第5章　本格調査の実施上の考え方及び留意点

1．事前調査結果のまとめ

トルコは変化に富む気候、地形、土壌及び水に恵まれ、高い農業生産性と多種多様な生産をもたらしている。1960年以降、工業化の推進が図られたため経済における農業のウェイトは年々下がってきてはいるが、依然として大きなシェアを占めている。すなわち、農林水産業はGDPの15.4%を占め、全就業人口の43.4%が農林水産業に従事している。また、トルコの全輸出額に対する農林水産物輸出額の割合は15.4%を占め、農産物加工品を加えたそれは24.3%にもなる。(1993年資料)

しかしながら、農地面積は2,754万ha（1993年）で全国土面積の35.3%を占めているが、土地利用計画の欠如及び農地の他目的利用等のため近年農地のかい廃が進行しており、1989年をピークに毎年約10万haずつ減少している。また、農村部に全人口の41.0%（1990年）が居住しているが、近年、都市部への人口流出が著しくなってきている。

さらに、農家の経営形態をみると、1991年センサスによれば自己の所有耕地のみを耕作している農家が92.6%を占めているとともに、規模別では2～5ha／戸の農家が最も多く、5ha未満の農家戸数が全体の67.0%を占めている。これを1980年センサスと比較すれば、農家の零細化が進んでいることが判る。また、1カ所にまとまった農地を持つ農家は全農家の約15%に過ぎず、農地が分散化していることも農業生産の向上を妨げている。

このようなことから、第7次5カ年計画（1996年～2000年）においては、農業の基本的な目標として

① 増加する人口を扶養する食料の確保

② 農業生産と農産物輸出の拡大

③ 生産者の収入の増加と安定

の3点を掲げており、この目標を達成するために農業の構造改善等が計画されている。この中で農業農村開発における重点施策として以下の点を挙げている。

④ 農業生産基盤整備（灌漑（735千ha）とほ場内整備（290千ha））の推進

⑤ 分散農地に対する交換分合の推進

⑥ 農業補助政策の改革

⑦ 農民の組織化の推進

⑧ 農業計画作成におけるリモートセンシングの利活用

ところで、トルコ国内においては、1970年以降、年平均3.5%の割合で灌漑面積を拡張してきており、マルマラ海地域、エーゲ海地域、地中海地域等を中心に全国で424万ha（1994年末）の農地が灌漑可能となっている。これは、経済的な灌漑が可能な農地面積850万ha

（河川流域の灌漑可能性調査が1954年から実施され、マスタープランレベルで完了している。）の49.9％に相当する。

しかしながら、近年、財政難から十分な予算措置がなされておらず、灌漑投資計画は大幅に遅れている。また、灌漑の先進地域では灌漑施設の老朽化が大きな問題となってきている。さらに、灌漑面積の増加に伴い灌漑施設にかかる運営・維持管理費も膨大になってきており、DSIにおいては1985年から1994年の10年間で必要な経費に対する国家予算の充当率は65％から49％にまで低下してきている。

一方、GDRSが所掌しているほ場内整備については、第６次５カ年計画の期間（1990年～1994年）において計画面積25万haの68.6％しか達成できず、整備済み面積は約79万haと灌漑面積の18.6％にとどまっている。特に、DSI所掌の灌漑事業とGDRS所掌のほ場内整備事業の事業実施に跛行があり、灌漑事業の効果発現の観点から課題となっている。

このような現状と併せて、農村部においては道路、上水道、下水道等の社会生活基盤の整備が遅れており、また雇用機会もほとんどないことから、近年、ますます地域間の経済格差が拡大してきている。

このため、農村部への人口の定着を図り、持続的な農業の展開を可能ならしめる小規模灌漑を核とした農村開発モデル計画の作成ならびにこれに対する技術協力は極めて重要であり、またGDRSとしても非常に日本側に期待を抱いている。このことは、事前調査期間中のGDRS側の対応を見ていて、随所に伺い知ることができた。

２．開発基本構想及び調査実施方法

２－１　基本方針

GDRSでは、現在実施中のプロジェクトが1,699件あるとしているが、これらのプロジェクトに関わる資金計画についてはここ２～３年は目途が立っているものの、それ以降については不確定であり、21世紀初頭までに完了するかどうかも不透明としている。このような状況からも想定されるように、GDRSが切実に望んでいる協力は資金援助に他ならず、かなりの施工実績を有するGDRSに対し、開発調査における技術協力として日本側がどのような指導ができるのか、あるいは技術移転が可能か、逆にGDRS側から試される場になりかねないことを十分承知しておくべきであると考える。

なお、本格調査に当たって留意すべき事項は以下のとおりである。

(1) 調査対象範囲としては、安全確保に問題がある東部及び南東部アナトリアの24県を除く55県である。しかしながら、この除かれる地域では、トルコ国の最重点プロジェクトであるGAP計画が進行中であり、今回の開発調査の対象範囲としては除外しているが、将来の資金援助計画では優先度が高い地区が含まれる可能性がある。

(2) 概括調査を行う地区の選定対象となるプロジェクトとして、事前調査団との協議時点（1996.7.31）でGDRSによりD/DまたはF/Sが完了しているプロジェクト1,370件とした。この際、現在事前調査中地区でも優先プロジェクトがあり得るとの要望があったので、1,370件の内数として対象となるよう本格調査団と調整して欲しい旨回答しているので、相談に応じていただきたい。ただし、1,370はプロジェクト件数であり、地区数ではなく、重複もあり得るので留意していただきたい。

なお、今回の調査でこの対象プロジェクトの中から200地区程度の概括調査対象プロジェクトならびに10地区程度のF/S調査対象プロジェクトを選定していくこととなるが、これらの対象として選定される地区は将来の資金援助対象プロジェクトの有力候補地区であり、場合によっては、現在実施中のプロジェクトをもさしおく可能性もあることから、その点も十分に留意して絞り込んでいく必要がある。

また、併せて、今回の小規模灌漑の実施の可否を判断する上で重要なことは水資源の賦存量であることから、前述の経済的な灌漑が可能な農地面積調査やDSIで蓄積されている水文データ類、DSIとしての水資源開発計画、GDRSとしてのプロジェクト予定地区等を総合的に整理できれば、今後の農村地域開発を行う上での貴重な指針（マスタープラン）が作成できるものと期待できる。特に、1,370件のうち概ね9割が小規模灌漑（堰による取水ならびに用水路整備と考えられる。）であることからも、上記の検討が重要と思われる。

さらに、コンヤ平原に代表される深刻な風食等による土壌侵食や塩害に対する方策について提言を行うことができれば、なお好ましいことと考える。

(3) GDRSでは前述のとおり、農業生産基盤整備事業についてかなりの施工実績を有している。現地調査において、施工中あるいは完了地区の施設を見せて貰ったが、確かに設計思想・基準、施工管理あるいは施設そのものについて、日本では考えられないような粗雑な面が多々見受けられたが、それによって困っている、あるいは重大な事故が発生したとの情報は全く耳にしていない。（DSIでは50m超のアースフィルダムを築造した実績を持つとも聞いた。）従って、今回の調査では、工事計画の面よりはその前提となる種々の現況ならびに計画面について十分調査検討すべきであると考える。

というのも、現地調査を行った中央アナトリア地域でみると、作物の生育期である夏季は乾季であり、この時期に灌漑を行えば作物の収量が増加するのは当然である。しかしながら、この灌漑用水は地下水または厳寒の雨季に確保しなければならない。たまたま地元からプロジェクト実施の申請があった所がプロジェクト地域なのか、た

またま地下水脈があった所がプロジェクト地域なのか、たまたまダム適地があった所がプロジェクト地域なのか、既存集落との位置関係とか、交通アクセスとの関係とか、何故その地域がプロジェクト地域となったのか等一定地域の考え方について十分検討する必要がある。

また、営農作物についても農家の意向次第であり、農業政策としての戦略作物と言ったような考え方が不十分なように感じた。例えば、現地調査で立ち寄った村の区長さんは、灌漑用水が確保されたことを非常に喜んでいたが、何を作るのかと聞いたところ『収量が安定しているビートをさらに増やしたい。』と語っていたが、ビートはトルコとしての価格支持作物となっており、生産量の増大は将来の過剰在庫を招きかねない。

このように、GDRSはどちらかと言えば灌漑施設の整備をすればいいといった傾向が強いことから、計画の前提となる諸条件について、特に他省庁の所管している事項について十分に調査し、調整を図る必要がある。

(4) 限られた水資源を有効に活用するためには、節水灌漑が不可欠であり、末端のかん水施設の整備が重要である。この末端のかん水施設であるスプリンクラーやドリップ等器材は農家が資金負担を行うこととなるが、農家は一般的に十分な資金力があるとは思えない。農家経済や農業生産支援体制（資金融資、営農指導等）の実態等についても十分調査しておく必要がある。

(5) 農村部のインフラ整備として、上水道や道路の整備は要望が高いようであるが、下水道については夢みたいなイメージでいた。集落排水やいわゆる農村公園といった日本的農村整備のメニューが必要なのかよく意見を聞くべきである。

(6) GDRSからの要請書では、内水面漁業についても触れているが、聞き取りの結果、農家の副収入として考えているわけではなく、地域住民の貴重な蛋白質源として採取することを期待している意向であり、貯水池の死水域あるいはその直上位部に50～100万㎥の養漁のための容量を確保して欲しいとのことであった。

農業省水産部長によれば、トルコ国内には稚魚の育苗施設が1カ所しかなく、そこから貯水池まで稚魚を陸送するのに多大の労力を必要としていることから、今回のF/Sモデル地区の計画の中に稚魚の育苗施設を計画して欲しい旨の要請もあったが、このことについてはGDRSとよく相談して、その設置の要否を判断すればよいと考える。

(7) 環境省担当者によれば、GDRSが実施する農村開発プロジェクトは事前環境影響評価調査を行う必要があるとのことであるが、GDRSではこれまでこのような調査は行ったことがないとのことであり、十分な指導が必要である。

(8) 経済評価に際しては、前述のとおり、灌漑すれば生産量の増加が期待され、その結果として収益が増大し、投資した費用を償い、投資効率的にも満足するという評価になっているが、トルコ国内でも近年価格支持作物の過剰在庫が顕在化してきているようであることから、その面での検証が十分必要である。

(9) 最後に、トルコ国の行政機関はかなり縦割り意識が強く、関係省庁の連携が旨くいっていないと言われる。このため、今回の開発調査を円滑に遂行するため、関係省庁の担当者からなる調整委員会を作るべきとの意見もあったが、GDRSの意向も踏まえ、敢えて提言しなかった。(GDRSは他省庁との力関係で対等とは感じられなかった。)

しかしながら、本開発調査をまとめていく上では、特に農業省やDSIからの資料収集は必須と考えられることから、関係省庁との協議調整も重要な技術移転であるとの立場からGDRSが主体性を持って他省庁との調整に当たるよう指導することが重要である。なお、事前調査期間中、他省庁との調整にGDRSは非常に前向きに対応してくれた。

2－2 農業農村基盤

(1) 本格調査実施上の考え方及び留意点

今回の調査からGDRSは、小規模灌漑・地下水利用灌漑・ため池開発・土地保全・ほ場整備及び排水改良や農道整備等多種工種の事業をプロジェクトの調査計画から設計と工事の実施及び管理までを所管し実施している。

これらの事前調査・計画調査及び実施設計や工事設計にかかる基準については、独自に作成したものに基づいて行われている。

この計画作成時の基本的な考え方、アプローチ手法、実工事の施工管理と工事完了施設の管理運営等においてもっと考慮すべき事項が見受けられるが、一律に日本的考え方を適用することは、必ずしもいい結果を招くとは限らないと考えられる。しかし、GDRSのPR及びDD地区のレポートを確認した結果、必要な検討は一応されているが、次の内容でインターナショナルのレポートとしては、不足しているよう考えられる。

①計画の前提となる上位計画の社会経済条件、農業情勢との位置づけ

②目標となる農業の姿とそれによる農業効果と農村（地域）の将来の姿

③限られた水源の賦存量と有効利用の方策（節水灌漑と水管理）

④プロジェクトへの農民参加と管理への参加、関わり方ならびに農業支援対策

⑤以上を含めたプロジェクトの効果

⑥事業の環境問題への配慮

これらのことを考慮して本格調査は、GDRSが抱えている地区の優先度の高い、計画調査地区(PR)と実施計画地区(DD)を対象に日本のローンあるいは世界のローンに適用するプロジェクトをまとめるよう進め、これを通して、GDRSは、抱える他のプロジェクトを自らできるようトレーニングすることを、基本方針として進めることとする。

なお、課題に対する調査内容と方法は以下のように進める。

①上位計画との位置づけ・②目標とする農業の姿及び③水資源開発と賦存量等を基本としてマスタープランとしてまとめる。また、③節水灌漑と水管理と④農民参加及び⑤Projectの効果について、F/S時に補足調査をし、⑥の環境問題については新たに調査を加える（別記：環境を参照)。

本格調査の全体作業フロー（別図8参照）

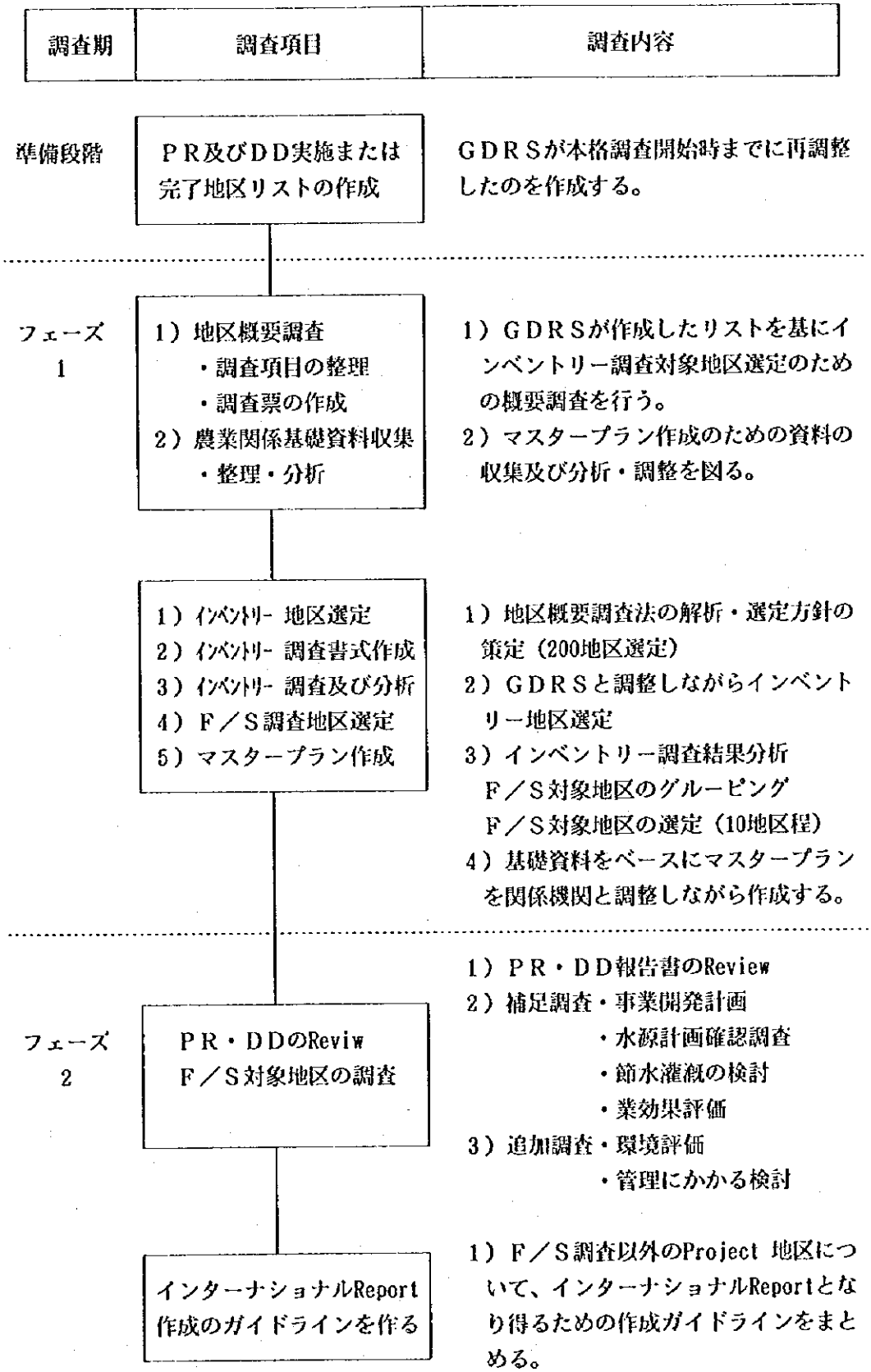

図8　本格調査の全体作業フロー

(1) フェーズ1調査

GDRSで把握している調査対象地域内の事前調査地区、計画調査地区及びプロジェクト地区（1996.7.31現）について、GDRSは本格調査が始まる前までに、緊急性及び地区の熟度を再調査し今回調査の対象となる計画調査(PR)及びプロジェクト地区(DD)のリストを作成することとなっている。これをベースとして、以下の調査を進める。

