

TURKEY

IRRIGATION MODERNIZATION PROJECT

(P158418)

ENVIRONMENTAL AND SOCIAL MANAGEMENT FRAMEWORK

ESMF

--- FINAL---

JUNE 2018

Table of Contents

1. INTRODUCTION	3
2. COMPLIANCE WITH WORLD BANK SAFEGUARDS POLICIES	6
3. ENVIRONMENTAL AND SOCIAL ASSESSMENT.....	14
4. ENVIRONMENTAL AND SOCIAL MONITORING	17
5. INSTITUTIONAL ARRANGEMENTS	26
6. PROGRAM.....	28
7. PUBLIC CONSULTATION	28

Annexes

- Annex-1: Draft ESMP Contents, Mitigation and Monitoring Plans
- Annex-2: Grievance Form/ Grievance Closeout Form
- Annex-3: Attendee List of Senirkent Isparta Meeting
- Annex-4: Attendee List of Atabey Isparta Meeting
- Annex-5: Stakeholder Engagement Plan

1. INTRODUCTION

Improving irrigation provision and performance is a priority area for Government of Turkey, and its 10th Development Plan includes a “Transformational Program” (2014-2018) for improving the efficiency of water use in agriculture. The targets of this program include: increasing the net irrigation area under operation by almost 30 percent, from 2.91 m ha to 3.75 m ha; raising irrigation efficiency from 42 to 50 percent; expanding the use of water saving modern irrigation systems by 10 percent per year; and decreasing the use of groundwater by 5 percent during the plan period. The transition to closed irrigation systems will be accelerated, to cover at least 25 percent of the irrigated lands under modern water- saving irrigation systems.

The Action Plan prepared by Ministry of Forestry and Water Affairs (MoFWA) for improving water use in agriculture identifies the following priorities:

- (i) Renewal of old canals and networks and replacement by closed systems;
- (ii) Expansion of water-efficient closed systems and modern irrigation methods in the existing and new irrigation projects;
- (iii) Increasing R&D studies and adoption of new technologies; and
- (iv) Acceleration of land consolidation in irrigation areas and increasing network efficiency.

The Plan also includes significant investments and corresponding targets, which are expected to be released soon in a, for land consolidation and promotion of good agricultural practices. It is expected that these thrust areas would be maintained in the 11th Development Plan currently under preparation.

Based on a request from Government, the World Bank (WB) will aim to support the irrigation modernization element of the agenda under the 10th and the 11th Development Plans. The project will focus on the irrigation schemes which are more than 30 years old, and which have suffered from decades of inadequate O&M funding and an accumulation of deferred maintenance works. Under-utilization and deterioration of networks have reduced the quantity and quality of irrigation delivery, and as a result, these schemes have experienced significant drops in effective irrigated area (within the commands) as well as productivity, thus causing a reversion of a large number of farmers from high-yielding and stable irrigated agriculture to low-yielding and risky rain-fed agriculture. Modernization of these schemes will lead to income and economic growth in these areas, and hence contribute directly to poverty reduction and shared prosperity. Furthermore, a key element of these irrigation schemes is that they already have a fixed water allocation dedicated for irrigation in the storage of the associated dam/reservoir, which is currently unused or partially used; therefore, the modernization investments will allow productive use of this water allocation, without adversely affecting the basin/sub-basin level water balance. In this scope, Turkey has already embarked upon an ambitious expansion and modernization program in the irrigation sector, and Devlet Su İşleri (DSİ), as its main irrigation agency, has strong capacity for managing a large infrastructure portfolio. Similarly, Ministry of Food, Agriculture, and Livestock (MoFAL) has a well-developed nation-wide program of land consolidation, and for provision of agriculture extension and marketing services. In

this context, the proposed project will support incremental institutional advancements, related to inter-agency coordination, supporting private sector participation in irrigation, and developing a systematic approach to strengthening of the Water Users Associations (WUAs). The bulk of project financing will go towards the modernization of selected irrigation schemes, which will serve as a platform for implementing and demonstrating the proposed improvements. Accordingly, the main motivation for Turkey Irrigation Modernization Project (TIMP) is to develop a model of comprehensive irrigation modernization that is not limited to the improvements to the irrigation network infrastructure but includes: (i) integration of measures to improve irrigation operations, on-farm irrigation infrastructure, land consolidation, agricultural productivity, and market linkages; and (ii) a systematic approach to strengthening the capacity of WUAs.

TIMP will comprise the following components:

Component 1. Irrigation Systems Modernization: This component will finance investments to modernize DSI's irrigation systems in five selected schemes. These include Atabey, Kartalkaya, Eregli-İvriz, Alasehir, and Uzunlu, with combined area of approx. 71,195 hectares. These schemes were selected from a long list of 37 irrigation schemes being considered for modernization by DSI. Priority was accorded to those schemes that have a high demand for irrigation and a high rate of return on investments; for which the design studies are completed or near completion; and where the advance contribution required from the WUAs has been secured. This component will be implemented by DSI, and in addition to irrigation infrastructure modernization (converting from open-channel to pressurized systems), it will include: (i) upstream consultations with WUAs, and incorporation of their feedback in the final design of schemes, and (ii) better coordination with MOFAL for implementation of field-level activities. The commitment of project funds to the selected schemes would also ensure on-time completion of the modernization works, which would strengthen trust between WUAs and DSI.

Component 2: Innovation and Institutional Support: This component will provide direct design and implementation support to DSI in the following areas:

b) Subcomponent 2(A) - Designing and Piloting a National Program for WUA Capacity-Building: This will include a GEF grant to provide design and implementation support to DSI for developing a national program for WUA's capacity-building for water management. The program would build on DSI's ongoing efforts to develop a web-based, participatory water use monitoring platform for WUAs, and will include: (i) support for roll-out and implementation of the participatory water use monitoring; (ii) upgradation of national WUA's database, to allow performance monitoring on various dimensions; and (iii) WUA trainings for improving technical and financial management capacity. Based on a successful roll-out, this program may be expanded to include incentive-based elements for improving WUA performance. A successful implementation of this sub-component would establish a systematic and incentive-based approach for improving the capacity and water management of WUAs (and, possibly, other types of IAs) throughout the country. The incrementality of GEF support is critical for this initiative, because under the current laws public funds cannot be used to provide WUAs with the hardware needed for the

participatory water use monitoring system.

c) Subcomponent 2(B) - Piloting Solar-Powered Groundwater Irrigation: This will include a GEF grant to support the implementation of a solar-powered groundwater irrigation pilot in Bolvadin, Afyon. The objective is to design and implement a sustainable solar-powered irrigation system that (i) provides low-cost alternative to the current fossil fuel-based pumping used by the farmers; (ii) ensures reliable supplemental irrigation based on groundwater; and (iii) incorporates measures to ensure the long-term sustainability of groundwater resources. Accordingly, this proposed irrigation system will include use of hardwired abstraction controls to limit the total amount of pumping, installation of efficient irrigation systems, and introduction of volumetric metering to encourage water conservation. Again, the incrementality of GEF support makes this pilot possible because this model has not been tried in irrigation before, and the current regulations prohibit the use of public funds to finance WUA assets. It is expected that a successful implementation would demonstrate the manifold benefits of this model and encourage private and possibly public financing for similar investments in the future. It is anticipated that a 0.5 MW solar power plant is installed for Bolvadin Ground Water Irrigation, which covers a total irrigation area of 4,300 da using 10 wells with a total motor-pump power of 615 kW. The installation of 0.5 MW solar power plant will provide saving of 81% of the electricity costs. The project will pay back its investment cost in 6.21 years.

Component 3: Project Management: This will finance the multiple activities required for coordination and management of the project; and will include, inter alia, community consultations and partnership program, communications, grievance redress mechanisms, monitoring and evaluation, and environmental and social management.

The proposed project design is intrinsically linked to addressing the increasing water security threat from climate change, by promoting more efficient use of water resources in agricultural production. Modernization of irrigation delivery by switching to pressurized closed systems, along with the adoption of efficient field-level infrastructure (such as drip and sprinklers) that it will enable, will reduce water usage. The piloting and expected scale-up of solar-powered irrigation, complemented with metering, will result in water and energy savings, as well as reduction in GHG emissions. GHG accounting is being conducted during the preparation phase, to quantify the GHG emission savings from the project.

2. APPLICABLE TURKISH LAWS AND REGULATIONS

The Environment Law No. 2872¹ is Turkey's primary framework for environmental legislation. Regulation on Environmental Impact Assessment, which was prepared in accordance with Article 10 of the Environment Law and published in the Official Gazette No. 29186 dated November 25, 2014, (henceforth "EIA Regulation") sets the coverage of impact assessment processes for the planned investments. Construction of irrigation systems (as well as modernization and re construction of irrigation system) is not listed in the Turkish EIA Regulation. Therefore, project components are exempted from the National EIA Process.

As part of the European Union accession process, Turkey has made many institutional and legal reforms. Thanks to these reforms, environmental protection regulations and instruments have been aligned with international standards. The referred environmental regulations and instruments concerning the infrastructure works include the following:

- Waste Management Regulation, published in Official Gazette no. 29314 dated 2 April 2015;
- Regulation on the Control of Hazardous Wastes, published in the Official Gazette no. 25755 dated 14 March 2005, and most recently revised in the Official Gazette no. 28812 dated 5 November 2013;
- Regulation on the Control of Waste Oils, published in the Official Gazette no. 26952 dated 30 July 2008 and most recently revised in the Official Gazette no. 28812 dated 5 November 2013;
- Regulation on the Control of Vegetable Oils, published in the Official Gazette no. 29378 dated 6 June 2015;
- Regulation on the Control of Package Wastes, published in the Official Gazette no. 28035 dated 24 August 2011;
- Regulation on the Control of Used Batteries and Accumulators, published in the Official Gazette no. 25569 dated 31 August 2004 and most recently revised in the Official Gazette no. 28812 dated 5 November 2013;
- Regulation on the Control of Medical Wastes, published in the Official Gazette no. 25883 dated 22 July 2005 and most recently revised in the Official Gazette no. 28948 dated 21 March 2014;
- Regulation on the Control of Excavation Material, Construction and Demolition Wastes, published in the Official Gazette no. 25406 dated 18 March 2004 and most recently revised in the Official Gazette no. 27533 dated 26 March 2010;
- Regulation on the Control of Worn-out Tires, published in the Official Gazette no. 26357 dated 25 November 2006 and most recently revised in the Official Gazette no. 29292 dated

¹Environment Law No. 2872 was published in Turkish Official Gazette No. 18132 dated August 11, 1983 and revised through Law No. 6486 published in Turkish Official Gazette dated May 29, 2013.

11 March 2015;

- Regulation on Sanitary Landfilling of Wastes, published in the Official Gazette no. 26357 dated 27533 dated 26 March 2010 and most recently revised in the Official Gazette no. 29292 dated 11 March 2015;
- Communiqué on the Recovery of Certain Non-Hazardous Wastes, published in the Official Gazette no. 27967 dated 17 June 2011 and most recently revised in the Official Gazette no. 29292 dated 11 March 2015;
- Regulation on the Control of Waste Electrical and Electronic Devices, published in the Official Gazette no. 28300 dated 22 May 2012;
- Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources, published in the Official Gazette no. 27605 dated 8 June 2010 and most recently revised in the Official Gazette no. 28704 dated 7 June 2013;
- Regulation on the Control of Water Pollution published in the Official Gazette no. 25687 dated 31 December 2014;
- Regulation on the Monitoring of Surface Waters and Ground Waters, published in the Official Gazette no. 28910 dated 11 February 2014;
- Regulation on the Protection of Ground Waters from Pollution and Degradation, published in the Official Gazette no. 28257 dated 07 April 2012;
- Regulation Amending the Regulation on the Control of Pollution Caused by Hazardous Substances on in Water and Environment, published in the Official Gazette no. 26005 dated 26 November 2005;
- Regulation on Waters for Human Consumption, published in the Official Gazette no. 25730 dated 17 February 2005
- Urban Wastewater Treatment Regulation, published in the Official Gazette no. 26047 dated 01 January 2006;
- Regulation on Evaluation and Management of Air Quality, published in the Official Gazette no. 26898 dated 06 June 2008;
- Regulation on Evaluation and Management of Ambient Noise, published in the Official Gazette no. 27601 dated 04 June 2010;
- Regulation on Equipment and Protection Systems used in Potentially Explosive Environments, published in the Official Gazette no. 26392 dated 30 December 2006.
- Labor Health and Safety Law No. 6331, published in the Official gazette no. 28339 dated 30 June 2012, and the applicable legislation.

In addition to the environmental laws and regulations, there are many other involving environmental assessments directly or indirectly. Therefore, these laws and regulations also apply to the Project. These legal arrangements include the following:

- Law on Ground Waters (Law no. 167), published in the Official Gazette no. 10688 dated 23 December 1960;
- Law on the Protection of Cultural and Natural Assets (Law No. 2863), published in the Official Gazette no. 18113 dated 23 July 1983;
- Highways Traffic Law (Law No. 2918), published in the Official Gazette no. 18195 dated 18 October 1983; revised in the Official Gazette no. 23053 dated 18 July 1997;
- Highways Traffic Regulation, published in the Official Gazette no. 23053 dated 18 July 1997;
- Regulation on Opening and Operation of Workplaces, published in the Official Gazette no. 25902 dated 10 August 2005;
- Regulation on Buildings to be Constructed in Disaster Prone Areas, published in the Official Gazette no. 26582 dated 14 July 2007;
- Regulation on Buildings to be Constructed in Seismic Zones, published in the Official Gazette no. 26454 dated 06 March 2007;
- Regulation on the Transportation of Hazardous Substances via Highways, published in the Official Gazette no. 28801 dated 24 October 2013;
- Regulation on Principles and Procedures Governing the Production, Import, Transportation, Storage, Sale, Use, Disposal and Control of Non-Monopoly Explosives, Hunting Materials and the Similar, published in the Official Gazette no. 19589 dated 29 September 1987;
- Regulation on Septic Tanks Constructed in Districts without Sewerage System, published in the Official Gazette no. 13783 dated 19 March 1971.

