

付 属 資 料

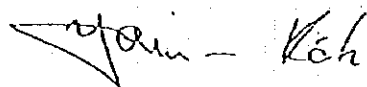
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1 S/W

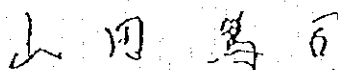
SCOPE OF WORK
FOR
THE STUDY
ON
ARTERIAL HIGHWAY MAINTENANCE
IN
THE REPUBLIC OF TURKEY

AGREED UPON BETWEEN
GENERAL DIRECTORATE OF HIGHWAYS
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

1st. NOVEMBER, 1996



MR. YAMAN KÖK
DIRECTOR GENERAL
GENERAL DIRECTORATE OF HIGHWAYS
MINISTRY OF PUBLIC WORKS
AND SETTLEMENT



MR. ATSUSHI YAMADA
LEADER
THE PREPARATORY STUDY TEAM
JAPAN INTERNATIONAL
COOPERATION AGENCY

1. INTRODUCTION

In response to the request of the Government of the Republic of Turkey (hereinafter referred to as "GOT") , the Government of Japan (hereinafter referred to as "GOJ") has decided to conduct the study on Arterial Highway Maintenance in the Republic of Turkey (hereinafter referred to as "the Study") in accordance with the relevant laws and regulations in force in Japan.

Accordingly, the Japan International Cooperation Agency (hereinafter referred to as "JICA") , the official agency responsible for the implementation of technical cooperation programmes of GOJ, will undertake the Study in close cooperation with the authorities concerned of Turkey.

The present document sets forth the scope of work with regard the Study.

2. OBJECTIVES OF THE STUDY

The objectives of the study is to prepare recommendations on road maintenance, which is divided into the following sub-objectives and to transfer technology to KGM through the Study.

(hereinafter "maintenance" includes inspection and repair)

- (1) to prepare road maintenance master plan
- (2) to prepare road maintenance guideline
- (3) to develop road maintenance management system
- (4) to conduct feasibility study on the road maintenance operation

3. STUDY AREA

The Study Area is along national and provincial highways, excluding bridges and tunnels.

4. SCOPE OF THE STUDY

1) Review and Analysis of Present Condition of Turkey

(1) to collect, review and analyze available data, information, reports and plans relevant to the Study.

a) socio-economic data

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- b) traffic volume data
- c) road inventory
- d) axle load survey data
- e) natural condition data
- f) other relevant information
- (2) to conduct supplementary traffic survey
- (3) to conduct preliminary road survey
- (4) to investigate existing road maintenance criteria and method
- (5) to investigate existing road maintenance management system
- (6) to improve and update road inventory, according to the result of preliminary road survey
- (7) to evaluate present condition

2) Preparation of Road Maintenance Master Plan for preliminary-surveyed roads

- (1) to set up socio-economic framework with special attention to the Turkish strategy of economical integration into EU
- (2) to forecast traffic volume
- (3) to make maintenance priority list
- (4) to conduct preliminary economic analysis

3) Preparation of Road Maintenance Guideline

- (1) to select road sections for detailed survey
- (2) to develop road inspection method
- (3) to select road sections which need repair work
- (4) to develop road repair design and method
- (5) to conduct EIA
- (6) to prepare manuals on road maintenance

4) Development of Road Maintenance Management System

- (1) to prepare organizational plans for the system
- (2) to prepare recommendation for equipment and material for the system
- (3) to prepare an operation plan

5) Conduct of Feasibility Study on Road Maintenance Operation for

etc.

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the road to be studied.

- (1) to estimate cost for building and running the system
- (2) to conduct economic analysis

6) Preparation of Overall Recommendation.

- (1) to summarize all the result of evaluation of the project (qualitative results as well as quantitative ones)
- (2) to summarize benefits which are expected from the project
- (3) to summarize bottlenecks to implement the project

5. STUDY SCHEDULE

The Study shall be conducted in accordance with the attached tentative schedule.

6. REPORTS

JICA shall prepare the following reports and submit them to the General Directorate of Highways (hereinafter referred to as "KGM").

1) Inception Report

Ten (10) copies in English and ten (10) copies in Turkish

This report will be submitted at the commencement of the Study and is to describe the overall approach and implementation programme of the Study.

2) Progress Report

Ten (10) copies in English and ten (10) copies in Turkish

This report will be submitted within three (3) months after the commencement of the Study and contains the provisional outcome of the review and analysis of the present condition.