①マスタープランの作成調査

トルコ国の農業政策は、第7次経済5カ年計画（1995～2000年）を基本として展開されている。よってマスタープランはこれをベースに、振興計画及び既存統計資料等収集・整理・分析を行い、これを基に以下の項目（参考）をとりまとめる。

・農業振興の基本構想（目標となる基本構想）
・土地利用構想（農業基盤を踏まえた土地利用構想）
・目標となる農業の姿（地域の条件等を考慮した生産目標や振興作物等目標
・農業農村基盤整備の構想（整備の方向及び事業種別整備構想）等

このとき、事業のプロジェクトについては、推進するスケジュール構想を、第7次経済計画の5カ年を目標とする緊急事業と、長期的に整備していく事業全体に対し考慮したマスタープランを作成する。

なお、農業農村基盤整備の構想策定にあたっては、水源開発構想と水源賦存量を考慮し、灌漑用水を確保するための基本構想をまとめるようにすること。このときの参考資料としては、要請書の1－2の中にある「河川流域の灌漑可能性調査が1954年から実施されマスタープランレベルで完了している」がある。（ただし、内容について確認していない）

②GDRSが作成する対象地域内の対象地区リストを参考に地区概要調査を行う。概要調査のための調査項目の整理と調査票を作成し該当事務所に配布収集を行う。

作業手順

・既存のPRの報告書及びDDの報告書を見て、地区概要調査項目の検討を行い及びGDRSと調整を図りながら調査票作成を行う。
・調査票は1地区A4版1枚とし、パソコンにより集計が（簡単な表計算及び分析）できるようデータについて考慮する。
・調査項目は次を参考とする。（別表6参照）
・調査票の配布、回収はGDRSの協力を得る。

別表-- 6

・地　　域：支局、県支局、
・地域区分：（気象条件、地形条件）
・地区名：
・関係市町村：
・調査レベル及び実施年：SR（　　年）、PR（　　年）、DD（　　年）
・事業種：灌漑、地下水、ため池、農地保全、ほ場整備、排水他
・水源計画：既存、新規（河川、ため池、地下水）
・受益面積：
・最大取水量：　　㎥/s
・主要工事及び規模：ため池（容量）、頭首工（タイプ、延長）
　　ポンプ（口径、深度）水路（オープン、パイプライン）
　　区画整理、農地保全等
・灌漑方法：
・主要作物：
・概算工事費：
・工　　期：
・受益者組織：有（名称）、無
・プロジェクトとしての緊急度：
・概要図：
　（ポンチ絵程度）

③この調査結果を基に解析を行いインベントリー調査対象地区の選定を行う。このとき対象地域特性及びその地域の農家の熟度及び事業の内容等を考慮しGDRSの意見を尊重して200地区程度選定する。

④選定した200地区程度を対象にインベントリー調査を行う。

・インベントリー調査内容の検討及び調査票作成（先進地区の事例を参考にまとめる）

・本地区として特に考慮すべき項目

地域の特性

地形図及び計画図面の整備状況：一般計画図及び構造図の整備範囲と縮尺。

プロジェクトに対する農家及び地域としての緊急度。

新規水源計画の可能性と経済性及び水文データの整備状況（河川流量及び雨量）

対象プロジェクトの報告書資料のリストの把握

⑤インベントリー調査の結果を整理分析し、選定評価指針を作成する。それを基にフィジビリティースタディ(F/S)地区の10地区程度の選定を行う。

なお、このときF/S地区選定にあたっては、下記の事項に留意しGDRSと調整を図って選定する。

・地域及び農家の熱度が高いこと

・水源計画を含め、プロジェクトの実施が可能な地区であること

・選定される地区はパイロット地区となることを考慮し、ある程度の受益規模であること

・地域の特性（自然、地形）及び農業生産作物の多様性（作物等）を考慮する。

・ため池、堰、排水、ほ場整備など多様な工種であることを考慮する。

・これらの複合工種や風食等の農地保全対策も考慮する。

(2) フェーズ2調査

フェーズ1で選定された、優先プロジェクトについてGDRSの計画調査(PR)と実施設計(DD)の報告書をReviewし、前述の調査で不足する内容について、マスタープランを踏まえ、フィジビリティー(F/S)調査を実施する。

この時、PRレベルのプロジェクトが選定された時は、DDプロジェクトとでは調査報告書の整備レベルが違うことから、F/S調査内容について十分考慮するものとする。

なお、PRとDDプロジェクトにおいてのF/S調査について、留意して進める内容として、以下のことを参考に検討を加えるものとする。

①事業の開発計画

マスタープランを基に、対象プロジェクト計画の前提となる上位計画の社会経済条件、農業情勢との位置づけを行い、農家の所得目標と農業効果等について明確にする。

②水源計画の確認

プロジェクトのReviewにより、水源計画を確認する。また、水収支が不十分なプロジェクト及び小規模灌漑地区については、近年の気象条件を考慮するため、取水地点での流量観測と河川定点(DSI流観点)との一斉流観を10回程度行い、水収支計画の水源チェック確認をすることを検討する。（インベントリー調査結果からの選定）

③節水灌漑と水管理

現地調査から水管理及び圃場の土水路及びうね間灌漑など、水の管理ロスが大きいように考えられる。限られた水源を有効に活用するための手法として、節水灌漑及び管理運用についての検討をされたい。特に、灌漑量、灌漑時期、灌漑方法及び用水の管理運用としてファームポンドの設置等を検討されたい。

なお、検討方法は完了プロジェクト地区について、水管理ロス等を現地調査しそれ

を参考とする。

④プロジェクトへの農民参加と管理への参加

DSIが実施している農民組織の参加型手法について、事例調査を図り、GDRSが実施するプロジェクトへ導入について検討を考える。F/S調査地区で末端管理組織を検討していくプロジェクトについて、農家及びGDRSの先進地視察等の啓蒙を検討する。

⑤以上を含めたプロジェクトの効果

以上の内容を考慮し、既存プロジェクトの計画書を基本として、インターナショナルレポートとなり得る事業効果の算定ととりまとめを行う。この時、効果算定年度に合わせ事業費について再積算する。この時、施設計画及び施設設計の内容は基本的にDDのプロジェクトの内容によるものとする。

⑥事業の環境問題への配慮

インターナショナルレポートに必要な事項について調査をまとめる。

⑦PRのプロジェクトの場合

PRのプロジェクトの場合は、計画調査が終了していて、詳細設計が未了であることから、施設設計及び工事費の積算を行う。この時、基本的には必要な地図はGDRSが確保することとしているが、F/S対象地区選定のときGDRSとの事前調整を図っておく必要がある。

なお、このReviewの過程を通して、優先プロジェクト地区以外のプロジェクトについて、GDRSが自らインターナショナルレポートが作成できるようトレーニングすることを、基本方針として進めることとする。

2－3　農業

(1)　開発基本構想

現在、事業の実施地区は具体的に決定されていないが、小規模灌漑及び農村開発計画に関するM/P及びF/Sの策定に当たり、農業面における必要な検討事項は次のとおりである。

①灌漑農業の推進

灌漑事業実施予定地区の多くは、現在は農業に利用できる水が少ないために、小麦等冬作だけを行っている場合がほとんどであり、生産性は概して低い。このため、灌漑施設の整備により工芸作物、野菜、果樹、花卉等夏作物を積極的に導入し、生産性の向上と所得の確保を進めなければならない。

この場合、トルコは農家毎の経営農地面積のバラつきが比較的大きいため、現状では農家の所得水準にもかなり差があると考えられる。このため、作物の選定に当

たっては、地域毎の気象要因等作物を栽培するための環境条件に加え農家の経営耕地面積、労働力、機械化・施設化のための財政力を考慮する必要がある。

②農業開発協同組合の育成

灌漑農業により生産される作物の大きな部分を占める野菜・果樹等の流通は、現状では卸売業者等により掌握されている。このため、農民は農作物の販売のために入手できる情報量も限られており、農産物販売価格に占める農民の所得比率は低く押さえられている。このような状況では、灌漑施設を整備し、農産物の生産性の向上を推進したとしても、そのことが農家の所得水準の向上に大きく寄与しない可能性がある。また、農家個々がバラバラに雑多な野菜・果樹を生産し市場に個人出荷しても、流通経費に割高な負担を強いられるだけでなく、量的に不安定な出荷方法では市場、小売業者から信頼を得ることは不可能である。

このため、種別毎にまとまった作付面積及び出荷量の確保が必要であり、そのことを背景にした流通業者に対する価格交渉力の向上を図るため、農業開発協同組合等の生産物をより高い価格で販売するための農家の組織化を推進することが不可欠である。

③輸出の推進

トルコは現状においても食糧自給国であるが国民の所得水準は概して低い。このため、灌漑施設の整備により農作物の生産性を向上させても、国内消費のみでは供給過剰に陥ることが考えられる上、国内の購買力だけをターゲットにするのでは農家所得の向上に限界を生じる恐れがある。

一方、トルコは購買力を有するヨーロッパに隣接しており、現状でも生産される野菜等のうちより高品質のものはヨーロッパ、中東への輸出に向けられており、それ以下の品質のものがトルコの国内市場へ出荷されている。

このような状況を考慮すると、輸出を視野に入れた計画策定が必要であるが、併せて、現在主流を占めている輸出業者ルートによる輸出だけでなく、農業者または農民組織自らが輸出を手掛けられる体制及び支援方策を整備し、輸出量の伸びが直接農家所得に跳ね返る状況を創出することが必要である。

(2) 調査実施方法

①今回のカウンターパートである農業村落総局は施設の整備等ハード分野を専門としており、営農支援対策等ソフト分野への対応までも十分できるかどうか不明である。

このため、試験・研究、普及等農業支援対策を専ら実施している農業村落省を加えた事業推進体制を構築し、開発計画に係る調査を実施する必要がある。

②フェーズ1で実施されるインベントリー調査対象地区は、M/P、F/S地区がモデル

プロジェクトとなることが要求されることから、農業地域（気象条件）、営農形態、作物、灌漑施設の主要工種について代表的な地区を網羅する必要がある。

また、調査地区については耕地（経営規模、土地利用、土壌）の状況、農業生産の状況、生産資材（種子、肥料、農薬、機械化等）、労働力、生産物の流通・販売・輸出及び支持価格制度の状況、農業試験研究、農民組織、農業金融、主要作物の生産費、農家の経済状況について調査を行い、地域の作物生産・流通状況及び地区内農家の経営内容を把握するとともに、普及組織等農業支援組織の状況、農業支援組織の農家指導に対する農家の評価、農業支援組織構成員の事業に対する考え方について調査し、支援組織の協力が得られやすい等事業を実施する機運が盛り上がっているか否かについてもフェーズ1で行われる優先事業地区の選定に反映されるべきである。

③フェーズ2では、フェーズ1で選定された優先事業地区に関し、フィジビリティー調査を実施することになるが、必要と思われる具体的な調査項目は次のとおりである。

a．農家の経営規模及び土地所有の状況
b．土地の利用
c．作物の作付体系、単位面積当たり収量及び収穫量
d．畜産の状況
e．営農（生産資材、機械化、労働力）
f．試験研究、普及組織の状況及び普及活動の方法
g．農民組織の組織化、農業協同組合の活動内容
h．農業金融
i．農産物流通、農産加工
j．農産物価格
k．支持価格制度
l．作物別生産費
m．農家の経済収支
n．既存の灌漑排水計画及び農村開発計画の実施状況及び問題点

また、作成される計画に含まれるべき項目としては、次の項目が想定される。

a．計画の基本方針
b．土地利用計画（作付面積、対象作物、計画作付体系）
c．営農計画（適切な資材の投入、農業機械の共同利用、畜産の位置づけ、作物毎単位面積当たり収支、労働力に見合った可能作付規模、作型別想定所得）
d．農業技術（導入されるべき栽培技術、新技術の導入手法）

e．流通（協同出荷、輸出対応、支持価格制度）

f．農業支援体制の強化（農業試験研究、農業普及、農業金融、農業開発協同組合）

2－4　内水面漁業

本格調査においては、フェーズ1においてダム湖で行われている内水面漁業の現況を把握し、そのうえで内水面漁業計画を本調査において策定する必要性を判断すべきである。また、調査方法としてはローカルコンサルタントに調査を委託するのも一つの手法であろう。

既存資料については農業村落省から資料提供を受けられるので、養殖事業の目的、予算規模、事業実施方法（稚魚の育苗及びその運搬に関することも含む）、受益者、事業実施箇所等に関する資料・情報を収集する。次に既に事業が実施されている地区の周辺住民による養殖魚の捕獲状況等の実態を既存資料及び聞き取りにて調査する。また、農業基盤分野の担当団員は、養殖事業を行う小規模ため池において、養殖のために確保すべき容量等を検討する必要がある。

2－5　環境

(1)　開発基本構想

本格調査の実施手法のため、現在時点では具体的な調査対象事業及び事業の実施地区は決まっていない。しかし、今回の現地調査及び灌漑排水事業の実施により発生している環境問題を参考にすると、本格調査で検討が必要であると考えられる環境項目は、次のとおりである。

1）開発計画策定における環境配慮

小規模灌漑及び農村開発計画に関するM/PとF/Sを策定する際に配慮すべき項目。

a．貯水池計画における住民の移転と水没地域の自然環境

b．地下水計画における適正揚水量に関する運営管理

c．排水計画における排水の放流地の水質汚濁、特に湖沼・湿地

d．農業生態区分を考慮した農業生産計画

e．事業地区内及び周辺地域の自然環境に関する指定地区

f．事業地区内の史跡・文化遺跡

g．水源計画における既得水利権の再調整

h．受益者参加型の開発計画（農用地の再配分、施設の移譲、維持管理等）

i．地域間の経済格差の是正（地価上昇、農業収入、雇用機会等）

j．大規模な地形の改変を必要としない施設設計

k．環境汚染及び生態系への影響を最小限にする施工計画

l．環境監視モニタリング・システム

2）環境保全対策

開発計画に含めることの検討が必要な環境保全の項目。

a．農地保全計画（土壌侵食の防止等）

b．土壌塩類化の防止

c．農薬・化学肥料の適正使用の技術指導

d．環境保全型農業の技術指導

e．水質汚濁を発生させない内水面漁業の技術指導

(2) 調査実施方法

トルコ国には既に環境影響評価に関する法律があり、農業開発に関してもその実施が義務づけられている。一方、調査対象地域は国土の一部地域を除く広範囲であり、①湿地、受蝕地、閉鎖水域等の環境面で脆弱といえる地区、②絶滅危惧種や希少種等の保護指定生物種の生息、③国立公園、天然記念物、自然保護地区等の指定地区等に関する自然環境及び④史跡・文化遺産、⑤人口の流出、経済的格差等に関する社会環境、さらに、⑥各種の環境問題を抱えている地域が含まれている。従って、開発計画の実施に先立って、環境影響調査を実施する必要性は明らかである。

本格調査では先ず、全調査対象地域を対象とした、事業のインベントリー調査を実施するため、現時点では対象事業の“事業の概要”及び“事業の立地環境”は明確にはできなく、環境項目を具体的に検討することは困難である。フェーズ1調査の開始時に、インベントリー調査の対象事業が決定された段階で環境スクリーニング及びスコーピングを実施する。

次に、抽出された環境項目を参考に、インベントリー調査の対象事業の実施が環境に与える影響を分析し、初期環境調査(IEE)を実施する。環境影響評価(EIA)の実施は、フェーズ1調査で選定される優先事業に関し、IEEの結果を踏まえて決定する。

環境省は、昨年は13件の環境影響評価を実施しており、本年は既に40件以上受け付けている。環境影響評価は多数の民間のコンサルタント及び大学の研究機関が実施している。これには農業分野の案件は含まれていないが、農業分野の環境影響調査の実施が可能な民間コンサルタントは、数社あるといわれる（民間コンサルタント）。また、大学の研究機関も十分に対応できるとのことであり、必要な場合は現地委託が可能である。

3．本格調査実施上の留意事項

3－1　農業農村基盤

(1) F/S調査において利用できる地形図について

フェーズ1の調査の対象地区概要調査（定義する必要あり）リストから選択されたインベントリー調査対象の地区を対象に地区毎の地形図整備状況を合わせて把握する。このことについては、S/W時の協議において地形図の整備状況について把握可能であるとの回答を得ている。