Although the Turkish EIA Regulation is not meeting the requirements of international standards in terms of social impacts, some additional legal arrangements for managing such impacts are established. In this respect, the followings are identified to be a non-exhaustive list of social legal framework applicable for this project:

- Law on Occupational Health and Safety (No. 6331), published in the Official Gazette no. 28339 dated 30 June 2012
- Regulation on Contractors and Sub-contractors, published in the Official Gazette no. 27010 dated 27 September 2008

In terms of involuntary resettlement, the relevant legal arrangements of Turkey are summarized below:

- Expropriation Law, published in the Official Gazette no. 18215 dated 8 November 1983
- Amendment on Expropriation Law, published in the Official Gazette no. 24393 dated 5 May 2011

The Ministry of Forestry and Water Affairs governs the natural habitats and other protected areas in Turkey. For physical cultural and natural protection of the national values, the relevant legal arrangement is defined under Law No. 2863 dated 21.07.1983 on the Protection of Cultural and Natural Assets (revised through the amendment issued on 27.07.2004 dated Official Gazette). The Regulation on Researches, Drillings and Excavations in Relation to the Cultural and Natural Assets, which was published in the Official Gazette No. 18485 dated 10.08.1994 define the procedures and obligations concerning the cultural and natural assets found out during construction. In addition, Regulation on Planning for Protected Areas (dated 23.03.2012), Regulation on Identification, Registration and Approval of the Protected Areas (dated 19.02.2013) and Regulation on Implementation of Environmental Protection Projects by Environmental Protection Agency for Specially Protected Areas (dated 24.0.21992) are the other arrangements within the scope of the legal framework. DSI is responsible for the project to be implemented in compliance with the laws and regulations. Within the existing scope of the project, the only sub-project that falls within the legal framework of protected areas is Eğirdir Lake. General Directorate of Water Management has prepared Eğirdir Lake Protection Plan and relevant provisions must be obeyed in addition to environmental legal framework.

3. COMPLIANCE WITH WORLD BANK SAFEGUARDS POLICIES

Turkey Irrigation Modernization Project (TIMP) will finance investments for modernizing (i.e. rehabilitating) DSI's irrigation systems in the selected schemes. DSI has proposed a "long list" of irrigation modernization schemes. The possible project investments will be selected from this long list of schemes, which are spread over the country. In order not to trigger the WB's Operational Policy on Projects on International Waterways (OP/BO 7.50), only the projects in national basins are selected.

The project location will correspond to the location of the irrigation schemes that are finally selected for modernization under the proposed project. During project preparation studies it was proposed that Bank project will finance modernization of irrigation systems in five selected schemes: Atabey (Isparta), Kartalkaya (Kahramanmaras), Eregli-İvriz (Konya), Alasehir (Manisa), and Uzunlu (Yozgat).

The primary infrastructure investments, financed by Component 1 of TIMP, involve replacement of open-channel systems (i.e. canals and distribution networks) with closed, pressurized systems. This component will be implemented by DSI, and will also include improved operations and maintenance, and capacity-strengthening support for Water User Associations (WUAs). Component 2 is aimed at institutional strengthening at a nation-wide level and will include a GEF-funded solar-powered irrigation pilot in a selected area (to be determined), that would aim to provide a low-cost alternative to the current fossil fuel-based pumping.

The WB's environmental and social safeguards policies require that the borrower country perform an Environmental Assessment Study, integrated with the EIA Regulation and WB's Operational Policy for Environmental Assessment (OP 4.01). However, the project components are exempt from the existing EIA regulation as explained above. On the other hand, TIMP has the overall objective of ensuring that sub-projects supported by the Bank, are environmentally and socially sustainable. In

this respect, TIMP is defined as Category B with respect to OP 4.01. Other relevant WB Safeguards Policies triggered for TIMP are provided in Table 1 and summarized below.

Table 1. Other Safeguard Policies Triggered by the Project

Safeguard Policies	Yes	No
Environmental Assessment (OP/BP 4.01)	✓	
Natural Habitats (OP/BP 4.04)	✓	
Pest Management (OP 4.09)		✓
Physical Cultural Resources (OP/BP 4.11)	✓	
Involuntary Resettlement (OP/BP 4.12)	✓	
Indigenous Peoples (OP/BP 4.10)		✓
Forests (OP/BP 4.36)		✓
Safety of Dams (OP/BP 4.37)	✓	
Projects in Disputed Areas (OP/BP 7.60)		✓
Projects on International Waterways (OP/BP 7.50)		✓

DSI will avoid any potential project components and activities that will trigger other safeguard policies of the WB or fall within Category A that will likely have significant adverse impacts that are sensitive, diverse and unprecedented affecting an area broader than the sites or facilities subject to physical works with respect to WB OP 4.01 provisions. Category A projects require preparation of a report, normally an EIA that includes, as necessary, regional or sectoral EA, strategic environmental and social assessment (SESA), environmental audit, hazard or risk assessment, etc. Moreover, projects which have significant land acquisition, large scale impacts on critical and/or natural habitats can also be classified as Category A. TIMP will not finance any sub-projects, which are triggering these criteria. DSI will discuss possibility of any additional project, any change in the existing sub-project to make sure that the sub-project is not resulting in 'Category A' classification.

Environmental Assessment OP/BP 4.01: TIMP will include infrastructure investments for modernization of five different irrigation schemes as explained above. The primary infrastructure works will involve replacement of existing open channels (earthen/concrete) with pressurized closed channels (pipes) for irrigation. The currently selected set of schemes include Atabey, Kartalkaya, Eregli-ivriz, Alasehir, and Uzunlu, with combined area of 71,195 hectares, and estimated cost of approximately US\$383 million. These schemes have been selected from a long list of 37 irrigation schemes being considered for modernization by DSI, and priority in selection was accorded to the schemes that have a high demand for irrigation and a high rate of return on investments, and for which the design studies are completed or near completion. However, the selection is provisional since some of the selected schemes may be replaced by others depending upon the timeline of final design and payment of advance contributions by the WUA. Furthermore, the variation of exact footprint of the projects and different environmental and social site characteristics in the scope of the project obstruct for preparation of site specific ESMPs at this stage. Therefore, this Environmental and Social Management Framework (ESMF) (for Category B projects) is prepared to define a roadmap for preparing site-specific ESMPs for the sub-projects. On the other hand, as it is agreed with DSI, site specific ESMPs, will be prepared in line with their project schedule for the first year.

The ESMF includes a consideration of the broader impacts of the transformation of the open-channel

irrigation systems to “closed” water systems, as well as mitigation measures to address any negative impacts. Moreover, the ESMF aims to address water utilization and potential impacts on resource sustainability, communities and other water users. In this regard, the ESMF includes a sample ESMP in Annex-1. The site-specific ESMP’s, which will be prepared by Borrower, will detail the impacts and mitigations framed in the ESMF in general. Nevertheless, the ESMP given in Annex-1 is only a guidance table, and site specific ESMP’s may necessitate special mitigations related to impacts specific to project location. Site-specific ESMPs will be a part of the bidding documents of the construction works.

It is expected that the main environmental impacts are limited to basic construction work impacts. In general, major impacts are related to excavation, waste disposal, disposal of demolished material, loss of topsoil and vegetation, dust formation, noise, occupational and community health and safety. These impacts will be addressed and detailed in the site-specific ESMPs.

The project will also have significant social impacts, which are mainly expected to be positive with minor adverse impacts. The adverse social impacts are likely to occur only during construction activities and will be limited to nuisance caused by dust and noise, temporary interruption of water supply, community health and safety and partial involuntary land take through mostly establishment of easement rights. In the schemes where expropriation is inevitable, DSI aims to acquire land with minimal impact on economic livelihoods. The project is anticipated to have diverse levels of impact on a variety of PAPs including landowners, land users (both formal and informal), agricultural workers (including seasonal migrant workers) and vulnerable groups. Each category of PAPs will be entitled to different measures, compensation and livelihood assistance according to their level and type of impact. Land take induced displacement issues have been identified and addressed in the Land Acquisition Policy Framework (LAPF). Site-specific LAPs that will be prepared by DSI will be utilized to mitigate and compensate for the losses due to the land requirements of the project. Social impacts (other than land take) will be dealt with and detailed under the site-specific ESMPs. In addition to the anticipated social impacts, some of the proposed schemes subject to the DSI-led land consolidation (LC) activities will be assessed. Details of LC due diligence on DSI-led LC schemes (ie. Uzunlu) and proposed measures (if needed) are provided in the LAPF and later in the LAPs (where applicable). A standalone Social Impact and Gender Assessment (SIGA) has been prepared to inform the ESMF and the ESMPs on both positive and adverse social impacts (including gender specific activities and disaggregated data) including the ongoing nationwide LC activities, access to irrigation and on-farm water management infrastructure and any changes in land use patterns under Component 1, which can have social impacts on different user groups and may prompt conflicts among them. The SIGA’s scope covers stakeholder mapping among water users, and a stakeholder engagement plan including a GRM. The SIGA identifies Syrians under Temporary Protection among the seasonal migrant workers. The anticipated indirect impact on these groups is that irrigated large scale production may trigger need for increased number of seasonal workers. Yet, due to use of machinery, need for temporary workers may decrease. Seasonal workers travel with their families and engage in farming as a family. In the area of the Project, where seasonal agricultural workers are used children do not work as paid labor however can assist their families while working together. This type of child labor is not a form of forced labor as the national labor law forbids worst forms of child labor. Therefore, the project does not observe any child labor or forced labor risks in agriculture (for example with Syrian refugees or seasonal workers). However, the ESMPs as part of the civil work contracts will oblige the contractor to follow the national legal framework and ban the worst forms of child labor.

Natural Habitats (NH) OP/BP 4.04: Since the project investments will be exclusively limited to the modernization of existing irrigation schemes, they will not impact any designated natural habitats. On the other hand, some of the existing irrigation projects are observed to be already in interaction with natural habitats and protected areas. The irrigation modernization projects, which are raising irrigation efficiency, are considered to be aimed at protection of the water resources supplying water to the natural habitats and hence improvement of the current status. In case the given irrigation area (unspecified) overlaps a natural habitat, OP/BP 4.04 will be applied and the potential impacts of the Project on the natural habitat will be assessed in the ESMP to be prepared.

Physical Cultural Resources (PCR) OP/BP 4.11: Turkish laws and practices are similar to the WB requirements. Since the national regulations on the conservation of cultural properties are strict, it is not anticipated that any additional requirements would arise WB safeguards policies. Nevertheless, a chance finds procedure including responsibilities for managing accidentally discovered or chance find cultural artifacts will be prepared. Additionally, all relevant official letters will be annexed to the site-specific ESMPs. Furthermore, depending on the requirement, a detailed evaluation report on archaeological or cultural asset will be included in the ESMPs. DSI is responsible for avoiding or mitigating impacts on physical or cultural resources of the financed projects. Therefore, DSI will not proceed with project funding until all requirements of the Turkish legislation are met.

Involuntary Resettlement (IR) OP 4.12:

The main investments in the project involve replacement of open-channel systems (canals and distribution networks) with closed, pressurized systems. While the land use requirements of the selected irrigation schemes have not been determined yet, some of them may require land acquisition and hence the Bank's Policy on Involuntary Resettlement (OP 4.12) has been triggered. No physical displacement is expected to occur under the project. DSI will try to avoid land expropriation by ensuring that construction activities utilize public lands by following existing roads and/or canals, in addition to making use of land consolidation practices. Because the exact location of the canals and associated irrigation infrastructure will not be known until detailed designs are finalized, a draft LAPF has been prepared and disclosed during June 20, 2018 in Atabey, Isparta.. DSI will prepare specific LAPs for irrigation schemes that will require land acquisition through expropriation, once the irrigation scheme footprints of the irrigation schemes have been finalized.

As mentioned earlier, due diligence is being conducted by the task team on the land consolidation program to analyze the gaps, if any, between national LC legislation and OP 4.12 Principles. If gaps are identified, the LAPF will present the ways of addressing/closing these gaps. The LAPF includes the findings of the SIGA Report as well as data and inputs received from DSI and other institutions.

Available data and consultations with DSI representatives indicate that DSI has a four level GRM in place which allows for the identification and resolution of all grievances generated by DSI activities. Under its four-level system, DSI receives grievances through WUAs, branch and regional directorates and at the head quarter level. In addition to DSI's own GRM, PAPs also make use of the national GRM; through BIMER (Prime Ministry Communication Center) and CIMER (Presidency Communication Center) to lodge any type of compliant or concern regarding DSI's project activities. DSI will introduce its GRM to all its stakeholders during engagement activities conducted for each scheme in addition

to making arrangements in its existing GRM to collect, address and resolve scheme specific grievances which will also be made available to project workers.

Safety of Dams (SD) OP/BP 4.37: TIMP will not finance any dams or reservoirs. However, the policy is triggered since four dams (Afsar, Ivriz, Uzunlu, and Kartalkaya) regulate river flows and supply water to the downstream irrigation schemes that project will finance. The safe and reliable operation of the four dams is critical for ensuring resilience and sustainability of the downstream irrigation project. In Turkey DSI, the Client, is the main construction and regulation agency for the dams. In the current system DSI conducts the following:

- The Investigation and Planning Department develops a project. If a dam takes place in the project; they need to collect all the data required for dam location, capacity, type, rough dimensions etc.
- The final designs are prepared by the Dams and HEPPs Department. They need specific data from the Geotechnical Services and GW Department. The construction of the dam is also under the control of Dams & HEPPs Dep. with the help of the Geotechnical Serv. & GW Dept.
- When the construction is over, Operation and Maintenance Department and related Regional Directorates takes over the responsibility. The Regional Directorates operates, maintains and inspects the dam (these activities are done by different commission of experts); the O&M Dep. collects and evaluates all the data sent from the Region. Regulation for standardization and similar activities are done by O&M Dep. with the help of relevant experts.
- The emergency cases are under the control of O&M Dep. There is a similar structure in each region for emergency cases. Commissioning of experts is formed according to the incident in the Region and in the Headquarters.

With the abovementioned information, the dam safety expert of the Bank conducted site visit to all of the dams and prepared a mission report. Mission report indicated that the required measures are of non-structural nature, in fact, no major flaws or structural conditions requiring immediate intervention were observed at any of the dams. Considering the age of the dams (27 to 47 years), civil works are in satisfactory conditions and hydro mechanical equipment (gates, valves, conduits, etc.) are relatively well maintained. At the same time, there is evident need to upgrade the dam safety procedures, albeit to different levels at each dam. Rehabilitation and enhancement of instrumentation and monitoring systems is a primary area of intervention. Relevant dam safety recommendations are shared with DSI and DSI committed to fulfill Bank's requirements to meet the policy. Specific measures for each dam will be described in the relevant ESMPs.

Projects on International Waterways (PIW) OP/BP 7.50: DSI will be responsible for ensuring that the projects financed are located on / linked to national waterways only. The waterways identified as “Not an International Waterway (do not trigger OP 7.50)” in Turkey are as follows: Susurluk, North Aegean, Gediz, Kucuk Menderes, Buyuk Menderes, Western Mediterranean, Antalya, Sakarya, Western Black Sea, Yesilirmak, Kizilirmak, Konya Kapali, Eastern Mediterranean, Seyhan, Ceyhan, Eastern Black Sea, Burdur, Afyon, Orta Anadolu, and Van.

4. ENVIRONMENTAL AND SOCIAL ASSESSMENT

A screening process is needed to identify the environmental and social aspects of sub-project activities under TIMP. The stages of screening process are defined below.

- **Screening:** to identify actions that have negative environmental and social impacts;
- **Project Categorization:** to define project category with respect to WB Safeguards
- **Preparation of Relevant Environmental and Social documents:** to prepare project specific ESMP's and or site specific LAPs
- **Review and Approval of Documentation:** to review the environmental and social documentations in terms of WB Safeguard Policies as well as national laws and regulations.
- **Public Participation and Information Disclosure:** to make documents publicly available for their view and opinion. (such as ESMPs, etc.)