3) Interim Report

Ten (10) copies in English and ten (10) copies in Turkish

This report will be submitted within seven (7) months after commencement of the Study and contains

4) Draft Final Report

Ten (10) copies in English and ten (10) copies in Turkish

(1)

(13)

This report will be submitted within fifteen (15) months after commencement of the Study and contains all the results of the Study. KGM will provide its comments on the Draft Final Report in English within one month after the receipt of the Report.

5) Final Report

Ten (10) copies in English and two hundred and fifty (250) copies in Turkish

This report will be submitted within two (2) months after the receipt of the written comments on the Draft Final Report from KGM.

7. UNDERTAKINGS OF GOT

1) To facilitate the smooth conduct of the Study, GOT shall take the following necessary measures.

(1) to secure the safety of the Team

(2) to permit the members of the Team to enter, leave and stay in Turkey for the duration of their assignments therein and exempt them from alien registration requirements and consular fee

(3) to exempt the members of the Team from taxes, duties, and any other charges on equipment, machinery and other material brought into Turkey for the conduct of the Study

(4) to exempt the members of the Team from income tax and charges of any kind imposed or in connection with any emoluments or allowances paid to the members of the Team for their services in connection with the implementation of the Study.

(5) to provide necessary facilities to the Team for the remittance as well as utilization of the funds introduced into Turkey from Japan in connection with the implementation of the Study

(6) to secure permission for the Team for entry into private properties or special areas for the conduct of the Study

(7) to secure permission for the Team to take out of Turkey all data and documents, including maps and photographs related to the Study

(8) to provide medical services as needed, while its expenses will be chargeable on members of the Team

2) GOT shall bear claims, if any arises, against the members of the

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Team resulting from, occurring in the course of, or otherwise connected with, the discharge of their duties in the implementation of the Study, except when such claims arises from gross negligence or willfull misconduct on the part of the members of the Team.

3) KGM shall act as the counterpart agency to the Team and also act as the coordinating body with other relevant organizations for the smooth implementation of the Study, on behalf of GOT.

4) The counterpart agency, at its own expenses, provide the Team with the following in cooperation with relevant organizations;

(1) available data (including maps and photographs) and information related to the Study

(2) counterpart personnel

(3) suitable office space with necessary equipment in Ankara

(4) credentials or identification cards

(5) appropriate number and type of vehicles with drivers for the Study.

8. UNDERTAKINGS OF JICA

For the implementation of the Study, JICA shall take the following measures;

1) to dispatch the Team to Turkey at its own expenses

2) to pursue technology transfer to Turkish counterpart personnel in the course of the Study

9. OTHERS

JICA and KGM shall consult with each other in respect of any matter that may arise from or in connection with the Study.

Attachment

TENTATIVE SCHEDULE

The Study
 on
 Arterial Highway Maintenance
 in
 the Republic of Turkey

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Month																	
Work in Turkey	Δ			Δ				Δ							Δ		
Work in Japan																	Δ
Submission of Reports	1/2			2/3				1/3							0 7/8		7/8

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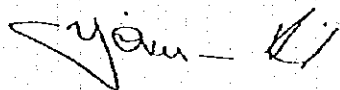
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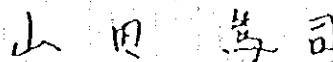
MINUTES OF MEETING
ON
THE SCOPE OF WORK
FOR
THE STUDY
ON
ARTERIAL HIGHWAY MAINTENANCE
IN
THE REPUBLIC OF TURKEY

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LEADER
THE PREPARATORY STUDY TEAM
JAPAN INTERNATIONAL
COOPERATION AGENCY

The Japanese Preparatory Study Team (hereinafter referred to as "the Team") organized by Japan International Cooperation Agency, headed by Mr. Atsushi Yamada, visited the Republic of Turkey from 24 October to 5 November, 1996 to discuss the Scope of Work for "The Study on Arterial Highway Maintenance in The Republic of Turkey (hereinafter referred to as "the Study") .

The Team exchanged views and had a series of discussions with representatives of the Directorate General of Highways (hereinafter referred to as "KGM"). A list of the participants appears in Attachment 1.

Through these discussions, both sides have completed the Scope of Work for the Study.

As a result, both sides confirmed and agreed upon following points.