なお、F/S調査を進めるにあたって地形図が不足する場合は、速やかに整備する必要がある。整備の方法としては、基本的に地形図はGDRSが確保することで口頭確認をしているが、経費の問題で調整が出る可能性がある。このときの対応としては、新規に作成するには時間と莫大な経費が必要なことから、次のような方法を検討する（これはGDRSからの聞き取ったものである)。現在トルコ国では縮尺1/25,000の地形図は整備されている。この地図を拡大し、必要な情報を付加するとともに部分補正を掛けることにより、計画策定用の地形図を確保できる(GDRSが実施している方法で口頭で確認)。

以上の方法での対応となるので、早い段階での情報を入手するよう進められたい。なお、実作業は県支所でなされており各現場での確認もされたい。

(2) GDRSが所有する資料について

GDRSはPRとDDの計画書を作成している。この作業の流れは以下のようになる。

地　元	県支所	支　局	GDRS本部
申請及び要請	概要の作成	内容審査	内容審査及び 計画調査の採択
	地元との確認 計画書のまとめ	審査	プロジェクト採択
	プロジェクトの設計 工事施工	審査	プロジェクトの入札

これらの調査を進める中で作成される計画書、報告書及び図面画等は各々の部署にファイリングされている。こらを入手し基本的な情報を参考にされたい。

3）計画諸元に基づく基礎データの入手と有無について

気象データ、河川流量データ及び土壌調査など基礎データはDSI等外部機関で入手が可能である(口頭で確認)。その内容については類似プロジェクトの報告書から推定すると計画をとりまとめるのに必要な内容が十分確保されるものと考えられる。

ただし、GDRSが単独で開発する小河川及びため池開発にかかる水文データは、その計画プロジェクトの事前調査で調査されており、これらの活用ができる。

4）節水灌漑方法について

ほ場への灌漑諸元、作物毎の灌漑量及び灌漑期間などについては、GDRSの基準により計画されている。またこれらのバックアップとしてGDRSの農業研究所が、灌漑用水、作物、灌漑期間、灌漑施設、管理などの研究と農家への普及活動をしている。これらを通じて灌漑の普及が図られているものと考えられる。これらとタイアップすることにより十分な計画が策定されるものと思われるが、灌漑地区全体を視察した感想としては、その限られた資源である水を今少し有効に活用できるものと考えられる。その方法については、フェーズ1のインベントリー調査時に地元農家のニーズを十分把握し、水源を有効に活用するとともに節水灌漑の方向について積極的に計画をされたい。

なお、GDRSは灌漑計画の灌漑方式及び灌漑諸元について次の見解を示している。「古くからの灌漑方式については、伝統的に農民が行っているやり方がある。このため、このやり方に応じたプロジェクトづくりが行われている。スプリンクラー及び点滴灌漑といった近代テクノロジーは、要求に応じて計画に盛り込まれる」これは、水源の有効活用していくには、消極的である。効率化が必ずしも経済的でないが、今後の灌漑面積の拡大を考えたとき、農家のニーズを十分把握し、灌漑の効率化を図り節水灌漑を取り込んで行くことを検討されたい。

5）節水灌漑の水管理について

オープン水路の末端及びポンプ灌漑の灌漑時間の管理運用としてファームポンドの設置等を検討していく。この時、灌漑実施地区の管理ロスの実態について、現地調査により現状を把握するとともに、農家の灌漑用水の管理に対する意向調査を行い農家参加の手法について検討する。なお、調査地区として、表流水利用のオープン水路のプロジェクトとともに近年イスラエルの指導を受けて完了したパイプラインプロジェクト地区についても行うことを検討する。

6）インタナショナルレポート作成ガイドラインの策定

F/S調査を通して、GDRSが抱える他プロジェクト地区ついて、GDRSが自らインターナショナルに通用するレポートの作成を図るためのガイドラインを策定するとともに、カウンタパートにPR及びDDの報告書を作成できるようトレーニングするよう進める。

この時、社会的側面・技術的側面・実施管理の側面・経済的側面及び環境評価について、GDRSのPR及びDD報告書と本調査で作成するF/Sレポートと対比を作

成し、作業計画手法を整理し、必要となる具体的な調査項目及び調査内容を明きらかにすることにより、インタナショナルレポート作成のガイドラインとする。

なお、新たな調査としては以下の項目を参考とする。

①事業の開発計画

②水源計画の確認

③節水灌漑と水管理

④プロジェクトへの農民参加と管理への参加

⑤以上を含めたプロジェクトの効果

⑥事業の環境問題への配慮

7）マスタープランの策定及びプロジェクト推進における調整体制

農業基盤整備の構想策定にあたっては、水源開発構想と水源賦存量を考慮し、灌漑用水確保のするための基本構想をまとめることとしているが、全国の河川水開発（取水量0.5㎥以下を除く）及び地下水開発に関する権限をDSIが所管している。このことから、本調査のマスタープラン（案）構想がまとまった時点にGDRSとDSI含めた調整を図るよう体制を検討する。小規模灌漑（頭首工、ため池及び地下水）の水源確保の確実性を確認するためにも、特にDSIの水源開発マスタープラントの整合について調整する。

3－2　農業

① 本格調査を実施するに当たって、農家経済調査結果を活用しなければならないが、事前調査段階では有効な調査結果を確認できなかった。本格調査において改めて有効な調査結果の存在を確認するとともに仮に調査結果がない場合は、本格調査の中で別途必要な項目について農家経済調査を実施する必要がある。

その場合に必要と思われる調査項目は次のとおりである。

a．主要作物の生産費調査

b．主要作物の労働時間調査

c．農家の所有機械調査

d．作型別、規模別農家経済調査（農外所得含む）

② 事業効果を最大限に発揮するためには、地域の農民を計画作りから参加させた開発計画を作成する必要がある。現在実施されている開発計画は、農民の申請により農業村落総局が開発計画を作成、実施しているようであるが、個々の開発計画毎に事業実施機関、受益者、支援組織を含んだ開発計画策定体制を組織する必要性について検討すべきと考える。

③ 灌漑農業において作付増が予想される工芸作物については、現在そのほとんどが価格支持政策対象作物となっている。価格支持政策については高インフレの原因の一つとされているが、インフレ対策が国家の重要課題となっていることから、工芸作物の導入については価格支持政策との整合性を確保する必要がある。

④ 計画される農業を実施するための農業技術の存在を確認するとともに他地域で確保されている必要な農業技術について、技術移転計画の策定と実施を円滑に行えるかどうかの検討を行う必要がある。

3－3 内水面漁業

本事前調査の結果、内水面漁業（養殖事業）は現状では受益者（農民）の副収入とはなっていないとのことである。また、内水面漁業の振興策に関しては、村落総局と農業村落省との間に一致したビジョンが出来上がっていない。従って、本格調査において内水面漁業を取り込むためには、先にトルコ政府内部の意見の統一を図ることが必要条件となろう。

3－4 環境

フェーズ1 調査では、環境法規、特に環境影響評価規則の内容を十分に把握する必要がある。環境項目に関しては、本事前調査結果及びJICAの環境ガイドライン等を参考にするとともにトルコ国側と十分に協議し、合意することが重要である。次に、トルコ国側専門家と協力して、環境項目に関する十分な調査を実施し、インベントリー調査の対象事業に関する環境状況を整理する。また、既存の灌漑排水開発及び農村開発に関連する環境問題を分析し、環境保全対策を検討することが有効である。さらに、IEEは環境影響評価規則に則った手法で実施する必要がある。そして、その結果を優先事業の選定に反映させることが重要である。なお、環境影響調査はGDRSが主体的に実施しなくてはいけないことを、GDRS及び環境省は認識しており、今回の協議の席でをこの事に関し同意している。しかし、実際には実務経験がなく専門家もいないため、本格調査団員が中心になって実施することになる。

フェーズ2調査では、フェーズ1調査で選定された優先事業に関し、具体的な環境保全対策を提案する。また、事業実施による影響を軽減させるための対策及び環境モニタリングの方法等を検討する必要がある。さらに、フェーズ1調査のIEEでEIAの実施が必要であると判断された優先事業について詳細な環境調査を継続し、策定されるF/Sに関する環境影響評価書(EIS)を作成する。なお、F/Sで事業の内容や立地条件に変更が生じた場合はIEEを見直す必要がある。

現在、トルコ国では開発手法として、受益者参加型の計画が重視されている。開発計画及び管理計画の策定においては、実施中の案件や関係組織を十分に調査し、分析評価することが重要である。

この一連の作業を通じてカウンターパートに技術移転を行う。トルコ国では環境影響評価規則が施行されて間がなく、環境省での農業分野案件に関する経験も少なく、GDRSでは初めての経験である。運用方法等に関してはまだ試行錯誤の段階にあるといえ、全工程を通じて適切な助言と、カウンターパートへの技術移転が重要になる。

付　属　資　料

① 要請書

② 実施細則

③ 協議議事録

④ 収集資料リスト

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⑤ アネックスⅠ～Ⅴ

TERMS OF REFERENCE

ON

TECHNICAL COOPERATION PROGRAM

FOR

NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM

SEPTEMBER 1995

GENERAL DIRECTORATE OF RURAL SERVICES (GDRS)

PRIME MINISTRY IN THE REPUBLIC OF TURKEY

Application for the
Technical Cooperation (Development Study)
by the Government of Japan

CONTENTS

Application for the
Technical Cooperation (Development Study)
by the Government of Japan

1. Project Digest

(1) Project Title
National Small-Scale Irrigation and Rural Development Program

(2) Location (Location Map)
Whole the country (Refer to Annex-1)

(3) Implementing Agency
i) Responsible Agency
General Directorate of Rural Services (GDRS)

ii) Executing Agency
General Directorate of Rural Services (GDRS), the Prime Ministry in cooperation with others concerned

(4) Proposed Date of Commencement of the Project
1996

(5) Prospective Funding Source
OECF-JAPAN

2. Justification of the Project

(1) Background

i) Present Condition of the Sector

a) General

The population of 62 million in Turkey is growing at an annual rate of 2.2 percent with an exception to exceed 91 million by the year 2025, where an increase in per capita demand for food

in the light of rapid urbanization and improving the education and living standard is calling for the minimum annual growth of agricultural production at 3.5 to 4 percent. The long-term growth rate in the agricultural sector has been 3 percent, but has considerable potential for improvement of the crop yield at 0.9 ton per ha of grain equivalent at present due to the semi-arid climate to 5 ton per ha with irrigation and associated inputs.

The total area of Turkey is 77.9 million ha, about one third of which is used for agriculture. About 4.2 million ha has been provided with irrigation networks, while the irrigation development potential is estimated at 8.5 million ha. The Government has recognized the importance of agricultural development as mentioned above and has embarked on an ambitions program of irrigation development that absorbs some 35 percent of the budget for agriculture. At present, particular attention is being given to the South East Anatolia Project (GAP) where 1.7 million ha will be irrigated by the Euphrates and Tigris rivers. In general, the rate of project implementation is of the order of 100 thousand ha per annum, but the projects take much longer to complete than is normal because of interruptions caused by the budgetary constraints.

Turkey has a subtropical, semi-arid climate with extremes in temperatures. While summer is hot and dry, winter is cold, rainy and snowy in the east and central regions of the country. Precipitation shows greater variations from one region to another with the annual average ranging between 220 and 3,000mm. The average annual runoff of the country is estimated at 186 mm of which 95 mm of the surface runoff could be technically developed for use, while the actual consumption is 25 mm or 26.5 percent of the potential. The total safe yield of groundwater resources is estimated to be 11.6 mm. The total amount of groundwater used for irrigation is 3.3 mm per annum and for municipal purpose 2.2 mm, giving a total of 5.5 mm.

b) Irrigation Sector

During the decade 1980-90, major irrigation project investments

averaged 30 percent of the total agricultural sector investment. The reasons for devoting such substantial resources to irrigation lie mainly in the nature of existing ecological conditions and potential gains in production and employment to be realized in irrigated agriculture and related rural activities. The critical growing period for most of the crops is during the months of June to August when most of the rivers carry base flow only; therefore, water storage is indispensable. About 70 percent of major irrigation projects are fed with from reservoirs or lakes. The studies of river basins to determine development possibilities started in 1954 and have been completed on a master plan level. These studies indicate that 8.5 million ha of land could be irrigated.

Irrigation development is carried out by the private sector such as farmers and groups of farmers and the public sector such as DSI (General Directorate of State Hydraulic Works, Ministry of Public Works and Settlement) and GDRS (General Directorate of Rural Services, the Prime Ministry). Up to the end of 1991, irrigation has been developed as follows:

By DSI	1.9 million ha
By GDRS	1.2 million ha
By farmers	1.1 million ha
Total	4.2 million ha

It has been reported that while a rather precise record is available of the areas developed by DSI for irrigation dating back to 1950, the statistics concerning areas developed by GDRS and private farmers seem to be somewhat less reliable.

Large-scale irrigation projects are carried out by the DSI. Major works such as single or multipurpose dams, pumping stations and main canal systems up to tertiary canals until farm turnouts are constructed under the supervision of DSI who have completed 150 dams and developed 1.27 million ha for irrigation by the end of 1991. Generally, the GDRS is responsible for on-farm systems in DSI irrigation systems; however, on-farm development has not kept up with the construction of new irrigation schemes. In order to reduce the backlog of on-farm

development, the World Bank is assisting in the implementation of a Core Program of Drainage and On-Farm Development since 1987. It may be noted that the DSI distinguishes between "major irrigation projects" which are shown separately in the DSI budget for Major Projects Investment and "major irrigation projects" for which only a total allocation is included, and the DSI transfers relatively small projects after completion to Local Manager or Water Users Associations (WUAs). The DSI is trying to transfer all other larger schemes to WUAs during the last two years.

The public- financed small-scale irrigation projects by GDRS have developed 1.2 million ha by the end of 1991 with the breakdown of 0.8 million ha from surface water diversion and pumping, 0.28 million ha from groundwater and 0.12 million ha from small fill-dams. The GDRS completed more than 600 such dams and also about 1,700 fill-dams for animal watering.

ii) Problems to be solved in the Sector

Development of the small-scale irrigation projects which for financial or technical reasons can not be carried out by the farmers is one of the portfolios of the GDRS. The participation of users and cost recovery is under discussions for new government policies. According to the 1989 figures, nationwide GDRS employed 951 engineers and had a work force of 36,000; besides these permanent staff employed a total of 251,000 man-months in the form of casual labor. Only 17 percent of the GDRS budget in the 1988-91 period was allocated for agricultural investment for small-scale irrigation. When the annual budget is approved, the GDRS regional staff carry out the design and estimate the costs of works, the both of which are forwarded to the GDRS General Directorate for approval. The works are constructed by GDRS itself, as well as through public tenders supervised.

(2) Project Description

i) Project Objective

The Small-Scale Irrigation and Rural Development Program has the following Objectives:

a) Long Term Objectives

- To contribute to the country's food security and rural development,
- To contribute to the national economy and sustainability of natural resources,
- To help preventing the rural migration to urban areas,

b) Short-term Objectives

During the Plan period, new irrigation schemes serving a total of 750 thousand ha will be installed, in addition to increasing the effectiveness of existing irrigation schemes through maintenance and repairs. Water logging problems are encountered as a result of inefficient water use and lack of adequate drainage. This has resulted in loss of productivity of irrigated lands and in some severe cases the forming of water logged wetlands. It is envisaged that 250 thousand ha of on-farm development and 70 thousand ha of drainage works will be carried out during the Plan period to overcome these problems. For that reason the Program aims:

- To evaluate the previous, present and future developments in the sector,
- To find new strategies to catch up with the development goals in the sector,
- To review and find ways to get the participation in every stages of users and cost recovery,
- To increase the affective use of the investment in the sector.

ii) Project Area

Aside from the implementation of on-farm development works in the DSI irrigation projects, the GDRS agricultural investments for small-scale irrigation works and small dams are subject to the above stipulated article to plan, construct and operate irrigation facilities of up to 500 litre per second. This term may be translated to the size of a project up to 300 to 500 ha in net irrigable area and up to 15 m in height of dam. Generally, GDRS carries out the small-scale irrigation project upon farmer request to ensure the cooperation of beneficiaries. To date, about 12,000 projects have been implemented throughout the country, of which about 30 percent may need the rehabilitation and repairs. In addition, about 3,500 projects have been prepared for implementation including 1,500 for surface water and 1,000 for groundwater, of which 250 small dams have completed the detailed design and tender documents for bidding. At present, there is the backlog of about 10,000 projects upon farmer request for survey and preparation. Apart from the public financed projects, GDRS also provides the technical assistance upon request from the farmers groups or local authorities, and the beneficiaries pay for the operating costs of the equipment provided by GDRS.

iii) Project Components

Small-scale irrigation program which can be developed over smaller catchments of the tributary river basins can complement the development of large-scale projects and can fulfill, when well-designed, many local water needs with considerable potential for the achievement of sustainable agriculture and rural development. It has been worldwide recognized that small-scale public irrigation program with a concept that the communities develop and operate most activities of the projects themselves although technical assistance is required for survey, design, construction and OM can meet various diversified water needs for local communities in several ways when properly implemented in combination between irrigation and such others as water supply for human and animal, inland fisheries and

aquaculture, watershed management, forestry, soil and land conservation and flood spreading, and also can generate employment, promote equity, improve health standards and help to mitigate or prevent migration to urban areas.

iv) Prospective Beneficiaries

Farmers at rural area spreading whole the country.

v) Project Priority in the National Development Plan/Public Investment Program

In Turkey, large-scale irrigation projects have been given high priority during recent decades, while small-scale irrigation programs for agriculture have received inadequate attention. Currently, the overall performance of many large-scale irriga tion projects is much less than was expected because inadequate operation and maintenance (OM) and inefficient management of an increasingly scarce water resource contribute to many socio-economic and environmental problems.