Supervision and monitoring: to prepare a supervision and monitoring program to measure and increase the effectiveness of project in terms of Environmental and Social Sustainability.

Step 1: Screening

The purpose of the screening process is (i) to determine whether sub-projects are likely to have potential negative environmental and social impacts; (ii) to determine appropriate mitigation measures for activities with adverse impacts; (iii) to incorporate mitigation measures into the sub-projects design; (iv) to review and approve sub-projects proposals and to monitor environmental parameters during implementation. The screening procedure includes:

- review and approve and accept the sub-project proposals according to the WB Safeguards Policies;
- determine whether sub-projects are likely to have potential negative environmental and social impacts;
- determine appropriate mitigation measures for activities with adverse impacts;
- incorporate mitigation measures into the sub-projects design; and
- monitor environmental and social parameters during implementation.

The extent of environmental and social work that might be required for the sub-projects prior to implementation will depend on the outcome of the screening process. This process should include screening for possible resettlement impacts.

One of the objectives of the screening process is to rapidly identify those sub-projects, which have little or no environmental or social issues so that they can move to implementation in accordance with pre-approved standards or codes of practices or other pre-approved guidelines for environmental and social management.

DSI, in consultation with WB, will carry out the screening of subprojects. This process will cover an ineligibility assessment and environmental and social categorization of a subproject in line with

OP 4.01. With regard to OP 7.50, DSI is responsible for ensuring that the projects financed are located/depending on national waterways only. The waterways identified as NOT an international waterway (do not trigger OP 7.50) in Turkey. These waterways are namely Susurluk, North Aegean, Gediz, Kucuk Menderes, Buyuk Menderes, Western Mediterranean, Antalya, Sakarya, Western Black Sea, Yesilirmak, Kizilirmak, Konya Kapali, Eastern Mediterranean, Seyhan, Ceyhan, Eastern Black Sea, Burdur, Afyon, Orta Anadolu, and Van as mentioned above.

Outcomes of the Turkish EIA Process is another source to identify the impact significance of the project as well as to identify the sensitivity level of project area of the influence (e.g. presence of natural habitats, protected areas etc.). In this process, DSI may ask consultants preparing the subproject feasibility reports to carry out an initial assessment of these risks to reach more informed decisions.

Currently, the projects proposed by DSI under TIMP have been evaluated, and these sub-projects have been classified as Category B according to the WB's categorization. In this context, ESMPs will be prepared for these projects. For any activities/impacts/sensitivities that are not envisaged within the current status of the TIMP, under sub-projects to be financed based on this ESMF, the above mentioned screening process will be carried out.

Step 2: Project Categorization

DSI has submitted to WB for clearance the proposed screening categories for the first five sub-projects. The information submitted to the WB for this purpose included the key environmental and social issues to be analyzed together with information substantiating the category selection.

In cases where several separate investments (components) constitute a subproject, the highest category among the components applies to the subproject. For instance, a subproject may include different components that one may have significant and irreversible impacts (Category A) and the other have short-term and avoidable impacts by implementation of international good practices (Category B). In this case, the subproject is classified as Category A. Ideally, the EA carried out in a subproject should combine all the components to be implemented under the subproject since this will generate a comprehensive overview on the environmental impact. However, the EAs of the activities may be prepared separately and works may commence at separate times as long as the components are independent of each other in terms of impact on the environment. When in doubt, DSI will consult with the WB Environmental and Social Specialists assigned to the project.

From this point of view, the construction of irrigation systems (including modernization and rehabilitation of irrigation schemes) and installation of solar power plant systems under 1 MW covering an area of less than 2 ha are considered as project components and it is understood that these proposed project activities are not covered by the EIA Regulation. In this context, project components are exempt from the local EIA implementation. TIMP aims at ensuring that the projects to be supported by the World Bank are environmentally and socially sustainable in compliance with the WB Safeguards Policies. For this reason; the proposed components of TIMP has been categorized as Category B under the World Bank's OP 4.01. For any other project activities that are not envisaged at the current status of TIMP, the abovementioned criteria will be applied for project categorization.

Step 3. Preparation of Relevant Environmental and Social Documents

An ESMP will include the potential environmental and social impacts; appropriate mitigations measures; appropriate monitoring indicator; frequency of monitoring the mitigation measures; person responsible for the task and cost implications. ESMP will be prepared in consultation with the community and persons likely to be impacted by the sub-project's activities. Based on the screening and scoping exercise and the project Category, the required ESMP will be prepared in line with OP 4.01. Major steps of preparation of ESMP are given below.

- i. make assessments for specific sub-project in accordance with the screening criteria;
- ii. prepare ESMPs in line with outcomes of SIGA;
- iii. identify the need for land acquisition and/or involuntary resettlement;
- iv. prepare stakeholder engagement and communication plan;
- v. Develop LAP if involuntary land acquisition occurs.

WB safeguards require an evaluation of the proposed planning project through the SIGA. Thus, as a part of its due diligence WB has conducted an assessment with a broader scope including the gender aspect of project activities, SIGA, to identify the effects of the proposed sub-projects on social environment and to propose alternative solutions when necessary. The SIGA is a necessary tool for decision making, social management that will able the TIMP to design and implement a socially friendly project.

DSI has prepared a Land Acquisition Policy Framework (LAPF) in compliance with the Bank Policies. DSI will prepare site specific Land Acquisition Plans (LAPs), where necessary, the reporting format for the plan is provided in the LAPF.

Step 4: Review/Approval and Disclosure of Environmental and Social Documents

Prior to the start of construction activities, DSI will prepare all Social and Environmental Documents in coordination with the WB's Safeguards Policies team. All safeguards instruments will be cleared by the Government of Turkey and the WB and disclosed on the Bank's external website as well as on DSI's official website and locally in Turkish that stakeholders understand.

Financing support requires the implementation of ESMP. In this context, ESMP will be incorporated into the bidding documents and will form part of the contract to be signed with the contractor selected for the execution of the sub-project.

Step 5: Public Participation and Information Disclosure

DSI will consult project-affected people about the sub-projects' environmental and social aspects and will take their views into account. DSI will initiate such consultations as early as possible. In this context, Public Participation Meetings will be organized for the subprojects proposed by DSI before the project approval. The meetings for other sub-projects will be organized as soon as the project preparation steps are completed.

For meaningful consultations, informative material will be provided in a timely manner (i.e. one month prior to the consultation meeting), in a form and language that are understandable and accessible to the groups being consulted. First of all, the people have to be informed about the date and venue of the meeting. In this scope, DSI will inform provincial governorates, district governorates, village headman's offices and water user associations (WUAs) in provinces covered by the sub-project's area of influence, about the meeting dates and will ensure that meeting announcements

are posted at these places. DSI will ensure that certain engagement tools are in place for women to be informed on consultations. Announcements will be made in places also accessible to women. The timing of information disclosure will be important in ensuring the participation of project-affected people in the meeting and sufficient time must be allocated to allow the affected people to prepare for the meeting. At the same time, DSI will prepare posters and leaflets to introduce the sub-project and will distribute them to the people before the meeting. During the meeting, a presentation will be made about the project, covering the project's contents, its potential environmental and social impacts and mitigation measures proposed to address these impacts, the mechanism to be used to monitor these measures and the Grievance Redress Mechanism to be established for the complaints and requests to be filed regarding the project.

DSI will ensure that hard copies of the final ESMPs and any final LAPs (where applicable) are available (in Turkish) in accessible public place, prior to consultation meeting. Following consultations, DSI will revise the draft final documents, to include any feedback/comments provided during consultations. DSI will submit both English and Turkish versions of the final ESMPs and other environmental and social documents to the WB for approval.

Prior to project appraisal, the final versions of ESMF and LAPF will be disclosed by the DSI in Turkish and English languages in country. The English version of the ESMF and LAPF will be disclosed at the World Bank's external website.

Step 6: Monitoring

DSI will carry out regular supervision of subprojects during construction and operates stages to ensure that the ESMP is being duly carried out. When DSI notices any problems in ESMP implementation, it will inform the relevant regional directorate and agree with them on steps to rectify these problems. DSI will report its findings to the WB in its semiannual project progress report or more frequently, as needed to bring issues to the attention of the WB. The WB project team will on occasion, and as required, also visits projects as part of project supervision.

5. BASELINE CONDITIONS

Alasehir Scheme: The project area is in Alasehir District of Manisa Province in western Turkey. The total irrigation area is 13650 ha and has been operational since 1979. The area covers Alasehir and Uluderbent plains and surrounded by Bozdaglar and Uysal mountains. The annual precipitation ranges between 450 - 500 mm. The climate in the project area is moderate. Average temperature is 32°C in summer and 3°C in winter. The scheme was originally designed for irrigation of 5700 ha of agricultural land, however the area increased to 11806 ha due to the demand from the farmers. The main water resources are Afsar Dam constructed in 1977 and Buldan Dam. In 1984, additional 71 wells were drilled to generate additional water supply. Currently, 45 of these water wells are operational. It is estimated that there are additional 2600 private wells, which are operated without permit. It is recorded that total water use in the scheme was 44.46 MCM in 2016. The existing irrigation system includes 56 km of main channel, 114 km of backup channel and 208 km of tertiary channel.

The land within the scheme belongs to the villages in Alasehir and Sarigol Districts. The most recent figures indicate that the populations of these districts are 13758 and 456, respectively. There are primary and secondary schools as well as universities and vocational schools in these settlement areas and the literacy level is 98%. The main agricultural products in the region are cotton, vegetables and grapes. The cotton production has been decreasing due to in-country and external reasons,

recently. Vegetable production is not irrigated with dam water. The vegetables are not exported and consumed within the region. The groundwater level in Alasehir has been fluctuating due to seasonality. As mentioned before, groundwater was also used in agricultural activities through private wells especially in relatively dry years. Therefore, the groundwater level has decreased significantly and use of groundwater has been deactivated to a great extent, currently. The most important agricultural product is grape (i.e. Sultani grape), which is mostly exported in Alasehir plain. Sultani grape should be irrigated in summer (at least three times) and winter. Considering that the summers are rather dry in Alasehir, the groundwater level at 80-150 m in the scheme will not be sufficient for grape production in the coming years. The project is estimated to result in increase of vineyards within the scheme due to efficiency in irrigation. It is also anticipated that cultivation of other agricultural products (e.g. corn, vegetables, fruits, grains etc.) will increase and orchards will be introduced. The payback period of modernization project is estimated as 20 years. The industrial activities within the district are mostly focused on grape production and export and other than that carpet weaving and mineral water production facilities are recorded.

Atabey Scheme: Atabey Scheme is located 15 km north of Isparta Province in the western Mediterranean Region, in the “lakes region” of Turkey. The three largest plains in the project area are Isparta, Atabey and Sevincbey. The project area is surrounded with mountains with the exception of a 4 km corridor leading to Burdur Lake basin. The elevation of the project area ranges between 995 - 1,100 m. The climate in the project area is between Mediterranean and Central Anatolian climate types. Winters are cool and rainy, while summers are hot and dry. The lakes in the region have important influence on the climate. Annual average precipitation is 441 mm and average temperature is 12°C. The scheme area overlaps the districts of Atabey and Gonen, and includes farmlands covering 12 villages.

The irrigation scheme has been operated since 1974 and it was taken over by the WUA in 1998. Since then, several studies have been conducted in the area in 2008, 2012 and 2016 for improvement of the irrigation practices in the area. The project area covers 13834 ha and the main water source is the Egirdir Lake. Egirdir Lake also provides irrigation water to many other irrigation schemes, including Senirkent, Gelendost, Bogazova, Hoyran, Barla, Gonen-Keciborlu, and Tokmacik-Calti. The lake also provides water supply to Isparta city center. However, an area of about 620 ha within the scheme is supplied by groundwater.

The total population of the settlements in the scheme area has decreased from 35,000 to 25,000 between 2000 and 2017 due to insufficiency of existing irrigation system resulting in migration. The current cropping pattern in Atabey includes fruits (46 percent), saplings (17 percent), sugar beet (12 percent), fodder (8 percent), corn (7 percent), and vegetables (5 percent). Apple is the main agricultural product in the area, accounting for 20% of the total apple production in the country. Cherry and rose productions are also important economic activities for the project area. The industry in the project area mostly relies on agricultural products, including apple juice, cherry juice and rose-water.

The project is expected to contribute to the water balance of Egirdir Lake by 71.88 hm³/year. Furthermore, with the implementation of the project it is estimated that the crop pattern will include grains, corn, sugar beet, fruits and vegetables, orchards, beans and other pulses, rose, alfalfa, poplar and tomatoes.

Eregli-Ivriz scheme: The Eregli-Ivriz Scheme is within borders of the city of Konya, and includes the district of Eregli, the sub-district of Aziziye, and 34 villages. The scheme has been operational since 1983 and is located on the Eregli plains in Konya basin, which is a closed basin and one of the lowest

rainfall areas in Turkey with annual precipitation of 295 mm. The scheme area is in the watersheds of Ivriz and Ceyhan creeks, surrounded by Toros Mountains on the south and south-east, and Karacadag hills on the north. The total project area is 15280 ha. The climate in the area is continental climate type and therefore the winters are cold and rough, summers are hot and dry. As it is a closed basin, the moderate climate effect is not observed in the area.

Eregli District is the largest settlement area. According to the field surveys, the average household size is 4.72, and 67% of the population is between the 15-49 age group. The population increase rate is 1.9% and the total population in 2030 is expected to increase to 129,000. There are primary and secondary schools as well as high schools and vocational schools in Eregli center. The major healthcare facilities are also in Eregli center. The local economy is based on agriculture, and the region is known as the “grain-bank” of Turkey. There is a long-established culture of irrigation in the area. The current cropping pattern on the right bank mainly includes grains (33 percent), corn (34 percent) and sunflower (22 percent). The left bank’s cropping pattern is dominated by grains (51 percent), followed by corn (23 percent) and fruits (13 percent). Animal husbandry is also one of the main economic activities and the dairy products are widespread in Turkey. On the other hand, the agriculture based industry is not well developed and limited to a few dairy farms and feed mills. The largest facility is Eregli Sugar Refinery.

The left bank of the scheme has 3070 total farmers, out of which 1620 are WUA members. On the right bank, there are 1818 farmers, out of which 1016 are WUA members. A third area has 525 farmers (371 WUA members). The lower WUA memberships indicate that a number of farmers are not receiving water, due to the facilities being old and dysfunctional. On average (2012-2016), the total water use in the left bank was 59.8 MCM, and 5200 ha were irrigated, out of 12,927 ha, with an irrigation ratio of 40 %. The actual amount of water used (11500 m³/ha) is much higher than the crop water requirement (3150 m³/ha) because of the outmoded irrigation methods and scheme dysfunction. The current irrigation efficiency is 27 %.

