above item 8 to 11 , JICA agreed to convey them to the authorities concerned in Japan.

12. Undertaking of the Government of Turkey

JICA confirmed undertaking of the government of Turkey that DSI can provide suitable office space with necessary equipment in Adana and necessary number of vehicles with drivers.

## ANNEX - I

## LIST OF ATTENDANTS

## TURKISH SIDE

## DSI

- |                   |   |                            |
|-------------------|---|----------------------------|
| 1. HÜSEYİN YAVUZ  | Deputy head of Planning and Investigation Department          |                            |
| 2. AYHAN TEKER    | Observation Section Director                                  |                            |
| 3. TUNCAY SOYSAL  | Planning Manager Planning and Investigation Department        |                            |
| 4. SEFER TEKELİ   | Meteorological Engineer Planning and Investigation Department |                            |
| 5. LALE ÇULTU     | Civil Engineer Planning and Investigation Department          |                            |
| 6. DAIJI TANESE   | JICA Expert Dam and HEP Department                            |                            |
| 7. HASAN MERT     | Assistant Regional Director VI Th Regional Directorate        |                            |
| 8. ADİL AKYAZAN   | Planning Director   | VI Th Regional Directorate |
| 9. TUNA ALEMDAR   | Agricultural Engineer   | VI Th Regional Directorate |
| 10. HALİL ALTINOK | Meteorological Engineer                                       | VI Th Regional Directorate |

## DMI

- |                    |  |
|--------------------|--|
| 1. MUSTAFA ASLAN   | Metorological Expert State Meteorological Organization |
| 2. MUHAMMET KESKIN | Metorological Expert State Meteorological Organization |

## HACETTEPE UNIVERSITY

- |                  |   |
|------------------|---|
| 1. İBRAHİM GÜRER | Associate Professor, Dr Engineering Faculty |
|------------------|---|

## JAPANESE SIDE

- |                      |             |      |                        |
|----------------------|-------------|------|------------------------|
| 1. KATUHIDE YOSHIKWA | Team Leader | JICA | Preparatory Study Team |
| 2. HAJIME KUBOTA     | Member      | JICA | Preparatory Study Team |
| 3. HIDE TO GOSHU     | Member      | JICA | Preparatory Study Team |
| 4. EIICHIRO CHO      | Member      | JICA | Preparatory Study Team |
| 5. KAZUHIKO HONDA    | Member      | JICA | Preparatory Study Team |





#### 4. 事前調査団資料収集リスト



# 収集資料リスト

資料ナンバー

一般 .....	1
STATISTICAL YEARBOOK OF TURKEY .....	1. 1
組織 .....	2
ORGANIZATION CHART .....	2. 1
トルコ共和国政府孤高及び分掌事項 .....	2. 1 (1)
公共事業省組織図及び分掌事項 .....	2. 1 (2)
D・S・I組織図及び分掌事項 .....	2. 1 (3)
D・S・I調査・計画部組織図 .....	2. 1 (4)
E・I・E組織図 .....	2. 1 (5)
D・M・I組織図 .....	2. 1 (6)
D・S・I概要 .....	2. 2
D・S・I第6地方局(東アナトリア)概要 .....	2. 3
開発現況、開発計画 .....	3
GENERAL MASTER PLAN OF SEYHANBASIN .....	3. 1
LOWER SEYHANBASIN MASTER PLAN (I~IV) .....	3. 2
LOWER SEYHAN IRRIGATION PROJECT (概要) .....	3. 3
“ (用排水系統図) - 1/5,000, 1/100,000- .....	3. 4、5
トルコ共和国における発電開発計画概要 .....	3. 6
SEYHAN-CATALAN DAM 発電計画 .....	3. 7
SEYHAN-CATARAN DAM 洪水調節計画 .....	3. 8