In order to achieve the above-mentioned objectives and targets in a well-defined manner, the proposed Program needs to be examined and prepared based upon better design and far better institutional coordination, with a key focus upon the participation at local level in all stages of planning, implementation and management as well as a proper concept that the GDRS is oriented from a position of "Implementing Agency" to one of "Service Agency" and the local people from just "Beneficiaries" to one of being "Partners in development, including:

- To develop more effective institutional coordination to integrate the sustainable development of agricultural and water supplies and soil and water conservation;

- To enhance the capability of local people in the implementation and OM of water programs through enlarging their capability with more flexible design approaches,

training and appropriate funding.

- To adapt and disseminate appropriate technologies suitable for on-farm development and land consolidation and efficient irrigation practices for farmers with particular attention to the provision of night storages for saving water and intensive fisheries;

- To provide stronger representation and support to small farmers including development of more effective production and marketing environment particularly for credit and input required;

- To enhance the roles of farmer organizations, NGOs and private sector in promoting small-scale irrigation and rural development projects; viz. (1) encourage NGOs to improve coordination and increase their support along with positive assistance to NGOs to improve their managerial and technical skills through trainings; (2) expand opportunities and improve performance of the private sector; and (3) improve collaboration between public and private sector agencies to ensure standardized programs in credit and technical assistance; and

- To monitor performance, evaluate success and failures and identify constraints to provide feedback and disseminate lessons learned.

It is stressed that the proposed Technical Assistance Study will be carried out in close contact with the on-going International Action Program on Water and Sustainable Agri culture Development (IAP-WASAD) under Food and Agriculture Organization.

(3) Other Relevant Project, if any

(4) Implementing Agency

i) Authority and Duties of the Agency

The GDRS was established in 1984 by incorporating such organizations as the Soil Conservation and Irrigation Organization, the Rural Settlement Organization, and the Rural Roads, Water and Electricity Organization into one by Law No.3202 of 1985. The organization and responsibilities of GDRS were last legislated in 1985 and comprise:

- The construction of rural and forestry road networks;

- The development and efficient use of land and water resources by farmers in accordance with directives stipulated in the Government's Development Plan and Programs, including the provision of necessary research, surveys and other services;

- To draw up and execute plans for the development, construction, maintenance, repair and operations of rural roads, water supply, electricity and sewage facilities for villages and settlement schemes;

- To prepare and implement projects and programs for infrastructure facilities related to wild olive groves, shrubberies, meadows and pastures owned by the State;

- To promote and supervise the utilization of agricultural areas and to cooperate with other organizations in this field;

- To bring stony, acidified, alkaline lands or muddy and dry fields into suitable conditions for agriculture;

- To prepare and carry out on-farm development works such as on-farm irrigation and drainage facilities, quaternary canals, land leveling, land consolidation, sub-surface drainage, infrastructural improvements, etc.;

- To plan, construct and operate irrigation facilities of up to 500 litre per second;

- If required, to establish organizations to undertake activities for the behefits of land protection, land rehabilitation and irrigation; and

- To construct and operate buildings, workshops, laboratories, research stations and other facilities for the realization and development of the above mentioned responsibilities.

ii) Number of the Staff of the Agency (on a category basis)

- General Administrative Services	2,060
- Technical Staff	4,450
- Supplementary Services	460
- Permanent Workers	31,530
- Seasonal Workers	47,000
Total	85,500

iii) Budget allocated to the Agency

23,785,000,000,000 TL (47,570,000,000 Japanese Yen)

iv) Organization Chart
Refer to Annex-2

3. Terms of Reference of the Proposed Study

(1) Objectives/Necessity of the Study

The main objective of the Technical Assistance under the Government of Japan in the category of "Dispatch of Survey Team" is (1) to assist the General Directorate of Rural Services (GDRS), Prime Ministry in the Republic of Turkey through the dispatch of a Study Team at its own expense in formulating a Program for the Small-Scale Irrigation and Rural Development Package on

nationwide basis for the construction and rehabilitation of a number of small-scale water resources facilities hereafter called "potential pilot projects" and in preparing the First Package Program covering the priority areas or regions for possible external financing and (2) to transfer the knowledge and technology of the Experts to the officials of the Government agencies concerned.

The Technical Assistance Study proposed will have three components;

- A first component is to review and examine the development plans and institutions in managing the small-scale water resources and rural development sector in Turkey. In addition, it is to identify the priority areas or regions for development as the First Package Program and confirm the potential pilot projects already identified by GDRS for possible inclusion in the first package;

- A second component is to carry out a comprehensive feasibility study for a number of the potential pilot projects covering the technical, institutional, financial, socioeconomic and environmental aspects with emphasis upon promotion of the concept "Sustainable Agriculture and Rural Development" as incorporated in Chapter 14 of Agenda 21 at the 1993 UNCED Conference. This feasibility study will provide a detailed basis for the initial portion of the Program and be an example for the study required to prepare future pilot projects to be included in the First Package Program; and

- A third component is to prepare the First Package Program for subsequent possible external financing and additionally required external technical assistance in line with the establishment of guidelines, procedures and criteria to be applied by GDRS for preparation and appraisal of potential pilot projects included in the said Program.

(2) Study Area

Nationwide area.

(3) Scope of the Study

The proposed Study will be carried out in two phases: (1) Phase 1, the sector review of the small-scale water resources based rural development, and (2) Phase 2, the feasibility study of selected potential pilot projects and the Program preparation in sector lending type. The detailed Terms of Reference for the Study will include, but not necessarily be limited to the following:

i) Phase 1 Study, Sector Review

A. (Development Perspective and Policies)
Review the development perspective and investment plans and policies with respect to the small-scale irrigation and rural development strategies as outlined in the 7th Five-Year Development Plan(1996-2000) and related documents.

B. (National Project Inventory)
Prepare a national inventory of the existing, on-going and potential small-scale irrigation projects with respect to dam, surface water diversion and pumping and groundwater identifying the physical parameters, the aspects of management, environment, agriculture, rural activities and basic social services and the needs to rehabilitate and improve existing projects and improve the management by users organizations.

C. (Sector Institutions)
Assess the capacity of sector institutions including the Departments concerned in GDRS and other Government agencies in terms of planning and implementation of the pilot projects as well as of administrative and operational arrangement with respect to the strategic measures on decentralization, users participation, gender issues,

private sector participation and so forth to attain the sustainable agriculture and rural development.

D. (Similar Programs by External Aids)
Identify similar on-going and planned programs assisted by other foreign donors on all the aspects related to their location and mode of assistance, and evaluate the successes, failures and constraints for proper implementation and management of their programs.

E. (Selection of Potential Pilot Projects)
Select a series of typical potential pilot projects (tentatively, ten) on the basis of appropriate criteria, after identification of the priority areas or regions making much account of the Central Anatolia (less water resources) and the West Anatolia (more needs for rehabilitation) for which preliminary surveys have already been carried out by the GDRS for preparation of a comprehensive feasibility study.

ii) Phase 2 Study, Feasibility Study of the Selected Potential Pilot Projects

A. (Data, Survey and Reports)
Review all previous engineering, technical, agricultural, water-related rural development, socio-economic, environmental and institutional studies, reports and data relevant to the pilot projects, and supplement and upgrade such information as required through additional survey and by making the maximum use of work already completed.

B. (Water Resources Facilities and Watershed Management)
Review and, if required, modify existing studies on the proposed water resources development facilities and rehabilitation and improvement needs for existing facilities such as dams, surface water diversion and pumping and groundwater withdrawal for each pilot project to conform with the internationally-accepted standards. Aside from the confirmation of structure safety including hydrological,

structural, construction and OM aspects, due attention will be paid to such items as degradation of watershed, siltation of reservoir, displacement of population, erosion of agricultural land, wetlands management in low-lying delta areas, water pollution and its control, and related environmental impact assessment. In any case in particular the reservoir, the water operating study will be carried out over the longest historic period practicable, reflecting the downstream release for the projected service demands as well as those human and animal population and water environmental management in future.

C. (Irrigated Agriculture and Water Harvesting)
Recommend improved farming practices for specific crops to be grown for each pilot project area in line with the estimate of cropping patterns and crop yield under "without" and "with" situations giving emphasis to the opportunity for crop diversification and land consolidation and on-farm drainage schemes. Apart from the irrigated agriculture, soil and water conservation scheme for currently cultivated class VI, VII lands will be examined in a form of water harvesting including (1) contour furrowing or contour stone piling in stony land to improve hydrological conditions and (2) establishing new vegetative cover by reseeding. In addition, the measures to strengthen the related support services will be recommended where necessary including research; extension; on-farm water management and training; input supply and credit operations; storage, processing and marketing; farm mechanization; and farmers cooperatives.

D. (Irrigation and On-Farm Development)
Estimate the crop water requirements and irrigation water demands taking into account land preparation, consumptive use, realistic delivery and application losses and leaching and salt balance requirements, if any, and prepare feasibility level layout and design of the irrigation distribution and on-farm development including land reparcellation and consolidation to promote agricultural mechanization and save irrigation water and on-farm drainage system to avoid

waterlogging and soil salinization as well as land development including destoning, ripping, deep-ploughing. For saving irrigation water, night storage reservoirs to make farmers irrigate during daylight hours only will be designed, and water and energy saving technologies such as linear move systems, mobile guns, trickle irrigation, mini-sprinklers and hand-move sprinklers will be examined for introduction being apart from the traditional ones such as furrow, basin, border or flooding. In addition, the reuse of drainage water will be considered of increasing importance in efforts to optimize the utilization of common water resources, for which prudent use of fertilizers and adoption of integrated pest management programs should be promoted to reduce agricultural water pollution.

E. (Water Supply and Wastewater Disposal)
Provide feasibility level design of water supply system for the pilot projects in line with the small-scale water resources development on the basis of review on design layout and function of potable water supply systems originating from typical small - scale irrigation projects already completed. With current emphasis on environmental health and water pollution issues in the country, there is an increasing awareness of the need to dispose the wastewater safely and beneficially; therefore, the use of wastewater in agriculture will be an important consideration when its disposal is being planned in the water-short areas because proper planned use of such water alleviates surface water pollution problems, conserves valuable water resources and provides nutrients contained to crops. In addition, attention will be paid to the habitats for aquatic vectors of such waterborne diseases as malaria and schistosomiasis to be provided by the water systems and related formation of the undesirable water areas by seepage. There is a need for their efficient control especially in the areas of intensive irrigated agriculture. Integrated pest control (biological or mechanical) in the areas where both terrestrial and aquatic vegitation needs to be cleared and organic matter and silt accumulate will be proposed on the basis of review on the previous achievements in this

field.

F. (Fisheries)
Evaluate the on-going fisheries programs under already constructed irrigation projects, and prepare viable fisheries components for each pilot project including capture and cage cultures in the reservoirs and aquaculture in the night storage reservoirs and low-lying depressions based upon the likely characteristics of water bodies to be provided in terms of potential and constraints and by making maximum use of relevant experience already available taking into account strengthening of the related support services including the supply of fish seeds such as fry and fingerlings through provision of local hatcheries.

G. (Socio-Economic Aspect)
Estimate, based upon the review and analysis of socio-economic aspects, the impact of benefits in each spilot income level and distribution, land ownership and tenure, and farm-size distribution and land fragmentation. The role of the community leaders on the development and management of water and natural resources (Irrigation Cooperatives and WUAs).

H. (Environmental Aspects)
Study the present environmental situation over the proposed Program area as a whole and the probably environmental effects of the Program with particular reference to the selected potential pilot projects in terms of land and water resources, flora and fauna, public health, and soil, cultural and economic activities, and undertake the environmental impact assessment at feasibility level to ensure the Program sustainability and environmental accept ability under the central coordination of the Ministry of Environment in line with the Environment Law including identification of mitigation needs and design of related measures.

I. (Project Implementation)
Prepare detailed implementing arrangements of the potential

pilot projects including institutional arrangements for scheduling and implementation of construction and OM of water resources works, irrigation and water supply systems, and agricultural, fisheries and related other aspects, in close consultation with the Government agencies concerned. It is stressed that an approach proposed for implementing the proposed Program is based upon active people participa tion covering the whole process from problem identification to the OM stage through planning, design, implementation and cost recovery of all the water-related and soil conservation works as one operation so that the potential benefits of whole package are larger. Consequently, this implies that with a sense that all completed works are then owned by local people, the people's groups could take the responsibility for operating and maintaining the works through organizing themselves in legal organizations. Based upon the findings of review on existing procedures to promote the people participation including the evaluation of successes and failures and the identification of constraints, a comprehensive study will be carried out to develop appropriate measures to be promoted with full participation from the local communities including marginal farmers, landless laborers, pastoral groups and women being consistent with local priorities. In addition, the following items will be examined:

- Provide recommendation on (1) mode of construction for water-related works and method and timing of procurement and contracting that are most suitable to local conditions and (2) survey methodology to be employed by the GDRS and other involved agencies in preparing the preliminary study of the representative pilot projects.

- As far as rehabilitation and improvement of existing sub-projects are concerned, propose implementing methods that least interfere with current water operations.

- Assess the role of GDRS and other Government agencies for sustainable OM of the pilot projects in institutional, budgetary and staffing terms.

- Estimate total cost of the potential pilot projects in terms of foreign and local currency components based on quantities derived from the feasibility designs with the time distribution of such construction costs in accordance with the pilot projects implementation schedule and the recurrent costs for OM and replacement, and allocate these costs between the Government agencies and water users groups/associations.

J. (Economic and Financial Analysis)
Carry out economic analysis for each pilot project according to international standard practices with the estimate of relevant economic costs and the quantification of direct economic benefits under "without" and "with" situations, and prepare farm budgets representative of the range of farm sizes and types incorporating non-crop and off-farm income as appropriate, from which an appropriate level of the cost recovery may be examined.

K. (Monitoring and Evaluation)
Prepare the benchmark information for the pilot projects based on the review of socio-economic aspects together with a suitable socio-economic survey schedule up to a full development stage and identification of key factors to be monitored regularly through quick survey, and develop the Program monitoring system as a simplified and more feasible technique for managing three aspects; (1) physical progress, (2) project cost and (3) project benefit with the recommendation on the agency most suitable to carry out such surveys at both the management and pilot project level.

iii) Expected Major Output of the Study

A. (Program Preparation)
The Study will prepare the First Package Program for the priority areas/or regions comprising a number of potential pilot projects in a form to be suitable for external financing within a sector lending framework. This will include the following:

- Estimated total Program cost in terms of direct and indirect foreign exchange and local currency costs.

- Annual recurring costs for OM of Program facilities.

- Program components including the nature and extent of consulting services and additional technical assistance program required, list of all major equipment and materials to be procured under the Program, and their respective costs.

- Direct and indirect benefits of the Program.

- Implementing arrangement including greater involvement of local communities, establishment of water users organizations, and training and institutional building requirements for proper implementation of the Program, as well as coordination of the Government agencies and enhancement on the role of the private sector and local NGOs to increase their support to the Program.

- Demarcation of identified potential pilot project areas with tentative ranking based on the criteria established in E. (1) and father refined by the subsequent study in B, on a detailed Program map.

B. (Establishment of Guidelines, Criteria, etc.)
The Study will undertake the establishment of detailed guidelines to be applied by GDRS for subsequent preparation and appraisal of potential (pilot) projects to be included in the Program. Since the size and complexity of such pilot projects may vary considerably, the preparation and appraisal of each pilot project will also vary accordingly. The guidelines should, therefore, be sufficiently comprehensive to accommodate all these variations in the size, scope and configuration of various projects. The guidelines will cover, among others, the following major aspects;

- Basic criteria for identification and selection of potential projects.

- General description of projects.

- Basic engineering data, and survey and design procedures as appropriate, as well as required agricultural and socio-economic data.

- List of structures and facilities proposed.

- Cost estimate in terms of foreign exchange and local currency components.