The main water resource is Ivriz Dam, which was constructed in 1985 on Ivriz Creek, with a reservoir capacity of 80 MCM. The aim was to provide supplemental irrigation to 41,012 ha of agricultural land, with 115 MCM (of the total water requirement of 191 MCM) to be met by groundwater abstraction. The scheme includes 156 wells operated by DSI, in addition to 3000 private wells approximately. Irrigation modernization will reduce the irrigation demand to 154 MCM, and with 80 MCM supplied by Ivriz Dam, the groundwater abstraction will be reduced by 33%. The project is expected to increase the total irrigation area up to 39570 ha of land and the groundwater support will be limited to only 140 groundwater wells to be operated by DSI. This is vital because the sustainability of groundwater resources is seriously threatened in the Konya basin.

Kartalkaya Scheme: The scheme is located within the borders of Kahramanmaras in Orta Ceyhan basin and has been operated since 1971. The total project area is 20431 ha. It includes the agricultural lands of Narli sub-district, which is 27 km away from city of Kahramanmaras, and the area includes 25 villages. The project area is surrounded by the Gaziantep-Osmaniye Highway and train line in Narli. The climate is continental in the project area, with the minimum and maximum temperatures of -15°C and 43°C. Annual precipitation ranges between 500 mm on the north and 800 mm on the southeast. 85% of the precipitation happens between November and April

The main water source of water for irrigation is Kartalkaya Dam on Aksu Creek, from where the water is conveyed through the Kartalkaya Hydroelectric Power Plant (HPP), Kesme HPP and Dehliz Regulator. The storage capacity of the dam is 169 MCM, and it is used for multiple purposes of irrigation, drinking water supply, flood protection, and energy production. Since the drinking water

needs of Gaziantep city have increased due to rising population and also recently due to refugee influx, the supply for irrigation has been decreased in recent years. The scheme includes 3,380 m length Haydarli Tunnel and 62 km of concrete open channel on the right coast and 52 km of main channel and 550 km of secondary and tertiary channels on the left coast. The existing irrigation system is close to end of its economic life, and the conveyance and farm losses exceeded 60%.

The largest settlement area is Kahramanmaras center and Narli Municipality. In Kahramanmaras province, primary and secondary schools as well as high schools and a university exist. Healthcare facilities are also presented as sufficient in Narli Municipality. The current cropping pattern in the scheme area primarily comprises of grain, cotton, pulses, orchards, pepper and vegetables. Following the inclusion of Kahramanmaras in the list of priority regions by the Government in 1986, number of the industrial facilities increased significantly. In addition to the small and medium-scale enterprises, there are many large factories including food processing. The proposed modernization project for Kartalkaya is expected to decrease the losses, increase the irrigation efficiency and improve the agricultural productivity in the region. With the pressurized and more reliable water supply, the farmers will be able to cultivate high-value crops and reduce the required irrigation water. With the implementation of project, it is anticipated that the percentage of cotton will increase and alfalfa, poplar and soybean will be added to the crop pattern.

Uzunlu Scheme: Uzunlu scheme is in Yozgat and covers the agricultural lands of the district of Bogazliyan and the villages of Uzunlu, Govecli, Calapverdi, Bahariye, Bashoroz and Karakoc. The scheme area is in the watersheds of Kozanozu Creek, which is a branch of Delice River. The scheme is located on the Bogazliyan plain and surrounded by Keklicekdagi, Gulludag, Egridag and Guvencik mountains. The climate type in the project area is Central Anatolian climate and the difference between day and night temperatures is high. Annual average precipitation is 528.1 mm.

Population of the scheme area decreased in the last 10-15 years. The literacy is recorded as 92%. The most important economic activities are agriculture and animal husbandry. The current cropping pattern mainly includes grains, sunflower, sugar beet, and chickpeas. Among these, only the fields of sugar beet and a lower section of the fields of grains can be irrigated.

The scheme has been operated since 1992 and in 1996 its operation was taken over Bogazliyan WUA of which members has decreased from 432 to 330. The scheme includes irrigation of 8,537 ha land. Irrigation ratio has been low due to the insufficient water and network problems. The water source for the scheme is Uzunlu Dam, which is used for both irrigation and flood protection purposes. Low irrigations efficiencies have had negative impacts on the crop pattern that used to be more diverse in the earlier years of operation.

The proposed project which is designed for irrigation of 6,984 ha net area aims to increase irrigation ratio from 18% to 85-90%. The project is also expected to provide high-value crop pattern, which would decrease the migration rates. With the project, the crop pattern is expected to change as grains, sugar beet, corn silage, alfalfa, bean, fruits, sunflower and potato.

6. ANTICIPATED IMPACTS

Air quality: The construction activities are expected to result in dust emissions, which will be temporary and reversible. During groundworks and construction activities, dust emissions will be generated due to stripping of topsoil and other excavation activities. Furthermore, movement of construction vehicles will result in exhaust emissions in the construction sites. For minimization of the dust and particulate matter as well as exhaust emissions, necessary mitigation measures should be taken. The construction vehicles maintenance should be applied regularly to prevent excessive

exhaust emissions. In case the emission levels are disturbing to the nearby communities or other sensitive receptors, further corrective measures should be taken.

Noise: The movement of heavy vehicles and other construction activities may result in noise emissions within and in the vicinity of the construction sites. Although the construction activities will mostly be conducted during daytime (i.e. 07:00 – 19:00 hours), the noise impact has to be taken into consideration. In this respect, the noise levels should be monitored at the sensitive receptors regularly and necessary mitigation measures should be taken if required.

Water & wastewater: Water requirement is anticipated to be mostly due to domestic use of workers on campsites and construction sites. Water may also be necessary, in case concrete works are implemented on site. Another water supply requirement may be due to cleaning of solar panels in case needed. However, due to small size of the plant, the impact is expected to be low. In this respect, DSI will be responsible for supplying water without stressing the groundwater and surface water sources for domestic use and concrete works. The quality of the water supply should be monitored regularly. Wastewaters will be originated from the campsites in domestic wastewater form. These wastewaters shall be either stored in impermeable septic tanks for final disposal or treated on site and discharged in compliance with local regulations and the Bank requirements. If there will be no chemical use for cleaning of solar panels, the wastewater after washing may be released to the ground for evaporation. On the other hand, the wastewater should be collected and disposed in accordance with local regulations in case chemical use will be required for washing the panels.

Community health and safety: The campsites will introduce workforce to the nearby communities. Therefore, the location of the campsites should be identified carefully. Furthermore, construction activities will result in increase of the local traffic. The construction sites would potentially cause risk of accidents for local people if not fenced appropriately. The workforce shall be informed about the behavioral and ethics code through their contractual obligations.

Occupational Health and Safety: The construction activities may pose risk to workers' health and safety if necessary precautions are not taken. DSI and its contractor will be responsible for supplying a safe and healthy working environment for the workers. The workers should be aware of their responsibilities and relevant occupational risks. Necessary personal protective equipment and job specific trainings shall be given to the workers, regularly. The campsites should also be equipped with necessary facilities for the workers.

Hazardous materials: In principle, fuel filling and vehicle maintenance activities will not be implemented on site within the scope of the project. However, if it is not possible to prevent such activities on site, DSI and its contractor will be responsible for management of hazardous materials (e.g. storage and utilization) and relevant potential risks such as chemical spills on site. Emergency preparedness and response plans should be prepared and practiced through regular drills.

Waste management: The modernization of open channel irrigation system includes removal of the existing material from the construction sites. Therefore, these materials should be stored and disposed in accordance with local regulations and the Bank requirements. As the topsoil will be stored and reused after construction, no excavation material is expected. However, in case the excavated material will be excessive, coordination with relevant authorities for appropriate disposal of excavation material shall be established. In addition to construction wastes, domestic and hazardous wastes are expected to be generated during construction. These wastes will be stored as required by local regulations and disposed/recycled by the authorized waste management facilities. DSI and its contractor will be responsible for coordinating with these companies and ensuring wastes are disposed/recycled in compliance with relevant local regulations and the Bank requirements.

Natural habitats: There are no anticipated adverse impacts related to the components of the project. Atabey project is the only exception that will have interference with Eğridir Lake – a nationally protected area as the water supply. However, since the project will result in reduction in the water draw from the lake, the impacts of the project on this protected area is expected to be positive. Nevertheless, special provisions regarding protection of Eğridir Lake will be taken into consideration during project implementation.

Infrastructure: Modernization works will require the use of existing access roads. The project design will also benefit from the ongoing land consolidation activities since it will allow for new common roads to be established to access each parcel that will also undergo the modernization activity. Damages to road surfaces during transport of heavy machinery will be rehabilitated by the construction contractor according to site-specific ESMPs. Should any damages on infrastructure occur on private land due to construction, mitigation measures specified in the LAPF will be put into practice by the construction contractor. Any campsite that will be established during construction will secure its own infrastructure without placing an additional demand on community infrastructure during construction. Thus, impacts on local infrastructure are considered to be negligible.

Land acquisition: As the project is composed of rehabilitation of the existing irrigation system, the land acquisition impact is expected to be low compared to greenfield projects. On the other hand, the 0.5 MW solar power plant facility foreseen for the project will be installed on an area of smaller than 10.000 m². However, according to the local regulations, the facility should be installed on “Marginal Agricultural Land”. Considering the comparatively low land requirement due to small size of the plant and the requirement for installing the facility on low quality agricultural lands, the impact is anticipated to be low.

No physical displacement is anticipated for this project. However, economic displacement is expected in some sub-projects. In principle, private properties and agricultural lands will be avoided to the extent possible. Where applicable, DSI will resort to land consolidation in order to minimize the need for expropriation. In case land acquisition is inevitable, site specific LAPs will be prepared and implemented. An estimate of the land acquisition requirements in the five selected schemes is given in the table below. The entitlements of these PAPs are discussed in detail in the LAPF.

Table 1: Estimated Land Acquisition Requirements in Selected Irrigation Schemes

Scheme	Ownership Rights				Easement Rights				TOTAL			
	Area (m2)	# of Parcels	# of PAPs	Cost (TL)	Area (m2)	# of Parcels	# of PAPs	Cost (TL)	Area (m2)	# of Parcels	# of PAPs	Cost (TL)
Alasehir	35,000	60	60	1,500,000	714,000	300	300	6,000,000	749,000	360	360	7,500,000
Atabey	25,290	50	35	380,000	140,320	250	200	700,000	165,610	300	235	1,080,000
Eregli İvriz	90,000	52	30	1,520,000	170,000	270	200	980,000	260,000	322	230	2,500,000
Kartalkaya	-	-										
Uzunlu	-	-										
Total	150,290	162	125	3,400,000	1,024,320	820	700	7,680,000	1,174,610	982	825	11,080,000

Source: DSI, March 2018

Assets and land based livelihoods: As there will be no physical displacement in any of the subprojects; loss of structures and buildings are not expected. However, though kept to a minimum, the subprojects may result in loss of agricultural land. The design of the subprojects will consider

following the existing irrigation network in addition to utilizing existing roads with minimum need for additional access roads. While some of the subprojects will benefit connecting to existing pump stations and facilities some may require minimal land take for new stations and facilities that will be built. Depending on the status and current use of the land required for the project; loss of standing crops and trees with economic value are also anticipated. To reduce the amount of land required, DSI will make use of land consolidation practices in Uzunlu and plan modernization works in line with consolidation practices carried out earlier by MoFAL in three other schemes (Atabey, Eregli-İvriz and Kartalkaya). Due to densely populated orchards, land acquisition will be inevitable in Alasehir scheme. Project activities are expected to also impact land based livelihoods since majority of the land subject to modernization is used for agricultural purposes. Measures to mitigate both loss of assets and livelihoods are discussed in detail under the LAPF and will be managed via LAPs for each scheme that necessitates land acquisition. **Farmers, local community and other stakeholders including vulnerable groups:** Due to the nature of the project increasing the efficiency of the irrigation, the impacts on community are expected to be positive in general. The members of the WUAs (e.g. direct land owners, tenants, people inherited the lands etc.) will be directly benefitting from the project. SIGA has identified non-member water users (e.g. water users using well water, water users far from the WUA service area, tenants who are not qualified for membership to WUAs, landowners renting their lands etc.) as one of the other affected stakeholder groups. Accordingly, it is anticipated that the modernization of water scheme will alter the availability of water for these community members and thus, their choice of becoming a WUA member may change. Agricultural workers (i.e. seasonal and daily workers, Syrian workers) and women engaged in agricultural practices who are also categorized as vulnerable groups may also be affected from the project since the project may result in limiting the labor demand for irrigation as well as cultivation and harvesting of products. The SIGA identifies Syrians under Temporary Protection among the seasonal migrant workers. The anticipated indirect impact on these groups is that irrigated large scale production may trigger need for increased number of seasonal workers. Yet, due to use of machinery, need for temporary workers may decrease. Seasonal workers travel with their families and engage in farming as a family. In the area of the Project, where seasonal agricultural workers are used children do not work as paid labor however can assist their families while working together. This type of child labor is not a form of forced labor as the national labor law forbids worst forms of child labor. SIGA identifies that women are not presented equally in land ownership and membership to WUAs. Hence, as per the Stakeholder Engagement Plan (SEP), Annex 5, continuous consultation both by DSI and WUAs will be carried out to inform all PAPs including vulnerable groups on project impacts and construction schedule as well as their rights for compensation should they suffer from loss of land or livelihood due to the project activities. Mitigation measures for such groups have been dealt within LAPF and site specific measures will be applied through LAPs.

Gender: According to Social Impact and Gender Assessment (SIGA), the role of women in family farming may differ for each subproject. In some schemes women play a considerable role in fruit and vegetable production. Irrigation modernization, with its expected change to higher value crops and modern technologies, thus provides an economic opportunity for women who play an active role in agriculture. There are no legal restrictions on female tenancy arrangements or land ownership. However, customary traditions limit women's cultivation of shared ancestral land. Land consolidation practices, on the other hand, may positively impact this situation as an opportunity is created for women to own consolidated parcels, which likely may lead to their increased participation in agricultural production. Female water users in the 5 schemes are found both as tenants and land owners. WUA membership rates among water users vary considerably by location. At the same time, while a substantial number of water users are women in some schemes, their formal representation in WUA councils is negligible. Women's role in WUA management and decision making is thus

extremely limited and is perceived to be a domain for men. Female participation in WUA meetings is virtually non-existent. Cultural factors and social norms also hinder women's participation in meetings and training events related to irrigated agriculture.

Equally, WUA employment is male dominated, although some exceptions of female agricultural advisors employed by WUAs are observed. In order to decrease women's hesitance to take part in WUA management and decision making periodic stakeholder consultations will be arranged by WUAs and DSI field staff as part of irrigation modernization or regular WUA operations. With the collaboration and support of the Bank, DSI's field staff will design and deliver sensitization training on gender aspects of irrigation in the five subprojects. This training will support DSI field offices and the WUAs under their supervision to implement measures to narrow the above gender-gaps in line with the Stakeholder Engagement Plan (SEP), such as ensuring that WUA consultation meetings specifically for women will be held (before, during the land consolidation and after irrigation modernization). The training will also lay the foundation for WUAs to develop their own measures to encourage women involvement in WUA governance and measures to allow female farmers to benefit from services, like agricultural advice/training, delivered through the WUA, in collaboration with DSI (on-farm water management), and MoFAL. DSI will monitor gender disaggregated data in terms of the female water users benefiting from the Project, and gender-disaggregated feedback from the monitoring reports and surveys carried out in the subprojects. Where feasible, DSI's MIS (SUTEM) will ensure that some gender-disaggregated data will be collected.