1. The Scope of Work was agreed upon by both sides.
2. Road maintenance manual consists inspection manual and repair manual.
3. Road repair manual items as follows;
 - 1) repair design and method for road pavement, slope protection and drainage.
 - 2) countermeasures for snow, ice and submergence.
4. Road inspection manual consists manual for periodical inspection activity and for emergency cases.
5. Manuals on road maintenance shall include typical drawing of maintenance station for storing material and equipment.
6. The maximum volumes of road survey are as follows;
 - 1) preliminary survey shall be conducted for an extension of as long as 2,000km, on some arterial highways decided through the discussion between the Full-Scale Study Team (hereinafter referred to as "the Study Team") and KGM.

2) Detailed survey shall be conducted for as much as 40 road sections, selected out of preliminary-surveyed road through the discussion between the Study Team and KGM.

3) Preliminary drawing and repair method for item 3, and countermeasures for snow, ice and submergence shall be developed as much as for 20 road sections, selected out of detailed surveyed road sections through the discussion between the Study Team and KGM.

7. KGM requested materials and equipment utilized in the Study shall be transferred to KGM after the completion of the Study. The Team replied to convey the request to the Government of Japan.

8. In connection with undertaking of the Government of Turkey on Scope of Work, Study Team shall follow the related laws and regulations in Turkey.

9. KGM requested that the counterpart training in Japan and the seminar in Turkey shall be held in the course of the Study in order to pursue effective technology transfer. The Team stated that the request would be conveyed to the Government of Japan.

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Attachment 1

Attendants List (Japanese Side)

Mr. Atsushi Yamada	Leader/ Road Planning	Deputy Director National Highway Div., Road Bureau, Ministry of Construction
Mr. Toshiharu Yasui	Road Maintenance	Manager Traffic Engineering Div., Tohoku Branch, Japan Highway Public Corporation
Mr. Kazuya Sasaki	Slope and Drainage Design	Assistant Manager Design Div., Kanagawa Construction Bureau, Metropolitan Expressway Public Corporation
Mr. Kenta Seto	Study Planning	Staff First Social Development Div. Japan International Cooperation Agency
Mr. Shinsuke Kubo	Road Design / Repair	Director Oversees Business Dept. Toko Engineering Consultants Ltd.
Mr. Satoshi Tada		Second Secretary Embassy of Japan

KZ.

Attendants List (Turkish Side, KGM)

Mr. Zeki Numanoğlu	Dep. Director General
Ms. Gönül Balkır	Head, Research Planning and Coordination Dept.
Mr. Salih Irmak	Head, Maintenance Department
Ms. Münevver Atasaral	Dep. Head, Maintenance Dept.
Ms. Derya Şenyay	Director, Training and Evaluation Div.
Mr. Yurtcan Gürsu	Director, Materials Lab Div.
Mr. Mehmet A.Önal	Director, Pavement Div.
Mr. Güralp Serhat	Director, Planning Div.
Ms. Sema Karaca	Dep. Director, Training and Evaluation Div.
Mr. Mustafa Karlier	Dep. Director, Maintenance Div.
Ms. Mehtap Güldoğan	Chief, Training and Evaluation Div.
Ms. Müge Kahramangil	Chief, Traffic Div.
Ms. Günsel Sungur	Chief, Training and Evaluation Div.
Mr. Mücahit Arman	Engineer, Planning Div.
Mr. Tom Adachi	JICA Expert
Mr. Kensaku Hata	JICA Expert

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Republic of Turkey
Ministry of Public Works and Settlement
Directorate General of Highways

Terms of Reference
for
The Study
on
Arterial Highway Maintenance
in
The Republic of Turkey

August 1995

TECHNICAL COOPERATION
BY THE GOVERNMENT OF JAPAN

APPLICATION

By the Government of the Republic of Turkey
for a Development Study on Arterial Highway Maintenance
in the Republic of Turkey
to the Government of Japan.

note: This model was revised for the general guidance of the Government agencies concerned (Japan) in order to facilitate the supply of relevant information and data necessary to afford an adequate appreciation of the nature of the technical cooperation required. The careful completion of an application in this form will avoid much reference back and lead to specific action.