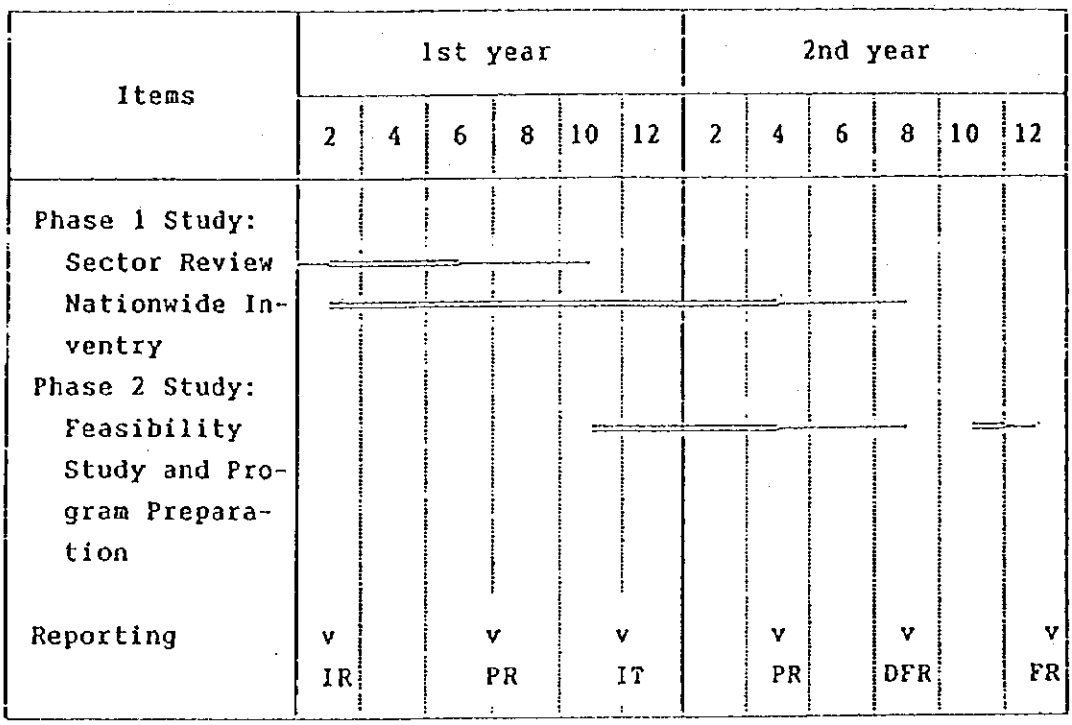
- Implementing arrangements including local people participation and OM procedures.

- Economic feasibility and program for cost recovery or cost sharing.

- Environment impact assessment and monitoring.

(4) Study Schedule

It may be preliminarily that about 9 months will be required for the Phase 1 Study and about 10 months for the Phase 2 Study up to the preparation of a draft Final Report, with a total Study period of 2 years by submitting of the Final Report, as outlined below:



Note: IR : Inception Report, PR : Progress Report
IT : Interim Report, FR : Final Report
DFR : Draft Final Report
═ : In Turkey — : In Japan

The Government of Japan will dispatch a Survey Team of required experts with the provision of equipment and materials to support proper implementation of the subject Technical Assistance Program. A Team may be composed of the experts both Japanese and foreign in the field of leadership, water resources planning, hydrology and hydrogeology, dam and reservoir, irrigation and drainage, water supply and sanitation, agriculture, fisheries, rural development, socio-economy, rural sociology and institution, and environment.

(5) Request of the Study of Other Donor Agencies, if any

None

(6) Other Relevant Information

4. Facilities and Information for the Study Team, etc.

(1) Assignment of counterpart personnel of the implementing agency for the Study

Depending on the objectives of the Japanese Study Team, requested expert counterparts are composed of water resources planning, hydrology and hydrogeology, irrigation and drainage, water supply and sanitation, agriculture, fisheries, rural development, socio economy, rural sociology and institution, environment and women in development.

(2) Available data, information, documents, maps etc. related to the Study

- Soil survey maps and data,
- Preliminary Study Reports,
- Inventory available projects,
- All informations available at related offices of GDRS.

(3) Information on the security conditions in the Study Area

5. Undertaking of the Government of Turkey

A. To facilitate smooth conduct of the Study, the Government of Turkey shall take necessary measures:

- To secure the safety of the Japanese Study Team,

- To permit the members of the Japanese Study Team to enter, leave and sojourn in Turkey for the duration of their assignment therein, and exempt them from foreign registration requirements and consular fees,

- To exempt the members of Japanese Study Team from taxes, duties and other charges on equipment and other materials brought into Turkey for the conduct of the Study,

- To exempt the member of the Japanese Study Team from income taxes and charges of any kind imposed on or in connection with any emolument or allowance paid to the members of the Japanese Study Team for their services in connection with the implementation of the Study,

- To provide necessary facilities to the Japanese Study Team for remittance as well as utilization of funds introduced into Turkey from Japan in connection with the implementation of the Study,

- To secure permission for entry into private properties or restricted areas for the conduct of the Study,

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

- To provide the medical services as needed. Its expenses will be chargeable on member of Japanese Study Team,

B. The Government of Turkey shall bear claims, if any arises against the members 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 members of the Japanese Study Team.

C. The General Directorate of Rural Services shall, at its own expense, provide the Japanese Study Team with the following;

- Available data and information related to the Study,
- Counterpart personnel and supporting staffs,
- A suitable office with necessary equipment in Ankara,
- Credentials or identification cards,
- Vehicles with drivers
- Permission to use walkie-talkies for the execution of the field survey.

6. Fellowship

The government of the Republic of Turkey wishes that the Government of Japan would receive the Government officials concerned with the proposed Study for technical trainings in Japan particularly in the field of small dams and related sustainable agriculture, rural development, user organizations and users participation in all aspects of the related programs.

The General Directorate of Rural Services (GDRS) shall act as counterpart agency to the Japanese Study Team and also as coordinating body in relation with other governmental and non-governmental organization concerned for the smooth implementation of the Study.

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

Signed: _____

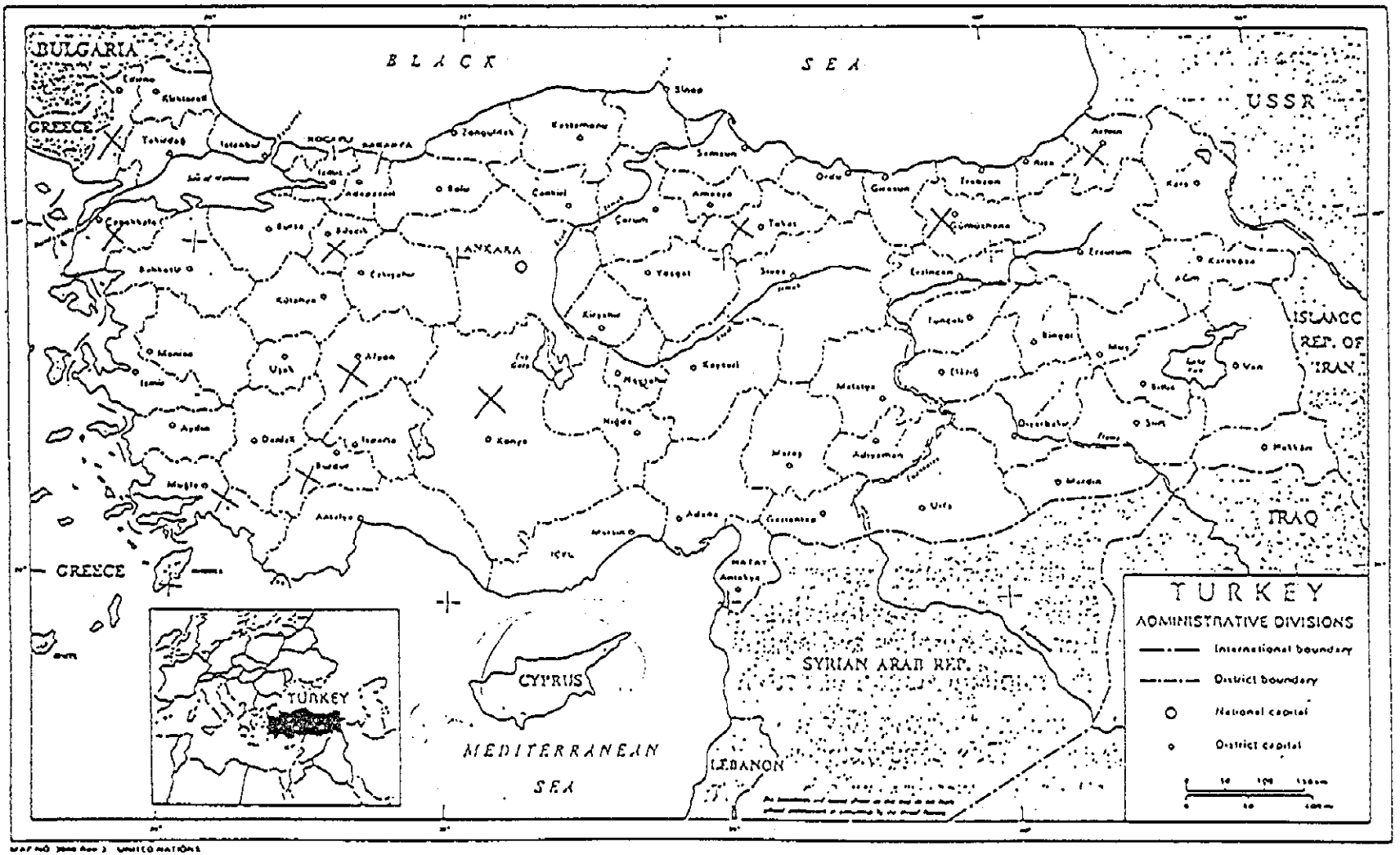
Titled: M.Güner SAYGILI

Deputy Director General

On behalf of the Government of the Republic of Turkey

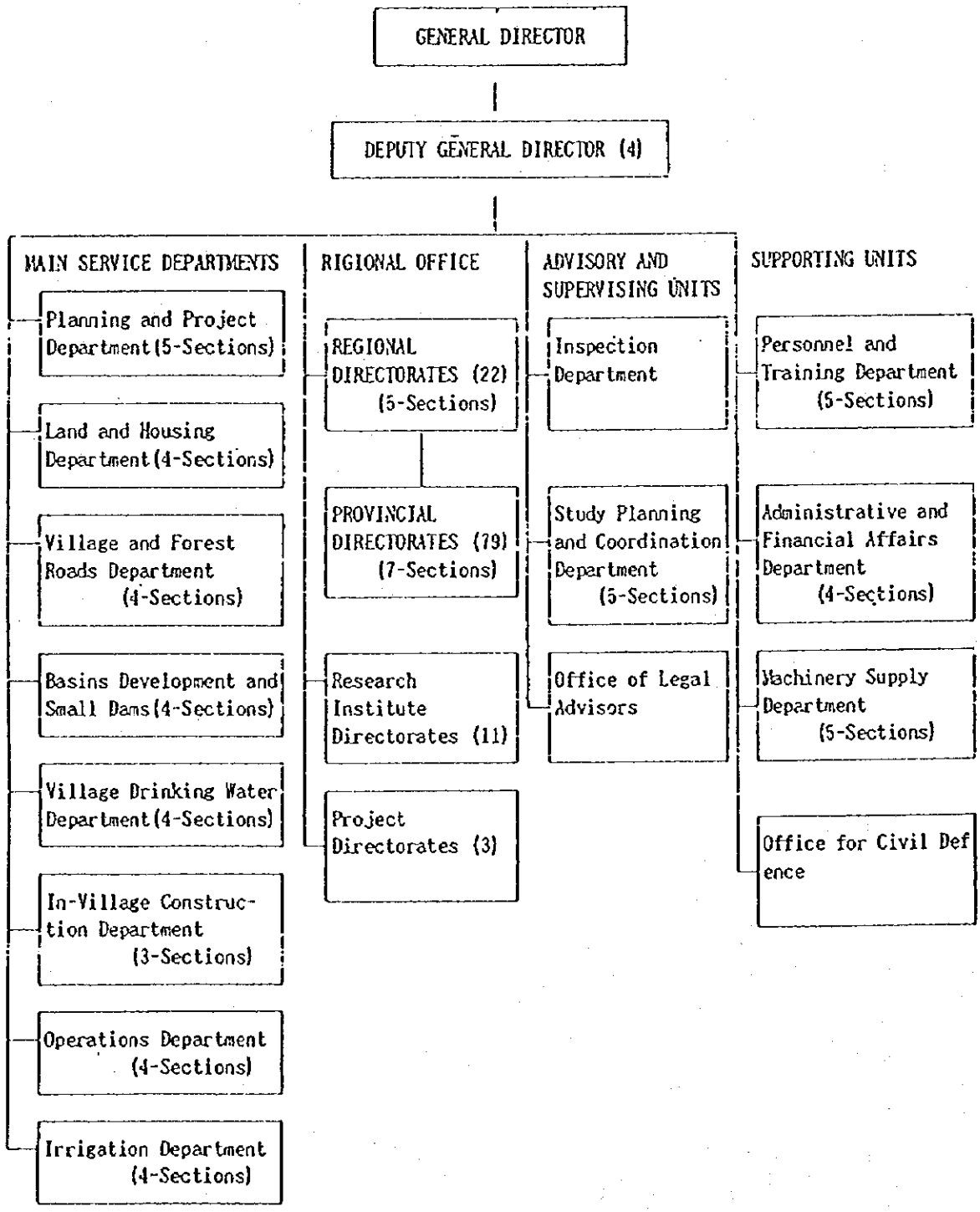
Date: 8.Sep.1995

ANNEX-1 LOCATION MAP OF TURKE.



ANNEX-2 ORGANIZATION CHART OF GENERAL DIRECTORATE OF RURAL SERVICES

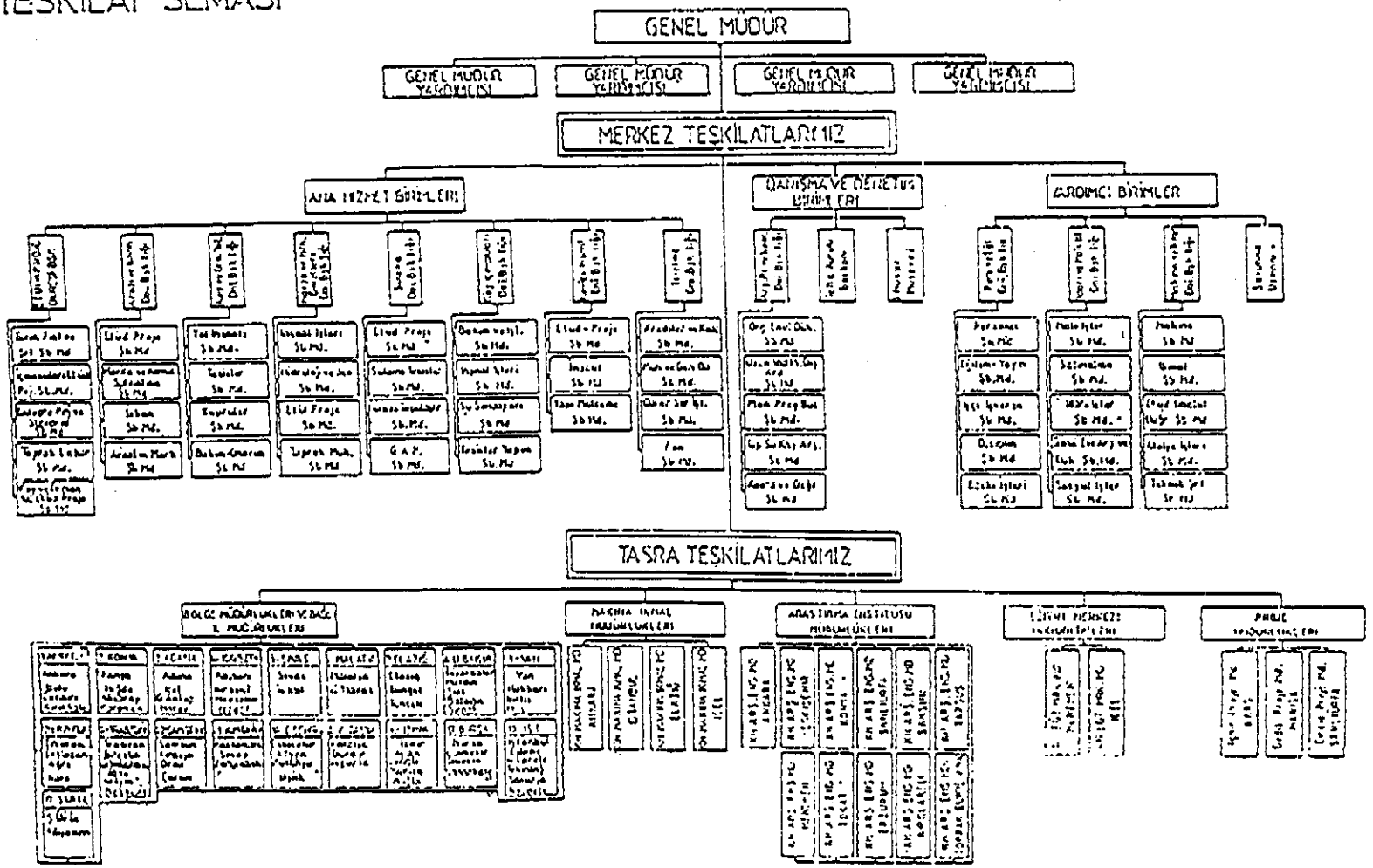
GENERAL DIRECTORATE OF RURAL SERVICES
ORGANIZATION CHART



BAŞBAKANLIK

KÖY HİZMETLERİ GENEL MÜDÜRLÜĞÜ

TEŞKİLAT ŞEMASI



SCOPE OF WORK
FOR
THE STUDY
ON
NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM
IN
THE REPUBLIC OF TURKEY

AGREED UPON BETWEEN
GENERAL DIRECTORATE OF RURAL SERVICES
AND
JAPAN INTERNATIONAL COOPERATION AGENCY

Ankara, 21. 08 , 1996

Mr. Mustafa Mirbey ERTUĞRUL
Deputy General Director,
General Directorate of Rural Services

Mr. Shigeaki UCHIMURA
Leader,
Japanese Preparatory Study Team,
Japan International Cooperation Agency

I. Introduction

In response to the request of the Government of the Republic of Turkey (hereinafter referred to as "the Government of Turkey"), the Government of Japan has decided to conduct the Study on National Small-Scale Irrigation and Rural Development Program(hereinafter referred to as "the Study"),in accordance with the relevant laws and regulations in force in Japan.