Labor conditions, influx and child labor: All subprojects will require a campsite to be established on site. Each campsite will include infrastructure such as water, electricity, sewage and communication network. Campsites will be accessible by road network and will use existing roads to the extent possible. In cases where accommodation is provided on-site, DSI will ensure that contractors have a code of conduct as well as providing training on communication with local communities for workers prior to employment. On site facilities (i.e. sanitary facilities and canteen) will ensure compliance with Bank standards. The Project will fully comply with requirements of the Turkish Labor law, which is in compliance with principles of international labor standards, most of which is ensured through compliance with ILO Conventions Turkey is party to. Therefore; child labor, forced labor and discrimination (of race and gender) will not be tolerated.

Cultural heritage: There is no anticipated adverse impact on the archeological values at this stage of the project. For chance finds, the Turkish regulation, which is in line with the Bank requirements, should be applied.

7. PROPOSED MITIGATION MEASURES AND ENVIRONMENTAL AND SOCIAL MONITORING

The environmental and social issues included within the mitigation measures are monitored and supervised by the specialists appointed by DSI. Although the environmental and social impacts are expected to be quite low, the potential negative environmental impacts are planned to be prevented or mitigated during the construction and operation stages.

Environmental and social monitoring system starts from the implementation phase of the project through the operation phase in order to prevent negative impacts of the project and observe the effectiveness of mitigation measures. This system helps the WB and the borrower to evaluate the success of mitigation as part of project supervision and allows taking an action when needed. The monitoring system provides,

- Technical assistance and supervision when needed,
- Early detection of conditions related to mitigation measures,
- Follow up on mitigation results,
- Provide information of the project progress.

The proposed mitigation and monitoring measures are summarized in tables A. Mitigation Plan and B. Monitoring plan in the following sections of this document.

Grievance Redress Mechanism

DSI has a four level grievance system in place in addition to the national GRM system (Prime Ministry and Presidency Communication Centers) that is also used to submit grievances. DSI, through its additional efforts will make arrangements to collect scheme specific grievances to be addressed and resolved during project implementation. Concerns, requests and complaints of project-affected stakeholders on both environmental and social impacts of the project will be dealt with through GRM.

Information on pre-construction works (land consolidation, land acquisition etc.), construction schedule and availability of project GRM will be disclosed to affected communities through consultations and other engagement activities, DSI official website as well as through regional directorates, relevant provincial branches and through WUAs.

Due to the nature of the sub-projects, project affected communities may have concerns regarding the planning, design and implementation of TIMP. DSI will engage Public Relations Expert(s) for disseminating information regarding the grievance mechanism. Grievances to be communicated under the Project will be addressed at four levels:

- WUA level (settlements);
- Provincial directorate level
- Regional level
- National Level (through Headquarters and national GRM system)

Although there is no obligation, a Public Grievance Form has been prepared for convenience, and is presented in Annex-2. All the complaints and concerns received through the grievance system will be archived and the related issues will be attempted to be solved or mitigated within a predefined timeframe. The statistics of grievances will be regularly reported to the WB.

This ESMF will also be disclosed in both Turkish and English for public information in DSI and its regional directorates as well as WB external website to allow interested stakeholder groups to review and comment on it before the public consultation meetings. Subsequently, the comments of the communities will be reflected into the ESMF and the agreed version will also be disclosed on the abovementioned media. Similar to ESMF, site-specific ESMPs will also be prepared and disclosed for public information in both English and Turkish in a timely manner to allow the interested stakeholders to review and comment before the public consultation meetings. After revision of the site-specific ESMPs in accordance with the comments from the communities, the final versions will also be available for public review.

8. INSTITUTIONAL ARRANGEMENTS

As explained above, a site specific evaluation will be conducted in accordance with the WB Safeguard Policies, and site-specific ESMPs will be prepared as a result of such evaluation. These will be the responsibility of DSI primarily. This document must form an annex of bidding documents for construction works. Implementation of ESMP on the ground will be the part of the construction contractor’s task, however in case of any noncompliance, DSI will still be expected to take corrective action as the primary responsible party. Distribution of the responsibilities of all parties involved in the project is given in Table-1

The preparation and implementation of ESMPs is expected to cost only a small fraction of design and construction cost, as most mitigation measures will be very generic, off-the-shelf, and implementable without specialized skills, experience or equipment. Moreover, it is assumed that the cost is covered in the bid proposals.

DSI will submit site specific ESMPs (first 2 ESMPs) to WB for prior review. When the WB is confident that DSI has demonstrated that the process is accurate, WB will transfer this prior review to post review.

Table 2: Roles and Responsibilities

Responsible Party	Responsibilities
World Bank	<ul style="list-style-type: none"> • to review, approve and disclose ESMF, SEP and LAPF on WB’s official website. • to review the scheme specific ESMPs and LAPs and provide no objections to DSI. • to provide assistance in the preparation of gender sensitization trainings to be given to DSI local staff and WUA representatives. • to conduct implementation support missions in order to ensure that the Project is in compliance with WB Safeguards Policies. •
DSI	<ul style="list-style-type: none"> • to prepare and implement the ESMF and LAPF and submit for Bank approval • to disclose the ESMF and LAPF on DSI website • to prepare ESMPs and LAPs according to ESMF and LAPF • to submit ESMPs and LAPs to the WB for prior review. (after the prior review of a defined number of ESMPs, the procedure may shift to post review subject to the mutual agreement of the WB and DSI). • to perform the quality control and review of ESMPs and LAPs. • to disclose ESMPs and LAPs on the official website of DSI and incorporate ESMPs and LAPs into bidding documents. • to appoint specialist for the environmental and social monitoring. • to perform inspections of the implementation of ESMP by the construction contractor, make recommendations and decide whether additional measures are needed or not.

Responsible Party	Responsibilities
	<ul style="list-style-type: none"> • to implement LAPs on site and provide regular reporting on implementation to WB • in case of non-compliance, ensure that the contractor eliminates the noncompliance and inform the WB about the noncompliance. • to prepare, update and implement a Stakeholder Engagement Plan (SEP) that considers vulnerable groups in addition to paying attention to the gender aspect of the Project, • to hold consultation meetings, and prepare and distribute leaflets or other informative documents to inform communities, recruit a community liaison officer on project, and its impacts and construction schedule as well as rights and entitlements of PAPs • to set up a multi-level GRM, monitor and address grievances related to the project under specified timelines. • to provide guidance to the construction contractor and engineering supervision firm. • to summarize the environmental and social issues related to project implementation to WB in regular progress reports. • to be open to comments from affected groups and local environmental authorities regarding environmental aspects of project implementation. Meet with these groups during site visits, as necessary. • to coordinate and liaise with WB supervision missions regarding environmental and social safeguard aspects of project implementation. • to conduct regular monitoring activities for the implementation of site specific ESMPs and LAPs also including updates on land consolidation activities previously conducted by MoFAL • to prepare/design sensitization training and tools for DSI's local (regional and/or branch level) staff and WUA representatives
Contractor	<ul style="list-style-type: none"> • to implement ESMPs on site, if required can revise the ESMP together with DSI. • to manage the grievance mechanism at the contractor, communicate grievances to DSI regularly through ESMP monitoring reports. • to monitor site activities on a regular basis (daily, weekly monthly etc.) • to prepare the ESMP progress reports for the review of DSI. • to compensate or fix damages occurred during construction (i.e. damages to crops, infrastructure) as set out by the ESMP or LAP/LAPF.
Environmental and Social Specialist (to be appointed by DSI)	<ul style="list-style-type: none"> • to ensure that ESMP is implemented correctly and in a timely manner by the contractor. • to ensure timely and successful implementation of LAPs • to perform environmental and social monitoring as defined in ESMF and LAPF and sub-project specific ESMPs and LAPs. • to collect information on environmental and social issues (including completed LC activities) for progress reports submitted to the WB and make

Responsible Party	Responsibilities
	sure that these are all compliant with the Bank's requirements.
Communication Specialist (to be appointed by DSI)	<ul style="list-style-type: none"> to prepare, implement, update and monitor the Stakeholder Engagement Plan of the Project. to prepare all communication and visibility tools (i.e. brochures, leaflets, banners, posters, meeting announcements etc.) that will be used to inform host communities. oversee the process for printing and dissemination of the communication/visibility tools as well as planning and organization of public events and consultation meetings with Project beneficiaries. to prepare periodic reports on all communication and visibility activities realized under the Project to the DSI to be submitted to the Bank as a part of the monitoring process.

The DSI is also responsible for maintaining internal and external liaison of the Project with diverse institutions. In addition to the responsibilities listed above, each party will prepare quarterly reports to their relevant different authorities.

The DSI will also be responsible for summarizing the environmental and social issues related to project implementation to WB in regular progress reports. The detailed list of all reporting requirements is presented in Table 3.

Table 3: Reporting Requirements

Responsible Party	Reporting Requirement
DSI	<ul style="list-style-type: none"> Submission of the quarterly Project Information Notes (PIN) in a timely manner to the Bank in line with the Bank's time schedule. Preparation of the Project Progress Reports (PPR) semiannually to demonstrate the progress made during the reporting period against the results framework developed and target values identified in a clear and tangible manner. Summarizing the environmental and social issues related to project implementation to WB in regular progress reports. Preparation of Monitoring Reports to the WB every six months before WB task team site visits.
Construction Contractor	<ul style="list-style-type: none"> Preparation of monthly ESMP monitoring reports containing the monitoring activities concerning the construction activities, and their submission to DSI.

9. PROGRAM

The preparation of the site specific ESMPs would require an estimated time period of about 2-3 weeks for each site. This period also includes DSI's review and disclosure.

10. PUBLIC CONSULTATION

A public consultation meeting for the Draft ESMF was organized by the DSI on October 12, 2017 in the District of Senirkent in Isparta Province. Irrigation Association and local people participated in the

meeting, which has a high attendance of 151 people consisting of men and women (Photos 1 and 2). The list of the meeting participants is given in Annex-3 and the number of the female participants is 21. The benefits of energy and water savings of the new and modern irrigation scheme, the technical specifications of the Project and their contribution to the Project's effectiveness as well as the environmental and social requirements of the Project were presented to the attendees during the meeting.

In addition to the Irrigation Rehabilitation projects, the environmental and social issues addressed within the scope of the ESMF and the mitigation and prevention measures for the potential impacts of the Project activities were discussed in the meeting. Both female and male participants expressed their concerns regarding the problems encountered in the current system and their demand for a better design in the prospective modernization project. They particularly indicated their request for employment of a more collaborative approach through which the views of the locals are obtained effectively during the design of the projects.



Photo 1. ESMF Consultation Meeting



Photo 2. ESMF Consultation Meeting - DSI Presentation

DSI and WUA work in close cooperation and the members of the WUA are regularly informed on the Project. The interviews with the female participants reveal that the female users and members find the chance of participating in the interview important and they are interested to be invited to such meetings more in order to get more informed.

Additionally, ESMP's prepared for each subproject will be discussed with public and relevant government / non- government institutions via a consultation meeting. DSI will organize the meeting and invite participants. It is suggested that each ESMP specific to subproject is presented to inform stakeholders about the project, its potential environmental and social impacts, and mitigation/monitoring arrangements accordingly. The materials used during the meeting and questions/responses noted down during the meeting should be added to the ESMP and if necessary the ESMF should be revised and finalized in line with the agreed items.

Another scheme specific meeting was held on June 20, 2018 in Atabey, Isparta to locally consult and disclose the ESMF, LAPF and Atabey ESMP. The meeting was held with the participation of WUA members, irrigation employees, workers and local people where at a total of 120 participants with 6 women were present (Photograph 3 and 4). The participant list is given in Annex 4. The attendees from DSI's side included Regional Deputy Manager, Project and Civil Department Manager, Operation and Maintenance Department Manager, DSI General Directorate Property and Expropriation Head of Department, Survey and Assessment Department Manager and Topographical Engineer, while Atabey WUA Chief and Manager have attended from WUAs side. DSI together with WUA's presentation included information on the project in general as well as its advantages for the farmers, technical details of the project, financial sources and land acquisition and consolidation studies. It was also pointed out that all the works will be implemented in environmental friendly means. The attendees asked technical details on the land consolidation practices as well as their requests on acceleration of the consolidation activities.



Photograph 3. Atabey DSİ Presentation



Photograph 4. Atabey Consultation Meeting

Annex-1: Draft ESMP Contents, Mitigation and Monitoring Plans

An Environmental and Social Management Plan (ESMP) consists of the set of mitigation, monitoring, and institutional measures to be taken during the implementation and operation of the Project to prevent adverse environmental and social impacts or reduce them to acceptable levels. The ESMP submitted to the Bank are to be prepared in English. ESMP may be attached as a separate plan (i.e. for low-risk Category B projects) or as a part of ESIA/Partial ESIA depending on the nature and scale of the project's impacts and risks.

(a) Responsible Party: The authors who prepared the ESMP along with the date of preparation.

(b) Project Description: Present a brief description of the project and its associated activities (i.e. material sources like quarries, high voltage transmission lines, campsites etc.). Include the nature of the investment, the location, and any characteristics of the area that are of particular interest (e.g. near a protected area, area of cultural or historical interest). Also, include a brief description of the socio-economic conditions in the area. One or more simple maps showing project location and relevant neighboring features should be included unless there is compelling reason not to.

(c) Area of Influence: Present a brief description of the project area include associated facilities or activities that required for planning construction and operation of the project. Area of influence also covers impact zones of project and associated activities.

(d) Potential Impacts: Identify potential impacts of project and associated activities during planning, construction and operation phase. One approach to accomplishing the potential impacts is to first identify environmental components (e.g., air, water) that may be affected by project and associated activities (e.g., land clearing, waste disposal, wastewater discharge etc.). After identification of environmental component, impact route and impact levels should be assessed in reference to national laws, regulations and standards as well as best practices.

(e) Mitigation Plan: This should include a description of the steps to be taken to mitigate the major potential impacts on land, water, air and other media during the planning, design, construction and operation phases and specify cost estimates and institutional responsibilities. Particular attention should be paid to the specification of emission limits (e.g. for wastewater discharge) and design standards (e.g. for solid waste disposal sites) and how these compare to Turkish laws (which at a minimum must be met) and any other relevant guidelines such as those in directives of the European Union or limits suggested by the World Bank Pollution Prevention and Abatement Handbook (1998) or other relevant international norms. A Sample form for Mitigation Plan is provided in this Annex.