1. Project digest

(1) Project Title : The Study on Arterial Highway Maintenance in
The Republic of Turkey

(2) Location : Turkey

(3) Responsible Agency : Ministry of Public Works and Settlement

(4) Executing Agency : General Directorate of Highways

(5) Justification of the Project

(Beneficiaries, objectives of the Project etc and / or Positioning in the National
Development Plan)

The highway sector plays a dominant role for the transportation of goods and people in the Republic of Turkey. This is expected to increase more in the future very rapidly since the country is upholding the policy of integrating herself with the European Community. Turkish economy must sustain and increase the competitiveness in the international market and to provide safe and secure mode of transport is some of direct means of achieving the goal. International transportation is expected to increase both in terms of volume and weight while the Turkish economy is straggling to increase the share in the international market. The Turkish government has been pursuing two goals to secure good road infrastructure, one is by maintaining the present asset in as much good condition as possible; and the other is constructing a network of motorways along the most heavily congested routes. The pace of construction for the latter is slowing down recently due to tightness in the economic situation of the country. The former, however the importance of the maintenance is recognized well by the authority, is also neglected due to the fact that the concept of maintenance in which the continuation of inspection, data maintaining, timely budget allocation for maintenance work, and such, is not well believed by the officials concerned.

The Directorate of Highways (KGM) under the Ministry of Public Works and Settlement, is a body responsible to the construction and maintenance of

highways and states roads. The KGM is well organized and improving the efficiency. While the organization is keeping up with the tasks in good formation, the actual work force had decreased 30% in the last ten years. The KGM is expected to be even more cost effective and the standardization and systematization are indispensable to achieving these goals. The Study on Arterial Highway Maintenance is for arriving at these ends by introducing the systematic methods of inspecting, budget allocation, planing, etc. of highway maintenance works for achieving the highest results by the least cost.

- (6) Desirable or scheduled time of commencement of the Project
The study is desired to be commencement of the Project in December 1996.
- (7) Prospective funding source and / or assistance (including external origin)
Japanese Government
- (8) Other relevant Projects, if any
None

2 Terms of Reference of the proposed Study

(1) Necessity / Justification of the Study

Standardization and systematization of works are indispensable to achieving a cost effectiveness in highway maintenance and also reduction of road users' cost. While the KGM is expected to keep decreasing work force in the future, the amount of work, both of constructing new highways and maintaining the existing assets, will keep increasing. The Study will bring about those goals.

For supporting this, the government of Turkey is requesting the Japanese government for a development study by technical grant assistance (to get transfer of advanced technology from Japan).

(2) Objectives of the Study

The principal objectives of the project are, through th Study;

- 1) to conduct a feasibility study on the application of standardized and systematized maintenance on the selected study highways;
- 2) to recommend an overall management and operation system for the maintenance of highways;
- 3) to prepare a highway maintenance manual ; and
- 4) to transfer the technology of highway maintenance of Japan.

(3) Study Area of The Project

The project will cover the whole area of Turkey.

(4) Scope of Study

(4.1) Basic Survey

Data and information shall be collected and analyzed to set the basis of the Study.

1) Collection and Review of Data and Information

Basic data and information shall be collected and analyzed.

- natural and geographic data;
- socio-economic data;
- traffic data;
- highway and network;
- design specification and method, including seismic design;
- disaster records;
- flood records;
- earthquake records; and
- any other data and information necessary for the conduct of the Study.

2) Selection of Study Highways

Study highways shall be selected among the arterial highways reflecting various condition in urbanization, traffic congestion, natural condition, etc. and with high priority in operation and management, through the analysis of the data and information.

(4.2) Feasibility Study

A feasibility study for the maintenance standardization and systematization on the selected study highways shall be conducted.

1) Identification of Typical Sections in Turkey

Typical sections of highways shall be identified through the following activities:

- field surveys;
- identifying expanse of conditions in socio-economy and natural situations; and
- identification of places for particular attentions on the Study highways.

2) Inspection of Selected Locations

Identified locations shall be inspected to obtain basic information for the study;

- topographic survey (basic); and
- geographical survey (basic).

3) Study on Basic Design of System

Systematization and standardization shall be studied;

- study present maintenance system and standards;
- study and compare various systematization and standardization and select appropriate ones; and
- conduct basic design for maintenance system and standards.

4) Evaluation and Recommendation

Trial run of maintenance system and standards shall be conducted on the selected highways and sections for final adjustment for the systems to suit local situations and conditions. Evaluation on the following matters shall be conducted.

- technical assessment;
- economic assessment; and
- social and environmental assessment.

(4.3) Recommendation of Overall Management and Operation System

Overall management and operation system shall be recommended through the studies on the following items:

- modification of present management and operation systems;
- organization for the system;
- actual operating method;
- material and equipment for the system; and
- available budget.