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

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

II. Objectives of the Study

The objectives of the Study are;

1. To formulate Master Plan for the small-scale irrigation and rural development projects in the study area(hereinafter referred to as "the Project(s)"),

2. To conduct Feasibility Study in the priority Project(s),and

3. To carry out technology transfer to the Turkish counterpart personnel through on-the-job training in the course of the Study.

III. Study area

Nationwide

IV. Scope of the Study

In order to achieve the above objectives, the Study will consist of two(2) phases and the following items.

1. Phase I (Master Plan Study)

1.1. Collection and Review of existing data and information in the Study area:

A. Natural condition
(1)meteorology
(2)hydrology
(3)geology
(4)soil
(5)topography
(6)others

B. Socio-economic situation
(1)population
(2)employment
(3)household and farmers
(4)regional socio-economy and household economy
(5)others

C. Agriculture
(1)land use and land tenure
(2)cropping pattern and yield
(3)farming practices
(4)agro-economy and marketing
(5)farmers organization and supporting services
(6)others

D. Inland water fisheries

E. Agricultural and rural infrastructure
(1)irrigation and drainage facilities
(2)agricultural land conservation facilities
(3)water supply and waste water disposal
(4)farm road
(5)others

F.Other information related to the Project(s)
(1)administrative organizations related to the Project(s)
(2)environmental impacts
(3)gender issue
(4)others

1.2. Review of the existing development plans and policies.

1.3. Conduct of inventory survey of the Project(s).

1.4. Formulation of basic development plan of the Study.

1.5. Selection of the priority Project(s) for the feasibility study in phase II.

2. Phase II(Feasibility Study)

2.1. Additional collection of data and information, and detailed field survey of the priority Project(s).

2.2. Formulation of development plan of the priority Project(s) with the following components:

(1)Land use plan

(2)Cropping pattern plan

(3)Irrigation and drainage plan

(4)Agricultural and rural infrastructure plan

(5)Operation and maintenance plan

(6)Agricultural supporting plan(farmers organization, financing, research, training and extension services ,etc)

(7)Environmental conservation plan

(8)Project implementation schedule

(9)Preliminary design of major structures

(10)Estimation of project cost and benefit

(11)Evaluation of the project

2.3 Preparation of guideline to be applied by the General Directorate of Rural Services (hereinafter referred to as "GDRS") for subsequent preparation and appraisal of projects.

2.4.Recommendations

V. Study schedule

The Study will be carried out in accordance with the attached tentative work schedule.(ANNEX1)

VI.Reports

JICA will prepare and submit the following reports in English to the Government of Turkey.

1. Inception Report
   Twenty (20) copies at the commencement of the Phase I study.

2. Progress Report (1)
   Twenty (20) copies at the end of the work in Turkey of the Phase I study.

3. Interim Report
   Twenty (20) copies at the commencement of the Phase II study.

4. Progress Report (2)
   Twenty (20) copies at the end of the work in Turkey of the Phase II study.

5. Draft final Report
   Twenty (20) copies at the end of the Phase II study. The Government of Turkey will provide its comments on the Draft Final Report to JICA within one (1) month after receiving the Draft Final Report.

6. Final Report
   Fifty (50) copies within two (2) months after the receipt of comments on the Draft Final Report.

VII. Undertakings of the Government of Turkey ·

1. The Government of Turkey shall facilitate to carry out the Study in accordance with the prevailing laws and regulations stipulated by the Republic of Turkey ,as follows:

(1)to secure the safety of the Japanese study team,

(2)to permit the members of the Japanese study team to enter, leave and sojourn in the Republic of Turkey for the duration of their assignment therein, and exempt them foreign registration requirements and consular fees,

(3)to exempt the members of the Japanese study team from taxes, duties, fees and any other charges on equipment, machinery and other materials to be brought into and out of the Republic of Turkey for the conduct of the Study,in accordance with the relevant Turkish legislation in force,

(4)to exempt the members of the Japanese 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 Japanese study team for their services in connection with the implementation of the Study,in accordance with the relevant Turkish legislation in force,if necessary,

(5)to provide necessary facilities to the Japanese study team for the remittance as well as the utilization of the funds introduces into the Republic of Turkey from Japan in connection with the implementation of the Study,if necessary,

(6)to secure permission for entry into private properties for the purpose of implementing the Study when it is required,

(7)to secure permission which is considered and issued by the relevant authorities for the Japanese study team to take data and documents related to the Study out of the Republic of Turkey to Japan,

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

2. The Republic of Turkey shall bear claims, if any arises, against the members 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 members of the Japanese study team.

3. GDRS shall act as a counterpart agency to the Japanese study team and also as coordinating body in relation with other organizations concerned for the smooth implementation of the Study.

4. GDRS shall provide, at its own expense, the Japanese study team with the following, in cooperation with other organizations concerned;

(1) available data and information related to the Study,

(2) counterpart personnel,

(3) suitable office spaces with necessary furniture in Ankara and other cities,

(4) credentials or identification cards, and

(5) necessary number of vehicles with drivers.

VIII. Undertakings of JICA

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

(1)to dispatch, at its own expense, the study team to the Republic of Turkey,

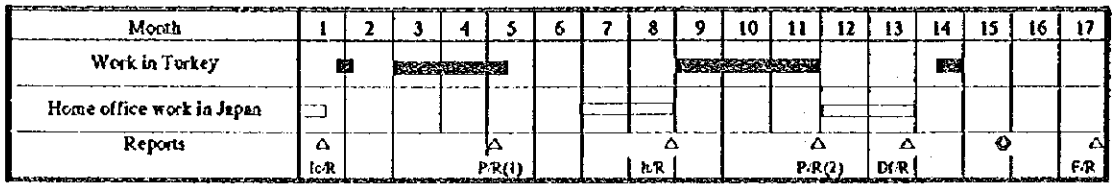
(2)to pursue technology transfer to the counterpart personnel of the Government of the Republic of Turkey in the course of the Study.

IX. Consultation

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

ANNEX t

TENTATIVE WORK SCHEDULE



(Remarks) Ic / R : Inception Report
P / R(1) : Progress Report(1)
It / R : Interim Report
P / R(2) : Progress Report(2)
Df / R : Draft Final Report
F / R : Final Report
◎ : Comments on DF /R by the Turkey side

8.4

MINUTES OF MEETING ON SCOPE OF WORK FOR THE STUDY ON NATIONAL SMALL-SCALE IRRIGATION AND RURAL DEVELOPMENT PROGRAM IN THE REPUBLIC OF TURKEY

AGREED UPON BETWEEN GENERAL DIRECTORATE OF RURAL SERVICES AND JAPAN INTERNATIONAL COOPERATION AGENCY

Ankara, 21.08, 1996

Mr. Mustafa Mitbey ERTUĞRUL
Deputy General Director,
General Directorate of Rural Services

Mr. Shigeaki UCHIMURA
Leader,
Japanese Preparatory Study Team,
Japan International Cooperation Agency

In response to the request of the Government of the Republic of Turkey (hereinafter referred to as "the Government of Turkey"), the Government of Japan decided to dispatch through Japan International Cooperation Agency (hereinafter referred to as "JICA"), which is responsible for the implementation of technical cooperation programs of the Government of Japan, the preparatory study team(hereinafter referred to as "the Team"),headed by Mr.Shigeaki Uchimura, to the Republic of Turkey from July 21th to August 3th,1996 so as to discuss and exchange views on the study with General Directorate of Rural Services (hereinafter referred to as "GDRS"), and officials concerned of the Government of Turkey the implementation of the study.

GDRS and the Team mutually agreed to the Scope of Work for the study on National Small-Scale Irrigation and Rural Development Program in the Republic of Turkey(hereinafter referred to as "the Study").

The following minutes were prepared to confirm the main issues discussed and matters agreed upon by both sides in connection.

1. The Study will be carried out in accordance with the attached list indicating provinces and the small-scale irrigation and rural development projects in the study area(hereinafter referred to as "the Project(s)") (excluding 'Etud' stage)ANNEX1

2. With regard to the Small-Scale Irrigation and Rural Development sectors in the Republic of Turkey, the Inventory survey is to be conducted for the purpose of selecting the priority Project(s), and will be serving as a basic data for the selection of Project(s) after the completion of the Study by GDRS themselves.

3. Inventory survey will be conducted by the Study Team in collaboration with GDRS in approximately 200 projects.

4. Determining the Project(s) to conduct the Inventory survey is basically based on the following criteria.

*Availability of data with adequate information is prerequisite
*Acreage of irrigation and the population to be benefited are to fulfill the required scale and number
*Avoidance in duplication with projects related another organization
*Typical areas (geographical and farming practices, etc.) are to be included

*New projects and rehabilitation projects are to be covered
*The Project(s) are considered in a balance on facilities

5. Feasibility Study will be conducted by the Study Team in collaboration with GDRS in approximately 10 projects.

6. GDRS requested that the counterpart personnel training in Japan related to the Study to promote an effective technology transfer. The Team promised to convey this request to the Government of Japan.

ANNEX 1

(31 July , 1996)

KÖY HİZMETLERİ GENEL MÜDÜRLÜĞÜ TARIM SEKTÖRÜ REZERV KONULARI

İller	Köçüksu						Yeraltısuyu(Y.A.S.)				Gölet				Toprak Muhafaza				Arazi Toplulaştırma			
	Etüd		Planlama		Proje		Planlama		Proje		Etüd		Planlama		Planlama		Proje		Planlama		Proje	
	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha	Ad	Ha
ANKARA	32	2704	18	939	42	784									2	40						
BOLU	51	2564	13	205	7	65					1	1500										
ÇANKIRI	55	2549	4	403	32	723																
KIRIKKALE	9	1337	2	150	7	402							1	108								
KONYA	25	724	1	64	22	302	14	6462	7	1289	4	417	3	843					1	18805		
AKSARAY	14	999	1	17	4	449	1	149	5	1000	1	245	1	207	1	500			1	15200		
KARAMAN	19	839	2	35	12	171	3	895	2	644									1	1988		
NİĞDE	10	549			13	700	1	193	10	756	4	1325	1	182								
ADANA	28	5696	4	761	35	677					1	319			1	30						
İÇEL	16	412	5	119	63	502																
HATAY	11	741	9	404	19	236	2	260														
KAYSERİ	20	465	14	340	45	605	1	130			1	535					2	250				
KIRŞEHİR	20	958	2	101	5	-					2	531					2	428				
NEVŞEHİR	14	1101	4	396	4	46	1	150	1	28												
YOZGAT																						
SİVAS	117	4910	122	5456	55	1359					2	376										
TOKAT	58	3048	35	923	28	534					2	221	1	128	1	150			1	16892		
TRABZON	13	672			5	29																
ARTVİN	63	4162	21	823	39	756																
BAYBURT	42	3614	4	68	28	1093																
GİRESUN	13	428	1	12	21	220																
GÜMÜŞHANE	40	2171	17	363	46	685																
RİZE	1	30																				
SAMSUN	13	754	3	12	11	10							1	293								
AMASYA	22	917	8	671	22	330			2	204	1	163			1	60			1	.1195		
ÇORUM	35	2183	17	400	36	1494					3	304	1	66								
ORDU	2	34																				
KASTAMONU	39	2806	8	288	43	1321							1	108			1	80				
ZONGULDAK																						
SİNOP	30	1527	11	568	12	96									1	107			1	150		
KARABÜK	8	349	3	67	9	384																
BARTIN	9	1370	2	-	5	165																
ESKİŞEHİR	24	1122	12	263	3	-	1	53			4	381			1	300	1	35				
AFYON	5	166	1	62	1	-	13	1235														
KÜTAHYA	20	1832									3	711										
UŞAK	9	430	2	37	2	31											4	269				
ANTALYA	44	1591	12	350	30	280			1	83	1	84										
BURDUR	9	454	30	280	2	-	3	967	1	90	1	600							1	425		
ISPARTA	9	752			4	-	1	250			1	141	2	380			1	180	1	1127		
İZMİR	5	191	4	522	12	200	3	432	2	540	1	316			1	300			1	5100		
AYDIN	7	535	4	400	12	150									1	165	5	650				
DENİZLİ	14	3308	3	237			6	1532	1	85					1	80			1	1650		
MANİSA	8	246	2	86	8	67					1	26					1	100				
MUĞLA	12	2436	2	182	30	3012					1	396					7	840				
BURSA	42	3451	16	394	14	282					3	599										
BALIKESİR	28	2500	4	75	6	45					1	397										
BİLECİK																						
ÇANAKKALE	12	913	1	99	1	-					5	1302	4	958								
YALOVA	1	62																				
İSTANBUL	3	203	1	5	1	-																
EDİRNE	8	313							1	320	5	755	2	1052					1	18500		
KIRKLARELİ	8	160			5	50	1	110	1	120												
KOCAELİ	14	346			1	-																
SAKARYA	22	435	2	22	1	9					5	1457										
TEKİRDAĞ											2	234	2	176								
TOPLAM	1324	75416	369	16319	801	18364	51	12818	54	7213	56	13356	20	4501	11	1791	24	2452	13	101982		

Sayfa 1

C.U

ANNEX2

LIST OF PARTICIPANTS

1. Turkey Side

Mr. M. Güner SAYGILI	General Director GDRS
Mr. Mustafa Mirbey ERTUĞRUL	Deputy General Director GDRS
Mr. Hasan COŞKUN	The Head of Basin Management and Earth Filled Dams Department GDRS
Mr. Nejat ŞENGÜN	The Head of Irrigation Department GDRS
Mr. Sadettin TAKKA	Director of Land Consolidation Section GDRS
Mr. Levent KORAL	Director of Land Reclamation Section GDRS
Mr. Cavit BÜYÜKGÜRAL	Director of Survey and Project Section GDRS
Ms. Yurdanur SÜRMELİ	Agriculture Engineer GDRS
Mr. Mustafa ÇELİKEL	Agriculture Engineer GDRS
Mr. Nazım ÖZŞAHİN	Agriculture Engineer GDRS
Ms. Nevin ERGENELİ	Geology Engineer GDRS
Mr. Şevki ÜNSALDI	Agriculture Engineer GDRS
Ms. Nuran Dalgün	Agriculture Engineer GDRS

2. Japanese Side

Preparatory Study Team

Mr. Shigeaki UCHIMURA	Leader
Mr. Masahiro SASAKI	Member
Mr. Hisashi GOTO	Member
Mr. Kenichiro KOBAYASHI	Member
Mr. Yutaka NOZAKI	Member
Ms. Keiko NONAKA	Member

No.	1
資料の名称	Statistical Yearbook of Turkey 1995
形態	報告書
判型	A4
ページ数	732
オリジナル又はコピー	オリジナル
発行機関	State Institute of Statistics Prime Ministry Republic of Turkey
発行日	96.1
Q_N ref	