水文観測施設現況	4
トルコ国内全観測所配置図(1/800,000)-水位、流量、降水-	4. 1
SEYHAN BASIN 観測所位置図(1/800,000 1/250,000)水位、流量、降水	4. 2、3
SEYHAN BASIN 観測所緒元表(DSI, EIE, DMI)	4. 4
” 観測地点流況(DSI, EIE)	4. 5
SEYHAN BASIN 積雪深観測地点配置図	4. 6
積雪深観測方法説明書	4. 7
積雪深観測結果記入例	4. 8
融雪量推計方法	4. 9
確率24時間雨量表(観測所別)	4. 10
洪水実績	5
1980-4洪水氾濫状況写真(コピー)	5. 1
1980-4洪水の概要	5. 2
1980-4洪水氾濫区域図	5. 3
1980-4洪水生起時のSEYHAN DAM 貯水池運用	5. 4
SEYHAN R・既往洪水生起状況	5. 5
洪水調節計画、流出特性解析	6
SEYHAN B・流出計算モデル概要	6. 0
SEYHAN DAM 貯水池使用計画、貯水池使用実績	6. 1
SEYHAN R・洪水調節計画(SEYHAN DAM, CHATARAN DAM)	6. 2
洪水対応規則ガイドライン	6. 3
Ibrahim Gurer: FLOOD WARNING SEYHAN SPRING FLOOD(英文)	6. 4
” : SNOW MELT FLOW CONTRIBUTION TO KARSTIC AQUIFER IN MEDITERRANEAN REGION OF TURKEY(英文)	6. 5
” : LIST OF RUBRICATION	6. 6

地形図	.....	7
EURO ATLAS TURKEI(1/800.000)	.....	7. 1
トルコ全図 (1/1.000.000)	.....	7. 2
同上 (1/2.000.000)	.....	7. 3
トルコ西部 (1/850.000)	.....	7. 4
トルコ行政区域図 (1/2.000.000)	.....	7. 5
地質図	.....	8
トルコ全域 (1/2.000.000)	.....	8. 1
ADANA (1/500.000)	.....	8. 2
KAYSERI (1/500.000)	.....	8. 3
SIVAS (1/500.000)	.....	8. 4
HATAY (1/500.000)	.....	8. 5
地質説明書 (KAYSERI. SIVAS. HATAY)	.....	8. 6 ~ 8
LIST OF PUBLICATIONS	.....	8. 9
その他	.....	9
DSI ハンド・ブック	.....	9. 1
HANDBOOK OF TURKISH LAW FOR FOREIGNERS	.....	9. 2
ANKARA-for professional's business referencs-1991	.....	9. 3
トルコ道路状況図	.....	9. 4
トルコ語--英語 辞典	.....	9. 5



## 5. 質問書(QUESTIONNAIRE)







Item	Detail Item	Description	Available or not	Related Organization
4. Basic Data	4.1 Topography and Geology	<ul style="list-style-type: none"> <li>1) Topographic maps               <ul style="list-style-type: none"> <li>Area</li> <li>Scale(Maps of 1/50,000 or more detailed telecommunication network)</li> <li>Date of mapping</li> <li>Agency</li> </ul> </li> <li>2) Aerial photographs               <ul style="list-style-type: none"> <li>Map of survey point</li> <li>Scale</li> <li>Date of photo taking</li> <li>Agency</li> </ul> </li> </ul>	Available	D S I
	4.2 Meteorology	<ul style="list-style-type: none"> <li>1) Items of survey               <ul style="list-style-type: none"> <li>Temperature</li> <li>Wind(direction, velocity)</li> <li>Duration of sunshine</li> <li>Thunder</li> <li>Snowfall</li> </ul> </li> <li>2) Available meteorological stations               <ul style="list-style-type: none"> <li>Name</li> <li>Location</li> <li>Altitude</li> <li>Agency</li> </ul> </li> </ul>	Available	D S I D M I
	4.3 Precipitation(Rainfall, Snowfall)	<ul style="list-style-type: none"> <li>3) Observation period</li> <li>4) Typical observed data to know characteristics</li> <li>1) Available stations               <ul style="list-style-type: none"> <li>Name</li> <li>Location</li> <li>Altitude</li> <li>Transmission system, method &amp; type of data</li> <li>Observation period</li> <li>Agency</li> </ul> </li> <li>2) Gauging instruments(Non-automatic, Automatic)</li> <li>3) Interval of records(10min, 1hr, 6hr, day)</li> <li>4) Rainfall characteristics               <ul style="list-style-type: none"> <li>DAD characteristic</li> <li>Characteristic of time series monthly and annual (extreme/average)</li> <li>Information on storm precipitation(climate, time distribution, QAO characteristic)</li> <li>Condition of snowfall/snowmelt</li> </ul> </li> <li>5) Typical observed data to know characteristics</li> </ul>	Available Available	D S I D M I