(4.4) Preparation of Highway Maintenance

Manual

A Highway Maintenance Manual shall be prepared containing the following items:

- classification of highway conditions and surrounding situations;
- assessment of present conditions;
- monitoring and inspection; and
- material and equipment.

(5) Study Schedule

The Study shall be conducted within 18 months from the start of the Study.

(6) Other relevant information

Undertaking of the Government of Turkey

In order to facilitate a smooth and efficient conduct of the Study, the Government of Turkey shall take necessary measures;

- (1) to secure the safety of the Study team
- (2) to permit the member of the Study team to enter, leave and sojourn in Turkey in connection with their resignation therein, and exempt them from alien registration requirement and consular fees.
- (3) to exempt the Study team from taxes, duties and any other charges on equipment, machinery and other materials brought into and out of Turkey for the conduct of the Study.
- (4) to exempt the Study team from income tax and charges of any kind imposed on or in connection with any emoluments or allowances paid to the members of the Study team for their services in connection with the implementation of the Study.
- (5) to provide necessary facilities to the Study team for remittance as well as utilization of the funds introduced in Turkey from Japan in connection with the implementation of the Study.
- (6) to secure permission for entry into private properties or restricted areas for the conduct of the Study.

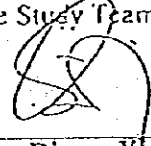
(7) to secure permission for the Study team to take all data, documents and necessary materials related to the Study team out of Turkey to Japan.

(8) to provide medical services as needed. Its expenses will be chargeable to members of the Study team.

4. The Government of Turkey shall bear claims, if any arises against member(s) of the Japanese Study team resulting from, occurring in the course of or otherwise connected with the discharge of their duties in the implementation of the Study, except when such claims arise from gross negligence or willful misconduct on the part of the member of the Study team.

5. General Directorate of Highways shall act as counterpart agency to the Japanese Study team and also as coordinating body in relation with other governmental and non-governmental organisation concerned for the smooth implementation of the Study.

The Government of Turkey assured that the matters referred in this form will be ensured for a smooth conduct of the Development Study by the Japanese Study Team.

Signed; 

Dincer YIGIT

Title;

Genel Müdür

On behalf of the Government of the Republic of Turkey

Date: 2.10.1995

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4 収集資料リスト

平成 年 月 日作成

資料リスト (収集資料)

主任部長	企画部長	建設部長	技術部長

地域	中込東	調査担当者	朝林進路三 松橋伸樹 藤村 隆	調査の種類又は 調査項目		作成部署	
国名	トルコ共和国	配属機関名		現地調査期間 又は派遣期間	8年10月20日 - 8年11月8日	担当者氏名	金子

番号	資料の名称	版型	ページ数	コピーの別	部数	収集番号	採名採又日	寄附・購入 (価格)の別	取組区分	利用表示
Y-1	Highway maintenance hand book	発本 A4	438	O	1	KGM	(1960)			
-2	Surface maintenance on asphaltic concrete Roads	" A5	44	O	1	"	(1987)			
-3	Highway maintenance (I)	" A4	76	O	1	"	(1991)			
-4	" (II)	" "	161	O	1	"	(")			
-5	Highway 舗装設計 補修要領	" "	93	O	1	"	(1985)			
-6	工事費分析	" "	60	O	1	"	(1996)			
-7	Highway 管理台帳記入要領	" "	62	O	1	"	(1991)			
-8	Highway Geometric Standards	" B5	76	O	1	"	(1988)			
-9	Technical Specification for Highway Bridge	" B5	77	O	1	"	(1992)			
-10	維持管理年報	" A4	182	O	1	"	(1995)			
-11	Turkish Highway 年報(1991)	" A4	111	O	1	"				
-12	降雪状況図	A4	1	C	1	"				
-13	Budget allocations and disbursements (KGM 1994)	A4	2	C	1	"				
-14	道路管理規程図		1	O	1	"				
-15	道路交通量調査結果		1	O	1	"				
-16	道路台帳(12-5)		1	O	1	"				