資料の名称	AN OUTLOOK TO THE TURKISH AGRICULTURE
形態	パンフレット
判型	
ページ数	40
オリジナル又はコピー	オリジナル
発行機関	THE AGRICULTURAL CHAMBERS
発行日	
Q_N ref	

資料の名称	BRINCI KISIM
形態	
判型	A4
ページ数	10
オリジナル又はコピー	コピー
発行機関	
発行日	1985.9.5
Q_N ref	GDRSの目的、職務、組織

No.	4
資料の名称	EDIRNE LALAPASA TASLIMOSELLIM SULAMA GOLETI PROJE RAPORU
形態	報告書
判型	A4
ページ数	9
オリジナル又はコピー	コピー
発行機関	GDRS
発行日	1990
Q_N ref	事業計画書

資料の名称	土地及び水の保護、河川流域改良、支流底床改善、事前SURVEY調査と計画手引き書
形態	報告書
判型	B5
ページ数	54
オリジナル又はコピー	オリジナル
発行機関	KOY HIZMETLERI GENEL MUDURLUGU
発行日	1984
Q_N ref	

資料の名称	灌漑用水の確保に関するプロジェクト手引き書
形態	報告書
判型	B5
ページ数	23
オリジナル又はコピー	オリジナル
発行機関	KOY HIZMETLERI GENEL MUDURLUGU
発行日	1984
Q_N ref	

No. 7
資料の名称 コンヤ地方における水が保障された条件のもとで小麦農業に使用される器具、機械の燃料及び時間の消費
形態 報告書
判型 B5
ページ数 99
オリジナル又はコピー オリジナル
発行機関 KOY HIZMETLERI GENEL MUDURLUGU
発行日 1994
Q_N ref

資料の名称 有機物含有度の低い土壌における農業肥料の影響
形態 報告書
判型 B5
ページ数 33
オリジナル又はコピー オリジナル
発行機関 KOY HIZMETLERI GENEL MUDURLUGU
発行日 1986
Q_N ref

資料の名称 コンヤ県アスルム地方塩含有湿地において生育可能な牧草植物類のために最適な最低水量水準
形態 報告書
判型 B5
ページ数 33
オリジナル又はコピー オリジナル
発行機関 KOY HIZMETLERI GENEL MUDURLUGU
発行日 1984
Q_N ref

ANNEX I:

LIST OF ACTIVITIES SUBJECT TO EIA WHICH WILL BE APPLIED

1) Refineries, gasification and liquefaction installations,

a) Crude oil refineries (excluding installations producing lubrication material from crude oil),

b) Installations where 500 ton/day or more of coal or bituminous schist is gasified or liquified,

2) Thermal and nuclear power plants,

a) Thermal power plants with a total heat output of 300 MW or more and other combustion installations,

b) Nuclear power plants and other nuclear reactors excluding research installations with a maximum power not exceeding 1 KW continious thermal load and involved in production and conversion of fissionable and fertile materials.),

3) Radioactive waste installations,

Installations designed for the purpose of storage, disposal and processing of radioactive wastes

4) Integrated chemical plants.

a) Petrochemical plants.

b) Installations producing hazardous and toxic chemical matters,

c) Explosives industry.

d) Production of pesticides and pharmaceutical materials,

e) Factories manufacturing accumulators and batteries,

f) Large storage facilities for petrochemicals and chemical products,

5) Factories producing pulp and paper,

(installations producing pulp and card boards, cartons etc. by using cellulose plants and waste paper),

6) Installations designed for extracting asbestos and processing and converting of asbestos and products containing asbestos,

7) Major infrastructure activities,

a) Motorways, highways, express roads and connected bridges and tunnels with them,

b) Intercity railway lines and connected bridges and tunnels with them,

c) Airports,

d) Ports permit the entry of vessels over 1,350 tonnes),

e) Energy transmission lines with a voltage 154 KV and over,

f) Dams with a lake area over 15 square kilometres or with a lake volume over 100 million cubic metres ;

8)Mass housing project (over 1,000 dwellings) and Olympic villages.

9) Major land acquisition activities from the sea and dredging.

10) Waste discharge installations related with the incineration, chemical treatment, storage or landfill of toxic and hazardous wastes,

11) Oil and gas pipelines and storage facilities.

12) Ship dismantling docks,

13) Installations where cast iron and steel are smelted and non-ferrous materials are produced,

14) Cement factories.

15) Fertilizer factories,

16) Sugar factories,

17) Aircraft manufacturing and repairment installations,

18) Manufacturing and assembling of railway equipment, wagon and all kinds of railway vehicles,

19) Manufacturing and assembling of motor vehicles,

20) Specialized industrial zones,

21) Slaughterhouses and meat by-products processing installations and integrated meat plants (with a capacity of over 2000 ton/year live weight),

22) Taking of underground water with a volumetric capacity 10 million cubic metres or over per year,

23) Off-shore hydrocarbon production,

24) Extraction and enrichment of all kinds of minerals, (those with metal content or used for energy production)

25) Oil extraction activities from the sea,

26) Installations producing or enriching nuclear fuels,

27) Installations for the reprocessing of radiated nuclear fuels,

28) Tobacco factories,

29) Tannery and installations for the processing of the leather (those using motor power over 50 HP),

30) Rubber factories,

31) Stone and soil industry, (ceramics, porcelain, brick, tile and glass factories)

ANNEX II:

SENSITIVE AREAS SUBJECT TO EIA WHICH WILL BE APPLIED

I. AREAS WHICH SHOULD BE PROTECTED UNDER NATIONAL LEGISLATION

1."National Parks", "Natural Parks", "Natural Monuments" and "Nature Protection Areas" defined in Article 2 of the Law on National Parks, coded 2873 and determined by Article 3 of the said law,

2. Areas which have a suitable survival environment for wild life species declared each year in decions issued by Central Hunting Commission of the Ministry of Forestry in conformity with the Law on Land Hunting, coded 3167,

3. Areas defined as "Cultural Assets", "Natural Assets", "Site" and "Protection Area" in sub-paragraphs 1,2,3 and 5 of paragraph "a-Definitions" of Article 2 of the Law on Protection of Cultural and Natural Assets, coded 2863 and determined and registered under the same law and under the related articles of the the Law 3386 (The Law Amending Some Articles of the Law on Protection of Cultural and National Assets, coded 2863 and Adding New Articles therein),

4. Shores surrounding "Water Products Production Areas" described in article 2 of the Law on Water Products, coded 1380,

5. Areas defined in Article 19 and 20 of Water Pollution Control Regulation come into force in accordance with the Law on Environment, coded 2872,

6. "Sensitive Pollution Areas" defined in Article 49 of Air Quality Protection Regulation come into force in accordance with the law on Environment, coded 2872,

7. Areas determined and declared as "Special Environment Protection Areas " by the Council of Ministers under Article 9 of the Law on Environment, coded 2872,

8. Areas under protection in conformity with the law on Bosphorus, coded 2960,

9. Areas considered as forest areas in conformity with the law on Forests, coded 6831,

II. AREAS WHICH SHOULD BE PROTECTED UNDER INTERNATIONAL CONVENTIONS FOR WHICH TURKEY IS A PARTY OF

1. Areas put under protection in conformity with "The Convention on Protection of Wild Life and Their Survival Environments of Europe" (Bern convention)

promulgated in the official Gazette 18318 on February 20, 1984.

2. Areas with the following protection status in conformity with "The Convention on Protection of the Mediterranean Sea Against Pollution" (Barcelona Convention) promulgated in the official Gazette 17368 on June 12, 1981:

a) Areas defined as "Special Protection Areas" in Turkey with "The Protocol on Protection of Special Protection Areas in the Mediterranean Sea" signed by Turkey on November 6, 1986,

b) Areas selected according to "The Geneva Declaration" approved by the signatories of the Barcelona Convection in their fourth regular inter-governmental meeting held in september 1985 and included in "The List of 100 Coastal Historic Sites having Common Significance in the Mediterranean Sea" published by the United Nations Environment Programme.

c) Coastal areas with a survival and feeding environment for "Sea Species Under Threat of Extinction in the Mediterranean Sea" defined in Article 17 of the Geneva Declaration.

3. Cultural, historic and natural areas given a status of "Cultural Heritage" and "Natural Heritage" and put under protection by the Ministry of Culture in conformity with Articles 1 and 2 of "The Convention on Protection of Cultural and Natural Heritage of the World" promulgated in the official Gazette 17969 on February 14, 1983.

III. OTHER AREAS WHICH SHOULD BE PROTECTED

1. Areas defined as "sites existing characteristics of which shall be preserved" in approved environmental plans (Such as areas natural characteristics of which shall be protected, bio-genetic reserve areas, etc.)

2. Agricultural areas: Agricultural development areas, first and second and third class irrigatable lands and first and second class of dry agricultural land, special crop plantation areas,

3. Wetlands: Sweet, brackish and salt lakes, fish-garths, rivers, marshlands not deeper than 6 meters and surrounding land areas ecologically effected by them.

4. Lakes

5. Areas important for scientific researches and/or areas suitable for the survival of species facing the danger of extinction or likely to face this danger and species endemic in Turkey; biosphere reserves, biotopes, biogenetic reserve areas, areas with unique geological and geo-morphological formations,

6. Areas recommended should be protected as a result of studies performed after promulgation of the EIA Regulation and, within this frame, areas put under protection in conformity with new developments in national legislation or international conventions.

ANNEX III :

LIST OF ACTIVITIES SUBJECT TO IEE WHICH WILL BE APPLIED

1. Extraction industry

a) Extraction of minerals such as marble, sand, stone, salt, phosphate and potash from minerals which do not contain metal and do not yield energy,

2.Energy industry

a) Thermal power plants, (those not included in Annex I)

b) Coal and lignite briquetting installations.

c) Installations producing geo-thermal energy.

d) Coal-gas and coke factories.

e) Fossil fuel tanks,

3. Processing of metals

a) Iron and steel installations including foundries, steel production facilities, drawing facilities and rolling mills (those not included in Annex I),

b) Installations for scorching and sintering of metal ore,

c) Manufacturing of all types of engines.

d) Ship construction, maintenance and repairment workshops.

4. Chemical industry

a) Processing of semi-finished products and production and storage of all kinds of chemicals,

b) Engine roving, firework factories, carbide, liquid acetylene, synthetic gasoline production, filling and storage installations,

c) Production of starch used in industry,

5. Food and drink industry,

a) Slaughterhouses and installations for the processing of by-products, (Live weight between 626-2000 ton/year)

b) Production, packing and canning of animal and vegetative products,

c) Milk and dairy products. (installations with a capacity more than 5,000 lt/day)

d) Beer and malt production,

e) Production of alcoholic and non-alcoholic drinks, beverages,

f) Installations producing sugar or sweets, (those processing over 250 kg/day of sugar)

g) Water products processing

h) Vegetable and fruit processing industry,

i) Flour, macaroni and biscuits factories,

6. Textile, wood and paper industry,

a) Production of open fibre, yarn, textile, synthetic textile production and treatment, dyeing and finishing units,

b) Wool processing factories,

c) Weaving factories using engine power over 50 HP,

d) Carpet factories, synthetic carpet, etc, floor mat factories,

e) Installations subjecting the wood to chemical process, factories producing wooden products,

f) Distilled wood products,

g) Cellulose, celluloid production installations,

7. Land utilization and infrastructure projects,

a) Installations for the disposal of industrial, domestic solid wastes and other wastes (trash dumping sites, combustion installations, stations where sinting and ballast waters of marine vessels will be discharged and trash transfer stations, (those not included in Annex I)

b) Irrigation, land reclamation, flood prevention activities and drainage projects,

c) Fishermen shelters, coastal and sea structures, etc..

d) Training and sports complexes,

e) Waste water discharge and treatment installations.

f) Buildings over 17 floors (skyscrapers),

g) Mass housing (between 200-1,000 dwellings), tourism complexes (over 30 rooms), holiday villages and resorts,

h) Ports (those not included in Annex I. breakwater and marinas

i) Intracity subways and other rail transportation systems and suspended roads,

j) Intercity bus terminals built in provincial centres having a status of greater municipality,

k) Dams (those not included in Annex I)

8) Electronic and electromechanic installations.

ANNEX IV:

IEE CHECK-LIST

A-Check-List for Land Preperation and Construction Stage

The following questions are answered by putting an (X) in the appropriate alternative. Reasons are explained if the answer is "yes".

1. Will there be an excavation works for the preparation of the land?

Yes ( ) No ( )

If the answer is "yes", amount and area of excavation, how and where excavation waste will be disposed as well as types and quantities of equipment and materials will be used.

2. Will a filling activity and construction on piles be done in any water environment, for the purpose of land gaining or any other purpose?

Yes ( ) No ( )

If "Yes", in where, the amount of area covered by such activities, the materials will be used ;

3. Will any process be applied for flood prevention and drainage?

Yes ( ) No ( )

If "Yes", where and how it will be applied,

4. Will dust generating activities be done during construction?

Yes ( ) No ( )

If "Yes", what these activities are and the measures will be taken against spreading of dust,

5. Will any excavation, dredging or similar activities be carried out in any water environment for any purpose under the project?

Yes ( ) No ( )

If "Yes", where and how these activities will be carried out, quantities and disposal methods of the materials will be generated during these activities.

6. Will water be used?

Yes ( ) No ( )

If "Yes", the purpose of use, quantity, source and method of procurement of water, quantity and characteristics of the waste waters which are generated, the receiving environment to which the water will be discharged, and the method of disposal thereof,

7. Will any solid waste be generated?

Yes ( ) No ( )

If "Yes", the quantity and characteristics of solid waste, and how it will be disposed,

8. Will noise be generated?

Yes ( ) No ( )

If "yes", the activities creating noise, noise levels, and control measures,

9. Will trees be cut?

Yes ( ) No ( )

If "Yes", kinds and quantities of the trees will be cut, the size of the area on which cutting will be done,

10. Will agricultural lands be disposed of?

Yes ( ) No

If "Yes", size of the agricultural lands will be disposed of, their land-use capability class and agricultural product patterns,

11. Will there be risky and hazardous activities for the employees?

Yes ( ) No

If "Yes", what these activities will be and the measures of protection,

12. Will there be kinds of flora and fauna to be damaged?

Yes ( ) No ( )

If "Yes", the quantity of species (including endemic species) and the measures will be taken,

13. Are there any other points that should be explained in addition to those above?

Yes ( ) No ( )

If "Yes", the explanations about them.

B-Check-List related with the Operation Stage of the Activity

1. Will raw material, additive material, catalyst or similar material be used?

Yes ( ) No ( )

If "Yes", the materials will be used,

2. Will hazardous and toxic chemicals, inflammable and explosive materials be used?

Yes ( ) No ( )

If "Yes", such materials will be used, how they will be stored, measures will be taken against hazards.

3. Will water be used?

Yes ( ) No ( )

If "Yes", the purpose of use, how and from where it will be obtained, characteristics and quantity of process water, boiler water and/or cooling water which will be generated by each unit, how they will be treated and to which receiving environment such water will be discharged.

4. Will fuel be used?

Yes ( ) No ( )

If "Yes", in which units what type of fuel will be used, their quantity, chemical analysis, combustion systems, emissions to air, measures will be taken,

5. Will any solid waste be generated?

Yes ( ) No ( )

If "Yes", type and quantity of the solid waste to be generated, the method of disposal (including recycling).

6. Will noise be generated?

Yes ( ) No ( )

If "Yes", the operations generating noise, level of noise and control measures.

7. Will there be dust generating processes?

Yes ( ) No ( )

If "Yes", the processes generating dust and measures against emission thereof.

8. Will there be kinds of flora and fauna will be damaged?

Yes ( ) No ( )

If "Yes", the quantity of species including the endemic species, and the measures will be taken.

9. Are there any other points should be explained in addition to those above?

Yes ( ) No ( )

If "Yes", the explanations about them.

(*) Following data will be added to the Check-List as explanatory information about the activity

1. Name of the project, location selected and its presentation on the approved plan.

2. Production capacity of the project,

3. Name, address, telephone and fax number of the owner of the activity, and if available, the name, adress, telephone and fax number of the agency preparing IEE Check-List and Evaluation Matrix.

4. Written commitment to certify the accuracy of the information in the Check-List and Evaluation Matrix.

ANNEX V :

EIS GENERAL FORMAT (*)

Cover Page

Name, address, telephone and fax numbers of the owner of the activity:.....

Name, address, telephone and fax numbers of the agency preparing EIS:.....

Name of the project:... Preparation date of the report:.....

Name and location of the place selected for the project and alternative places, name of the region if it involves more than one province or location:.....