Item	Detail Item	Description	Available or not	Related Organization
	4.4 Water-level, Discharge	<p>1) Available stations  Name  Location  Catchment area  Observation period  Agency</p> <p>2) Gauging Instruments  Non-automatic  Automatic (pressure type, float type, etc.)</p> <p>3) Observation interval for discharge/water level  Method of stage-discharge relations  (rating curve, direct measurement)  Adjustment of Rating Curve  (interval of adjustment-post flood/periodical)  Transmission system, method &amp; type of data  Daily fluctuation of discharge/water-level  Characteristics of time series-monthly &amp; annual  (extreme/average)  Characteristics of storm runoff  (Hydrograph-discharge/water-level, floodmarks)</p> <p>4) Typical observed data to know characteristics  1) Place of occurrence  2) Date of occurrence  3) Hydrologic phenomena during flood-precipitation/  snowmelt  4) Records of upstream reservoir operation  5) Hydrograph(water-level, discharge)</p>	Available	D S I D M I
	4.5 Records of Flood/Flood damage		Available	D S I

Item	Detail Item	Description	Available or not	Related Organization
5. River course(river channel)	<p>4.6 Water utilization</p> <p>5.1 Present condition of river course and river training plan</p>	<p>6) Cause of flooding</p> <p>7) Condition of damage Flooded area Depth of flooded water Land-use in flooded area Period of inundation Flood damage(farmland,houses,other properties &amp; equivalent amount of damage in monthly basis)</p> <p>8) Flooded damage-flood depth rating curves</p> <p>9) Situation of evacuation</p> <p>1) Actual water utilization Purpose Location of intake Intake discharge Intake facilities Right for the water utilization</p> <p>2) Other river utilization (navigation,fishery,etc.)</p> <p>3) Water use plan in vicinities relevant to the study</p>	<p>Available Available in same cases</p> <p>Not A. Not A. Available</p>	<p>D S I</p> <p>D S I</p>
	<p>5.1 Present condition of river course and river training plan</p>	<p>1) Present situation of river channel Longitudinal Profile Cross-section Plan Interval of survey point Scale Date of mapping</p> <p>2) Historical change of river course</p> <p>3) Past flood discharge</p> <p>4) Present situation of river works</p> <p>5) River training plan Longitudinal Profile Cross-section Plan</p> <p>6) Agency of determining and executing the above river training plan</p>	<p>Available</p> <p>Not A. Available</p> <p>D S I</p>	<p>D S I</p> <p>D S I</p>

Item	Detail Item	Description	Available or not	Related Organization
6. Facilities for flood mitigation and their operation rules	<p>6.1 Embankment(Dike)</p> <p>6.2 Dam</p> <p>6.3 Other facilities</p> <p>6.4 Others</p>	<p>1) Length</p> <p>2) Time of construction</p> <p>3) Established water level</p> <p>    Design high water level</p> <p>    Flood-warning water level</p> <p>4) Cross-section of dike</p> <p>5) Agency administering the dikes</p> <p>6) Location</p> <p>7) Dimension(Dam, Reservoir)</p> <p>8) Flood control plan</p> <p>9) Plan for water usage</p> <p>10) Operation rule</p> <p>11) Designated water level of each dam during flood season.</p> <p>12) Weir and Gates</p> <p>13) Pumping stations</p> <p>14) Present land-use in river</p> <p>15) Regulations for land-use in river</p>	<p>Available</p> <p>Available</p> <p>Available</p> <p>Available</p> <p>Available</p>	<p>D S I</p> <p>D S I</p> <p>D S I</p> <p>D S I</p>
7. Forecasting/Warning/ Flood Fighting System	<p>7.1 Outline of the system</p> <p>7.2 Actual state of warning/evacuation/ flood fighting</p> <p>7.3 Example of enforcement</p>	<p>1) Organization for flood control forecasting and warning</p> <p>2) Facilities and those arrangement</p> <p>3) Transmission means</p> <p>4) Organization</p> <p>5) Standard criteria, flood fighting low, etc.)</p> <p>6) Agency</p> <p>7) Enforcement system of flood fighting</p> <p>8) Method for obtaining flood information</p> <p>9) Method for predicting flood discharge</p> <p>10) Situation of official announcement of warning</p> <p>11) Situation of warning transmission</p> <p>12) Situation of flood fighting activities</p>	<p>Available</p> <p>Available</p> <p>Available</p>	<p>D S I</p> <p>D S I</p> <p>D S I</p>