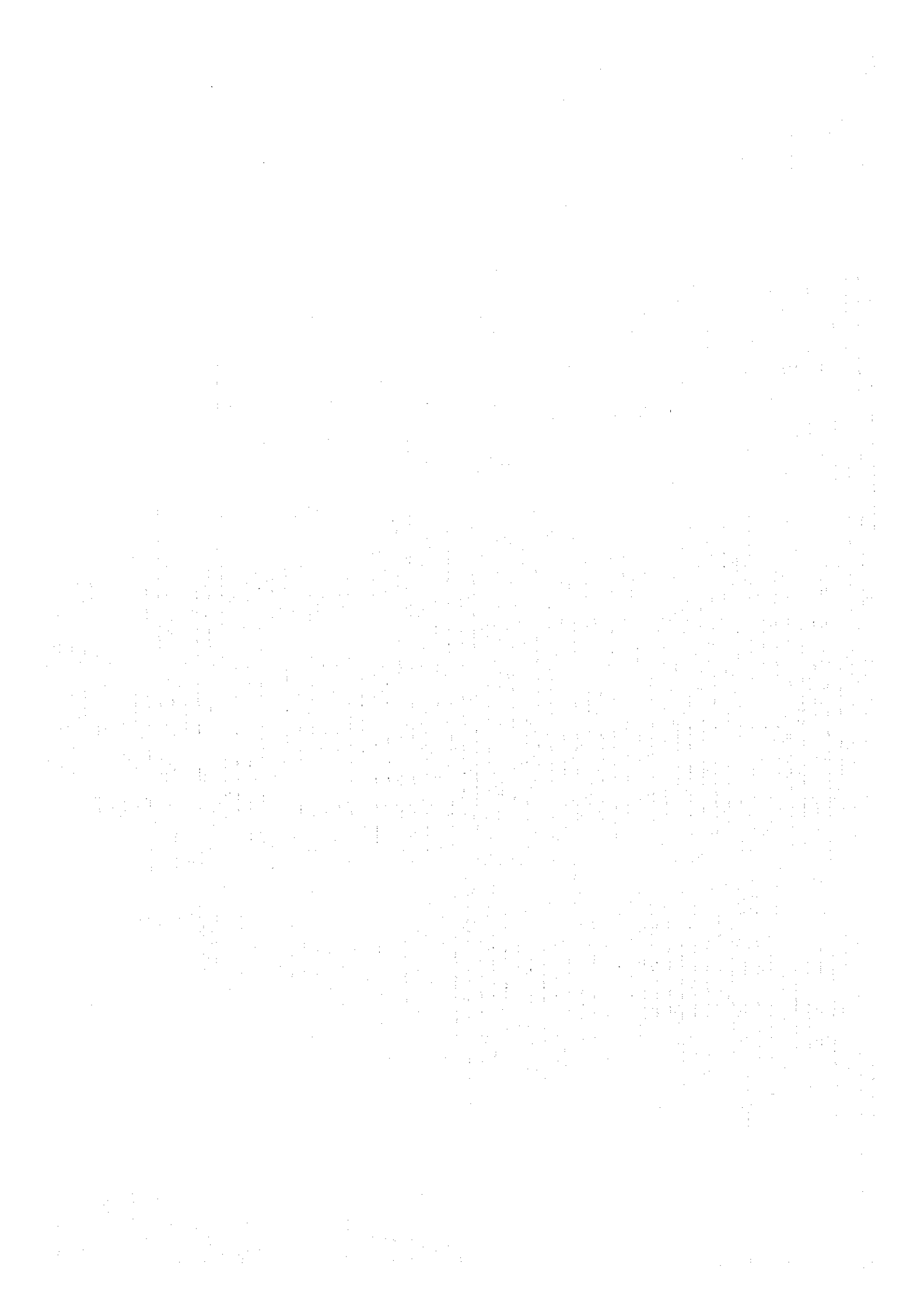
平成 年 月 日作成

資料リスト (収集資料)

主管部長	文書管理員	主管課長	情報管理員	印刷担当

地域	中近東	調査国名又は母国名		調査の種類又は対象国		作成部隊	
国名	トルコ共和国	調査機関名		調査期間又は作成期間		担当者氏名	江ノ本一哉
年月日		年月日		年月日		年月日	

番号	資料の名称	版型	ページ数	オリジナルの別	部数	収集番号	採名	採又	採は	寄附・購入(価格)の別	取扱区分	利用表示
KS-1	7th 5 Year Development Plan. (YEDINCI BES YILLIK KALKINMA PLANI 1996-2000)	A4	5	C	1							
KS-2	PLANLAMA İSTATİSTİKLERİ EL KİTABI	A4	10	C	1	KGM						
KS-3	交通事故資料	A4	3	C	1							
KS-4	Road Faults and their Ratios	A1	4	C	1							
KS-5	Horizontal Effective Bedrock Acceleration coefficient for design of earthworks	A1	1	C	1							



JICA