(f) Monitoring Plan: This should include a description of the key parameters to be monitored (including monitoring locations, schedules and responsible entities) to ensure that the construction and operation of the project is in conformance with Turkish law and other relevant norms and standards. If such details are covered by permits or construction or monitoring contracts these can be referenced as attachments. A Sample form for Mitigation Plan is provided in this Annex.

(g) Institutional Arrangements: There should be a narrative discussion briefly presenting how the monitoring data is going to be used for sound environmental performance - who collects the data, who analyses it, who prepares reports, who are the reports sent to and how often, what is done by the responsible authorities after they receive the information; and how is non-compliance with the ESMP treated.

(e) Consultations with Affected Groups and Non-governmental Organizations: The following should be included:

- Date(s) of consultation(s);
- Location of consultation(s);

- Details on attendees (as appropriate)
- Meeting Program/Schedule: What is to be presented and by whom;
- Summary Meeting Minutes (e.g. Comments, Questions and Response by Presenters)
- Agreed actions.

Framework for Environmental and Social Management Plan (ESMP)

General

The Contractor and his employees shall adhere to the mitigation measures set down in these specifications to prevent harm and nuisances on local communities, and to minimize the impacts in construction and operation on the environment.

Remedial actions that cannot be effectively carried out during construction should be carried out on completion of the works (and before issuance of the acceptance of completion of works):

- ✓ All affected areas should be landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;
- ✓ Water courses should be cleared of debris and drains and culverts checked for clear flow paths;
- ✓ All sites should be cleaned of debris and all excess materials properly disposed; and
- ✓ Borrow pits should be restored

Construction Activities and Environmental Rules

The following information is intended solely as broad guidance to be used in conjunction with local and national regulations. Before initiation of construction activities, the Contractor shall present the Project Engineer with a Construction Plan that explicitly states how contractor plans to abide by these specifications. After approval of such Plan by the Project Engineer, construction activities can proceed.

Prohibitions

The following activities are prohibited on or near the project site:

- Cutting of trees for any reason outside the approved construction area;
- Hunting, fishing, wildlife capture, or plant collection;
- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.;
- Disturbance to anything with architectural or historical value;
- Building of fires;
- Use of firearms (except authorized security guards);
- Use of alcohol by workers.

Environmental and Social Supervision during Construction

The Project Engineer will supervise compliance with these environmental and social specifications and report to the DSI in writing at least on quarterly basis. Major non-compliance by the Contractor will be cause for suspension of works and other penalties until the non-compliance has been resolved to the satisfaction of the Project Engineer. Contractors are also required to comply with national and municipal regulations governing the environment, labor and community health and safety, security.

A. Mitigation Plan

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
Pre-Construction:				
Workforce and Camps	<ul style="list-style-type: none"> • Siting and operation of work camps should be undertaken in consultation with local authorities and communities. • To the extent possible, work camps should not be located in close proximity to local communities. This will reduce conflicts between workers and local communities. • When preparing the campsites, the vegetated soil layer (approximately 30 cm) will be scraped and stored in a suitable area. After the completion of construction work, this vegetated soil layer will be used for restoring the campsite. • In order to prevent potential conflicts between the local people and project employees, consultation must be maintained with the local people and complaints from people must be taken into consideration. • The workforce to be employed under the project must be trained about the sensitivities of local people and a policy of “work ethics and moral values” must be prepared and attached to the contracts of employees. • The interference of the workforce with the communities must be limited to the extent possible to avoid crime and violence between the workforce and the communities. The “work ethics and moral values” policy will also include provisions regarding workplace behavior to avoid any violence among workers. • Recruit unskilled or semi-skilled workers from local communities to the extent possible. • Provide adequate lavatory facilities (e.g. toilets and washing areas) should be provided for the number of people to work in the work site. • The wastewaters to originate from the camp sites must be discharged to receiving bodies in accordance with discharge standards pursuant to the local legislation and the WB Safeguards Policies or must be disposed using other methods in compliance with the legislation. • Campsite must have necessary infrastructural arrangements such as electricity, water, sewerage, communication network as well as proper accommodation facilities (dormitory, canteen) for the workers that will accommodate on site. • Campsites must have the areas and equipment (waste bins, containers, etc.) required for recovery, temporary storage and disposal of solid wastes in accordance with the related local legislation. • Waste disposal through incineration shall be avoided in the campsites. • When selecting the areas to store fuel, hazardous chemicals, hazardous wastes, etc., sensitive receiving bodies such as surface waters will be taken into account and sufficient distance shall be maintained from these areas (e.g. 	Included in design, no additional cost.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
	<p>50 meters to surface waters).</p> <ul style="list-style-type: none"> If fuel filling and vehicle maintenance works will be carried out in the campsites, these areas shall be prepared in compliance with regulations, and their grounds shall be made impermeable to prevent soil pollution (through concrete coating, etc.). Fuel filling areas will be equipped with oil and chemical absorbing equipment, etc. to prevent contamination through accidental spills. Fuel tanks will be placed in fully-impermeable pools in compliance with the regulation. The workers staying in the campsite will be provided with domestic water compliant with the related regulations and standards. the drinking and domestic waters supplied to the camp sites will be regularly analyzed (weekly or monthly). 			
Temporary storage areas, excavation material disposal areas, and other areas.	<ul style="list-style-type: none"> The existing open channel materials to be removed from the site under irrigation modernization and their demolition materials, will be removed from site, stored and disposed of in accordance with the Regulation on the Control of Excavation Material, Construction and Demolition Wastes (OG no. 25406 dated 18 March 2004). In case temporary excavation materials are generated, they will be stored in areas permitted by the related authority, in compliance with the Regulation on the Control of Excavation Material, Construction and Demolition Wastes (OG no. 25406 dated 18 March 2004). The topsoil layer of temporary storage areas and excavation material disposal areas will be stripped and conserved for use in restoring these areas. The soil remaining in areas that cannot be restored (e.g. excavation and demolition materials storage areas) may be sent to areas needing it in coordination with the related Agriculture Directorates. Where the project requires a crushing, sifting and/or concrete plant, required permits will be obtained for these units within the framework of the EIA Regulation. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
Fuel filling and vehicle maintenance	<ul style="list-style-type: none"> As a general principle of the project, fuel filling or vehicle maintenance processes will not be carried out in the construction site. Fuel filling or vehicle maintenance processes will be carried out at special areas or facilities designated for these purposes outside the site. However, in case heavy work machinery is used (e.g. crawler excavators and loaders) it may not be possible to carry out the fuel filling and maintenance processors for these vehicles outside the site. In such cases, the area where such processes will be carried out shall be equipped with all equipment and instruments required for response to a potential spill. (oil pans, oil and chemical absorbents, etc.). The Contractor shall be obliged to prepare all procedures, and provide trainings required to carry out these processes in compliance with environmental, labor, health and safety standards and regulations. Emergency response procedures shall be applied in case of any spillage, and 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
	such incidents shall be reported to the site supervisor.			
Land consolidation and land take.	<ul style="list-style-type: none"> Private properties and agricultural lands will be avoided to the extent possible. Public lands will be utilized where additional land is required. Land consolidation will be made use of in places where applicable. Where expropriation is inevitable, site specific Land Acquisition Plans will be prepared and implemented in accordance with the LAPF. Land consolidation carried out by DSI will be implemented according to OP 4.12 and any cases requiring mitigation measures will refer to Entitlement Matrix in LAPF or to the site specific LAP (in any) 	<p>Included in the planning cost.</p> <p>No additional cost.</p>	DSI	
Public Participation and Access to Information	<ul style="list-style-type: none"> ESMP and LAP will be disclosed to the public so that people can easily access and comment on it. The information on the Grievance Redress Mechanism will be introduced to the people. Consultation meetings will be organized with local people including vulnerable groups and other relevant stakeholders about project components and project activities. Special arrangements will be made for the inclusion of women farmers/ water users. People will be informed about traffic arrangements, construction activities etc. Announcements, disclosure of documents will be made in public places accessible to women and other possible vulnerable groups. 	No additional cost. Cost included in contract price.	<p>Contractor</p> <p>Supervision responsibility with DSI site staff.</p>	Tender and contract documents
Construction Stage				
Waste Management and Hazardous Wastes	<ul style="list-style-type: none"> Measures will be taken to ensure minimum waste generation. Wastes will be classified in accordance with the applicable regulations (recyclable, hazardous, inert, non-hazardous, etc.) and it will be ensured that wastes are collected, temporarily stored, transferred and disposed of within the framework of this system. As necessary, a temporary waste storage area will be designed and constructed in a specifically designated area in order to ensure that hazardous wastes are appropriately stored in the construction site. Records will be kept about the waste generation, storage and disposal. It will be ensured that wastes are disposed of in licensed facilities. Employees will be trained about waste management practices. 	No additional cost. Cost included in contract price.	<p>Contractor</p> <p>Supervision responsibility with DSI site staff.</p>	Tender and contract documents
Construction and excavation wastes	<ul style="list-style-type: none"> TIMP involves the replacement of existing open channels with pressurized closed channel system. In this scope, the wastes from existing system will be disposed of in accordance with Regulation on the Control of Excavation Material, Construction and Demolition Wastes OG no. 25406 dated 18 March 2004). In cases where permanent excavation material storage is necessary, the excavation materials will be stored in areas allowed by the related authority, without harming the local people, flora and fauna, in accordance with 	No additional cost. Cost included in contract price.	<p>Contractor</p> <p>Supervision responsibility with DSI site staff.</p>	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
	<p>Regulation on the Control of Excavation Material, Construction and Demolition Wastes (OG no. 25406 dated 18 March 2004)</p> <ul style="list-style-type: none"> Erosion control measures will be taken for areas where excavation materials and construction wastes are stored. Necessary measures will be taken to prevent silt flow and similar impacts on from the storage areas to surface waters. 			
Excavation works	<ul style="list-style-type: none"> Excavation works will be carried out only within the related area, and any damage on neighboring areas by excavation works will be avoided. Excavated earth and topsoil will be stored separately and their mixture with each other will be prevented. Excavated earth may need to be temporarily stored along the canal route for use in refill process later on. In this case, the contractor shall ensure that sufficient area is left along the construction route and make an arrangement for storage of excavated earth and topsoil. The area will be restored later, and the topsoil will be used for this purpose. Excess excavation material (including rocks and stones extracted during the excavation) will not be left on site after completion of construction works. All excavation works will be carried out in a controlled manner during rainy seasons. The channels involving underground pipes will be closed soon after the completion of works and approval of the related supervision engineer, and they will not be left open to environmental impacts for a long time. The channels excavated for placement of pipes will be protected from surface water that may come from the vicinity. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
Noise	<ul style="list-style-type: none"> Construction activities will be carried out between 07:00 and 19:00 hours to the extent possible. Required permits will be obtained and the local authorities and people will be informed beforehand if any work is necessary beyond these hours. Residents in close settlements will be informed throughout the construction process. Threshold values will be observed for continuous construction site noise (daytime - 70 dBA) (Regulation on the Evaluation and Management of Ambient Noise). In order to ensure this, work machinery will be periodically maintained and lubricated, and parts that may cause excessive noise will be replaced. Fixed construction machinery will be placed away from sensitive recipients such as schools, hospitals and residences. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents Weekly and monthly reports within the framework of monitoring schedule
Air Quality	<ul style="list-style-type: none"> The emission threshold for dust and particulate matters, which is 3 mg/Nm³ (Regulation on the Control of Air Pollution from Industrial Sources), will not be exceeded. For this purpose; <ul style="list-style-type: none"> Watering will be done during dry seasons. Filling and emptying processes will be done without scattering. Water sprinkling will be applied in order to prevent dust formation during the 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
	<p>process. Furthermore, workers will be warned to be careful during the filling and emptying processes. The direction and speed of wind will be taken into account when loading and unloading materials.</p> <ul style="list-style-type: none"> ○ The top of trucks will be covered and a speed limit will be applied (in order not to threaten the safety of local people and prevent dust formation). ○ All the vehicles to be used must have exhaust emission permits 			Weekly and monthly reports within the framework of monitoring schedule
Surface waters	<ul style="list-style-type: none"> • All surface water resources within the project area will be protected from project-sourced wastes and activities and pollutants such as excavation materials to be temporarily or permanently stored. • Surface water resources will not be used for cleaning of vehicles to be used for construction works. • In case the channels excavated for pressurized pipes are filled with surface water, ground water or rainwater, the potential muddy water to be discharged from these channels will not be discharged directly to receiving bodies. • The wastewaters to be generated from the toilets and bathrooms in the construction site will be discharged after being treated in accordance with the applicable regulations. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents Weekly and monthly reports within the framework of monitoring schedule
Traffic	<ul style="list-style-type: none"> • Warning plates will be placed along the excavation route to ensure safety of people, especially children and vulnerable groups and entrance to the construction site will be blocked using plastic stripes, barriers and luminous warning lights. • Necessary measures will be taken through the related authorities in order to ensure a safe flow of traffic. • Local people will be informed about the construction program and the movement of heavy vehicles. Public sensitivities with respect to construction schedule will be taken into consideration. • In case of any interruption or cessation of work during the construction stage, the trenches must not be left open and necessary measures must be taken. • In order to prevent any interruption in the flow of traffic on roads used by local people, during the construction activities, an alternative road route will be determined. • The roads to be used will avoid passing nearby sensitive recipients such as schools and residences, to the extent possible. • The project area and environs will be equipped with safety and traffic warning signs. • Speed limit rules will be complied with. • The vehicle drivers and work machine operators to be employed during the construction will be trained about safe driving techniques. • Existing roads will not be damaged during the transportation activities. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
	<ul style="list-style-type: none"> In case these structures are damaged anyhow, the cost of damage will be covered by the contractor. 			
Labor and community health and safety	<ul style="list-style-type: none"> The employees will be provided with all types of protective equipment (helmet, safety belt, labor health costume, eyeglasses, gloves, safety boot, etc.). The employees will be trained about labor health and safety. All the employees will be informed about the safety rules, risks and applicable regulations required to be complied with during the construction activities. If channels deeper than 1.5 m. have to be excavated when laying the pressurized pipes, indoor area working procedures shall be applied. The Contractor will take required measures pursuant to the applicable regulations to protect and enhance labor health and regulate working standards in particular. The Contractor will comply with the principles of fair treatment, non-discrimination and apply equal standards for all employees. Public will be informed in a timely manner on construction schedule as well as construction activities. The contractor will ensure that access to land is provided by leaving passages through certain intervals. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
Cultural Heritage	<ul style="list-style-type: none"> Chance-find procedure will be created. In case of a chance-find, all activities that may damage the archaeological find will be stopped and the related Museum Directorate will be contacted immediately. If deemed necessary by museum officials, assistance will be provided to the formation of a research team under the Museum Archaeologist and mitigation measures required by the research team will be implemented. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
	<ul style="list-style-type: none"> 			
Land consolidation and land take.	<ul style="list-style-type: none"> Any loss of assets, or livelihood will be compensated through site specific LAPs Consultations with all stakeholders including vulnerable groups will be realized in line with SEP to inform about the land consolidation/acquisition process 	Included in the planning cost. No additional cost.	DSI Contractor	
Infrastructure	<ul style="list-style-type: none"> Damages to existing infrastructure and superstructure (telecommunication lines, bridges, high-voltage lines, etc.) will be avoided to the extent possible. Any damages will be compensated in line with LAPs. 	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