Item	Detail Item	Description	Available or not	Related Organization
8. Telecommunication system	8.1 Radio communication environment	1) Allocation of radio frequency (telephone, data transmission, radar, etc.)	Available	Ministry of Transportation
	8.2 Electricity supply environment	1) Electricity supply circumstances 2) Supply areas 3) Stability in supply, voltage, frequency	Available	
	8.3 Public communication lines	1) Set-up status of telephone (public lines, closed lines)	Available	
9. Actual condition for introduction of telemeterized control system	9.1 Dam operation and maintenance	1) Present operation rule of each dam (for discharge or water level) 2) Allocation of storage volume of dam for flood control and water usage	Available	D S I
	9.2 Needs and expected benefits by introduction of telemeterized control system	1) Problems in present system 2) Expected benefits	Not A	
10. Basic policy and Cost estimation for facility designing	10.1 Basic policy for designing	1) Designing and constructing (observatory, telecommunication systems, integrated control center for dams, etc.)	Available	D S I
	10.2 Standards for cost estimation	1) Price list of construction materials 2) Labor wages 3) Price and leasing fee of construction machines	Available	

Item	Detail Item	Description	Available or not	Related Organization
11. Others	11.1 Executive and related governmental agencies	1) List of agencies (name of agency, name of section, address, telephone number)	Available	
	11.2 Companies in cooperation	1) List of construction companies (name, address, telephone number) 2) List of survey companies (name, address, telephone number)	Available	
	11.3 Transportation of the project area	1) General transportation environment	Available	





## 6. 面談者リスト



■在トルコ日本大使館

- ・山田 洋一 大使
- ・池田 勝也 公使
- ・古澤 清崇 第一秘書
- ・坂本 信 二等書記官

■国家水利庁(DSI) General Directorate of State Hydraulc Works

- ・ Raif OZENCI Director General of State Hydraulc Works
- ・ Özden BILEN Asst Director General
- ・ Hüseyin YAVUZ Deputy Head
- ・ Tuncay SOYSAL Planning Maneger
- ・ Ayhan TEKER Director of observation D.P
- ・ Ramazan KOSUDERE Director of Map section
- ・ Sefer TEKELI Meteorological Engineer
- ・ Lale CULTU Civil Engineer
- ・ Miktat YOVUZ Civil Engineer
- ・ Serafettin CANAZ Civil Engineer
- ・ Ahmet AÇIL
- ・ Daiji TENASE JICA Expert

■DSI-ADANA支局

- ・ Selim FATIHOĞLU Director General
- ・ Hasan MERT Deputy Director
- ・ Hamit ÖZASLAN Deputy Director
- ・ Adil AKYATAN Director of planning section
- ・ Halil ALTINOK Civil Engineer
- ・ Tuna ALEMDAR Agricultural Engineer

■DSI-CATALHAN DAM

- ・ İsmet AYTEKIN Project Director of Cata.han Dam
- ・ Kemal ÇEVİK Project Chief Engineer

■ 気象庁-DMI(State meteorological Organization)

- Mehmet ÖRMECI Director-General of Turkish State meteorological Service
- Mustafa ASLAG meteorologist
- Muhammet KESKIN meteorologist

■ 電力資源調査開発庁-EIE(General Directorate of Electric Power Resources Survey)

- Director-General

■ HACETTEPE University

- İbrahim GÜRER Assoc.Prof.Dr.
- Öner Murat YAVAS Muster.S