Contents List

Chapter I: The Definition and Purpose of the Project (Definition, duration, means of service, market or service area of the project, its importance and necessity within this area with respect to the economic and social aspects of the country, region and/or province)

Chapter II: The Location of the place selected for the Project

II.1. Selection of the Activity Location (Represantation of the location of the activity on approved Environmental Master Plan or Master Plan if it is within the borders of such a plan, and if it is not on the existing land use plan with the approval of involved Governorship or the Municipality)

II.2. Location of the Project Activity Units (Representation of all the administrative, social, technical infrastructure units and any other units of the project on the Application Plan, the size of the outdoor and indoor areas allocated for these activities, the flat numbers and heights of the buildings)

(*) EIS is submitted to the Ministry as ten copies.

Chapter III: Economic and Social Dimensions of the Project

III.1. Investment Program and Financial Resources of the project:.....

III.2. Work Flow Chart or Time-Table for the Project:.....

III.3. Cost-Benefit Analysis of the project

III.4. Other economic, social and infrastructure activities which are not within the frame of the project but are designed by the owner of the project or other firms in relation with the project:.....

III.5. Other economic, social and infrastructure activities which are not within the frame of the project but are expected to be undertaken by the owner of the project or other firms in relation with the project:.....

III.6. Other Issues:.....

Chapter IV: Environmental Characteristics of the Location Selected for the Project(**)

IV.1. Characteristics of the Physical and Biological Environment and the Use of the Natural Resources

IV.1.1. Metecrological and Climatic Characteristics,

IV.1.2. Geological Characteristics (Physico-chemical characteristics, tectonic movements, mineral resources, landslides, unique formations, avalanche, flood, rock fall etc.),

IV.1.3. Hydrogeological Characteristics (Underground water levels, all kinds of existing caissons, deep artesian well, other wells, their guaranteed capacity, physical, chemical and bacteriological characteristics of the water, existing and planned use of the underground water),

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(**) When the environmental characteristics of the location selected for the project are being explained with respect to the above listed issues, the source of the information obtained from public institutions and agencies, reseach institutions, universities or other similar institutions are

specified in the notes section of the report by citing the institution and source, or they are marked on the related map, document or other similar material. If the owner of the activity requires the inclusion of the information based on his own research, documents verifying the validity of such information obtained from the related public institutions and establishments are added to the report.

IV.1.4. Characteristics of the Soil and Its Usage (Structure of the soil, land usage capability classification, its weight carrying capacity, stability of slopes, slipperiness, erosion, its usage for soil works, pastures and meadows used as the natural vegetation),

IV.1.5. Agricultural Areas (Agricultural development project areas, size of the dry and irrigated agricultural lands, product patterns, distribution and their annual productions along with productivity, pesticide and insecticide use with respect to unit areas, and role and value of these products in the national economy),

IV.1.6. Hydrological characteristics (physical, chemical, bacteriological and ecological characteristics of surface water resources including seas, lakes, fishing weirs, rivers and other wetlands; flow rates and seasonal changes of rivers, floods, depth and volume of lakes, their seasonal changes, water reservoir, their classification as oligotrophic, mesotrophic, eutrophic, distrophic; sedimentation, drainage; eco-systems of all water resources),

IV.1.7. Existing and Planned Utilization of Surface Water Resources (drinking, consumption and irrigation water, electricity production, dam, artificial lake, type and quantity of water products, waterway transportation insallations, shore utilization for tourism, sports and similar purposes; other areas of utilization),

IV.1.8. Species living in seas or in-land water resources such as lakes, fishing weirs, rivers. (Natural characteristics of these species; species taken under protection by national or international legislations; their reproduction, feeding, sheltering and survival habitats; protection decisions determined for these habitats),

IV.1.9. Thermal and geo-thermal Water Resources (Their physical, chemical and bacteriological characteristics, flow rates, their existing and planned utilization),

IV.1.10. Protected Areas (National parks, Nature parks, wetlands, natural monuments, Nature Protection Areas, biogenitical reserve areas, biosphere reserves, natural sites and monuments; archeological, historical and cultural sites, Special Environment Protection Areas, Special Protection Areas, touristic regions),

IV.1.11. Forest Areas (Types and quantities of trees or size of the area occupied by forest, their openness, their existing or planned protection and/or utilization purposes),

IV.1.12. Flora and Fauna (species, endemic species, wild life species and biotopes; species taken under protection by national and international legislations; rare and endangered species and their haoitats, protection decisions for such species; hunting animals, their population and habitats),

IV.1.13. Stockbreeding (species, quantities, feeding areas, annual production of animal products, importance and economic value of these products in national stockbreeding),

IV.1.14. Mines and fossil fuel resources (reserve amounts, existing and planned operations, their annual productions and their importance and economic value within national or local utilization),

IV.1.15. Areas With High Landscape Value and Recreational Areas,

IV.1.16. Lands under control and responsibility of authorized governmental agencies (military restricted zones, areas allocated to public agencies and organizations for special purposes, "restricted areas" specified by Cabinet Decision No. 7/16349 of Council of Ministers, etc.),

IV.1.17. Existing pollution load of the area,

IV.1.18. Other characteristics

IV.2. Characteristics of Socio-Economic Environment

IV.2.1. Economic characteristics (main sectors forming economic structure of the region, distribution of local labourforce by these sectors, importance of the sectoral commodity and service production in these sectors in the local and national economy),

IV.2.2. Population (Rural and urban population in the region, demographic movements, migrations, population increase rates, average family population per dwelling, age pyramids, other informations),

IV.2.3. Local Social Infrastructure Services (Education, health, cultural services and state of benefitting from these services),

IV.2.4. Urban and rural land utilization (distribution of settlements, existing and planned land-uses, within this frame industrial zones, ports, accomodation and tourism areas, etc.),

IV.2.5. Income (distribution of local income by sectors; maximum, minimum and average per capita income in each sector),

IV.2.6. Unemployment (unemployed population and ratio of unemployment to active local population),

IV.2.7. Health (endemic diseases existing in the region),

IV.2.8. Other characteristics.

Chapter V : Impacts of the Projects on Environment and Measures Will Be Taken

V.1. Activities During Land Preparation, Construction and Installation Stages, Impacts on Physical and Biologic Environment and Measures Will Be Taken (In this Chapter, impacts of the project on physical and biological environment are defined; each legal, administrative and technical measures that will be taken to prevent, mitigate or rehabilitate these impacts are explained seperately and in details),

V.1.1. Location and amount of excavation works, materials and explosives will be used during excavation in land preparation stage,

V.1.2. To where excavation waste such as soil, stone, sand, etc. will be transported and for which purposes they will be used.

V.1.3. Filling activities, construction on piles, etc. which will be carried out in any water environment for land gaining or for other purposes; where they will be done, how much area they will cover and materials will be used.

V.1.4. Works which will be performed to ensure ground safety.

V.1.5. How and where flood prevention and drainage activities will be carried out,

V.1.6. Transportation, storage and utilization of flammable, explosive, dangerous and toxic materials which will be used during land preparation and construction stages; tools and machines which will be employed for this purpose.

V.1.7. Activities spreading dust such as crushing, grinding, transportation and storage during construction stage.

V.1.8. Excavation, dredging activities etc. which will be performed for any purpose in water environments within the project area; where and how such activities will be carried out; size of the area will be affected, amount of stone, sand, pebble and similar materials which will be excavated as a result of these activities and where they will be transported and for what purposes they will be used,

V.1.9. Transportation infrastructure plan of the project, activities related with the construction of this infrastructure; materials, chemicals, tools, machines which will be used; dust-emitting mechanical activities such as crushing, grinding, transportation and storage,

V.1.10. Water supply plan of the project, activities related with the construction and installation of this system, materials which will be used for these activities; amount of water which will be supplied from resources and amount of

process water; boiler and/or cooling water, drinking and consumption water and other utilizations of water,

V.1.11. Amount and characteristics of waste water within the frame of the project, amount and characteristics of cooling water, plans of discharge systems, activities related with construction and installation of these systems, characteristics of the treatment units in the system, sewerage system, how and where waste water will be discharged,

V.1.12. Electrification plan of the project, activities which will be carried out and materials which will be used for the implementation of this plan; locations and capacities of energy transmission lines and transformers,

V.1.13. Types; minimum cleriflc values; sulphure, ash, nitrogen, volatile substance contents; humidity rates of fuels which will be used during all stages from land preparation to commissioning of the units; fuel consumption amounts, combustion systems where such fuels will be used; emissions, devices and systems which will be used for measurement,

V.1.14. Types and amounts of waste water which will be produced as a result of activities which will be carried out during all stages from land preparation to commissioning of units; recipient environments where such water will be discharged,

V.1.15. Types and amounts of solid waste which will be produced as a result of activities which will be carried out during all stages from land preparation to commissioning of units or due to works which will be performed for excavation in water environments; to where such waste will be transported and for which purposes they will be used,

V.1.16. Sources and levels of vibration and noise to occur as a result of the activities which will be carried out during all stages from land preparation to commissioning of units,

V.1.17. Types and quantities of trees which will be cut down for land preparation and land gaining required for construction area, plant species which will be destroyed and

size of the area where such activities will be carried out,

V.1.18. Size of agricultural land which will be destroyed for land preparation and land gaining required for construction area; their land utilization capabilities and types of agricultural products,

V.1.19. Where and how the accomodation and other technical/social infrastructure needs of the personnel who will work in activities during all stages from the land preparation to commissionining of the activity units of the project, will be satisfied,

V.1.20. Activities posing risks and dangers for human health and environment which will be carried out during all stages from land preparation to commissioning of units.

V.1.21. The amount of the area where land arrangement will be made for creating landscape elements or for other purposes in the project area (afforestration, green area arrangements etc.) and the plant and tree species which will be selected,

V.1.22. Other activities.

V.2. Activities in the Operation Phase of the project, Impacts on the Physical and Biological Environment, and the measures will be taken

V.2.1. Characteristics of all the units of the project, activities which will be realized in these units, their capacities, the services which will be provided by other units rather than the activity units,

V.2.2. Hazardous, toxic, explosive and flammable materials which will be used at the activity units during production, and their transportation and storage,

V.2.3. Characteristics and the quantity of the machinery, equipment, instruments and tools which will be used at the activity units,

V.2.4. Goods and/or services which will be produced at the activity units, production amount of final products and semi-finished products, to where, how and in what amount they will be marketed; where, how and to how many population these services will be offered.

V.2.5. Production methods and technologies which will be used at the activity units, flow-chart of production.

V.2.6. The manner of transport of the raw materials, auxiliary materials, finished materials and the personnel, the mode of transport and vehicles, their quantities and capacities,

V.2.7. For which processes and in what amount water will be used at the activity units, the physical, chemical and bacteriological characteristics of the waste water generating after the process; the materials will be disposed at the waste water treatment plants,

V.2.8. The quantity of boiler water and/or cooling water to be used at the activity units, after what type of processes these wastes will be given to the recipient environment and how, and the characteristics of the water will be discharged,

V.2.9. The materials which will contaminate the waste water will be generated after use of the drinking water and the water used for other purposes, the treatment which will be used for treating such waste water, the quantity of treated waste water which will be discharged to the recipient environments, the receiving environments and the method of discharge,

V.2.10. Fuel types which will be used at the activity units and other units, quantities and chemical analysis thereof, the units at which the fuel will be consumed and the quantities thereof, the combustion systems, emissions, instruments and systems will be used for measurement,

V.2.11. The quantity and characteristics of the solid waste will be generated by each unit during operation of the activity, methods of storing, piling and disposal, how and where such solid waste will be transported, or for which purposes they will be recyled or where they will be sold,

V.2.12. Sources of vibration and noise will be generated during operation of the activity, and the levels thereof,

V.2.13. Characteristics of radioactive waste,

V.2.14. Where and how the accomodation and other technical/social infrastructure needs of the personnel who will work in activities during all stages from the land preparation to commissioning of the activity units of the project will be satisfied,

V.2.15. Risky or hazardous activities of the project in the phase of operation, with respect to human health and the environment,

V.2.16. Land arrangements for creating landscape elements or for other purposes in the project area,

V.2.17. Other Activities

V.3. Effects of the project on the socio-economic environment

a) Environmental cost-benefit analysis (environment was utilized before the activity and the cost thereof, changes during and after the activities are explained in this section),

b) Income increases expected from the project, employment opportunities will be created, population movements, migrations, education, health, culture, other social and technical infrastructural services and changes in utilization patterns of these services, etc.

Part VI. The effects which may occur or continue after the enterprise is terminated, and the measures will be taken for these effects:

VI.1. Recreation activities;

VI.2. Reclamation of land,

VI.3. Impacts on available water resources;

VI.4. Possible emmisions.

Part VII. Alternatives of the Project

(Project Alternatives related with site selection, technology and mitigation measures will be compared in this section and list of preferences are identified).

Part VIII.Conclusions

(Summary of all explanations which were made, an overview including the list of significant environmental impacts, and the success of the mitigation measures, if the projects is realized, selections between the alternatives within the frame of the project and the reasons for such selections).

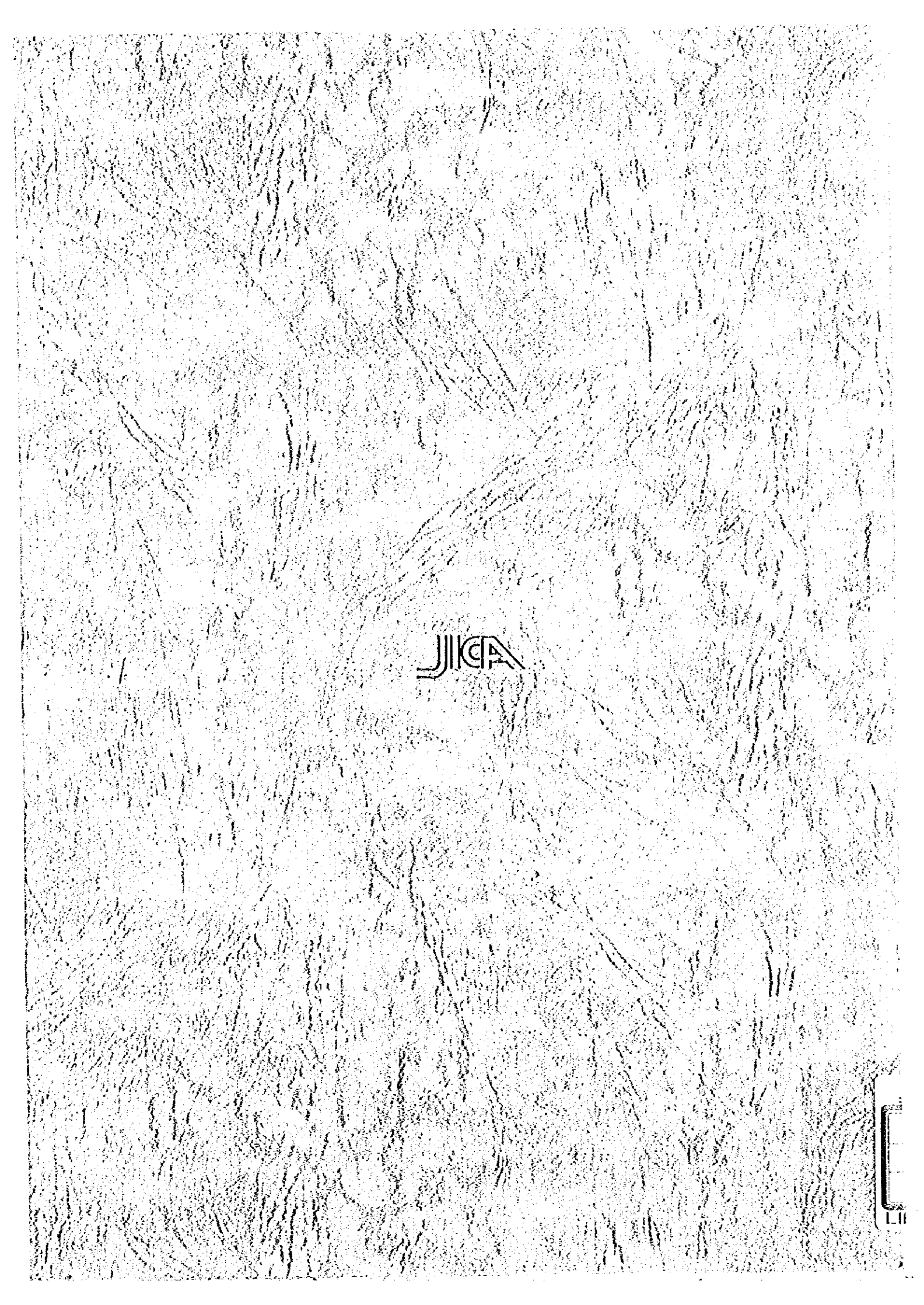
Annexes:

Information, documents and techniques which have been obtained from various entities and issued in preparation of the project, but not presented in the text of the report).

Notes and References:

Presentation of Experts Who Prepare EIS:

(Presentation of those who have issued the report (Name, surname, profession, background, references, the signature evidencing the responsibility over the report).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