Impact/Issue	Mitigation Measure	Cost (TL)	Institutional Responsibility	Comments
Labor	<ul style="list-style-type: none"> civil work contracts will oblige the contractor to follow the national legal framework and ban the worst forms of child labor. 	No additional cost.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
Post-Construction				
Temporary storage areas and camp sites	Temporary storage areas and campsites will be restored before operation, and no excess excavation materials, construction materials and debris must be left in the site. All temporary sites (with lease or rental agreement or with easement) that will be handed back to the owner will be reinstated to its original state before delivery.	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents
Borrow pits	Make sure that all related permits have been obtained for the borrow pits to be used for construction activities.	No additional cost. Cost included in contract price.	Contractor Supervision responsibility with DSI site staff.	Tender and contract documents

B. Monitoring Plan

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
Construction Stage									
Dust-particulate matter (dust to originate from the movement)	Dust to originate from the movement	Construction Area, campsite, settlements closest to the	Visual observations Interviews in nearby settlements	Weekly / instantaneous measurements during	Regulation on the Control of Air Pollution from Industrial	No additional cost	Contractor / DSI	Beginning of construction work	Completion of construction work

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
and exhaust gas of construction machinery)	and exhaust gas of earth-moving and construction machinery (mg/Nm ³) Complaints from public	permanent and temporary storage areas	Instantaneous measurements	excavation / intensive construction times Upon complaint / in accordance with the Regulation	Sources, Regulation on the Evaluation and Management of Air Quality WBG's General Environment, Health and Safety Manual	(within project budget)			
Noise	Complaints from public Noise level (dBA)	Construction Area, campsite, settlements closest to the permanent and temporary storage areas	Interviews in nearby settlements Level of noise to be measured by Noise meter (noise level meter)	Weekly / instantaneous measurements during excavation / intensive construction times Upon complaint / in accordance with the Regulation	Regulation on the Evaluation and Management of Ambient Noise WBG's General Environment, Health and Safety Manual	No additional cost (within project budget)	Contractor / DSI	Beginning of construction work	Completion of construction work
Wastewaters originating from campsites	Connection to sewerage system COD, BOD, pH, SSM, E-coli, Total Coliform at the outlet of WWTP, if any,	Point of connection to sewerage network Septic tank areas	Connection Permit Transportation and disposal records	N/A As mentioned in the discharge permit	Water Pollution Control Regulation WBG's General Environment, Health and Safety Manual	No additional cost (within project budget)	Contractor / DSI	Beginning of construction work	Completion of construction work

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
	If septic tank is in use, collection time and the treatment plant where it is finally disposed								
Surface waters	COD, BOD, pH, SSM, E-coli, Total Coliform, depending on the discharge to the receiving bodies, if wastewater treatment plant is established Turbidity due to the discharge of water accumulated in trenches due to rainfall and ground waters, to the receiving body	Receiving body, before and after discharge Receiving body, before and after discharge	Discharge permit Visually, or using measurement device upon site upon complaint	At times mentioned in the discharge permit Instantaneous Upon complaint	Water Pollution Control Regulation WBG's General Environment, Health and Safety Manual	No additional cost (within project budget)	Contractor / DSI	Beginning of construction work	Completion of construction work
Excavation, solid and hazardous wastes	Permit certificate for excavation waste storage	Construction Area, Campsite, permanent and	Visually	Weekly and monthly	Waste Management Regulation, Regulation on	Not high, although subject to the	Contractor / DSI	Beginning of construction work	Completion of construction work

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
originating from the construction sites	<p>areas and temporary storage areas</p> <p>Excavation material and waste storage areas</p> <p>Certificates of transportation to acceptance to disposal facilities</p>	temporary storage areas			<p>Control of Soil Pollution and Areas Contaminated by Point Sources, Regulation on the Control of Excavation Material, Construction and Demolition Wastes and Regulation on Control of Waste Oils</p> <p>WBG's General Environment, Health and Safety Manual</p>	<p>availability of a municipal and / or licensed recovery plant.</p> <p>Not high, although subject to the availability of a licensed recovery plant.</p>			
Wastes to originate from the vehicle park	Wastes oils, batteries, used tires and scrap vehicle materials	Vehicle park	Review and control of vehicle examination certificates	In case of breakdown / during periodic maintenance	<p>Regulations on Control of Waste Oils, Control of Waste Batteries and Accumulators, and Control of Used Tires</p> <p>WBG's General Environment, Health and Safety Manual</p>	Not high, although subject to the availability of a licensed recovery plant	Contractor	Beginning of construction work	Completion of construction work
Health and	Documentation about the	Construction	Visually	At the beginning of each work	Labor Health and	No additional	Contractor /	Beginning of construction	Completion of construction

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
safety	health and safety training Certificates of participation in training Safety equipment used by the workers in the construction site (helmet, gloves, shoes, safety belt, etc.)	Site, Campsite, permanent and temporary storage areas		stage Daily	Safety Regulation WBG's General Environment, Health and Safety Manual	cost (within project budget)	DSI	work	work
Public and Traffic Safety	Plastic stripes, barriers, warning plates Traffic flow / intensity Information of individuals and business owners living along the road route about the construction program	Construction Site, Campsite, permanent and temporary storage areas	Visually	Throughout construction stage	WBG's General Environment, Health and Safety Manual	No additional cost (within project budget)	Contractor / DSI	Beginning of construction work	Completion of construction work
Cultural and historical	New cultural assets that may	Construction site, campsite,	Visually	When a cultural asset is	Compliance with Cultural	Not high unless a	Museum Directorate /	Beginning of construction	Completion of construction

Subject	What are the parameters to be monitored?	Where will the parameters be monitored?	How will the parameters be monitored / what are the monitoring instruments?	When will the parameters be monitored? Measurement frequency / continuous measurement?	Why will the parameters be monitored?	Cost	Responsible institution*	Start date	End date
assets	be found in the project area	permanent and temporary storage areas		encountered, it will be monitored by Cultural and Natural Wealth Conservation officials	and Natural Wealth Conservation Law	cultural asset is damaged	Regional Protection Board DSI	work	work
Land consolidation and land take	Information on individuals subject to land consolidation or land acquisition	Construction site Lands used permanently or temporarily within construction site	Site specific LAPs Site visits Interviews with project affected people Regular reports from site on LC and land acquisition	Land acquisition and land consolidation will be monitored on a daily basis by local DSI officials throughout their process Quarterly reporting will be realized for WB	Compliance with Bank's OP 4.12	Costs will be included in project budget	DSI	Prior to construction	Before construction begins
Post-Construction									
Restoration and rehabilitation of degraded areas	Restoration, construction wastes left on site, excavation materials, solid wastes and other unused materials and wastes	Construction site, campsite, permanent and temporary storage areas	Visually	After completion of construction works	Waste Management Regulation, Regulation on Control of Soil Pollution and Areas Contaminated by Point Sources	No additional cost (within project budget)	Contractor / DSI	Completion of construction work	Provisional acceptance

Annex-2: Grievance Form/ Grievance Closeout Form

GRIEVANCE FORM			
Name of Person receiving grievance:			Date:
Title:			
INFORMATION ABOUT COMPLAINANT		Ways of Receiving Grievance	
Name – Surname		Phone	<input type="checkbox"/>
Phone number		Meetings	<input type="checkbox"/>
Address		Application to Office	<input type="checkbox"/>
Village		Mail/email	<input type="checkbox"/>
Signature of Complainant (if possible)		Field visit	<input type="checkbox"/>
		Other:	<input type="checkbox"/>
DETAILS OF GRIEVANCE			

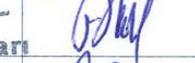
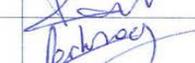
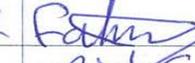
GRIEVANCE CLOSEOUT FORM		
ASSESSMENT OF THE GRIEVANCE	Expropriation	<input type="checkbox"/>
	Damages to households or livelihoods	<input type="checkbox"/>
	Environmental and social	<input type="checkbox"/>
	Employment	<input type="checkbox"/>
	Other	<input type="checkbox"/>
Compensation Required:	<input type="checkbox"/> YES	<input type="checkbox"/> NO
RESULT		
CLOSEOUT		
<p><i>This part will be filled in and signed by the complainant and the complaint evaluation committee when the compensation or file is closed-out. (Instead of taking the signature of the complainant, bank receipt or other documents can be attached with the form)</i></p>		
Responsible Person	Complainant	
Name-Surname	Name-Surname	
Date and Signature	Date and Signature (If possible)	

Annex-3: Attendee List of Senirkent Isparta Meeting

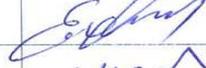
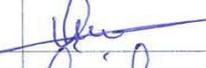
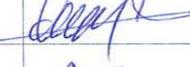
ADI SOYADI	KATILIM YERİ	İMZA
Refaik Gürbül	Yassiören	[Signature]
Erkan Gembir	Yassiören	[Signature]
Ali ATASOY Yassiören Köyü Muhtarı	Yassiören	[Signature]
Mutlaka İNAL	Akkaya	[Signature]
Okaz GEMEBASI	Yassiören	[Signature]
Öztürk TURAN Ortayazı Köyü Muhtarı		[Signature]
Faruk VOLKAN	Ankara	[Signature]
Ayhan Yıldız	Ziraat Bankası	[Signature]
Jeli Hilmet ARSLAN	OTM Mudurluğu	[Signature]
Nuri YALÇIN	Ziraat Odası	[Signature]
Kadio Heybeli	AK parti ilçe başkanı	[Signature]
Abdullah Umurlu	AK parti ilçe başkanı	[Signature]
Bayram Abi	Gençlik	[Signature]
Süleyman Çiğit	Gençlik	[Signature]
İlkerent Çiğit	Gençlik	[Signature]
Fatem Karadağ	Uludağ	[Signature]
Erdoğan AY	Merkez	[Signature]
Durmuş BOZKURT	B. Kabaoca	[Signature]
Erdoğan Aytekin	B. Kabaoca	[Signature]
Mehmet Ali	Senirkent Medya Serbest Mühür	[Signature]
İsmail ÇİĞİT	Mali Müşavir	[Signature]
Şehinşah Çiğit	Karip Şişir Baskı	[Signature]
Zamirhan Özmen	B. Kabaoca	[Signature]
Ahmet HEYBELİ	Senirkent Mühür BİRLİK MECLİSİ ÜYESİ	[Signature]

ADI SOYADI	KATILIM YERİ	İMZA
Emine HEYBELİ	Senirkent	
Bekir İnal	Büyükkabaca	
Mehmet VURAL	Büyükkabaca	
ALİ İZDOĞAN	" "	
NURİ ARSLAN	" "	
Etem FİNDİK	Karip Köyü	
Velidin ÖLER	" "	
İsmail BOZDEMİR	" "	
Musa AKAN	" "	
Habib CAN	" "	
Yüksel Ataboy	Senirkent	
Hüseyin Eroğlu	" "	
Cemil TOLA	" "	
Muhittin Kutlu	" "	
Zekeriya Eroğlu	" "	
Bayram Altınbaş	Haspaçlı	
Bolat Uslu	" "	
Osman CANLI	Büyükkabaca	
Mehmet Turan	Ortaçayırı	
Mustafa Akbalı	Karip Köyü	
M. Ali Demiralay	Senirkent	
Peyzime Demiralay	Senirkent	
Ayhan Akpınar	Karip Köyü	
Ali Kemal Özcan	Senirkent	

ADI SOYADI	KATILIM YERİ	İMZA
Ali Güneş	Senirkent	
Sabriye Güneş	"	
Mustafa Çamrak	"	
Abdulhak Asifan		
Camil Çamrak		
Erdogan, Sardu		
Söleyman Denizday	Senirkent	
Söleymanbaymaz B. kabacı		
Ali SARKAYA	Ulugbey	
Neelen SARKAYA	"	
ARDA SARKAYA	"	
ARDA SARKAYA	"	
İsmail COŞKUN YASSIOREN		
Sihret COŞKUN	"	
Cihan ÇAN	Senirkent	
Ertuğrul Nöğay	"	
Hüseyin Erdoğan		
Melih YAKIN		
Zekeriya Köpken	Ulugbey	
İRFAN DEMİR	SENIRKENT	
MEHMET İREKLİ	MERKEZ SENIRKENT	
HASAN DEMIRELLİ	MERKEZ SENIRKENT	
Osman Demir	YassioREN	
Yaşar Karataş	YASSIOREN	

ADI SOYADI	KATILIM YERİ	İMZA
Hakan GÖZÜKÖKÜ	Senirkent	
Hamza Uraloğlu	Bilalova	
Recep İriş	Gençali	
Musa Başyigit	Gençali	
Gençali Köyü Muhtarı	Musa UYSAL Gençali Köyü Muhtarı	
Özer Arslan	Gençali	
Adem Ulucan	B. Kabaca	
Mustafa Coşkun	B. Kalem	
Uluy İsmail	Ortaçozu	
Rabia KALAY	Senirkent	
Ferhan Ay	Senirkent	
Hatice ^{Havuş} CİRCİ	Senirkent	
Emel Çeçen	Senirkent	
Ayfer Akarstan	Senirkent	
Fethiye Kalay	Senirkent	
Hakan Özhan	Senirkent	
Yıldız Erken	Senirkent	
Cahit Erken	Senirkent	
Filiz Simsek	Ortaçozu	
Mehmet Senses	Senirkent	
Getin Özdoğan	Senirkent	
Enpin KAYA	Senirkent	
Daniz KORKMAZ	Senirkent	
Remzi NOBAT	Senirkent	

ADI SOYADI	KATILIM YERİ	İMZA
Mehmet Güldal	Ortayan	
Ali İbrahim Özhan	Senirkent	
Ramazan Kuyucu	Yassıören	
Mustafa Akkele	Karip	
Mustafa Gimenkaya	Gariç	
Ali Şahinçin	Genelil	
Enver Özdemir	B. Kabaca	
Alihan Toprakman	Senirkent	
Mustafa Günel	B. Kabaca	
İ. Gökhan Yıldız	B. Kabaca	
Tuncay Özfır	B. Kabaca	
Hüseyin Şetimer	B. Kabaca	
Muhammed Bilgin	B. Kabaca	
Süleyman Karay	Senirkent	
Sabır Güldal	Ortayan	
Veli Çankı	Ortayan	
Ömer Moşumbil	Karip Köyü	
İsmet Temir	K. Kabaca	
Mehmet Kalkan	K. Kabaca	
Mustafa Dincer	YASSIÖREN	
Mehmet Şenel	YASSIÖREN	
H. Ali GÖBAN	YASSIÖREN	
Hüseyin Özmekeci	YASSIÖREN	
Veled Petek	Ortayan Köyü	
Kamil Şimşek	Ortayan Köyü	

ADI SOYADI	KATILIM YERİ	İMZA
İsmail CELEBİ	Karip	
Yusuf Senoz	B. Kobaca	
Muammer Turan	Ordugözü	
İsmail ÖRMECİ	Senirkent	
Halil Eren	Senirkent	
Soner Turan	Ulugbey	
Erkan Kaslan	Ulugbey	
Hesna ÇİREKLİ	SENIRKENT	
Halil Bedir	Karip	
Erdal AKINCA	Ulugbey	
M. Ceylan EBDÖN	Senirkent	
Mehmet Demirel	Ulugbey	
Recep Çir-it	Gencali	
Musa Başyigit	Gencali	
Musa Ural	"	
Özer Arslan	"	
Abdullah Ünlü	B. Kobaca	
Ayşe Ünlü	"	
İsmail Ünlü	"	
Ali Seluk	"	
Tarik Akan	Karip Köyü	
Halil CAN	"	
Önhan Usta	Yasencia	
Velu Korarslan	Senirkent	

T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
DSİ GENEL MÜDÜRLÜĞÜ / DSİ İŞLETME VE BAKIM DAİRESİ BAŞKANLIĞI
İRBÖLGE MÜDÜRLÜĞÜ / İŞLETME BAKIM ŞUBE MÜDÜRLÜĞÜ
ATABEY SULAMASI SULAMA BİRLİĞİ BAŞKANLIĞI
ATABEY SULAMASI YENİLEME PROJE TOPLANTISI KATILIMCI LİSTESİ

ADI SOYADI	MESLEĞİ	TELEFONU	KATILDIĞI BÖLGEKÖY	İMZA
Ayşenur Gökçe	Emekli		İstanbul	
Ramazan BAŞANAR	Emekli		İstanbul	
Ali İsmailoğlu	Çiftçi		İstanbul	
İbrahim Gökova	Emekli		İstanbul	
Mehmet Döğen	Çiftçi		İstanbul	
Hüseyin Affi Yağcı	Çiftçi		İstanbul	
Hakan Avcı	Emekli		İstanbul	
Sabri TAŞKIN	Emekli		İstanbul	
İhsan Akdede	Çiftçi		İstanbul	
Mustafa ÇIKMEN	Çiftçi		İstanbul	
Senal suat	Emekli		İstanbul	
Mustahattin KAYA	Emekli		İstanbul	
Mehmet Ayhan	Emekli		İstanbul	
Devlet DOĞAN	Çiftçi		İstanbul	
Orhan KOLCU	Çiftçi		İstanbul	
Halil Uğur	Personel		İstanbul	
Ayhan Aydınlı	Personel		İstanbul	
Mehmet Kılıçalan	Emekli		İstanbul	
İsmail Birci	Emekli		İstanbul	
Hüseyin Gökova	Emekli		İstanbul	
Ahmet GÖMÜŞTAŞ	Emekli		İstanbul	
Mevlüt DOĞAN	Emekli		İstanbul	
Ahmet Hüseyin Taş	Emekli		İstanbul	
Mehmet ÇESUR	Memur		İstanbul	
Sevinç Demir	Emekli		İstanbul	
Hayrettin SUGACI	Memur		İstanbul	
Sahra SUGACI	Emekli		İstanbul	
İrfan Çiner	Emekli		İstanbul	

T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
DSİ GENEL MÜDÜRLÜĞÜ / DSİ İŞLETME VE BAKIM DİREKSİYON BAŞKANLIĞI
İRBÖLGE MÜDÜRLÜĞÜ / İŞLETME BAKIM ŞUBE MÜDÜRLÜĞÜ
ATABEY SULAMASI SULAMA BİRLİĞİ BAŞKANLIĞI
ATABEY SULAMASI YENİLEME PROJE TOPLANTISI KATILIMCI LİSTESİ

ADI SOYADI	MESLEĞİ	TELEFONU	KATILDIĞI BÖLGE/KÖY	İMZA
Günçer GELİR	Emekli		İsparta/Merkez	
Salahaddin Şahin Emekli			262 Pambolu	
İbrahim GÖREK	"		47 İsparta	
FATMA GÖREK	"		"	
İsmail KUBU	"		Atabey	
İ. Yaşar SÖNMEZ	"		"	
Zahra Özcan	Kadın		"	
H. Y. İmre SPZİ	Emekli		Atabey	
Hüseyin Fıçıcı	"		"	
Yakup GÜNER	Emekli Aşçı		Atabey	
Mehmet BILDIRCIN	Emekli Öğretmen		K. Gürcelt	
Abdullah Kesim	Sulama Gözetmeni		B. Gürceli	
U. M. KAYAÜZ	Tuban Gürceli		B. Gürceli	
Rahmi ÖZTÜRK	Sulama Gözetmeni		B. Gürceli	
Sıtkı AKIN	Sulama Gözetmeni		B. Gürceli	
Kamil ÖZAYDIN	Gözetmen		B. Gürceli	
Adnan Kocaoglu	Sulama Gözetmeni		Kuleönü	
Doğru Hakan KULCİ	İşletme Gözetmeni		Kuleönü	
Mehmet ÖZDEMİR	Sulama Gözetmeni		Kuleönü	
İsmail SÖNMEZ	SULAMA		Kuleönü	
Ecir Tokdemir	Muhasebeci		Atabey	
Ali GEMİK	Emekli		İsparta	
Abdullah ÖZGENİ	Sulama		Kuleönü	
Aliyezi Çobanlar	"		"	
Ahmet Demirci	"		Kuleönü	
Hüseyin Tokdemir	Emekli		Atabey	
Mustafa Tokdemir	İşçi		İslanköy	
Recep Kutluhan	Emekli		İsparta/merkez	
Hüseyin Çiğdem	İşçi		27 Atabey	
Fatih Yalınkaya	İşçi		İslanköy	
Ali Keser	İşçi		İslanköy	
Ali Aksoy	İşçi		İslanköy	
Ziya Çiğdem	Emekli		Atabey	
Abdullah Çiğdem	İşçi		Pambukla	
Murat Çiğdem	İşçi		21 İslanköy	
Ali Çiğdem	İşçi		İslanköy	
Mehmet Akkaya	İşçi		İslanköy	
Ali Osman Sarı	İşçi		GONCA	

T.C.
ORMAN VE SU İŞLERİ BAKANLIĞI
DSİ GENEL MÜDÜRLÜĞÜ / DSİ İŞLETME VE BAKIM DAİRESİ BAŞKANLIĞI
İRBÖLGE MÜDÜRLÜĞÜ / İŞLETME BAKIM ŞUBE MÜDÜRLÜĞÜ
ATABEY SULAMA SÜLAMA BİRLİĞİ BAŞKANLIĞI
ATABEY SULAMA SÜLAMA PROJESİ TOPLANTI KATILIMCI LİSTESİ

ADI SOYADI	MESLEĞİ	TELEFONU	KATILDIĞI BÖLGE/KÖY	İMZA
Ali Erceloh Çiftçi			2 Serincebey	
Fıyap Kılıçaslan Çiftçi			216 Atabey	
Mehmet Aksoy Çiftçi			Sarıcağaç	
Ali F. L. Luşan Çiftçi			672 Atabey	
Mehmet Şekir Çiftçi			SEVİNÇBEY	
İbrahim Dilsiz			ATABEY	
Muska Doğan			Atabey	
İsmail Zengin Çiftçi			Serincebey	
Vahit İnanç			Büyükdere	
Ali AKGÜN Çiftçi			Atabey	
Abdül Telli			2 Hüseyin Güneşli	
Salman Erdoğan			İb. Eyder	
Hüseyin Özat				
Aziz Merwan			3. Büyük Güneşli	
Adnan				
A. H. Hüseyin Akın	Sulama		1 Kuleözü	
Mustafa Hindi	Sulama		Kuleözü	
İbrahim Özdemir	Sulama		Kuleözü	
Zekeriya Deniztaş	Sulama		Kuleözü	
Hacı Gökmen Çiftçi			Atabey	
İsmail Özbeke Çiftçi			Atabey	
Tahir NALLI			"	
Yüksel Çobanbey Çiftçi			"	
SALİH ÇELİK	Sulama		2 Kuleözü	
Rust Lale	Sulama		Atabey	
Yücel Aytaçlı Çiftçi			5 Kuleözü	
Kaan Bektaş	Emekli		Sarıcağaç	
Mehmet Çoban	Emekli		Baydüzü	

ANNEX 5 STAKEHOLDER ENGAGEMENT PLAN

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
1	Irrigation Modernization Projects (Design, implementation, investment program, etc.)	<p>To increase level of information by meetings regarding the Project (at WUA, and/or affected settlements</p> <p>Target stakeholder groups do not have sufficient technical knowledge about project design, features, tender process and project construction stages, expected outcomes. DSI will inform the target stakeholders regularly, through the modes of engagement as stated via Regional DSI Directorate Operation and Maintenance Department.</p> <p>DSI will liaise between the contractor and WUA for effective communication and implementation of the closed irrigation system project.</p>	WUA Association Bodies (President, etc.)	Informative Meetings	Once a year
			WUA members	Coordination Meetings	Once a year
			Non-WUA Members		Once a year
			Governorship	Brochures and Posters	Once a year
			District Governorships		Once a year
			Municipality	Sharing reports on Project	Once a year
			Provincial and District Directorates of Agriculture		Once a year
			Chamber of Agriculture	Press bulletins	Once a year
			HEPPS		Once a year
			Water User Association Organizations	DSI web site	Once a year
			Mukhtars		Once a year
			Company that carries out the closed irrigation system project works	Informative and coordination meeting	Once a year
			Agricultural workers		When needed
2	Capacity building (budgeting, reporting, training etc)	DSI is currently working on developing a standard database for WUAs. It is highly important that	WUA Association Bodies (President, etc.)	Meetings	Once a year
			WUA personnel		Within the contract

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
		<p>this database includes gender aspects and records women water users' data. This database will facilitate monitoring women water users (both member and non-member) of WUA. Trainings on database maintenance and reporting prior to irrigation season for WUA Management will be held.</p> <p>Informing related personnel on WUA legislation and improving knowledge level.</p> <p>Construction company should train the WUA technical personnel after the implementation of the project regarding the use of the system. The training will be given upon completion of construction to WUA management and WUA members/users. The training program will include both theory and practice. A classroom training will be given on how the system works with printed materials/brochures as user guides. A hands on training will be given at selected WUA sites; for actual demonstration of the system. WUA</p>	<p>Company that carries out the closed irrigation system project works.</p>	<p>Site visits</p> <p>Training booklets</p>	<p>(between DSI and company) period</p> <p>Within the contract (between DSI and company) period</p>

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
		Management will be provided by additional trainings on how to use more technical systems such as automated systems.			
3	Grievance Mechanism	Developing a Formal Grievance Mechanism and Recording System for WUAs and informing WUAs about it. The grievance mechanism channels should be available for all members and non-members for project related requests and concerns. Informing WUAs and members about smart phone application titled as Flood, Malfunction and Intervention Spatial Information System (TAMBIS) which directly contacts DSI responsible when the flood is recorded. The application should be introduced to water users and WUA personnel.	WUA Association Bodies (President, etc)	Meetings	Within the timeline of the Project Construction and operation periods
			WUA personnel	Brochures and	
			WUA members	Posters	
			Non-WUA Members	DSI Website	
			Water User Association Organizations	Reports	
			Mukhtars	Press bulletins	
			Company that carries out the closed irrigation system project works.	Grievance Forms	
4	Land Acquisition (Land Consolidation, expropriation)	Relevant stakeholders including PAPs impacted by land acquisition should be periodically informed about the land consolidation and expropriation works by	WUA Association Bodies (President etc.)	Informative Meetings	Once a year
			Project affected WUA members	Coordination Meetings	Once a year
			Project affected Non-WUA Members		Once a year
					Once a year

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
		DSI. The official grievances related to land consolidation is received by directorate responsible for implementation. The WUA and grievance holders should be informed on the progress of resolution of the grievances.	Provincial and District Directorates of Agriculture Mukhtars Company that will carry out land consolidation works	Legal documentations (Notices, new parcel plans, etc.) DSI web site	Once a year Once a year Quarterly (during land consolidation process)
5	Monitoring and Evaluation	WUA performance monitoring Monitoring of WUA number of members and non-members Grievance monitoring The project related grievances and stakeholder engagement should be monitored	WUA Association Bodies (President etc.) WUA members Non-WUA Members	Meetings Reports Site visits Performance indicators Monitoring and evaluation forms	Once a year Once a year Once a year
6	Financial and Technical Audit	Financial and technical auditing of WUA by DSI and the Ministry as well as by the Ministry of Finance (annually) and informing the Ministry about the audit results.	WUA Association Bodies (President etc.) Governorship District Governorships	Meetings Reports Site visits	Once a year Once a year Once a year
7	Irrigation tariff (determination of the water usage service fees)	Informing about tariffs	WUA Association Bodies (President etc.)	Meetings DSI Website	Once a year

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
8	Current and Planned Irrigation Sources	Informing the WUA about current and planned irrigation sources and water amounts	WUA Association Bodies (President etc.)	Meetings	Once a year
			Municipality	Reports	Once a year
			Provincial and District Directorates of Agriculture		Once a year
			HEPPs		Once a year
9	Suggested Crop Pattern	Informing about basin-based irrigated agricultural crop patterns If needed, Provincial and District Directorates of Agricultures conducting agricultural trainings for the stakeholders.	WUA Association Bodies (President etc.)	Meetings	If needed
			WUA members	Brochures and Posters	If needed
			Non-WUA Members		If needed
			Provincial and District Directorates of Agriculture		If needed
10	Irrigation Methods and Techniques (Spring system, drip irrigation etc)	Information about irrigation methods which will increase the productivity level depending on the crop pattern for irrigated agriculture. If needed, Provincial and District Directorates of Agricultures conducting agricultural trainings for the stakeholders.	WUA Association Bodies (President etc.)	Meetings	When needed
			WUA members	Brochures and Posters	When needed
			Non-WUA Members		When needed
			Provincial and District Directorates of Agriculture	DSI Website	When needed
			Chamber of Agriculture	Site visits	When needed
			Mukhtars		When needed
11	Female Water Users	To increase information level with meetings regarding the Project DSI will organize information sharing meetings and tailored trainings to women on new irrigation system, alternative cultivation methods and capacity building for participation	Female WUA board members	Informative Meetings	Once a year
			Female WUA Council members	Brochures and Posters	When needed
			Female WUA members	DSI Website	when needed

No	Topic of Engagement	Details of Engagement	Target Stakeholders	Mean/Method of Engagement	Frequency (recommended)
		in WUA management; prior to irrigation season in a gender sensitive approach (women trainers need to be selected, location of training need to be suitable for women's needs; timing of training has to be outside agriculture season when women are not working in the fields)	Female non-WUA members water users	Site visits Monitoring and evaluation Reports Grievance Forms	Once a year Once a year Once a year Construction and operation periods